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CALIFORNIA STATE BOARD OF OPTOMETRY

MEMBERS OF THE COMMITTEE
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PRACTICE AND EDUCATION COMMITTEE TELECONFERENCE MEETING AGENDA

April 15, 2016
9:00 AM – 12:00 AM
(or until conclusion of business)

California State Board of Optometry
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

and Teleconference at these locations:

Van Nuys State Building **Fourth Floor, Room 410** **6150 Van Nuys Blvd.** **Van Nuys, CA 91411**	**Moraga Country Club** **1600 St Andrews Drive** **Moraga, Ca 94556**	**Las Lomas** **Community Park** **Multipurpose Room** **10 Federation Way** **Irvine, CA 92603**

ORDER OF ITEMS SUBJECT TO CHANGE

1. Call to Order/Roll Call

2. Public Comment for Items Not on the Agenda
   Note: The committee may not discuss or take action on any matter raised during this public comment section, except to decide whether to place the matter on the agenda of a future meeting [Government Code §11125, §11125.7(a)].

3. Discussion and Possible Action on Continuing Education Course Approval Requests Pursuant to California Code of Regulations § 1536.
   A. OCT Interpretations vs VF & IOP with Clinical Case Reviews in the diagnosis & therapeutic management of glaucoma patients; Cataract case reviews and post-operative care & therapeutic management of complications
   B. Fitting Corneal-Scleral CLs - Future of GPs
   C. 1. Cataract Updates - Dropless & Instant
      2. Updates and Trends in CLs
      3. Surgical Comanagement
      4. Technology Pipeline & Updates
   D. 1. Glaucoma Grand Rounds;
      2. Top Ten Oral Agents;
      3. Glaucoma Watch: Rapid Fire Topics in Glaucoma
   E. 1. Soft-sphere + toric lenses; RGP: sphere + bitoric lenses; Contact Lens Solution; Keratoconus and post PKP lenses
      2. Dry eye management (including Restasis); Refractive surgery I (basic principles of PRK, LASIK, PTK); Refractive surgery II (Management of complications); Psychology of patient management (surgical and non-surgical) Corneal Topography (Principle / update / case management)
      3. Corneal infection versus corneal inflammation (antibiotic vs. steroid); Ocular disease

case management; Glaucoma case management / update (ID#9168); OCT in glaucoma management (principles and case management); Glaucoma surgery observation / management (ID#9169); Fluorescein Angiography observation / management

F. Clinical Trials-How the work and the real benefits to your patients and practice; Amniotic Membranes - not just for babies; A practical approach to ocular surface disease and making a multifocal IOL patient happy; Neurophthalmology on a busy clinic day - the swollen disc
G. LASIK Grand Rounds
H. Cataract Surgery - Z8 Laser
I. 1. Update on Age Related Macular Degeneration
   2. Glaucoma: Practical Tips
J. Corneal Astigmatism Correction During Cataract Surgery
K. Cataract Surgery and Treatment of Dry Eye
L. Controversies in Modern Eye Care
M. Modern Oculoplastics Techniques; Finesse and Artistry
N. Improving Cataract Surgery Outcomes in a Diverse Patient Population and More; Cataract Surgery Update for 2016; Update in MIGS; Post-operative Cystoid Macular Edema; Corneal Ulcers; Contraindications for Premium Lenses in Cataract Surgery
O. 1. Multifocal, Monovision Contacts
   2. Patient Care
   3. Current Status of Anti-VegF Therapy; Implantable Telescope
   4. Glaucoma Management 2016, When to Treat, How to Follow
   5. Bilateral Same Day Cataract Surgery
P. 1. Episcleritis, Scleritis, and Iritis
   2. Ethical Concerns w/Short-term Mission Trips
   3. Visual Fields
   4. Systemic Urgencies and Emergencies
   5. Vitreo-Retinal Disorders
   6. The Pharmacological Management of Glaucoma
   7. Neuro-Optometry
   8. Myasthenia Gravis: Ptosis Crutch
   9. Age-Related Macular Degeneration
   10. Diabetic Retinopathy
   11. Mental Barriers in Visual Rehabilitation
Q. Conjunctivitis
R. 1. KAMRA corneal inlay for the management of Presbyopia
   2. LASIK Myth Busters
   3. Hyperopia
   4. Diabetic Retinopathy
S. 1. Updates from the American Academy of Ophthalmology
   2. Dry Eye - What We Didn't Know
T. Integrated Platform for Cataract Surgery & LASIK; Complications in the Anophthalmic Socket; Normal Tension Glaucoma; Uveitis & Systemic Disease
U. Oculoplastics / Orbit Eyelid lesions: evaluation and treatment of benign and malignant tumors; Anterior Segment/Cataract - Cataract Surgery with Flomax: Floppy Iris Syndrome; Glaucoma Update Ocular Hypertension
V. 1. Peripheral Retinal Lesions
   2. Hyperopia
W. Turner Eye Institute
X. Advantages of the Latest Technology, Lens Surgery, and Managing Astigmatism in Cataract Surgery; Patient Selection for KAMRA Inlay
Y. Third World Ocular Disease
Z. 1. Vitreoretinal Diseases
   2. Common Postop Complications

AA. 1. Topographically-Guided Laser Treatment: Technique, Indications, & How to Counsel Patients

2. Corneal Inlays for Presbyopia - Indications, Complications, & Guidance for Patients

4. Adjournment

The mission of the California State Board of Optometry is to protect the health and safety of California consumers through licensing, education, and regulation of the practice of Optometry.

Meetings of the California State Board of Optometry and its committees are open to the public except when specifically noticed otherwise in accordance with the Open Meeting Act. Public comments will be taken on agenda items at the time the specific item is raised. Time limitations will be determined by the Chairperson. The Committee may take action on any item listed on the agenda, unless listed as informational only. Agenda items may be taken out of order to accommodate speakers and to maintain a quorum.

NOTICE: The meeting is accessible to the physically disabled. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting Lydia Bracco at (916) 575-7170 or sending a written request to that person at the California State Board of Optometry, 2450 Del Paso Road, Suite 105, Sacramento, CA 95834. Providing your request at least five (5) business days before the meeting will help ensure availability of the requested accommodation.

CALIFORNIA STATE BOARD OF OPTOMETRY

Memo

2450 Del Paso Road, Suite 105
Sacramento, CA 95834
(916) 575-7170, (916) 575-7292 Fax
www.optometry.ca.gov

To: Practice and Education Committee Members **Date:** April 15, 2016

From: Madhu Chawla, OD
Committee Chair **Telephone:** (916) 575-7170

Subject: **Agenda Item 1 – Call to Order and Roll Call**

Dr. Madhu Chawla, O.D., Committee Chair, will call the meeting to order and call roll.

CALIFORNIA STATE BOARD OF OPTOMETRY

Memo

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www.optometry.ca.gov

To: Practice and Education Committee Members **Date:** April 15, 2016

From: Madhu Chawla, OD
Committee Chair **Telephone:** (916) 575-7170

Subject: **Agenda Item 2 – Public Comment for Items Not on the Agenda**

The committee may not discuss or take action on any matter raised during this public comment section, except to decide whether to place the matter on the agenda of a future meeting [Government Code §11125, §11125.7(a)].

CALIFORNIA STATE BOARD OF OPTOMETRY

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Sacramento, CA 95834
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www.optometry.ca.gov

To: Practice and Education Committee Members **Date:** April 15, 2016

From: Jessica Sieferman
Executive Officer **Telephone:** (916) 575-7184

Subject: **Agenda Item 3. – Discussion and Possible Action on Continuing Education Course Approval Requests Pursuant to California Code of Regulations § 1536.**

Pursuant to California Code of Regulations (CCR) § 1536 (f) and (g), the Board may approve continuing optometric education courses meeting the criteria set forth in the regulation:

> (f) Other continuing optometric education courses approved by the Board as meeting the criteria set forth in paragraph (g) below, after submission of a course, schedule, topical outline of subject matter, and curriculum vitae of all instructors or lecturers involved, to the Board not less than 45 days prior to the date of the program. The Board may, upon application of any licensee and for good cause shown, waive the requirement for submission of advance information and request for prior approval. Nothing herein shall permit the Board to approve a continuing optometric education course which has not complied with the criteria set forth in paragraph (g) below.
>
> (g) The criteria for judging and approving continuing education courses by the Board for continuing optometric education credit will be determined on the following basis:
>
> > (1) Whether the program is likely to contribute to the advancement of professional skill and knowledge in the practice of optometry.
> >
> > (2) Whether the instructors, lecturers, and others participating in the presentation are recognized by the Board as being qualified in their field.
> >
> > (3) Whether the proposed course is open to all optometrists licensed in this State.
> >
> > (4) Whether the provider of any mandatory continuing optometric education course agrees to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation.

The list below and the application packets that follow are for the committee's review. Each CE application packet is presented as they were submitted to the Board. These were submitted on old forms using the prior process; thus, you may see an application packet containing one course or multiple courses. Going forward, CE Approval Requests will be submitted on the new form approved by the Board in February 2016.

Please use the criteria above to determine whether or not to approve each continuing education course below.

A. OCT Interpretations vs VF & IOP with Clinical Case Reviews in the diagnosis & therapeutic management of glaucoma patients; Cataract case reviews and post-operative care & therapeutic management of complications
B. Fitting Corneal-Scleral CLs - Future of GPs
C. 1. Cataract Updates - Dropless & Instant
   2. Updates and Trends in CLs
   3. Surgical Comanagement
   4. Technology Pipeline & Updates
D. 1. Glaucoma Grand Rounds;
   2. Top Ten Oral Agents;
   3. Glaucoma Watch: Rapid Fire Topics in Glaucoma
E. 1. Soft-sphere + toric lenses; RGP: sphere + bitoric lenses; Contact Lens Solution; Keratoconus and post PKP lenses
   2. Dry eye management (including Restasis); Refractive surgery I (basic principles of PRK, LASIK, PTK); Refractive surgery II (Management of complications); Psychology of patient management (surgical and non-surgical) Corneal Topography (Principle / update / case management)
   3. Corneal infection versus corneal inflammation (antibiotic vs. steroid); Ocular disease case management; Glaucoma case management / update (ID#9168); OCT in glaucoma management (principles and case management); Glaucoma surgery observation / management (ID#9169); Fluorescein Angiography observation / management
F. Clinical Trials-How the work and the real benefits to your patients and practice; Amniotic Membranes - not just for babies; A practical approach to ocular surface disease and making a multifocal IOL patient happy; Neurophthalmology on a busy clinic day - the swollen disc
G. LASIK Grand Rounds
H. Cataract Surgery - Z8 Laser
I. 1. Update on Age Related Macular Degeneration
   2. Glaucoma: Practical Tips
J. Corneal Astigmatism Correction During Cataract Surgery
K. Cataract Surgery and Treatment of Dry Eye
L. Controversies in Modern Eye Care
M. Modern Oculoplastics Techniques; Finesse and Artistry
N. Improving Cataract Surgery Outcomes in a Diverse Patient Population and More; Cataract Surgery Update for 2016; Update in MIGS; Post-operative Cystoid Macular Edema; Corneal Ulcers; Contraindications for Premium Lenses in Cataract Surgery
O. 1. Multifocal, Monovision Contacts
   2. Patient Care
   3. Current Status of Anti-VegF Therapy; Implantable Telescope
   4. Glaucoma Management 2016, When to Treat, How to Follow
   5. Bilateral Same Day Cataract Surgery
P. 1. Episcleritis, Scleritis, and Iritis
   2. Ethical Concerns w/Short-term Mission Trips
   3. Visual Fields
   4. Systemic Urgencies and Emergencies
   5. Vitreo-Retinal Disorders
   6. The Pharmacological Management of Glaucoma
   7. Neuro-Optometry
   8. Myasthenia Gravis: Ptosis Crutch
   9. Age-Related Macular Degeneration
   10. Diabetic Retinopathy
   11. Mental Barriers in Visual Rehabilitation
Q. Conjunctivitis

R. 1. KAMRA corneal inlay for the management of Presbyopia
2. LASIK Myth Busters
3. Hyperopia
4. Diabetic Retinopathy

S. 1. Updates from the American Academy of Ophthalmology
2. Dry Eye - What We Didn't Know

T. Integrated Platform for Cataract Surgery & LASIK; Complications in the Anophthalmic Socket; Normal Tension Glaucoma; Uveitis & Systemic Disease

U. Oculoplastics / Orbit Eyelid lesions: evaluation and treatment of benign and malignant tumors; Anterior Segment/Cataract - Cataract Surgery with Flomax: Floppy Iris Syndrome; Glaucoma Update Ocular Hypertension

V. 1. Peripheral Retinal Lesions
2. Hyperopia

W. Turner Eye Institute

X. Advantages of the Latest Technology, Lens Surgery, and Managing Astigmatism in Cataract Surgery; Patient Selection for KAMRA Inlay

Y. Third World Ocular Disease

Z. 1. Vitreoretinal Diseases
2. Common Postop Complications

AA. 1. Topographically-Guided Laser Treatment: Technique, Indications, & How to Counsel Patients
2. Corneal Inlays for Presbyopia - Indications, Complications, & Guidance for Patients

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2016 JAN 13 PM 12:
OPTOMETRY

Request for Approval of Continuing Education Course(s)

c/o Dr Stephanie Judkins OD

Furlong Vision Correction
2107 Nth 1st, Ste 101
San Jose, CA 95131

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-52	5541112	5541112	58

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

Practice and Education Committee Member

scanned & placed in pending folder for Committee
2/24/16 SCE

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE: Approved	Disapproved	ID #
OCT interpretations vs VF & IOP with Clinical case reviews in the	2/25/16	Theresa Nguyen., M.D	1			
diagnosis & therapeutic management of glaucoma patients			"			
Cataract case reviews &	2/25/16	Michael T. Furlong M.D	1			
post-operative care & therapeutic management of complications	"	"				

COMMITTEE COMMENTS:

FURLONG™
VISION CORRECTION

CE Event February 25, 2016

OCT Interpretations vs Visual Fields and IOP with clinical case grand rounds
in the diagnosis and therapeutic management of glaucoma patients
Theresa Nguyen, M.D., Furlong Vision Correction

Patient selection and management including case presentations for premium multifocal lenses. Refractive and intraocular lens surgery post-op complications and therapeutic management
Michael T, Furlong. M.D. Medical Director. Furlong Vision Correction

1. This is to state the proposed course is open to all optometrists licensed in the state, as stated in the invite

2. Furlong Vision Correction agrees to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation.

3. The reason why the CE application was submitted earlier than 45 days prior to the course date, is due to availability of speaker, we had a short time frame to set up CE program and secure speaker prior to other commitments.

Professional Education Event

2 hour of CE credit will be given
Dinner will be provided
Thursday, Feb 25th, 2016

OCT Interpretations vs Visual Fields and IOP with clinical case grand rounds in the diagnosis and therapeutic management of glaucoma patients
Theresa Nguyen, M.D., Furlong Vision Correction

Patient selection and management including case presentations for premium multifocal lenses. Refractive and intraocular lens surgery post-op complications and therapeutic management
Michael T, Furlong. M.D. Medical Director. Furlong Vision Correction

RSVP by Monday, Feb 22nd, 2016 to ensure your seat for this event

DATE:	**Thursday Feb 25th, 2016**
TIME:	**6:30-8:30pm CE Session**
LOCATION:	**Amber India Restaurant** **377 Santana row, # 1140** **San Jose, CA 95128**

PLEASE RSVP BY email: shirin@furlongvision.com

YES! Sign me up for Feb 25th CE Event!
Deadline to register is Monday, Feb 22nd

Name _____

Practice Name _____ Phone _____

Number of attendees _____

Course Outline
February 25, 2016

1. OCT Interpretations vs Visual Fields and IOP with clinical case grand rounds in the diagnosis and therapeutic management of glaucoma patients

2. Patient selection and management including case presentations for premium multifocal lenses. Refractive and intraocular lens surgery post-op complications management

Speakers:
Dr. Michael T. Furlong – Medical Director. Furlong Vision Correction. San Jose CA
Dr. Theresa Nguyen – Furlong Vision Correction. San Jose CA

Course Description:
OCT Interpretations vs Visual Fields and IOP with clinical case grand rounds in the diagnosis and therapeutic management of glaucoma patients

The attendee will develop an advanced understanding of the current technologies available today in the diagnosis and therapeutic management of glaucoma patients including detailed case reviews. The case discussions will review in detail OCT and VF interpretations in the differential diagnosis and management of glaucoma.

Course Learning Objectives:
Patient selection and management including case presentations for premium multifocal lenses. Refractive and intraocular lens surgery post-op complications management

To understand the principles of pre-surgical data evaluation and calculations for multifocal IOL implantation in cataract patients. The course will concentrate on reviewing in detail each multifocal IOL technology available today.
With detailed case reviews in the pre-op assessment and post-op therapeutic care and complications management.

Dr. Nguyen's Curriculum Vitae

LICENSES:
2012 Board Certified in Ophthalmology
2007 COMLEX Step 3. Pass.
2005 COMLEX Step 2. Pass.
2004 COMLEX Step 1. Pass.

CERTIFICATIONS:
2010 IntraLase FS Laser System
2010 VISX Excimer Laser System
2010 Intacs Corneal Implantation

EDUCATION:
1998-2002 B.S. University of California, Davis
2002-2006 M.D. Touro University College of Osteopathic Medicine, Vallejo, CA.

POST-DOCTURAL TRAINING:
2006-2010 Traditional Internship/ Ophthalmology Residency; Chief Resident; Midwestern University/Chicago College of Osteopathic Medicine, Olympia Fields, Illinois
2010-2011 Cornea Fellowship; New York Eye and Ear Infirmary, New York, NY.

PRIVATE PRACTICE:
2012-2014 Rockville Eye Physicians/Lawrence S. Frank MD, PC; Cornea Specialist and Comprehensive Ophthalmology, Rockville, Maryland

RESEARCH:
2011 Focus on Complications and Complexity: Corneal Epithelial Defects Associated with LASIK.
2011 Comparison of Ultrasound Biomicroscopy to Conventional Caliper Method for Sulcus-to-Sulcus Measurement.
2011 Safety and Effectiveness of the VEGA UV-A System for Corneal Collagen Cross-Linking in Eyes with Keratoconus.
2011 Efficacy and Safety of Hydroxypropyl Cellulose Ophthalmic Insert for the Protection of Tear Film and the Prevention of Dry Eyes.
2010 Ocular Manifestations of Chronic Myelogenous Leukemia in a Pediatric Patient: A Case Report.
2009 Clinical trial phase I for Implantation of Ophtec Lens in Aniridic Patients.

PROFESSIONAL ORGANIZATIONS:
2010-present American Society of Cataract and Refractive Surgery
2007-present American Academy of Ophthalmology
2007-present American Osteopathic Colleges of Ophthalmology and Otolaryngology-Head and Neck Surgery
2008-2010 Women in Ophthalmology
2007-2010 Chicago Ophthalmological Society
2007-2010 Illinois Association of Ophthalmology
2002-present American Osteopathic Association

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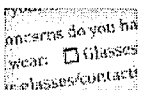

SAVE TIME! COMPLETE LASIK PATIENT FORM EARLY.

Dr. Furlong's Credentials

Dr. Furlong's Curriculum Vitae

LICENSES:
Board Certified by the American Board of Ophthalmology, 1998
Active: California
Inactive: Oregon, Hawaii, Utah, Arizona

EDUCATION:
1992 M.D. University of Hawaii John A. Burns School of Medicine; Honolulu, Hawaii
1988 B.S. Stanford University; Stanford, California

POST-DOCTORAL TRAINING:
1996-1997 Refractive Surgery and Corneal Fellowship, Dr. Howard V. Gimbel, Medical Director, Gimbel Eye Centre, Calgary, Alberta, Canada
1993-1996 Ophthalmology Residency, John A. Moran Eye Center, University of Utah, Salt Lake City, Utah
1992-1993 Rotating internship in General Surgery and Internal Medicine, University of Hawaii Integrated Transitional Residency Program, Honolulu, Hawaii

PRIVATE PRACTICE:
1998-present Furlong Vision Correction - Specializing in Refractive Surgery and Laser Vision Correction. 2107 North 1st Street, Suite 101, San Jose, CA, 95131
1997-1998 General Ophthalmology Practice with emphasis on small-incision cataract and laser refractive surgeries. Dooley Eye Center, 151 Riviera Drive, Lake Havasu City, AZ 86403

SURGICAL EXPERIENCE:
During Dr. Furlong's residency, fellowship and into private practice, he has performed over 39,000 vision correction procedures as primary surgeon and over 200 breakthrough, patient-related Keratoconus procedures..

HONORS AND AWARDS:

2014	Voted Best Place for LASIK in Silicon Valley by Mercury News readers, seven years
2014	Voted Best LASIK Doctor by Santa Cruz Good Times readers, three years
2014	Recipient of the Annual Service Above Self Award for Community Service 2014
2014	Recipient of the Miceli Financial Partners Disability Awareness Award
2011	Named a Jefferson Award winner for charitable Gift of Sight program
2008	Voted Top Doctor by his peers - San Jose Magazine, nine years
2003	Voted Top 5 Surgeons nationwide by LVCI, two years
2002	Voted in the Top 50 Practices in the U.S. award by LVC I Winner of VISX's "Left-Click" award
2000	LVCI Practice of Excellence
1997	Best Paper of Session, 1997, American Society of Cataract and Refractive Surgery (ASCRS) Meeting, Boston, Massachusetts. "Management of Ocular Pain and Discomfort by Cooling the Eye after PRK"
1992	B. Kent Bennett, MD Prize in Ophthalmology--awarded annually to an outstanding medical student in the field of Ophthalmology at the University of Hawaii School of Medicine V. Edward Franchville Award in Ophthalmology--awarded annually to an outstanding medical student in the field of Ophthalmology at the University of Hawaii School of Medicine The Merck Embossed Manual Award for outstanding scholastic achievement throughout medical school
1991-1992	Medical School Senior Class President
1991	Elected to Alpha Omega Alpha Honor Society AOA Nomination in Internal Medicine
1990-1991	Academic Full Tuition Scholarship
1989	McGraw-Hill Book Award in recognition of outstanding performance as a first year medical student

RESEARCH AND PUBLICATIONS:

2008 Furlong MT: Teaming up with a LVC Surgeon. In: Chang, DF, ed. "Mastering IOLs: The Art and Science.â€ Thorofare, NJ, SLACK Incorporated; 2008
2003 Weisenthal RW, Salz J, Sugar A, Mandelberg A, Furlong M, et al: "Photorefractive Keratectomy for Treatment of Flap Complications in Laser in situ Keratomileusis" Cornea July 2003; 22(5): 399-4004.
2002 "Setting Patient Expectations in Refractive Surgery": TLC Vision's Quarterly Newsletter Article, Fall 2002.
2000 Gimbel HV, Sun R, Furlong MT, van Westenbrugge JA, Kassab J: "Accuracy and predictability of intraocular lens power calculation after photorefractive keratectomy." J Cataract Refract Surg. August 2000; 26 (8): 1147-51
1999 Gimbel HV, Furlong MT, Penno EA: Management of under and overcorrected radial keratotomy. In: Brightbill FS, ed. "Corneal Surgery: Theory, Technique and Tissue" 3rd ed. St. Louis, CV Mosby; 1999: Chapter 77, pages 645-49

1998 Gimbel HV, Furlong MT: Divide and Conquer Nucleofractis Technique. In: Buratto L, ed "Phacoemulsification: Principles and Techniques." Thorofare, NJ. SLACK Incorporated; 1998:347-353
Gimbel HV, Penno EA, van Westenbrugge JA, Ferensowicz M, Furlong MT: "Incidence and Management of Intraoperative and Early Postoperative Complications in 1000 Consecutive LASIK cases." Ophthalmology October 1998; 105 (10): 1839-47
1996 "Management of Ocular Pain and Discomfort by Cooling the Eye after PRK" Presented at ASCRS, 1997; Boston, Massachusetts
"Topographical 'Loop Cylinder' as a Reproducible Finding in Pellucid Marginal Corneal Degeneration (PMCD)." Poster presentation at American Academy of Ophthalmology Annual Meeting 1996, Chicago, Illinois
"Corneal Topography in Pellucid." Resident's Day Lecture
1995 "Macular Holes: New Concepts." Resident's Day Lecture
1994 "Autoimmune Keratolysis." Resident's Day Lecture
1987 Research Assistant, Squirrel Monkey Research Laboratory--Department of Psychology, Stanford University under the guidance of Seymour Levine, Ph.D. "The Effects of MDMA (street name "Ecstasy") on Serotonin Levels and it's Primary Metabolite, 5-HIAA, in the CSF and Brains of Squirrel Monkeys"
1986 Research Internship, Cardiovascular Research Laboratory--The Queen's Medical Center, Honolulu, Hawaii under J.J. McNamara, MD, Chairman, Department of Surgery, John A. Burns School of Medicine, University of Hawaii. "The Effects of Propranolol on Serum Potassium Levels in Patients During the First Twelve Hours Following Coronary Artery Bypass Graft Surgery"

CONTINUING EDUCATION AND COURSES:

2014 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Boston, MA
2013 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Francisco, CA
2012 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Chicago, IL
2012 Cornea Day, Cornea Society and ASCRS, Chicago, IL
2011 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Diego, CA
2010 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Boston, MA
2009 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Francisco, CA
American Academy of Ophthalmology (AAO) Annual Meeting, San Francisco, CA
2008 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Chicago, IL
2007 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Diego, CA
2006 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Francisco
American Academy of Ophthalmology (AAO) Annual Meeting, Las Vegas, NV
2005 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Washington DC
2004 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Diego
American Academy of Ophthalmology (AAO) Annual Meeting, New Orleans
2003 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Francisco
2002 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Philadelphia
VISX Custom-Contoured Ablation Pattern Physician Certification Course, Santa Clara, CA
2001 American Academy of Ophthalmology (AAO) Annual Meeting, New Orleans
American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Diego
2000 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Boston
1999 INTACS Physician Training Course, San Francisco
American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Seattle
American Academy of Ophthalmology (AAO) Annual Meeting, Orlando
1998 American Academy of Ophthalmology (AAO) Annual Meeting, New Orleans
American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Diego
1997 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Boston
American Academy of Ophthalmology (AAO) Annual Meeting, San Francisco
VISX Physician Certification Course, San Francisco
1996 American Academy of Ophthalmology (AAO) Annual Meeting, Chicago
1995 American Academy of Ophthalmology (AAO) Annual Meeting, Atlanta

TEACHING EXPERIENCE:

2003 Presentation at ASCRS (San Francisco, 2003) entitled "LASIK, LASEK, and PRK for High Myopia."TLC Optometric Advisory Board Update on the WaveScan Aberrometer and the new VISX S4 Excimer Laser
2002 Continuing education lecture for TLC Optometrists entitled, "Wavefront Analysis and Customized Ablation Issues"
Continuing education lecture to Santa Clara County Optometric Society entitled, "Diagnostic and Therapeutic Goals for Acute-Onset Red Eye"
TLC Optometric Advisory Board Updates on Refractive Surgery and Comparison of Thin Flap Lasik to LASEK
2000 Paper presentation at ASCRS (Boston, 2000) entitled "Comparison of 6.0 and 6.5 mm optical zones for the correction of myopia and astigmatism using the Visx Star S2 Excimer Laser"
Paper presentation at ASCRS (Boston, 2000) entitled "Intraoperative pachymetry as a useful tool to determine flap thickness and ablation depths-learn to stay away from violating the 250 micron zone"
Continuing education lecture to Santa Clara County Optometric Society entitled, "Common and Rare Causes of Keratitis
1999 Continuing education lecture to Santa Clara County Optometric Society entitled, "An update on Lasik Complications and Management"
1997 One Month Trip to Bangkok, Thailand and Beijing, China to teach LASIK, PRK, and Phacoemulsification techniques to Ophthalmologists at the Rutnin Eye Center and Air Force General Hospital, respectively
1996-1998 Several Continuing Medical Education Talks to Ophthalmic Technicians.
1993-1995 Lecturer for Emergency Medical Technician Students at Salt Lake Community College, "Immediate Treatment and Triaging of Common Eye Injuries"
1989-1990 Senior Teaching Assistant for Undergraduate Human Anatomy/Physiology Course, University of Hawaii

PROGRAMS, ACTIVITIES AND MEMBERSHIPS:

2011 - 2014 Partnered with our optometric community for our annual Gift of Sight program to identify and provide LASIK or Keratoconus treatment for deserving individuals
2007 - 2014 Partnered with HOPE Services for our annual Gift of Sight program to provide free surgery to less-privileged individuals
2002 Founded the Gift of Sight Program, an annual drive to give back to local community by providing no cost refractive surgery to deserving patients nominated by local charities

	Participated in Alcon's "Fluoroquinolone Advisory Summit" held in San Diego, California
	Assisted in the founding of TLC's Optometric Advisory Board in Northern California
2001	Official Laser Vision Correction Surgeon of the San Jose Earthquakes Professional Soccer Team
	Official Laser Vision Correction Surgeon of the San Jose Giants Professional Baseball Team

Active Member of:

American Academy of Ophthalmology
American Society of Cataract and Refractive Surgery
International Society of Refractive Surgery
American Medical Association
Alpha Omega Alpha Honor Society

1.800.573.1010

Find us on Facebook

Site Map | Home

Our Bay Area clinic location:
2107 N. First Street, Suite 101, San Jose, California 95131

Providing custom LASIK eye surgery to the following communities throughout the Bay Area—San Jose, Campbell, Santa Clara, Mountain View, Palo Alto, San Mateo, San Francisco, Oakland, San Leandro, Piedmont, Walnut Creek, Concord and Gilroy

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GLENDALE
Optometric Center
308 East Broadway
Glendale, CA 91205
(818) 243-1300

March 11, 2016

RE: San Gabriel Vision Source CE, March 1, 2016

Hi Kristina,

As requested, here are the statements regarding the San Gabriel Vision Source CE, March 1, 2016.

The proposed course is/was open to all optometrists licensed in this State.
I agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation.

Please let me know if there is anything else I can assist with.

Thank you,
Stacey Gin, OD

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY

EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA STATE BOARD OF OPTOMETRY

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

Request for Approval of Continuing Education Course(s)

Stacey Gin, OD
308 E. Broadway
Glendale, CA 91205

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-96	618667	618666	50

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- ✓ **$50** processing fee (per course)
- ✓ Name of provider
- ✓ Course title(s)
- ✓ Date(s) the course is scheduled to be offered
- ✓ Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course none yet. will e-mail
- ✓ Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

Practice and Education Committee Member

Scanned + placed in pending file for review 2/24/16 SCG

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Fitting Corneal-Scleral CLs, Future of GPs	3/1/16	Daren Nygren, Dr. David Bartels, OD	1			

COMMITTEE COMMENTS:

2

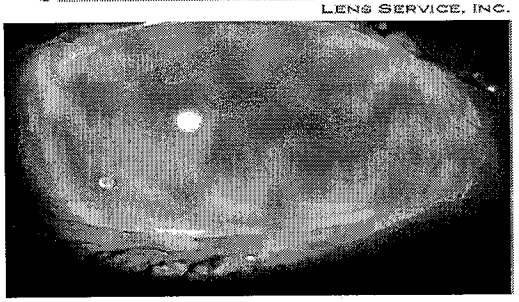
Fitting Corneal-Scleral Contacts
The Future of GP Lenses

Daren Nygren, NCLE
David P. Bartels, OD, FOAA

Daren Nygren, NCLE

- Managing Partner, Custom Craft Lens Service
- NCLE Certified
- 15 Years Clinical experience
- 30 Years Manufacturing experience
- Member CLSA Contact Lens Society of America

CUSTOM CRAFT
LENS SERVICE, INC.



Why Choose Corneal-Sclerals?

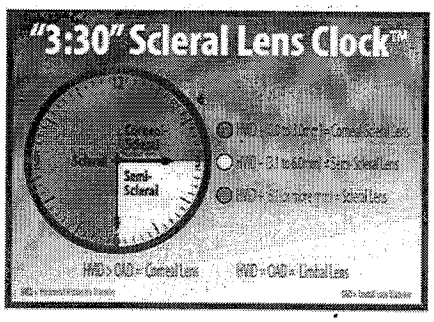
- Superior Optics
- Better bifocal outcomes
- Post LASIK/RK refitting
- Keratoconus correction
- S/P PKP

- SOFT LENS COMFORT!!

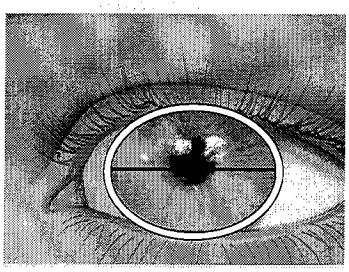
Larger GP Lens = Greater Comfort

Scleral Lens Options

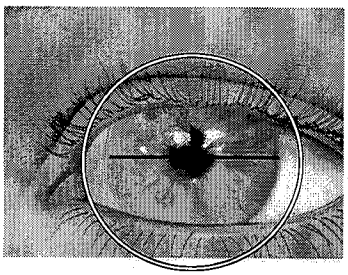
- Custom Craft – CCMS Mini Scleral
- Blanchard - MSD
- Dakota Vision - SoClear
- Truform - Digiform
- AVT – Scleral
- ABB-Concise – ICD
- Acculens -Maxim



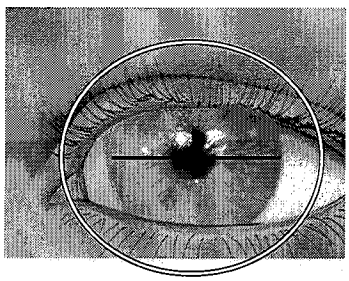
Wilcox Clock



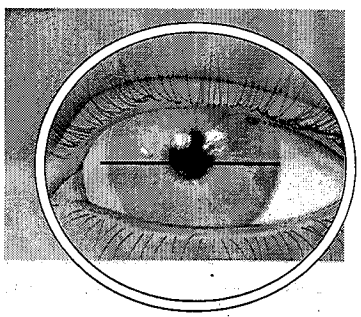
Corneal Lens
Up to HVID
11.8 mm average



Corneal-Scleral Lens
0.1mm to 3.0mm > HVID



Mini-Scleral Lens
3.1mm to 6.0mm > HVID

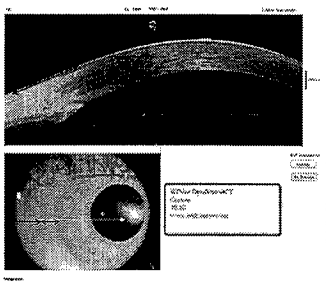


Scleral Lens
6.1mm to 12.0mm > HVID

Why do Corneal-Scleral lenses work?

- The edge of the lens projects past the sensitive cornea and sets down on the "limbal area" of the eye.
- The lens is rigid and aligns with the cornea and provides GP optics and soft lens comfort.
- This "alignment fit" neutralizes corneal cylinder and results in SUPERIOR OPTICS

Limbal(10.0-15.0mm) and Scleral Areas>(15.0mm)

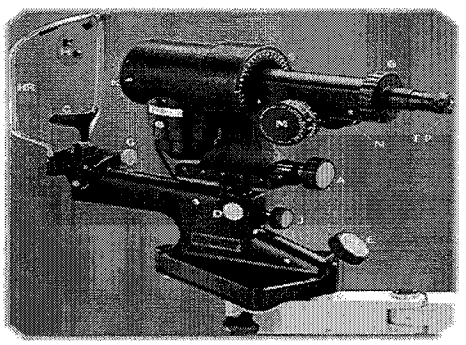


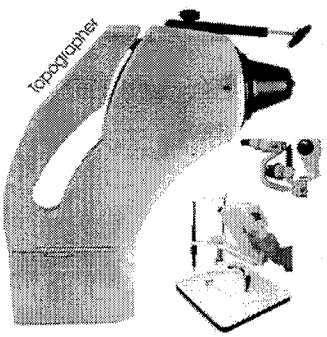
Corneal-Scleral Transition

- "Limbal area" = (10.0-15.0mm) Cord Diameter
- Straight in most cases (not concave/convex)
- Typically symmetric and follows the outline of the cornea
- Scleral area > 15.00mm /clinically significant changes present/ toric or quadrant-specific contacts are needed to correct these variables

Tools for Corneal-Scleral Design

Knowledge of GP fitting
Keratometer
Topographer
Slit lamp
Slit lamp imaging system or (Tiger Lens)
OCT with anterior segment module
Fitting sets



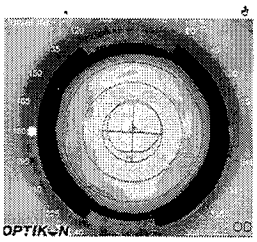


Topography vs.Keratometry

CORNEAL TOPOGRAPHER	MANUAL KERATOMETER
• Over 10,000 data Points of the cornea surface	• 2 data points 90 degrees apart
• Measures 9mm diameter of cornea	• Measurement taken at a 3mm corneal diameter
• Large evaluation of corneal surface	• Small evaluation of corneal surface
• Data tends to vary due to tear film fluctuation	• Data is fairly stable/reproducible

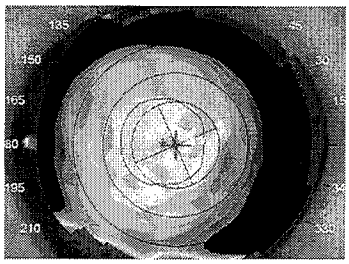
Topography vs.Keratometry

Topography Map



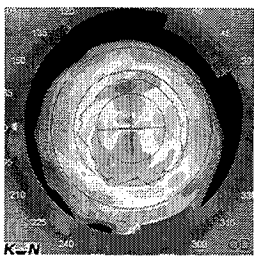
Keratometry Data

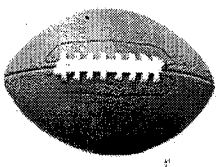
- 44.00x180
- 45.00x090



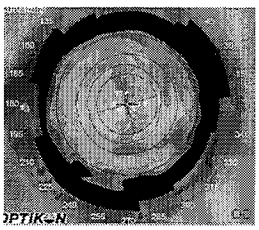
Spherical Cornea
42.55x180/42.33x090

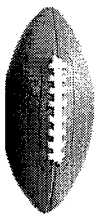
WTR Cylinder

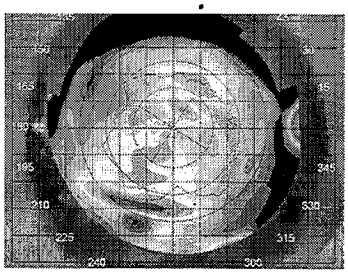




ATR







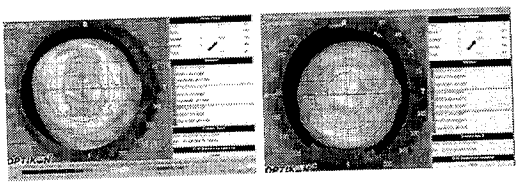
Oblique Astigmatism
42.09x150/45.41x060
30-60 / 120-150

Information needed to Design Corneal-Scleral Contacts

- Patient Hx: medical/contact
- Spectacle Rx /Add
- Keratometry readings (Flat K)
- Pupils: Dim/illuminated
- HVID
- Topography (3,5 & 7mm Sim-K's/elevation maps)
- Diagnostic lens results: OAD/BC/OR/Observation
- OCT images of center & 4 peripheries of the lens

Corneal Diameter
And why does it matter?

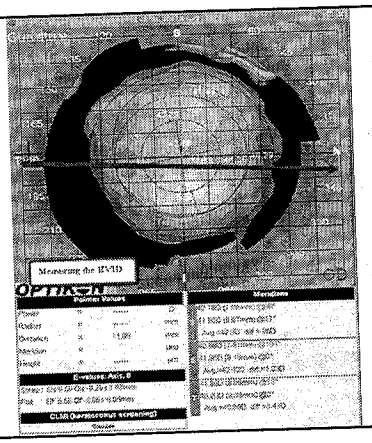
Corneal Diameter 10.2 **Corneal Diameter 12.3**

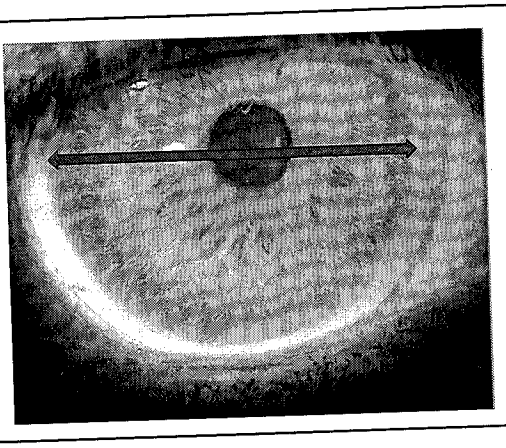


HVID

Use smallest OAD that delivers Comfort and Movement

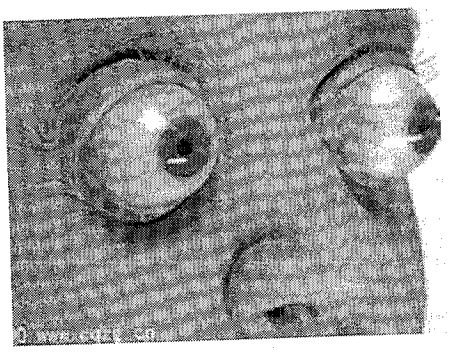
Average Cornea=11.8mm





14.5 Diagnostic Sets

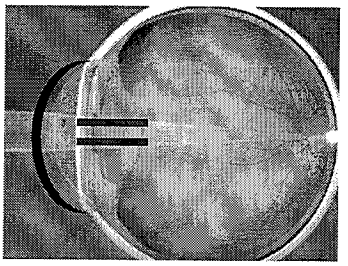
- Inserted without anesthetics
- Start with the Trial closest to FLAT K
- Eliminates patient's fears of large lenses
- Confirms the OAD needed
- Allows a more accurate over refraction
- Rules out flexure (K's /Dx lens)
- Saves chair time



Some Patients Are Afraid of Large contacts

Corneal-Sclerals Fitting

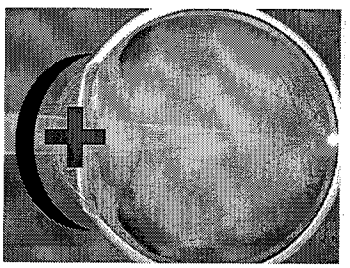
Use the same fitting principles as traditional RGPs.
Find Flat K /Fit Closest Diagnostic
Observe Fluorescein Pattern
Perform Over-refraction
Have patient wear Trial Lens 30 minutes and evaluate



Alignment fit/ trial lens creates PLANO tear lens.
The BASE CURVE of the contact lens will EQUAL the TRUE K of the cornea .

Over Refraction = Spherical RX

- O/R Matches the Spherical component of the Spectacle Rx
- Check Fluorescein Pattern
- Observe Lens Movement
- Recheck Fit in 30 minutes
- Order Lens

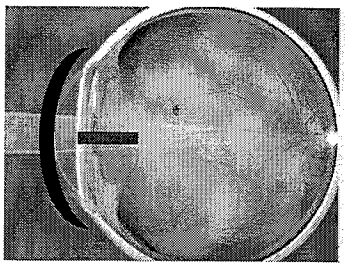


SAM
Steep fitting trial lens creates PLUS tear lens
(-) needed to neutralize with OR

Minus Over Refraction

- Best Va needs more Minus than Spherical Rx
- Watch for a Tight(steep) fit
- Central Fluorescein pooling
- No movement
- Poor tear exchange/hypoxia
- Patient will love the initial comfort /3 hours later Very unhappy

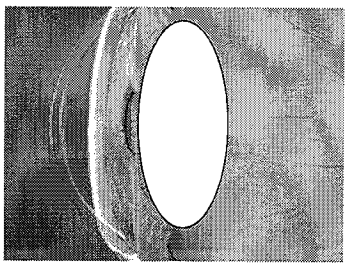
Blanched vessels poor tear exchange



FAP
Flat fitting trial lens creates MINUS tear lens
(+) needed to neutralize with OR

Plus Over Refraction

- Best Va needs more Plus than Spherical Rx
- Watch for a Loose (flat) fit
- Central bearing may be observed with Fluorescein
- Excessive movement
- May cause some spectacle blur



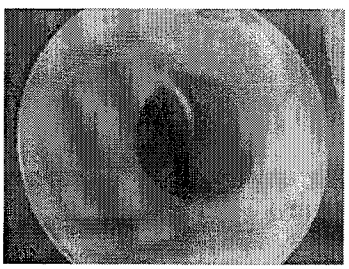
Crystalline lens must be SPHERICAL to avoid residual astigmatism

Residual Astigmatism

- When a trial fit needs **cylinder** added to the over refraction, this usually means an **aspheric crystalline lens** is causing the problem.
- Working with the lab can help solve residual astigmatism but the case becomes complicated.
- Many times a soft toric becomes the best lens for the Residual Astigmatic case.

Multifocal Contacts

- Great Comfort/Superior Optics
- Smaller movement of lens/Better control of Bifocal
- Need to measure Dim/Illuminated pupils
- Same Diagnostic Fitting Rules apply
- Center Distance most common

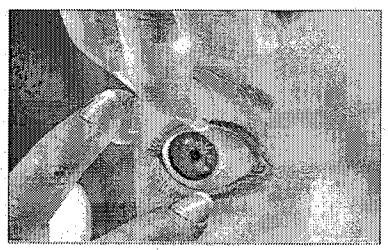


Concentric Aspheric Multifocal

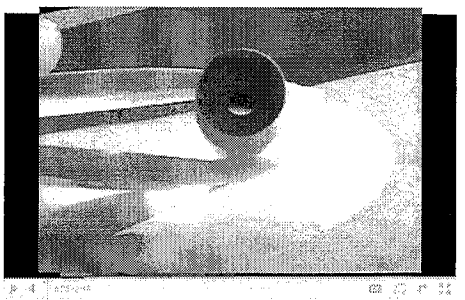
Corneal-Scleral Multifocals

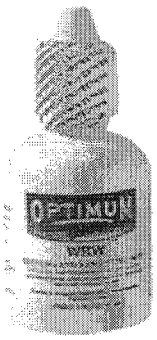
- Superior comfort & optics
- Corrects astigmatism
- Higher Add Powers

Patients to Avoid



Insertion &Removal





Re

Removal of Lens

Scleral Lens Care

Clear Care Peroxide system

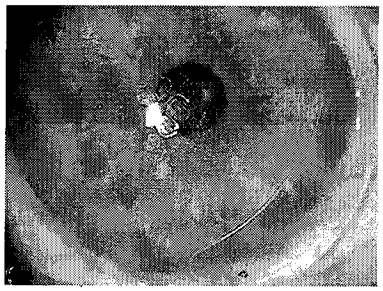
Preservative free single dose saline

Refresh, Optive, Systane rewetting drops

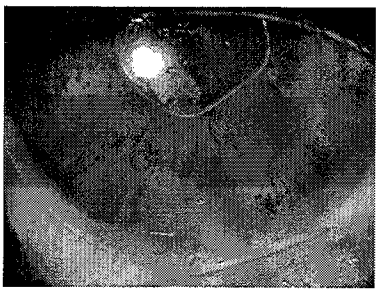
Progent protein remover

Slit Lamp Evaluation

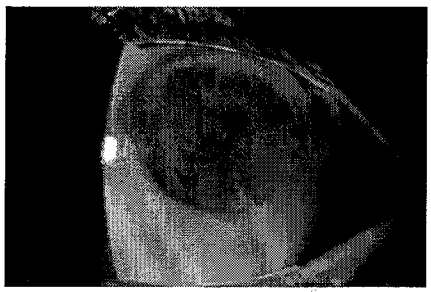
Larger OAD / High Dk
Wetting Problems & Deposits



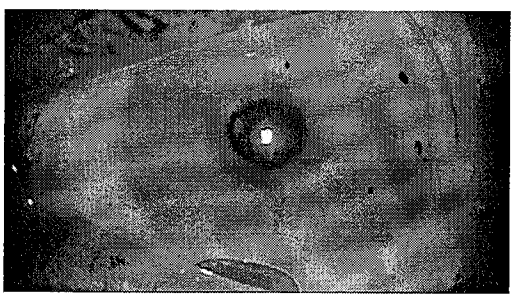
Tight /steep

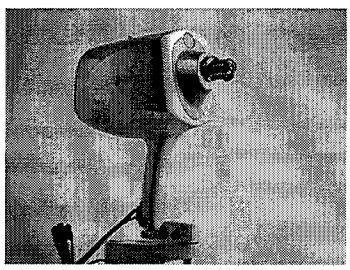


Loose/flat



WTR Cylinder

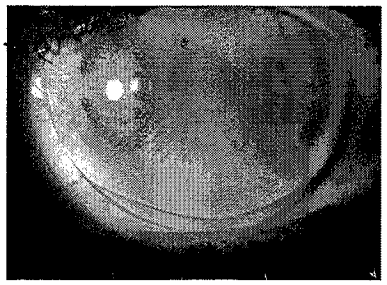


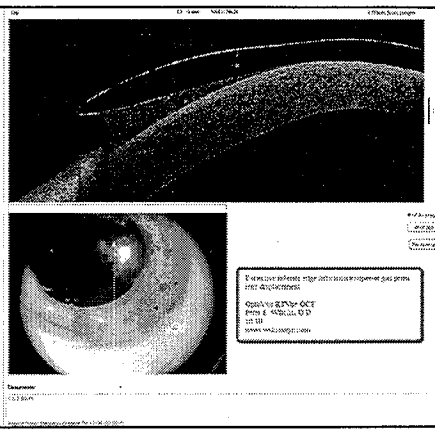


iVUE OCT

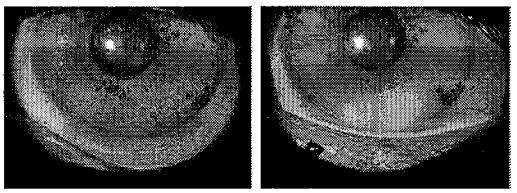
mike_scott@optovue.com

Excessive edge lift

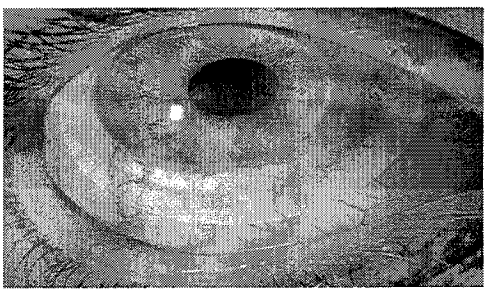




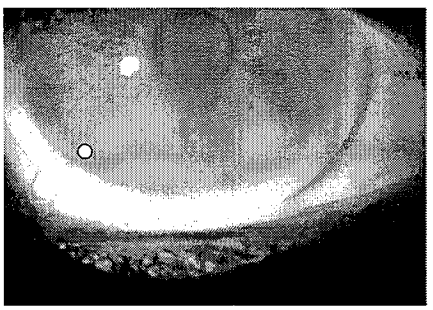
Little movement noted
Milking lens produces tear transition



Blanched vessels
poor tear exchange



Good fit/OR needed for final lens

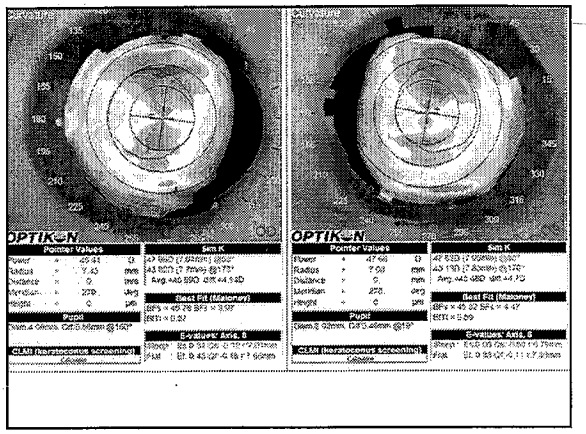


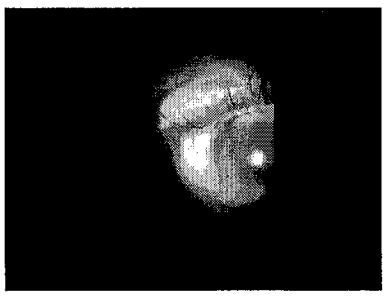
Contact Fitting Goals

- Good Vision
- Good Health
- Good Comfort

Ashley
Corneal-Scleral Case

- Unhappy with soft contacts
- Rx: OD +3.50-5.00x180 20/25
- OS +4.00-5.00x180 20/30
- Corneal-Scleral Toric
- Great Comfort/Superior Optics
- OD 20/25 OS 20/30+
- Very pretty girl: Happy to stop wearing THICK GLASSES

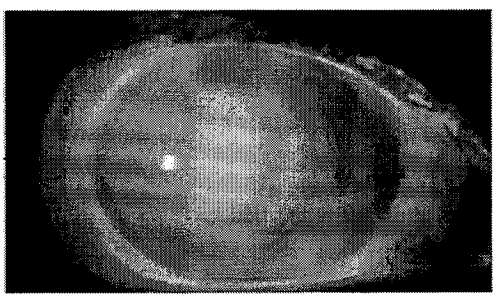




Sclerals: The Sick Eye

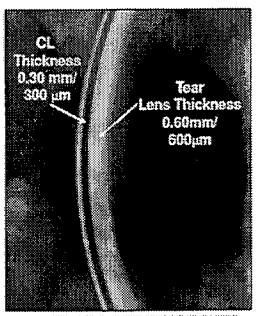
- Extremely Large
- Vaults over the cornea
- Weight of lens is on the sclera
- Very little movement is noted
- Tear reservoir nourishes cornea
- Inserted with non-preserved saline
- Preservatives will degrade cornea

Scleral 16.5 KATT/ICD



Determining Apical Clearance

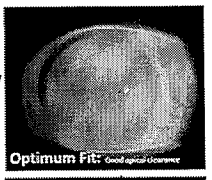
Using the slit lamp's parallelogram you can observe the lens thickness (0.30mm/300µm) in comparison with the posterior tear film thickness (in this case approximately 0.60mm/600µm). The corneal thickness can also be observed and used to compare against the tear film thickness

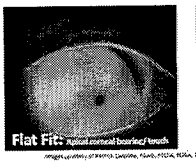


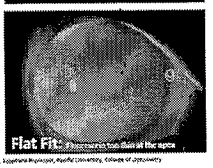
12

Comparisons of Central Fit

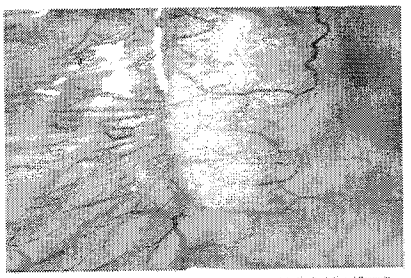
Optimum Fit: Hard to make out pupil and no apical bearing.
Flat Fit: Apical bearing or easy to make out pupil
Steep fit: is best confirmed using the parallelepiped (see page 17: "Determining Apical Clearance")





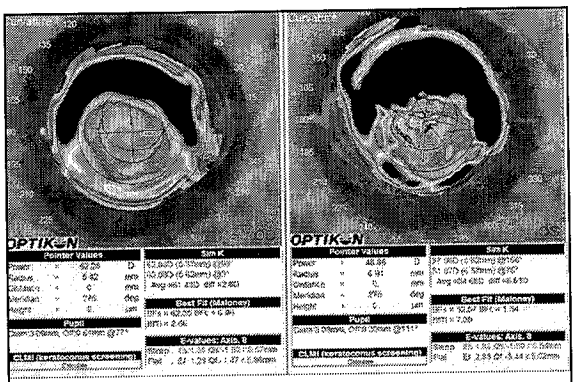


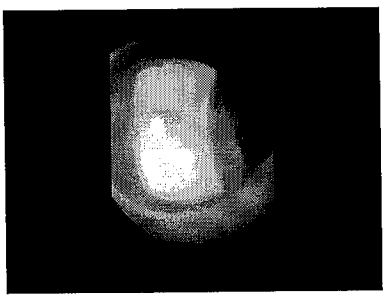
Peripheral Shut down
Biggest problem with Sclerals



Rosemary

- KATT/ICD Design
- Bilateral Cone with Intacs
- Oblate Corneas (bottle cap)
- Wearing Synergeyes OD 20/50
-
- OS no contact successful
- Va with KATT/ICD OD 20/30- OS 20/60
- Great Comfort OU
-





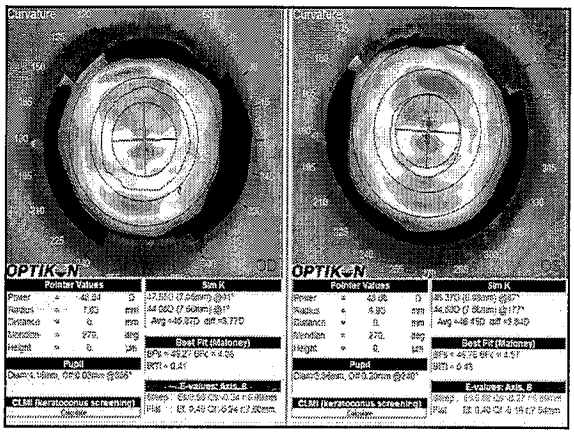
Limbal Squared Lens

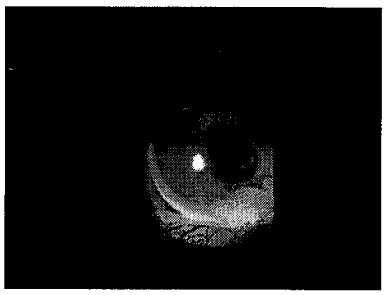
- In Development
- 11.5 mm : Rests inside the iris
- Large Optical Zone
- Works on Spheres, High Cylinders , and Cones
- Easy I&R
- Comfort less than Corneal-Sclerals

13

Mackenzie

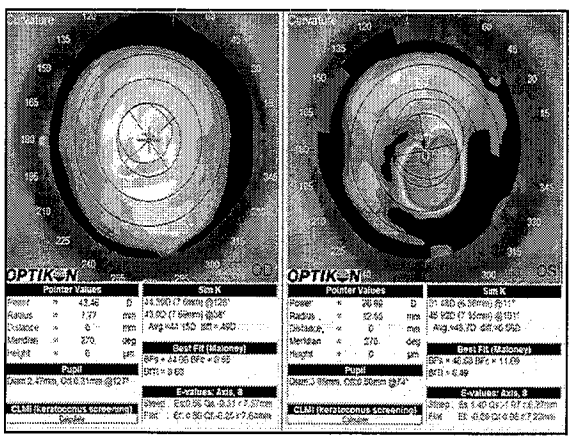
- Limbal Squared Lens Design
- Rx: -4.00-3.75x180 OU
- Good comfort OU
- OD 20/20
- OS 20/20

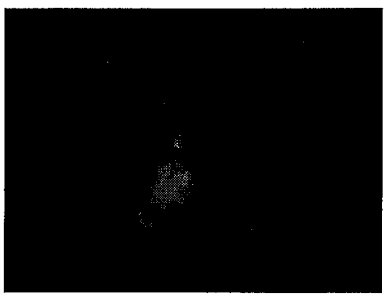




Andrew

- OD -5.00 Acuve Oasys contact 20/20
- OS Cone 20/100 with glasses
- Have tried many different contacts in past
- Limbal Squared had best performance and comfort
- 20/25 Va with Limbal lens design





Conclusion

- This is the Best Time to be Practicing
- Many New Lens Choices
- Gas Perm Contacts are BACK don't miss out
- When fitting cases:
- Start Small and Increase in size as needed
- Fit your staff & yourself

Burning Questions....

Thank You!

Photo / Oct courtesy of Dr. Peter Wilcox

Curriculum Vitae

David P Bartels OD FIOA

2126 Niagara Falls Blvd.

Tonawanda, NY 14150

716 693-4606

Visioncare@roadrunner.com

Illinois College of Optometry 1982

Bachelor of Visual Science 1981

New York State licensed 1982-present

Fellow of the International Academy of Orthokeratology

Experience:

Aurora Optometric Group (1982-1985)

Owner of Vision Care Center (1985-present)

Co-owner of Clarence Eye Care (2005-present)

Presentations:

VBD (Scleral workshop and Marketing Orthokeralogy)

VBD (Wave Designing)

Publications:

Wilcox,P.E. /Bartels,D.B.(2008)

Candy Study (Controlling Astigmatism & Nearsightedness in Developing Youth) Web based

Wilcox,P.E./Bartels,D.B.(May 2010)

Orthokeratology for Controlling Myopia: Clinical Experience: Contact Lens Spectrum

Instructional Aids:

Wilcox,P.E./Bartels,D.B.

Wave CAD/CAM Lenses for the Primary Care Practice: Educational DVD

Memberships:

American Optometric Association

International Academy of Orthokeratology

Daren Nygren, NCLE
2411 Tech Center Court #105, Las Vegas Nevada. Daren@CustomCraftLens.com. 702-362-3500
DarenDaren@CustomCraftLens.com

Experience

2006-Present Custom Craft Lens Service Las Vegas, Nevada

Managing Partner

- Custom GP Consultant
- Lead R & D design team
- National/International Account Manager

2012-2013 CLMA/GPLI

Board Member

Contact Lens Manufacturers Association/Gas Perm Lens Institute

1998-2006 Pacific Eyecare Bremerton, Washington

Ophthalmic Tech

- Performed all testing and lens fitting for an eight doctor ophthalmology practice.

1992-2006 Alderwood Vision Clinic Lynwood, Washington

Optometric Tech

- Performed all testing for a two Doctor Optometric practice

01.12.2016 mailing add'l #200 today: CW

Agenda Item 3C

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY — EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

PM 2:42

Request for Approval of Continuing Education Course(s)

Doughorty Laser Vision
4353 Park Terrace Dr.
Ste. #150
Westlake Village CA 91361

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-95	6186601	6186601	200

Please type or print name and mailing address in the space provided to the left

X-ref Receipt # 13895

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

Payor/Benef ID # 18010

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

Practice and Education Committee Member

(rev. 11/18/14)

scanned + placed in pending folder for Committee 2/23/15 XE

Check to come in the mail.
Attn: Carolyn. (All outlines were mailed)

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE: Approved	Disapproved	ID #
Cataract updates - Progress + Talent	11/8/15	Paul Daugherty, MD	1			
Updates and trends in CLS	11/8/15	Luke Darkhouse, OD	.75			
Surgical Comanagement	11/8/15	Ryan Vida, OD	.75			
Technology Pipeline - updates	11/8/15	Paul Daugherty, MD	.75			

COMMITTEE COMMENTS:

01.12.2016
mailing add'l #200 today.
cw

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY
EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

PM 2:42

Request for Approval of Continuing Education Course(s)

Dougherty Laser Vision
4353 Park Terrace Dr.
Ste. #150
Westlake Village CA 91361

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
195	618660	618660	200

Please type or print name and mailing address in the space provided to the left

X-ref Receipt # 13895

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Practice and Education Committee Member

(rev. 11/18/14)

Check to come in the mail.
Attn: Carolyn. (All outlines were mailed)

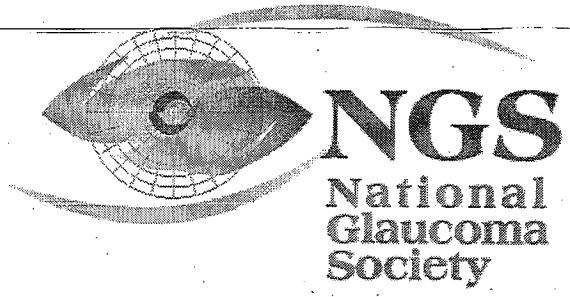
Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE: Approved	Disapproved	ID #
Cataract updates - Dropless + Toric	11/6/15	Paul Daugherty, MD	1			
Updates and trends in CL's	11/6/15	Luke Darkhovich, OD	.75			
Surgical Comanagement	11/6/15	Ryan Vida, OD	.75			
Technology Pipeline - updates	11/6/15	Paul Daugherty, MD	.75			

COMMITTEE COMMENTS:

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE: Approved	Disapproved	ID #
"Functionally-Guided Retinal Protective Therapy – Prevention for Dry AMD"	11/08/15	Jeff Luttrull, M.D.	1	.5		10091
"Cornea Updates: Amniotic Membrane Grafts and Pterygium"	11/08/15	Franz Michel, M.D.	1	.75		10092
"Implantable Contact Lenses – Official Certification Course"	11/08/15	Paul Dougherty, M.D.	2	.75		10093
"Neuro-Ophthalmology"	11/08/15	Howard Krauss, M.D.	1	.75		10094
"Doctor – How Can I Get Rid of My Reading Glasses?"	11/08/15	Dr. Dougherty	2	.5		10095
"What's New in Cornea Surgery?"	11/08/15	Craig Helm, M.D.	1	.75		10096

COMMITTEE COMMENTS: The CE course titles and approved hours listed above were re-accomplished by California State Board of Optometry (CBO) staff to match that of the course announcement that was attached to the request for approval.

If you have questions regarding these changes, please contact a CBO staff member for assistance.



P.O. Box 4092
Andover, MA 01810

Fax: 978-470-4520
Toll-free: 877-825-2020

www.NationalGlaucomaSociety.org
info@NationalGlaucomaSociety.org

March 9, 2016

Kristina Eklund, Licensing Technician
California State Board of Optometry
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

Dear Ms. Eklund,

This letter is an addendum to our letter of January 20, 2016 and application for approval of the following lectures:

- March 23: 8-9 P.M. Eastern: Michael Pokabla, DO: ***Glaucoma Grand Rounds***
- April 13: 8-9 P.M. Eastern: J. James Thimons, OD, FAAO: ***Top 10 Oral Agents***
- May 18: 8-9 P.M. Eastern: Eugene ("Bud") O'Leary, OD: ***Glaucoma Watch: Rapid Fire Topics in Glaucoma***

These live webinars are open to all licensed optometrists in California.

Participation in the live webinar is monitored by Janet Swartz, our Executive Director, to confirm that all doctors (1) are on the webinar with full audio and video capacity within 10 minutes of the start of the lecture, (2) answer the questions posted by the webinar host, Dr. O'Leary, and (3) remain on the webinar until the end of the lecture. After the webinar, Dr. Swartz obtains a printed report from WebEx, the webinar technology service used for the webinars, to verify that all attendees remained on the webinar for at least 50 minutes.

Upon verification of their attendance and participation in the live webinar, a CE certificate is mailed to each doctor. The CE certificate, printed on NGS letterhead, includes the licensee name and address, the date of the lecture, the lecture title, number of hours of continuing education, the instructor's name and the state approval code. The CE certificate is signed by Dr. Swartz.

The National Glaucoma Society will maintain and furnish to the Board and/or attending doctors records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation.

Please let us know if any additional information is requested.

Janet Swartz, EdD
Executive Director

J. James Thimons, OD, FAAO
Chairman

Bud O'Leary, OD
Director

KE ~~emailed~~ Scanned and placed in pending folder for Committee 2/24/16 KE

Agenda Item 3D

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY

EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

Request for Approval of Continuing Education Course(s)

Janet Swartz, EdD
Executive Director
National Glaucoma Society
PO Box 4092
Andover, MA 01810

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-00151	6191321	6191321	150

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
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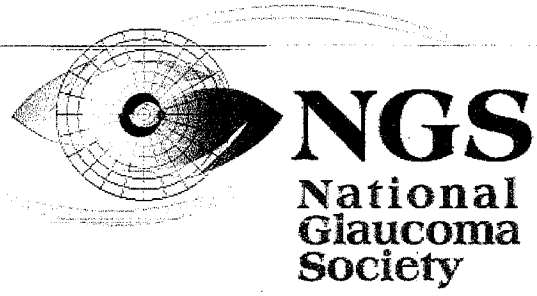
The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Glaucoma Grand Rounds	3-23-16	Michael Pokabla, DO	1			
Top 10 Oral Agents	4-13-16	J. James Thimons, OD	1			
Glaucoma Watch: Rapid Fire Topics in Glaucoma	5-18-16	Bud O'Leary, OD	1			

COMMITTEE COMMENTS:



P.O. Box 4092
Andover, MA 01810

Fax: 978-470-4520
Toll-free: 877-825-2020

www.NationalGlaucomaSociety.org
info@NationalGlaucomaSociety.org

January 20, 2016

California State Board of Optometry
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

The National Glaucoma Society (NGS) is a nonprofit organization dedicated to the advancement of knowledge and patient care among health care professionals in subjects relating to glaucoma through the support of educational seminars, electronic media, and dissemination of clinical research. Established in 2004, the NGS has offered continuing education to more than 10,000 optometrists around the country through on-site programs and live webinars.

We have had numerous requests from participating doctors to work with their states directly to recognize the remarkable technology and convenience of live online continuing education. As one of the largest nonprofit providers of continuing education in the United States, the NGS has been at the forefront of Live CE online and has worked with the best educators and clinicians to provide the highest quality education available.

Enclosed please find a *Request for Approval of Continuing Education Courses* for the following live lectures:

- March 23: 8-9 P.M. Eastern: Michael Pokabla, DO: ***Glaucoma Grand Rounds***
- April 13: 8-9 P.M. Eastern: J. James Thimons, OD, FAAO: ***Top 10 Oral Agents***
- May 18: 8-9 P.M. Eastern: Eugene ("Bud") O'Leary, OD: ***Glaucoma Watch: Rapid Fire Topics in Glaucoma***

A check for $150 to cover the $50 application fee per course also is enclosed along with course outlines, speaker CVs and a brochure advertising the live webinars.

For each live webinar, participating optometrists are able to interact directly with the speaker in real time as well as view the PowerPoint presentation and listen to the lecture via audio. A host optometrist and technical assistance staff are also on the live webinar to address any technology issues and provide assistance to any doctors having difficulty accessing the webinar. All attendees must reply to random questions by the host during the webinar to confirm their continued presence during the lecture. Participants must remain on the webinar for at least 50 minutes in order to receive CE credit (verified by the webinar technology).

All of the lectures are COPE-approved as live courses. However, state regulations differ on what is considered live CE and what is considered Online/Internet CE. Recognizing that state regulations supersede COPE guidelines, we are requesting approval directly from states for these live webinars. The Texas Board of Optometry and the New York State Board for Optometry both approve our live webinars as Live CE. Now we are contacting other states.

The National Glaucoma Society seeks approval of these live webinars as live CE so that California optometrists can take full advantage of these high-quality lectures.

Thank you for your time and consideration.

Janet Swartz, EdD
Executive Director

J. James Thimons, OD, FAAO
Chairman

Bud O'Leary, OD
Director

Webinars Spring 2016

REGISTER ON-LINE: www.NationalGlaucomaSociety.org

Optometrist

Name _____

Address _____

City _____ State _____

Zip Code _____ Phone _____

E-Mail _____

(Confirmation will be sent to e-mail address.)

Webinar Registration

√ Registration	Early Bird by Friday Before	Regular by Tuesday 9 pm
☐ March 9 — 8 AM		
Full NGS Member	Free	Free
Not a Full Member	$30	$40
☐ March 23 — 8 PM		
Full NGS Member	Free	Free
Not a Full Member	$30	$40
☐ April 6 — 8 AM		
Full NGS Member	Free	Free
Not a Full Member	$30	$40
☐ April 13 — 8 PM		
Full NGS Member	Free	Free
Not a Full Member	$30	$40
☐ May 4— 8 AM		
Full NGS Member	Free	Free
Not a Full Member	$30	$40
☐ May 18 — 8 PM		
Full NGS Member	Free	Free
Not a Full Member	$30	$40

Total Amount Due: $_____

Method of Payment

☐ Check payable to the National Glaucoma Society

☐ Master Card / Visa ☐ American Express

Credit Card # Exp. date

Signature

Fax completed form to 978-470-4520 or mail to:

National Glaucoma Society
P.O. Box 4092
Andover, MA 01810

Live Webinars for CE

Each Webinar is 1 Hour of CE Credit

Meets current NY State definition of LIVE CE

Approved by the Texas Board of Optometry as Live CE

Webinars alternate on morning or evening schedule — 8 AM or 8 PM Eastern Time

Webinars are free for Full NGS Members

For more information, go to:
www.NationalGlaucomaSociety.org

****

March 9, 2016

8:00-9:00 A.M. Eastern Time

Managing Your AMD Patients

Robert Dunphy, OD, FAAO
VA Medical Center, Boston, MA

****

March 23, 2016

8:00-9:00 P.M. Eastern Time

Glaucoma Grand Rounds

Michael Pokabla, DO
Glaucoma Consultants of the Capital Region
Slingerlands, NY

****

April 6, 2016

8:00-9:00 A.M. Eastern Time

My Favorite Cases

Anthony Litwak, OD, FAAO
VA Medical Center, Baltimore, MD

****

April 13, 2016

8:00-9:00 P.M. Eastern Time

Top 10 Oral Agents

J. James Thimons, OD, FAAO
Ophthalmic Consultants of Connecticut
Fairfield, CT

May 4 2016

8:00-9:00 A.M. Eastern Time

The Role of Ocular Surface Disease in Glaucoma

J. James Thimons, OD, FAAO
Ophthalmic Consultants of Connecticut
Fairfield, CT

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May 18, 2016

8:00-9:00 P.M. Eastern Time

Glaucoma Watch: Rapid Fire Topics in Glaucoma Today

Bud O'Leary, OD
Reading Eye Associates
Reading, MA

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Glaucoma Grand Rounds

Michael J. Pokabla DO, MS
Glaucoma Consultants of the Capital Region, Slingerlands, NY

Case 1: 56 y/o male

- Cataract surgery 8 years ago
- Persistent episodes of cell and flare – more episodes than he can remember....
- Large trans-illumination defect supra-nasally
- Haptic visible under TI defect
- Very dark TM – 360 degrees
- Unable to view haptics with DFE – gonioscopy
- 20/20 vision
- Normal IOP

TI Defect

What would you start with?

- Cyclogyl ?
- Atropine ?
- Steroids ?

What to do now?

- Watch and wait?
  - ✓ Have some patients that I have just watched
  - ✓ Not this guy
  - ✓ Young-healthy-unhappy-symptomatic

Surgical options
Reposition haptic

- Remove haptic
- Remove lens and haptics with 3 piece lens *or* ACIOL

What I did...

- LONG discussion about options
- Detailed discussion of risks-benefits-alternatives
- He wanted to do the MINIMAL amount of surgery
- Decided reposition haptic or remove the haptic.
- Used an Endoscopic Cyclophotocoagulation probe to view what exactly was going on...

This is what I could see

This is what I did

- First...Unable to reposition the haptic in the bag
- So we waited a few months to see if he would clear his anterior chamber.
- He was clear for a few weeks and the.....started bleeding again!

What I did, NEXT....Surgery # 2

- Removal of IOL and remaining haptic
- Placed a 3 piece IOL in sulcus with optic capture
- To date is doing well.... 3 months out
- Still has a trace pigment floating around (TM clogged with pigment = difficult to clear cell)
- IOP stable

- Vision stable
- No re-bleed or IOP spike, yet...

Take away
- Be suspicious for UGH syndrome
- Pseudophakic
- TI defects (not diffuse)
- Chronic "Uveitis" diagnosis with pigmented cells
- Dark, Dark TM

CASE 2
- 41 year old male
- Hit his eye on a cupboard door 3 days prior
- History of glaucoma surgery in Boston at age 18
- Seen by ophthalmologist and diagnosed with a retinal detachment. IOP of 16 mmHg
- Sent to retina for urgent evaluation.
- Retina saw low IOP and sent to us (Patiet lives in Vermont, 2 hours away, yes, its Friday)
- No pain
- IOP = 0
- Vision 20/200
- Large brisk bleb leak 3mm from limbus superior over bleb.
- Trace cell in AC

Bleb leaks in the office
- Small or Large
- At limbus – or – Over bleb
- What can we do in the office?

Small Bleb leaks in the office
- At limbus
  - ✓ Antibiotics
  - ✓ Aqueus suppressant
  - ✓ Bandage contact lens
  - ✓ Ensure the lens is covering the leak (Kontur)
- Avoid patching
- Follow close for signs of infection

Small Bleb leaks in the office
- Over bleb
  - ✓ Antibiotics
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- ✓ Bandage contact lens
- ✓ Ensure the lens is covering the leak (Kontur)
- Follow close for signs of infection
- Avoid patching
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Large Bleb leaks in the office

- Over bleb
  - Antibiotics
- Will need repaired in OR

What I did

- Taken to OR for repair that night
- Large brisk leak, choroidals, cell in his AC
- Opened up conjunctiva and thoroughly examined eye to ensure did not have a globe rupture.
- Large area of conjunctiva needed excised and advanced.
- Risk of running out of real estate
- Conjunctiva may be friable (MMC, old bleb, inflammation)
- May require patch graft to close properly.
- Have to manage IOP with a closed trabeculectomy
- Discuss with patient this may not be their last surgery to fix this problem (set expectations – drops, tube shunt, etc...).

Take away

- Certain bleb leaks can be managed in the office.
- Be suspicious in patients with blebs and any type of trauma.
- Looks for signs of an open globe.
- Take the IOP yourself.
- Check for leaks thoroughly.
- Choroidals have a dome appearance.
- RD looks folded most often.

Case # 3

- 44 y/o male
- IOP in the mid 30's – LEFT EYE
- Reliable with eye drops.
- Corneal transplant (PKP) 5 years ago and is going the wrong way.
- Ahmed GDD 3 years ago.
- Set to have a second PKP in this eye.
- Poor looking conjunctiva
- Moderately healthy looking nerve.

Tough case – What to do?

- Options
  - ✓ Diamox?
  - ✓ Second tube?
  - ✓ Cyclo-photo-coagulation?
  - ✓ Other??
- Cyclophotocoagulation
- Endoscopic-Cyclo-photocoagulation
- Place tube in other quadrant (+/- risk of erosion)

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DATE AND PLACE OF BIRTH

Birthdate: February 2, 1977

Birthplace: Youngstown, Ohio

EDUCATION

B.S. Biology: May 1999; Mount Union College, Alliance, OH.

M.S. Neuroscience: May 2004; North Eastern Ohio Universities College of Medicine/KSU, Rootstown, OH.

Doctor of Osteopathic Medicine: July 30, 2001 - June 4, 2005; The University of New England College of Osteopathic Medicine – 11 Hills Beach Road, Biddeford, ME 04005.

Internship: 7.2005-6.2006; Doctors Hospital/OUCOM - 5100 West Broad Street, Columbus, OH 43228.

Residency: 7.2006-6.2009; Doctors Hospital/OUCOM; Ophthalmology (Chief Resident) - 5100 West Broad Street, Columbus, OH 43228.

Fellowship: 7.2009-6.2010; University of Pittsburgh Medical Center Eye Center; Ophthalmology/Glaucoma – 203 Lothrop Street, Pittsburgh, PA 15213.

WORK EXPERIENCE

Glaucoma Consultants of the Capital Region: Slingerlands, NY. 9.2012 – present.

Albany Medical College: Albany, NY. Assistant Professor of Ophthalmology. 7.2013-present.

Veterans Affairs Hospital: Albany, NY. Department of Ophthalmology. 10.2012-present.

Carle Clinic Foundation Department of Ophthalmology: Urbana, IL. 8.2010 – 8.2012.

Clinical Instructor, Department of Surgery: The University of Illinois College of Medicine, Urbana-Champaign, IL: 8.2010 – 8.2012.

Clinical Instructor in Ophthalmology: University of Pittsburgh Medical Center (UPMC), Pittsburgh, PA: 7.2009 - 6.2010.

Clinical Instructor: Ohio University College of Osteopathic Medicine, Columbus, OH 10.2008-6.2009

Research Specialist: Emory University Medical School, Atlanta, GA: 2002- Designed and tested protocol for *in vivo* con-focal imaging of peripheral nerve regeneration. P.I.- Dr. Arthur English PhD.

Instructor: North Eastern Ohio Universities College of Medicine, Rootstown, OH: 2000- Medical Neuro-anatomy Laboratory.

PUBLICATIONS/PRESENTATIONS

• Lee D, Pokabla MJ, Noecker, RJ. Three year follow up of intraoperative subconjunctival mitomycin C injection with lidocaine in conjunction with placement of ExPress minishunts for treatment of glaucoma. American Glaucoma Society Abstract, March 15th, San Diego, CA.

• Pokabla MJ, Noecker RJ. Three year follow up of one suture technique for placement of glaucoma drainage devices. American Glaucoma Society Abstract, March 15th, San Diego, CA.

• Kumar S, Wang EH, Pokabla MJ, Noecker RJ. Teleophthalmology assessment of diabetic retinopathy fundus images: smartphone versus standard office computer workstation. Telemed J E Health. 2012 Mar;18(2):158-62.

• Wingard JB, Miller KV, Pokabla MJ, Strunk KM, Gray JL, Bentivegna R, Noecker RJ. Comparison of morphologic changes after continuous and micro-pulse yellow laser trabeculoplasty by scanning electron microscopy. American Society of Cataract and Refractive Surgery, March 2011, San Diego, CA, Poster P307. Poster Award : Honorable Mention.

• Miller JV, Wingard JB, Pokabla MJ, Strunk JM, Gray JL, Bentivegna R, Noecker RJ. Comparison of 25-gauge and 27 gauge needle for mini-shunt insertion in trabeculectomy surgery by scanning electron microscopy. American Society of Cataract and Refractive Surgery, March 2011, San Diego, CA, Poster P298.

• Noecker RJ, Pokabla MJ. Safety an efficacy of fixed combination travoprost-timolol in the lowering of intraocular pressure. Clinical Medicine Insights: Therapeutics 2010:2;417-425

• Pokabla MJ, Shah RE, Schuman JS, Noecker RJ. Evaluation of Portable Imaging Modalities For Use in Tele-Ophthalmology Consultations. The Association for Research in Vision and Ophthalmology Abstract. May 2010, Ft. Lauderdale, FL.

• Hein A, Pokabla MJ, Lu D, Hong L, Xiaomi X, Weber S, Noecker RJ. Chemical Analysis of Xalatan 0.005% Compared with Commercially Available Latanoprost Formulations. American Glaucoma Society Abstract. February 2010, Naples, FL

• Noecker RJ, Pokabla MJ. Subtenon's Injection of Mitomycin C for Topical Express Mini Glaucoma Shunt Surgery. American Glaucoma Society Abstract. February 2010, Naples, FL

• Pokabla MJ, Noecker RJ. The Placement of Baerveldt Glaucoma Drainage Device without the use of Plate-to-Sclera Stabilizing Sutures. American Glaucoma Society Abstract. February 2010, Naples, FL

• Ohio Academy of Science Abstract 1999- The effects of methoprene and its decomposition products on metabolic rate and hind-limb development in Xenopus laevis. The Ohio Journal of Science 99(1): A-8

• Pokabla, M.J., I.M. Dickerson, T. Vonieda and R.E. Papka (2000) Calcitonin gene-related peptide-receptor component protein (CGRP-RCP) immunoreactivity in the cervix, lumbosacral dorsal root ganglia, and lumbosacral spinal cord. Soc. Neurosci. Abst. 26:1678

• Pokabla MJ, Dickerson IM, Papka RE. Calcitonin Gene-Related Peptide-Receptor Component Protein Immunoreactivity in the Uterine Cervix, Lumbosacral Dorsal Root Ganglia, and the Lumbosacral Spinal Cord. Peptides 2002 23: 507-514

SOCIETIES/ORGANIZATIONS

- American Osteopathic Colleges of Ophthalmology and Otolaryngology - Head and Neck Surgery
- American Osteopathic Association
- American Academy of Ophthalmology
- Pharmaceutical and Therapeutics Committee: Doctors Hospital 2006-2009

HONORS/ AWARDS

Eye Star Award: Albany Medical College Department of Ophthalmology. 2014.

Lions Eye Bank: Albany, NY. Research grant recipient 2013. A Pilot Study Evaluation of Ocular Tear Film pH Utilizing Micro Liter Samples and the Relationship to Topical Glaucoma Medication Use.

Resident of the Year (Specialty): Doctors Hospital/OUCOM, Columbus, OH 2008-2009

Outstanding Resident Consultant Award: Emergency Medicine Residency Program – Doctors Hospital/OUCOM - First Recipient of Award 2008

Intern of the Year: Doctors Hospital/OUCOM 2005-06

Prism Award Nominee: Community Service Medallion Award/Ohio Health Hospitals 2005

Top Ten Oral Agents

J. James Thimons, O.D.,FAAO
Ophthalmic Consultants of Connecticut

THE CYCLINES

- RCE
- PLD
- Lyme's
- Microbial Keratitis
- Corneal "melt" syndrome

The Cyclines

- Tetracycline, Doxycycline and Minocycline
  - Isolated from Streptomyces
  - Effective against Gram +/ Gram -/Aerobic/ Anerobic/ Spirochetes/Rickettsia/Chlamydia
  - Similar action / different duration

The Cyclines

- Clinical Applications
  - Brucellosis
  - Rickettsia (Rocky Mountain Spotted fever)
  - Lyme Disease
  - Chlamydia/ Trachoma
  - Primary Meibomianitis
  - Gonococcal Prophylaxis
  - "Corneal melting" Syndrome
  - Non Healing Corneal lesions
  - Rosacea

ORAL ANTIBIOTICS

- PCN's
- Cephalosporin's
- Macrolides

Ocular Bacterial Disease: Posterior Blepharitis

- Hordeola
- Canaliculitis
- Conjunctivitis
- Keratitis
- Dacryocystitis
- Dacroadenitis
- Preseptal/orbital cellulitis
- Endophthalmitis

Bacterial Flora of the Normal Eye/Adults

Staphylococcus *epidermidis*	75-90%*	Hemophilus influenza	3% or more
Diphteroids (C. *xerosis*)	20-33%	Streptococcus *pneumoniae*	1-3%*
Staphylococcus *Aureus*	20-25%*	Gram negative rods	1% or more*
Streptococcus (S. *viridan*)	2-6%	Pseudomonas *aeruginosa*	0-5%*

** Dominant organisms in microbial keratitis*

Body depots of bacterial organisms

- Skin: Lids/hands: Staph/Gr. (+)
- Nose/nasopharynx: Staph and GR (+)
- Kids: Hemophilus
- Oropharynx: Staph and StrepGr (+)
- Mouth: Strep/Bacteroides
- Stomach: Helicobacter pylori and rosaceae
- Small Intestine: Gr (+) cocci and bacilli
- Large intestine: Greatest conc of bacteria in body (10 organisms/gm) anerobes-enterobacteria, enterococcus feacalis, E. coli
- Genito-urinary tract: Chlamydia, E. coli, Neisseria gonorrhea (Ophthalmia neonatorum)

Bacterial conjunctivitis

- In adults, 75% of cases caused by Gram positive pathogens
  - *Staphylococcus epidermidis, S. aureus, Streptococcus pneumoniae*
- Very common in children under 6 years

- Causal agents of pediatric cases:
  - 42% *Haemophilus influenzae*
  - 35% *S. pneumoniae*

Common Ocular Pathogens

Gram (+)

- Staph epidermidis
  - ✓ Coagulase negative
  - ✓ Opportunistic pathogen
  - ✓ Frequent cause of CL keratitis
  - ✓ Normal flora
  - ✓ Chronic bleparitis
- Staph aureus
  - ✓ Coagulase positive
  - ✓ Methacillin resistant strain
  - ✓ Exotoxins
  - ✓ Inflammatory disease
  - ✓ Abscess formation
  - ✓ Severe keratitis

Gram (-) species

- Pseudomonas
- Hemophilus
- Klebsiella
- Serratia
- Moraxella
- Neiserria

Important Penicillins

- Ampicillin: Broad spectrum oral-QID dosing
- Amoxicillin: Pro-drug of Ampicillin, improved absorption with lower GI side-effects
- Cloxacillin/Dicloxacillin: Intrinsic beta-lactamase resistance
- Augmentin: Amox + Clavulanate
- Methicillin: IV prep for penicillinase producers
- Amp + Sulbactam: Unasyn: IV

Ticarcillin + Clavulonic acid: IV better penicillinase protection than methacillin

Augmentin: Indications/Dosage forms

- Indications:
  - Preseptal cellulitis
  - Dacryocystitis
  - Pediatric Hemophilus
  - Amoxicillin + Clavulanate
- Dosage forms:500 or 875mg tablets BID; 125 or 250mg/5cc pediatric suspension

Amoxacillin/Clavaulanate

- Broad spectrum penicillin (Staph, Strep, Hemophilus
- Effective against penicillinase producers-clavulanate blocks penicillinase
- High therapeutic index
- Bacteriocidal
- Low GI side-efffects
- Safe in pregnancy
- Watch out for allergy
- Cheap***

Plan B: The cephalosporins

- Mechanism: Same as penicillin
- Bacteriostatic
- Low toxicity
- 3% allergic to pen are allergic to Ceph.
- Better penicillinase resistance than penicillins

Know your generations

First Generation: Good GR (+) activity against penicillinase producers/poor Gr (-) activity especially Hemophilus (children)

- Cefadroxil: Duricef-PO
- Cephazolin: IV- Ancef- Keratitis
- Cephalexin: PO-Keflex
- Cephadrine: PO- Velosef

Second Generation: Greater Gram (-) activity, especially Hemophilus

- Cefaclor: PO-Ceclor
- Cefuroxime: PO-Ceftin

Third Generation: Reduced GR (+) activity (Staph sp) with marked Gr (-) activity

- Cefixime: PO- (Suprax)
- Cefpodoxime: PO - Vantin
- Cefprozil: PO - Cefzil

ANTIHISTAMINES

- H1 blockers reduce both aqueous and mucin production
- As little as 4 mg daily of chlorpheniramine maleate can produce positive Schirmer test
- Four days of once-daily loratadine (Claritin) can induce dry eye and corneal staining
- Can aggravate underlying condition of dry eye

So Where Do I Find Package Inserts? http://www.accessdata.fda.gov/Scripts/cder/DrugsatFDA/
Use Epocrates on Smartphone or iPad

Valtrex (valacyclovir HCl)

- Pharmacology:
- ✓ Synthetic purine (guanosine) nucleoside analog, prodrug of acyclovir.
- ✓ Valacyclovir is almost completely converted to acyclovir by first pass intestinal and/or hepatic metabolism.
- Formulation: 500 and 1000 mg tablets.
- Usual Dosage:
- ✓ Adults: 1000 mg q8h x 7 days (HZV).
- ✓ Children: Safety not fully evaluated.
- Indications: HZV ophthalmicus, suppression of recurrent HSV keratitis.
- Safety/efficacy of long-term HSV suppressive tx not fully established, but likely comparable to acyclovir.

Zovirax (acyclovir)

- Pharmacology:
- Synthetic purine (guanosine) nucleoside analog.
  - Acyclovir is phosphorylated by the enzyme thymidine kinase which is encoded by herpes viruses (HSV-1, HSV-2, HZV). Acylovir triphosphate selectively inhibits herpes-specific polymerase which, in turn, produces viral DNA termination.
- Formulation: 400 and 800 mg tablets.
- Usual Dosage:
  - ✓ Adults: 800 mg 5x qd x 7 days (acute HZV).
  - ✓ Children: Safety and efficacy not fully evaluated in ocular disease mgmt.
- Indications:
  - HZV ophthalmicus, suppression of recurrent HSV keratitis.
- 400 mg bid for up to 1 yr. for chronic suppressive tx. (greatest benefit in recurrent, vision threatening stromal HSV keratitis or cases where vision loss from HSV epith. keratitis is a concern).

Famvir (famciclovir)

- Pharmacology:
  - Synthetic nucleoside (guanine) analog, prodrug of penciclovir.
  - Penciclovir conversion into acyclovir triphosphat inhibits herpes virus-specific polymerases & produces viral DNA termination.
- Formulation: 125, 250 and 500 mg tablets.
- Usual Dosage:Adults: 500 mg q8h x 7 days (HZV)
- Children: Safety not fully evaluated.
- Indications: HZV ophthalmicus, suppression of recurrent HSV keratitis.
- Safety/efficacy of long-term HSV suppressive tx not fully established.

THE ANTIVIRAL FOR THE 21ST CENTURY

- Zirgan 0.15% Gel
- Sirion Pharmaceuticals
- HSK 2 years and older
- Ganciclovir: Selectively targets replication of HSV DNA within corneal cells
- Dose: 5 x / day till lesion resolves then tid for one week
- Toxicity:
  - 60% blur
  - 20% irritation
  - 5% Hyperemia

HEDS II: ***Results***

- ***HEDS-EKT***: In the Tx of acute HSV epithelial keratitis, there was ***no benefit*** from the addition of *oral acyclovir* to Tx with topical trifluridine in preventing the development of stromal keratitis or iritis. Study found that the risk of stromal keratitis or iridocyclitis was quite low in the year following an episode of epithelial keratitis Tx with topical trifluridine alone.

- ***HEDS-APT***: Acyclovir po reduced by *41%* the probability that *any form* of ocular herpes would return in pts who had the infection in the previous yr. Researchers noted ***50%*** reduction in the rate of return of the more severe form of the disease (*stromal keratitis*) among pts who had this infection during the past year.

- Acyclovir po reduced the incidence of epithelial keratitis from 11 to 9% and the incidence of stromal keratitis from 13 to 8%.
- 4% pts in acyclovir group & 9% pts pts in placebo group had more than one recurrence.

CORTICOSTEROIDS

Steroids

- 99 % topical use in eye care
- Medrol Dose Pack most common
- Pred Forte Generic since January 2009
- Lotemax/ Alrex & Durezol
- INHIBIT PROSTAGLANDIN AND LEUKOTRIENE ACTIVITY BY BLOCKING ACTION OF ENZYME PHOSPHOLIPASE A2.

Corticosteroids

- Can elevate IOP via all routes of administration
  - ✓ Oral
  - ✓ Intravenous
  - ✓ Topical ophthalmic
  - ✓ Periocular
  - ✓ Inhalation
  - ✓ Intranasal

Interesting Facts

- In steroid responders, oral steroids produce about 60% the increase in IOP as compared with topical agents
- In POAG patients, response rate is 46 to 92% compared with 18 to 36% in normal population
- Risk factors include increasing age, diabetes, high myopia, connective tissue diseases, and a first-degree relative with open-angle glaucoma
- In steroid responders, onset of IOP elevation occurs after about two weeks of use
- Time of onset often longer for systemic steroids
- Complex pathophysiologic factors result in increased resistance to aqueous outflow

Patient Management

- Monitor glaucoma patients carefully when they are taking systemic steroids
- IOP normally returns to pretreatment levels within 2 to 4 weeks of steroid taper or discontinuation
- The use of low to medium-dosage inhaled steroids and nasal steroids appears to have little risk

NSAIDs

- IBUPROFEN
- KETOROLAC
- INDOMETHACIN
- NAPROXEN
- TRAMADOL
- CELEBREX

NSAIDs

- CORNEAL OPACITIES(WHORL)
- TINNITUS
- FLUID RETENTION
- EPISTAXIS
- BREAST CHANGES
- ANEMIA/BLEEDING
- CONSTIPATION

NSAIDs

- CLINICAL APPLICATIONS
  - ANALGESIA
  - ANTI-INFLAMMATORY
  - MUSCULOSKELATAL/ MYOSITIS
  - ACUTE GOUT
  - DYSMENNORRHEA
  - CME

NARCOTIC AGENTS

- Effective for severe acute pain
- Patient response variability due to individual sensitivity of opioid receptors
- No addiction likely with short term use
- Dosage varies with drug used and patient
- Adverse effects is usually the limiting factor in usage

Narcotic Agents

- Hydrocodone (Schedule III) (Lortab, Vicodin) 2.5-7.0mg tid-qid with acetaminophen

Narcotic Agents

- 6 times more potent than codeine
- Less gastrointestinal problems
- Less sedation
- ?? euphoria

Important notification for patients

- Drowsiness
- Dizziness
- Blurred vision
- Nausea/vomiting/constipation
- Take with food to avoid GI distress
- Avoid Etoh or other CNS agents
- Breathing distress

Contraindications

- Bronchial asthma
- COPD
- Emphysema
- Pregnancy
- Hypersensitivity
- Prior addiction
- Renal/Liver dysfunction
- H/O Etoh use, Concurrent use of CNS agents(Tricyclic antidepressants, Phenothiazines)

BETA BLOCKERS

- Used extensively for treatment of systemic hypertension
- Atenolol, metoprolol, nadolol, pindolol, propranolol, and timolol have been documented to produce dose-dependent reduction in IOP
- Ocular hypotensive effect comparable to that achieved with topically applied timolol

Mechanism

- Decreased aqueous formation via an action linked to predominantly beta-2 receptors on nonpigmented ciliary epithelium
- Nonselective oral beta blockers have particularly effective ocular hypotensive effects
- Topical often produce little additional IOP reduction when administered concomitantly with oral beta blockers

Management

- Reduction in IOP may confuse the diagnosis of open-angle glaucoma
- Patients with glaucomatous optic neuropathy may be diagnosed incorrectly as having NTG
- Adding a topical beta blocker may be unproductive except in patients receiving a beta-1 selective oral agent
- Discontinuation of oral beta blocker therapy may result in substantially higher IOP

Bottom Line

- Although oral beta blockers are not approved as ocular hypotensive agents, the IOP lowering activity of these drugs may have a beneficial effect in the glaucoma patient
- In general, it is best to avoid topical beta blockers in patients taking oral beta blockers

ANTIHISTAMINES

- CLINICAL APPLICATIONS
  - ACUTE VS CHRONIC USE
  - ALLERGIC CONJUNCTIVITIS
  - RHINITIS
  - POST-NASAL DISCHARGE
  - ASTHMA
  - ANAPHYLAXIS

Antihistamines

- Sedating Agents - more effective for acute conditions, fast acting
  - Diphenhydramine (Benadryl) 25-50 mg qhs or q4-6h
  - Clemastine (Tavist-1) 1 mg q12h
  - Chlorpheniramine (Chlor-Trimeton) 4 mg q4-6h
- Nonsedating Agents - more effective for seasonal allergy, maintenance dosing
  - Loratadine (Claritin) 10 mg qd
  - Cetirizine (Zyrtec) 5-10 mg qd
  - Fexofenadine (Allegra) 60 mg bid
  - Desloratadine (Clarinex) 10 mg qd

ANTIHISTAMINES

- Second generation
- Decreased anti-cholinergic effect
- Headache 11%
- Combination therapy (oral/ topical) most effective

ANTI-HISTAMINES

- SIDE EFFECTS
  - AQUEOUS TEAR/MUCIN DECREASE
  - HEADACHE 11%
  - MYDRIASIS
  - NYSTAGMUS
  - IOP INCREASE

MISCELLANEOUS AGENTS

- Phenothiazines
- Antianxiety agents
- Most antidepressants have anticholinergic activity

Antidepressants Causing Dry Eye

- Celexa
- Cymbalta
- Effexor XR
- Lexapro
- Nardil

Glaucoma Watch: Rapid Fire Topics in Glaucoma
Bud O'Leary, OD

Predictions

- Glaucoma Diagnosis and Treatment will dramatically change in the next 5 years
  - Question what we do
  - Think about the future
  - Focus on "detection"

#1 Photosensitive RGC

- New class of photoreceptor (non-rod/cone)
- Located in the Retinal Ganglion Cell Layer
- Phototransduction accomplished with opsin that resembles invertebrate opsin called melanopsin
  - Maximum activity at 480 nm
- Same neurotransmitter and rods & cones
  - Glutamate

Photosensitive RGC

- Different brain targets than rods/cones
  - Olivary per-tectal nucleus:
    - pupillary control
  - Supra-chiasmal nucleus of the hypothalmus:
    - circadian rhythms

- Photoreactive RGC linked to detection of light / dark contrasts
  - Threshold for detecting edges in a visual scene

- Visual function previously thought to be mediated only by rods and cones are also influenced by this system
- Neuron, Vol 82, Issue 4, 781-788, Schmidt, T, et al

- Explains pupillary activity in blind people
- Could explain change in sleep cycles with age
- Ganglion cell also susceptible to glaucoma?
  - Could it be used as a predictor ?

#2 Can Glaucoma be Cured?

- 1st sign of glaucoma occurs in the brain
  - David Calkins, Ph.D.
- Not the eye
- Analogous to Parkinson's and Alzheimer's

Earliest sign of glaucoma

- Reduction of active transport starting at the most distal retinal ganglion axon terminals in the superior colliculus

- Reduction of active transport at the superior colliculus follows the same retinal pattern resembling glaucomatous vision loss

Diminished Axonal Transport

Axon Transport Deficits Progress Distal to Proximal !

- Superior colliculus
- Pre-tectum
- Lateral geniculate body
- Optic tract
- Optic nerve head
- Retinal soma

Retinal Ganglion Cell persistence

- Myelinated RGC axons and their pre-synaptic terminals persist at the superior colliculus well after transport fails

- Distal transport loss is pre-degenerative and may represent a therapeutic target
  - Brimonidine 1mg/kg/day by subcutaneous pump

It's the axon

- Very long
  - Greater distance for accurate conduction of the action potential
- Very narrow
  - Limited ability to transport key organelles and nutrients

It's the axon...

- Myelination
  - No benefit of enlargement at the transition zone to minimize bottlenecks
- Metabolism
  - Mitochondrial gradient and transport limitations
    - Greater abundance of mitochondria in unmeylinated nerve fiber layer due to greater energy demand
    - Fewer mitochondria in myelinated axon
  - Lamina acts a barrier to movement distally

David Calkins, Ph.D.:

- "A key need is the application of emerging tools, such as proteomics and metabolomics, that are sufficiently sensitive to <u>identify the molecular signature of the transition from ocular etiology</u> (e.g. IOP and scleral mechanics) <u>to the beginnings of axonopathy and vision loss."</u>

- Ah Ha: Biomarkers...

#3 Biomarkers

- Systemic diseases
  - Cancers
  - Diabetes
  - Inflammations
- Neurodegenerative disease
  - Alzheimer's - available
  - Parkinson's - available
  - Glaucoma - coming soon

Traditional Blood Tests

- Blood Biomarkers
- Other body fluids contain biomarkers

- Lab tests target large molecule identification
- Large molecules do not cross Brain / Blood Barriers
- Therefore, can't measure brain dysfunctions?

Large molecule biomarkers

- Enter: Theranos
  - Elizabeth Holmes: youngest female billionaire
- Coming to your neighborhood pharmacy
  - Walgreen's

- Directed and self-directed tests
  - Testing for proteins and segments also available

What about that Brain / Blood Barrier

- 2013 Nobel Prize in Medicine and Physiology was jointly awarded to 3 scientists for their discovery of cellular vesicle transport
- Used to diagnose & track disease progress and efficacy of treatment
- Crosses the Brain / Blood Barrier !!

Exosome

- Small lipid membrane vesicles containing proteins or mRNA segments
  - 30-150 nanometers
  - 10 billion exosomes in 1 ml of blood plasma
  - Cell communication and support
- Found in all body fluids
  - 491 exosomes identified in tears

You can buy the kits now

- Alzheimer's and Parkinson's
  - Exosome Diagnostics
  - Caris Life Sciences
  - Proteomics, Inc.
- GLAUCOMA specific exosomes are only a matter of time.

#4 A Novel Biosensor

- Smart phone technology
- "Disruptive" technology
- Changes the way we live

#5 What's coming

- New hand held OCT device to simplify early detection of retinal disease.

- "Scans the entire retina in 1.4 seconds and could aid the primary care physician in the early detection on a host of retinal disease including diabetic retinopathy, glaucoma and macula degeneration"

It's been done before, but ...

- First to combine:
  - Ultra-high speed 3-D imaging
  - Micro-electro-mechanical mirror system for scanning
  - System to correct for unintentional movement of the eye

James Fujimoto, Ph.D., MIT

- 10 x 10 mm^2 Volume Cross-Sectional Flythrough

Eugene Thomas O'Leary, O.D.

Home 22 Algonquin Avenue
Andover, MA 01810
978-470-3630

Office 70 Haven Street
Reading, MA 01867
781-942-0044

Education

Doctorate of Optometry, 1979
New England College of Optometry
Boston, MA

Bachelor of Arts, 1974
Washington University
St. Louis, MO

Licenses and Certifications

Certificate of Qualification, 1998
Use of Therapeutic Pharmaceutical Agents
Massachusetts Board of Registration in Optometry

Certificate of Qualification, 1987
Use of Diagnostic Pharmaceutical Agents
Massachusetts Board of Registration in Optometry

Certificate to Practice Optometry, 1980
Massachusetts Board of Registration in Optometry

Professional Experience

1981- Present Optometrist and President
Reading Eye Associates, P.C., Reading, MA

Honors and Awards

Massachusetts Society of Optometrists, Volunteer of the Year, 2004
Massachusetts Society of Optometrists, Optometrist of the Year, 2003
Massachusetts Society of Optometrists, Committee Chairman of the Year, 2002
Massachusetts Society of Optometrists, Calhoon Award, 2001
New England College of Optometry Alumnus of the Year, 1999
Massachusetts Society of Optometrists, Committee Chairman of the Year, 1997
Massachusetts Society of Optometrists, Optometrist of the Year, 1994
Massachusetts Society of Optometrists, Committee Chairman of the Year, 1992
The Robert Morgan Community Health Service Award, 1979
New England College of Optometry Alumni Association Award, 1979
The Gold Key International Honor Society Award, 1979

Professional Positions

2004-present	National Glaucoma Society, Director
2003-04	Massachusetts Society of Optometrists, Vice President
2000-03	Massachusetts Society of Optometrists, Chairman, Continuing Education Committee
1999-02	Massachusetts Society of Optometrists, Secretary
1997-00	Massachusetts Board of Registration in Optometry, Secretary
1995-98	Massachusetts Society of Optometrists, Chairman, Managed Care Committee
1995-present	Optometric Resource Group, President
1990-96	Massachusetts Optometric Political Action Committee, Chairman
1992-94	Massachusetts Society of Optometrists, Chairman, Legislative Affairs Committee

Professional Organizations

American Optometric Association
Benign Essential Blepharospasm Research Foundation
Massachusetts Society of Optometrists
New England College of Optometry Alumni Association
National Glaucoma Society
National Cornea and Anterior Segment Society
Optometric Resource Group

J. JAMES THIMONS, O.D., FAAO

Office
75 Kings Highway Cutoff
Fairfield, CT 06430
203-366-8000

Home
165 Stella Lane
Fairfield, CT 06430
203-257-7336

PERSONAL

Birthplace: Tarentum, PA. 10/28/51
Marital Status: Married, 3 Children

EDUCATION

Veterans Administration Medical Center, Chillicothe, Ohio Resident; Hospital Optometry	July 1978 – July 1979
Ohio State University, College of Optometry, Columbus Ohio Doctor of Optometry	June 1978
Miami University, Oxford Ohio Bachelor of Arts, Chemistry	1973
Pennsylvania College of Optometry Course in Ocular Therapeutics	1988
LAB Therapeutic Certification	1988

ADDITIONAL ACADEMIC EXPERIENCE:

Veterans Administration Medical Center, Chillicothe, Ohio Externship	June 1977 – August 1977
Ohio State University, College of Optometry Research Assistant (Dr. James Sheedy)	1977-1978

PROFESSIONAL EMPLOYMENT

Medical Director Ophthalmic Consultants Of Connecticut	September 2002-Present
Director, TLC/Ophthalmic Consultants Of Connecticut	September 1998 – 2002
State University of New York State College of Optometry Director, Glaucoma Institute	January 1997 – September 1998
Chairman, Department of Clinical Science	October 1988 to December 1997
Director of Professional Services	October 1988 to December 1997
Director of Externship Programs	October 1988 to December 1997
OMNI Eye Services, Fairfax, VA Center Director	1985-1988
VA Medical Center, Chillicothe, Ohio Chief Optometry Section	1979-1985

HOSPTAL COMMITTEES

1. Medical Center Quality Assurance
2. Medical Service Credentialing Committee

COLLEGE COMMITTEE APPOINTMENTS

1. Chair, Clinic Council
2. Member, Deans Council
3. Member, Course and Standing Committee
4. Chair, Continuing Education Committee

UNIVERSITY AND TEACHING APPOINTMENTS

1. Ohio State University, College of Optometry	1979-1986
2. Director, VA Optometry Residency Program	1979-1986
3. Pennsylvania College of Optometry Associate Clinical Professor	September 1986- Present
4. SUNY, State College of Optometry Tenured Associate Professor	August 1988-September 1998
5. Pacific University, College of Optometry	1995-present
6. NEWENCO, Clinical Professor	May 1999-present

ACADEMIC ACTIVITIES

1. Instructor of Record, Visual Fields, Second Year.
2. Instructor of Record, Post Operative Co-Management Course, Fourth Year.
3. Instructor of Record, Examiner Laser Certification Course, Fourth Year.
4. Instructor, Glaucoma Course, Third Year.
5. Coordinator, Summer Foreign Student Externship

AWARDS

1. Directors Service Commendation, VAMC Chillicothe, Ohio
2. NYSOA Leadership Award
3. Connecticut Optometric Association, Presidents Award
4. NJOA, Special Recognition Award for Outstanding Service
5. NYSOA Distinguished Service Award
6. Connecticut Association of Optometry Distinguished Service Award
7. Armed Forces Optometric Society, Certificate of Appreciation
8. George Comstock Award for Distinguished Service
9. AOA Special Service Award
10. Optometrist of the Decade
11. National Optometric Educator of the Year 1999
12. Australian Optometric Association Service Award

GRANTS

1. Principle Investigator, Glaucoma Institute for Clinical Research and Education, CIBA Ophthalmics, $250,000.

PROFESSIONAL ORGANIZATIONS

1. Fellow American Academy of Optometry	1982 - Present
2. American Optometric Association	1978 - Present

3. National Association of VA Optometrists 1980 - Present
4. Beta Sigma Kappa 1978 - Present
6. Connecticut Optometric Association 1988 – Present
7. Prentice Society 1989 – Present
8. Optometric Glaucoma Society 2002- Present

PUBLICATIONS

Editor

1. TPA Assessment – A Clinical Text, Editor, Anadem Publishing.
2. Clinical Editor, Optometric Management

Chapters

1. "Special Testing" – London, Richard, et al. Lippencott. Chapter Author; "Neu.ro-Ophthalmic Diagnostic Imaging", 1988.
2. "Graves Disease: Background and An Unusual Case – Primary Care, Thimons, J.J., 1989.
3. "Trends and Developments/KeeL-r Tnstruments Company Video Binocular Indirect Ophthalmoscope Camera-Clinical Eye Care, Thimons, J.J., 1990.
4. "Grand Rounds: Low Tension Glaucoma-Optometry Clinics, Alexander, Larry, Fingeret, Murray, Jennings, Barbara. Thimons, J.J. 1991.
5. "Comparison of the Dicon TKS-4000 with the Allergan Humphrey Field Analyzer" Clinical Eye and Vision Care, Lewis, Alan L., Kelly. Sharon, Thimons, J.J., 1991.
6. "A New Approach to Glaucoma Treatment" –Review of Optometry, Thimons, J.J., 19
7. "Co-Management/Are You Working With The Right Surgeon?-Optometric Management Thimons, J.J. 1991
8. "Menopausal-Related Dry Eye(Case Studies)-QD Dialogues, Thimons, J.J., 1991.
9. "Trends and Developments/The Octopus 123 by Interzeag-Clinical Eye Vision Care, Thimons, J.J., 1991.
10. "Trends and Developments/Topographic Modeling System TMS-1-Clinical Eye Vision Care, Thimons, J.J., 1991.
11. "Secondary Glaucomas"-Thimons, J.J, College of Optometry, 1994.
12. "Disease Update: Tuberculosis" – Review of Optometry, Thimons, J.J. 1994(?)
13. "Non-Specific Viral Conjunctivitis"-Onofrey et a1. Ocular Therapeutics, Chapter author, Lippencott.
14. "Glaucoma" – Optometry Clinics, Vol. 1, Number 1. Classe, Editor. Section on Low tension Glaucoma.
15. "The Eye in Systemic Disease" – Manual of Clinical Optometry. (chapter author).
16. "Secondary Glaucoma" – Primary Care of Glaucomas, Appleton-Lang, Lewis, T.L.,
17. "The Conjunctiva" – Clinical Ocular Pharmacology, Bartlett and Jaanus, Butterworth, 1995.
18. "Argon Laser Trabeculoplasty"- Chapter Author, Litwak, A, Editor, The Glaucoma Handbook (scheduled for 1998).
19. "Common Secondary Glaucomas" Chapter author, Primary Care of the Glaucomas, Fingeret and Lewis, 2001

JOURNALS

1. Aphakia: Possible Complications-Journal of Optometry and Physiological Optics, December 1983.
2. Presumed Ocular Histoplasmosis – Journal of Optometry and Physiological Optics. December 1983.
3. Clinical Investigation of Foveal Light Reflex: A Collaborative Study – Journal of Optometry and Physiological Optics, December 1981.
4. Congenital Retinal Macrovessel: A Case Report, Thimons. J.J., Istock, Timothy 1-I.
5. An Overview of Ocular and Systemic Physicians; December 1988.
6. Phenothiazines: An overview of Ocular and General Side Effects – The American Journal

Of Optometric Medicine, Thimons, J.J., Eckerman, Daniel R.

7. Congenital Retinal Macrovessels: A Literature Review". V – Southern Journal of Optometry, 1988.
8. Dose Range Study of Ocular Comfort, Efficacy and Safety of Flurbiprofen in Normal Volunteers with Chlorine Induced Ocular Irritation – Submitted.
9. Graves' Disease: Laboratory Diagnosis, Primary Care Newsletter, June 1989.
10. Comparison of the Dicon TKS 4000 Autoperimeter with the Allergan Humphrey Field Analyzer; Lewis Al, Kelly S., Thimons, J.J. Clinical Eye and Vision Care, 1990
11. Erg Assessment of Visual Deficit in Glaucoma – Schnurmacher Institute of Vision Research, Yu, Jin, Zhang, Hua, Sutija, Vesna G., Horn, David, Appleman, Warren, Thimons, J.J. 1990.
12. Expansion of Clinical Training in Optometry and It's Role in Health Care Delivery- American Public Health Association, Thintons, J.J. 1990.
13. A clinical Update on Inimunomodulators – Optometry Today, September 1994
14. Digital Retinal Imaging: An Overview – Optometry Today, March 1995
15. CMIV Retinitis Treatment – Optometry & Vision Science, 1995.
16. Sharpen Your Glaucoma Management Skills, Review of Optometry, Sept 15, 1996.
17. Excimer Laser Technology Update, Optometry Today, September 1996.
18. New Perimetry Algorithm Three Times Faster Than Other Systems (Interview), Primary Care Optometry News, November 1996.
19. Courts, Community Standards Dictate Use of Technology (Interview). Primary Care Optometry News, December 1996
20. A Question of Ethics: How Do You Choose a Cataract Surgeon? Review of Optometry, March 15, 1997.
21. Advances in Glaucoma Diagnostic Technology, Clinical Eye and Vision Care, July 1997.
22. What to Look for in Managing Glaucoma, Optometric Management, July 1997.
23. Two Dozen Pearls in Managing Glaucoma, Review of Optometry, July 15, 1997.
24. Optometry: A Universal Profession, Australian Optometry, Vol. 18, No. 7, July 1997.
25. Those That Can Do... And Teach, Optometry Today, July 1997.
26. Nonspecific Viral Conjunctivitis-Clinical Optometric Pharmacology and Therapeutics Thimons, J.J., J.B. Lippincott Company.
27. Raising the Bar in Cataract and Refractive Surgery, Optometric Management 2000
28. Managing Glaucoma:The disease of Change, Optometric Management 2000
29. Differential Diagnosis and Treatment of Ocular Allergies, Optometric Management 2000
30. Co-Managing Refractive Surgery: A review of the Essentials, Refractive Eyecare 2000
31. Ocular Surface Disease Treatment: Volume 1-6 , January 2004
32. New Solutions for Bacterial Resistance in the treatment of Ocular Disease : Volume 1&2 May 2004

POSTERS AND PAPERS

1. Vision 1 Eye Screening as Part of Mass Health Screening in an Urban Area, Augsburger, A., Thimons J.J., American Academy of Optometry, 1985.
2. Electroretinography in the Differential Diagnosis of X-Linked Juvenile Retinoschisis Vs. Stargardt's Disease, Bass, S., Sherman, J.. Thimons. J.J., The American Academy of Optometry meeting, 1989.
3. Central Pigmentary Sheen Dystrophy, Sherman, J.. NobleK., Thimons, J.J., The American Academy of Optometry meeting, 1989.
4. Resolution of Optic Neuropathy from 20/400 to 20/20 with Little Residual Effects, Bass, S., Sherman, J. – Richter, S., Fnimc-is, J.J., The American Academy of Optometry meeting, 1989.
5. Fluorescein Angiography Reveals Stargardt's Disease Despite Normal Fundus, The American Academy of Optometry meeting, 1989.
6. Contrast Increment Thresholds at Different Ages, Beard, BL, Yager, D. Rosenberg, R. Horn. D.paper to be presented in Orlando, Florida for the Optical Society of America
7. Comeal Integrity in Electroretinography-Schnurmacher Institute for Vision Research , S.U.N.Y. State College of Optometry, Sutija. Vesna G., Libassi, D. Thimons, J.J., 1989.

8. Contrast Increment Thresholds at Different Ages-Vision Sciences and Clinical Sciences S.U.N.Y. – Optometry, 1989 Beard, Bettina L., Yager, Dean, Rosenber, Robert, Horn, David, Thimons, J.J.
9. Ocular Disease-American Academy of Optometry, Bass, S., Thimons, J.J. 1989.
10. Oscillatory Potentials in Glaucoma; Sutija, V.G., Horn, D., Appleman, W., Thimons, J.J., Zhang, H., ARVO 1990.
11. Visual Sensitivity-American Academy of Optometry, Bass, S., Thimons, J.J., 1989. Thimons, J.J., Rosenberg, R. Horn, D.
12. ERG Assessment of Visual Deficit in Glaucoma: Yu, 3., Zhang, H., Sutija, V., Horn, D., Appleman, W., Thimons, J.J., ARVO 1990.
13. A 3-D View of Field Change wih Decrease in Mean Luminance for Control, Ocular Hypertensive and Glaucoma Patients: Sutija, V., Zhang, H., Chin, H.P., Horn, D., Appleman, W., Thimons, J.J., ARVO 1990.
14. Effect of Ligh Adaptation Protocal on ERG Components and Corneal Integrity: Yang, L., Sutija, V., Libassi, D., Henahan, J., Thimons, J.J., ARVO 1990.
15. Oscillatory Potentials in Glaucoma – Schnurmacher Institute for Vision Research, S.U.N.Y. State College of Optometry, 199 1Sutija, V.G., Horn, D., Appleman, W., Thimons, J.J., Z. Hua.
16. Effect of Light Adaption Protocol on Erg Components and Corneal Integrity, STJNY College of Optometry, Yang, L, Sutija, V.G, Libassi, D, Henahan, J.L., Thimons, J. 1., 1991.
17. Oscillatory Potentials in Glaucoma-Optical Society of America, Sutija V.G, Zhang, H. Horn, D., Appleman, W., Thimons, J.J. 1991

18. Diagnosis and Treatment of Corneal Acid Burn: Thimons, J.J., Oliver, G. AAO, 1995
19. Advances in Glaucoma Diagnostic Technology:Thirncs, J.J., Clinical Eye and Vision Care Elsevier Science Ireland 1997.

SELECTED PROFESSIONAL PRESENTATIONS 2004

1. **French Association of Optometrists, Annual European Meeting**
2. **Southern Council of Optometrists**
3. **Vision Expo East**
4. **Australian Association of Optometrists Annual meeting**
5. **Glens Falls Association for the Blind**
6. **American Optometric Association**
7. **National Glaucoma Symposium**
8. **Montreal Optometric Association**
9. College of Vision Development
10. American Academy of Optometry

PROFESSIONAL ACTIVITIES

Secretary, Ohio Hypertension Coordinating Council	1984 – 1985
Member, National Council on Health Information	1984 – 1986
Board of Directors, Virginia Affiliate, American Diabetes Assoc.	1986 – 1988
Associate Editor, J. of Amer. Coll. of Optometric Physicians	1988 – 1994
Member, SECO Board of Advisors	1991 – 2000
Member, VICA Board of Advisors	1992 – present
Member, National Glaucoma Foundation Board	1992 – 1998
National Academy of Practice in Optometry.	2001- present
President Connecticut Association of Optometrists	2002-2004

BOARD APPOINTMENTS

Ophthalmic Industry

1. Twenty-Twenty Laser Centers, Vice-president of Clinical Affairs	1992 – 1996
2. CIBA Optometric, Advisory Board	1993 – 2001
3. Alcon Optometric, Advisory Board	1994 – 2002
4. The Laser Center (TLC) Board of Directors	1996 – present
5. Southern Congress of America, Advisory Board	1997 – 2000
6. Vision Council of America, Advisory Board	1997 – 2000
7. Allergan Medical Advisory Board	1997 – 2003
8. AMO Medical Advisory Board	2000 – present
9. National Glaucoma Society Board	2003- present

Ophthalmic Publications and Editorial Review Boards

1. Reviewer, Journal of the American Optometric Association	1984 – present
2. Editorial Board, Clinical Eye and Vision Care	1994- 2001
4. Review of Optometry, Editorial Review Board	1997 - present
5. Editorial Board, Primary Care Optometry News	1997 – present
6. Clinical Editor, Optometric Management	2001-present
7. Editorial Board, Primary Care Optometry News	2000- present

CONTINUING EDUCATION ACTIVITIES

1. Director, Office of Professional Continuing Education SUNY	1992-1998
2. CE Chair, American Optometric Association National Meeting	1997- 2002
3. Chairman, National Glaucoma Symposium	2003-Present
4. President, MAJI Consulting	2001-Present

REFERENCES

Provided upon request

EAST VALLEY EYE CENTER
A SURGICAL MEDICAL GROUP
LAWRENCE GREEN, M.D. • KOUROSH EGHBALI, M.D. • FARID EGHBALI, O.D., F.A.A.O. • SAM GOLDBERGER, M.D.

March 11, 2016

RE: CE approval
Additional information request by the Board

Dear Kristina:

Per your request, please see the following statement.

The proposed courses are open to all optometrists licensed in this state and as well the attendee optometry students and licensed optometrists names will be maintained for a period requested by the board.

Respectfully,

Dr. Farid Eghbali

2601 W. ALAMEDA AVE., #204, BURBANK, CA 91505 • 818.846.9999 • www.eastvalleyeyecenter.com

• LASER VISION CORRECTION • CATARACT SURGERY • CORNEAL DISEASE • FACIAL PLASTIC SURGERY
• MULTIFOCAL LENS IMPLANTS • GLAUCOMA • RETINAL DESEASE • CONTACT LENSES

STATE AND CONSUMER SERVICES AGENCY EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA STATE BOARD OF OPTOMETRY
STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

RECEIVED BY THE BOARD OF OPTOMETRY JAN 25 AM 11:51

Request for Approval of Continuing Education Course(s)

East Valley Eye center
Dr. Farid Eghbali
2601 west Alameda Ave
suite # 204
Burbank CA 91505
drfeghbali@yahoo.com
(310) 266-9989

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-00134	5393147	3755007	$0

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
CE Committee Member

EAST VALLEY EYE CENTER
A SURGICAL MEDICAL GROUP
LAWRENCE GREEN, M.D. • KOUROSH EGHBALI, M.D. • FARID EGHBALI, O.D., F.A.A.O. • SAM GOLDBERGER, M.D.

Course titles for Optometry student's Continuing Education

Calendar Year 2016 CA State Board Approval (academic year 2016-2017)

RECEIVED BY STATE BOARD OF OPTOMETRY 2016 FEB 17 PM 2:59

Cashiering and Board Use Only

Receipt #	Payor ID	Beneficiary ID	Amount
1-414	5393142	3755007	100

DR. FARID EGHBALI, O.D (CV on file)

DR. KOUROSH EGHBALI, M.D. (CV on file)

• Soft : sphere + toric lenses (Principle / update / case management)	2 hours
• RGP: sphere + bitoric lenses (Principle / update / case management)	2 hours
• Contact lens solution (Principle / update / case management)	2 hours
• Keratoconus and post PKP lenses (Principle / update / case management)	2 hours
• Dry eye management (including Restasis)	2 hours: TPA
• Refractive surgery I (basic principles of PRK, LASIK, PTK)	2 hours: TPA
• Refractive surgery II (Management of complications)	2 hours: TPA
• Psychology of patient management (surgical and non-surgical)	2 hours: TPA
• Corneal topography (Principle / update / case management)	2 hours: TPA
• Corneal infection versus corneal inflammation (antibiotic vs. steroid)	2 hours:TPA/Glaucoma
• Ocular disease case management	2 hours: TPA/Glaucoma
• Glaucoma case management / update (ID # 9168)	4 hours: TPA/Glaucoma
• OCT in glaucoma management (principles and case management)	2 hours: TPA/Glaucoma
• Glaucoma surgery observation / management (ID # 9169)	4 hours: TPA/Glaucoma
• Fluorescein Angiography observation / management	4 hours: TPA
TOTAL (8 hrs regular, 36 hrs TPA, 14 hrs Glaucoma)	36 HOURS

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• LASER VISION CORRECTION • CATARACT SURGERY • CORNEAL DISEASE • FACIAL PLASTIC SURGERY
• MULTIFOCAL LENS IMPLANTS • GLAUCOMA • RETINAL DESEASE • CONTACT LENSES

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE: Approved	Disapproved	ID #
• see attached List	2016-17	see attached list	36hrs			
• CV on file with						
state board of optometry						
optometry students from						
1) western university						
2) mark ketchum university						
3) illinois college of optometry						
		Total	36 Hrs.			

COMMITTEE COMMENTS:

EAST VALLEY EYE CENTER
A SURGICAL MEDICAL GROUP
LAWRENCE GREEN, M.D. • KOUROSH EGHBALI, M.D. • FARID EGHBALI, O.D., F.A.A.O. • SAM GOLDBERGER, M.D.

Course titles for Optometry student's Continuing Education

Calendar Year 2016 CA State Board Approval (academic year 2016-2017)

DR. FARID EGHBALI, O.D (CV on file) NOT COPE

DR. KOUROSH EGHBALI, M.D. (CV on file)

• Soft : sphere + toric lenses (Principle / update / case management)	1.75 hrs	2 hours 5:30-7:15
• RGP: sphere + bitoric lenses (Principle / update / case management)	$50	2 hours " "
• Contact lens solution (Principle / update / case management)		2 hours " "
• Keratoconus and post PKP lenses (Principle / update / case management)		2 hours " "
• Dry eye management (including Restasis)	1.75 hrs	2 hours: TPA 5:30-7:15
• Refractive surgery I (basic principles of PRK, LASIK, PTK)	$50	2 hours: TPA " "
• Refractive surgery II (Management of complications)		2 hours: TPA " "
• Psychology of patient management (surgical and non-surgical)		2 hours: TPA " "
• Corneal topography (Principle / update / case management)		2 hours: TPA " "
• Corneal infection versus corneal inflammation (antibiotic vs. steroid)		2 hours: TPA/Glaucoma 5:30-7:15
• Ocular disease case management	$50	2 hours: TPA/Glaucoma 5:30-7:15
• Glaucoma case management / update (ID # 9168)		4 hours: TPA/Glaucoma 1:30-5:30
• OCT in glaucoma management (principles and case management)		2 hours: TPA/Glaucoma 5:30-7:15
• Glaucoma surgery observation / management (ID # 9169)		4 hours: TPA/Glaucoma 1:30-5:30
• Fluorescein Angiography observation / management		4 hours: TPA 1:30-5:30
TOTAL (8 hrs regular, 36 hrs TPA, 14 hrs Glaucoma)		36 HOURS = 33 hrs.

FARID EGHBALI O.D., F.A.A.O.

East Valley Eye Center 2601 West Alameda Ave Suite # 204 Burbank, CA 91505
Office: (818)-846-9999 E-mail: drfeghbali@yahoo.com

POSITION Therapeutic Optometrist License # 10108TLG Glaucoma Certified

Present

Private practice at East Valley Eye Center (Burbank, CA). 1995 - present

Professor of Optometry, Western university School of Optometry, Pomona, CA 2011- present.

Assistant Clinical Professor in Ophthalmology, Jules Stein Eye Institute, UCLA School of Medicine 1998-present.

Clinical Adjunct Assistant Professor in Optometry, Marshal Ketchum University (formerly known as: Southern California College of Optometry), 1998-present.

Clinical Adjunct Professor in Optometry, Illinois College of Optometry, 2011-present.

Co-Director of the Contact Lens Department at Harbor-UCLA. 2000-present.

Consultant for Allergan pharmaceutical. 2009 – present.

Past

Staff doctor at Maloney Vision Institute. Practice is exclusive to Refractive and Cataract Surgery. 2011- December 2015

Director of Clinical Care, Maloney Vision Institute. Practice is exclusive to Refractive and Cataract Surgery. 1998- 2011

Clinical Professor in Optometry, Inter American University of Puerto Rico, School of Optometry, 1999.

Director of the Contact Lens Department at Harbor-UCLA. 1994-2000.

Laser refractive specialist and comanaging optometrist at the Jules Stein Eye Institute, UCLA Laser Refractive center, UCLA, School of Medicine. 1995-1998.

Clinical Instructor, Southern California College of Optometry. 1994-1998.

Clinical Instructor in Ophthalmology, Jules Stein Eye Institute, UCLA School of Medicine 1996-1998.

Chief of the Optometry Department at Harbor-UCLA. 1994-1998.

Staff at Cedars Sinai Hospital, department of surgery, section of optometry. 1994-2000, and 2006 – 2010.

Item writer for the California State Board of Optometry Examination. 1995-1998.

EDUCATION

Doctor of Optometry, **With Distinction**, May 1993. Southern California College of Optometry, Fullerton, CA.

Fellowship in Cornea and Contact Lens. 1993-94. Jules Stein Eye Institute, UCLA, School of Medicine, Los Angeles, CA.

Bachelor of Science in Visual Science. Southern California College of Optometry, Fullerton, CA.

Johns Hopkins University, majoring in biology.

Jurisprudence work

Jeffrey Brown Atlantis Eye Care, Expert Witness, 2014.
Bobby W. Lee v. Nicoleta Weeks, R.N., Expert Witness, 2006.
Sinutko v. Amundson. Expert Witness, 2006.
Porche v. Fritch. Expert Witness, 2005.
Tedesko v. Laser Eye Center. 1999.
Zvannut v. Pearle Vision. Expert Witness, 1997.

Instrument Design

Eghbali Bandage Lens Forceps: B&L / Storz catalog # E2157
Eghbali Lacrimal Dilator: B&L / Storz SP7-62179 Special order only
Eghbali Lacrimal Probe: B&L / Storz SP7-62180 (5 sizes), Special order only

PROFESSIONAL EXPERIENCE

Fellowship

Jules Stein Eye Institute, Los Angeles CA. Extensive advanced clinical training and research experience in cornea and contact lens care. Vast experience in keratoconus, post-surgical, and pediatric contact lens and examination under anesthesia. Weekly and monthly grand rounds consisting of patient examination, presentations and lectures on various clinical areas.

Externship

Allergan Research Clinic, Irvine, CA. Contact lens fitting and follow-up care, and participation in some clinical trials of new products.

Omni Eye Services of Colorado, Denver, CO. Extensive advanced diagnostic and therapeutic procedures involving the cornea, cataract, glaucoma, and vitreo-retinal diseases.

VA Medical Center, West Los Angeles, CA. Neuropsychiatric hospital-based primary care, collaboration with many other hospital specialties, and Grand

Rounds consisting of patient presentations lectures and examinations on selected topics.

Publications

"expert's opinion on bifocal soft contacctc lenses". Farid Eghbali, Cynthia Arata, Quang Chang. Contact Lens Spectrum December 2008.

"Is the cornea a source of increased awareness of a rigid gas permeable contact lens for a non-adapted wearer?" K. Stella, D. Mallavia, F. Eghbali. Submitting for publication in progress. May 2008.

"Symptoms occurring in a cluster of patients". F. Eghbali, Q. Chang, C. Arata. Contact Lens Spectrum, December 2007.

"Effect of varying the Optical Zone Diameter on the Results of Hyperopic Laser In Situ Keratomileusis". Ophthalmology. Volume 108, No 7. July 2001

"Support your comanagement network with continuing education". Refractive Eye care for Ophthalmologists. Vol 3, #6, pages 16-18, June 1999.

Eghbali F. Letter to the Editor. Optometric Education 1998; 23(2): 38.

Eghbali F. Keratoconus Suspect or Pseudokeratoconus? Contact Lens Spectrum December 1997; 30-32.

Eghbali F. Changes in Eye and Vision during Pregnancy. Iranian Medical Journal 1996; 29(3): 55.

Eghbali F. Contact Lenses and Cosmetics. Iranian Medical Journal 1996; 28(3): 26-2

Eghbali F. What is Macular Degeneration? Iranian Medical Journal 1996; 27(3): 26-27.

Eghbali F, Hsue EF, Eghbali K, Weissman BA. Oxygen transmissibility at various locations of soft toric prism ballasted lenses. Optometry and Visual Science 19-6; 73(3): 164-168.

Eghbali F. What is Cataract? Iranian Medical Journal 1996; 26(3): 28-30.

Eghbali F. Disposable Contact Lenses. Iranian Medical Journal 1996; 25(3): 27-29.

Eghbali F. What is Chalazion? Iranian Medical Journal 1996; 24(3): 22-24.

Eghbali F. Ultra Violet Rays and the Eye. Iranian Medical Journal 1996; 23(3): 22-25.

Eghbali F. What are Floaters? Iranian Medical Journal 1995; 22(2): 21-22.

Eghbali F. Contact Lenses and you. Iranian Medical Journal 1995; 21(2): 29-31.

Eghbali F. Are Contact Lenses a Medical Device? Iranian Medical Journal 1995; 20(2): 56-57.

Eghbali F. Collagen implants. Los Angeles Optometric society newsletter, Sept 1995.

Eghbali F. Blapharitis. Iranian Medical Journal 1995; 19(2): 33-35.

Eghbali F. Dry Eye Therapy. Iranian Medical Journal 1995; 18(2): 34-35.

Eghbali F. Dry Eye. Iranian Medical Journal 1995; 17(2): 24-26.

Yeung KK, Eghbali F, Weissman BA. A clinical experience with piggyback contact lenses on keratoconic eyes. Journal of American Optometric Association 1995; 66(9): 539-543.

Eghbali F, Yeung KK, Maloney RK. Topography determination of corneal asphericity and its lack of effect on the refractive outcome of radial keratotomy. American Journal of Ophthalmology 1995; 119(3): 275-280.

Eghbali F, Abel GS. Counseling addresses concerns regarding stargardt's disease. Review of Optometry 1992; 129(3): 80-85.

Eghbali F, De Felice L. "Reproducibility of prism ballasted soft toric contact lenses". Doctorate Thesis & research project. Southern California College of Optometry, Dec 2002.

Abstracts

Eghbali F. Corneal topography assists in diagnosis of a case of pseudo-Keratoconus/ corneal warpage induced by toric prism ballasted hydrogel lens. Optometry and Vision science 1995; December (suppl.): 73.

Eghbali F, Hsue EF, Eghbali K, Weissman BA. Oxygen transmissibility at various locations of soft toric prism ballasted lenses. Optometry Vision and Science 1994; December (suppl.): 77.

Yeung kk, Eghbali F, Weissman BA. A clinical experience with piggyback contact lenses on keratoconic eyes. Optometry and Vision Science 1994; December (suppl.): 90.

Eghbali F, Yeung KK, Maloney RK. Topography determination of corneal asphericity and its effect on the refractive outcome of radial keratotomy. Investigative Ophthalmology Visual Science 1994; 35 (suppl.): 1638.

Scientific Presentations

"Restasis: A therapeutic intervention for appropriate patients", Feb 27 2012, Fresno, CA.

"An update on allergic conjunctivitis" Lastacaft, as new therapy for management of allergic conjunctivitis", September 12 2011, Santa Monica, CA.

"An update on allergic conjunctivitis" Lastacaft, as new therapy for management of allergic conjunctivitis", July 27 2011, Scottsdale, AZ.

"An update on allergic conjunctivitis" Lastacaft, as new therapy for management of allergic conjunctivitis", June 28 2011, Pasadena, CA.

"An update on allergic conjunctivitis" Lastacaft, as new therapy for management of allergic conjunctivitis", March 29 2011, Studio City, CA.

"Restasis: A therapeutic intervention for appropriate patients", May 11 2010, Encino, CA.

"Restasis: A therapeutic intervention for appropriate patients", May 14 2010, San Luis Obispo, CA.

"Restasis: A therapeutic intervention for appropriate patients", March 16 2010, Westwood, CA.

"Restasis: A therapeutic intervention for appropriate patients", February 16 2010, Seal Beach, CA.

"Restasis: A therapeutic intervention for appropriate patients", February 9 2010, San Francisco, CA.

"Restasis: A therapeutic intervention for appropriate patients", January 27 2010, Sacramento, CA.

"Restasis: A therapeutic intervention for appropriate patients", September 29, 2009, Scottsdale, AZ.

"Restasis: A therapeutic intervention for appropriate patients", September 22, 2009, Pico Rivera, CA.

"Restasis: A therapeutic intervention for appropriate patients", August 18, 2009, Sherman Oaks, CA.

"Restasis: A therapeutic intervention for appropriate patients", June 30, 2009, Danville, CA.

"Restasis: A therapeutic intervention for appropriate patients", May 21, 2009, Pasadena, CA.

"Spurious unilateral myopia after LASIK" guest speaker at annual symposium controversies in modern eye care in association with Maloney Vision Institute. April 26, 2009.

"Dry eye in refractive surgery" guest speaker at annual symposium controversies in modern eye care in association with Maloney Vision Institute. April 27, 2008.

"Infection versus inflammation" guest speaker at the 7th annual San Francisco cornea, cataract, and refractive surgery symposium in association with Pacific vision Institute. April 25, 2008.

"Contact lens Fitting Post Refractive Surgery" Controversies in Cataract and Refractive Surgery". Annual Ocular Symposium II. Olympic Collections, Los Angeles, CA. March 11 2007.

"Application and interpretation of Corneal Topography as it applies to Clinical Optometry". Southern California College of Optometry, Block Lectures, Fullerton, CA. February 15, 2007.

"Anterior Segment Grand Rounds". "Wavefront versus conventional LASIK, Management of flap wrinkles and epithelial ingrowth, End-stage Steroid Induced Glaucoma, Corneal Infection versus Inflammation, Central Toxic Keratopathy, Epithelial Basement Membrane Dystrophy, Suture Removal". 4th Annual ocular Disease program, SCCO, July 9, 2006.

"Controversies in Cataract and Refractive Surgery" " Striae and Epithelial Ingrwoth". Annual Ocular Symposium I. Olympic Collections, Los Angeles, CA. April 2006.

"Suture Removal Workshop" Maloney Vision Institute. Los Angeles, CA. August 9, 2005.

"Suture Removal Workshop" Maloney Vision Institute. Los Angeles, CA. July 12, 2005.

"Verisyse Lens Implantation" Grand Rounds VII". Maloney Vision Institute. Los Angeles, CA. November 1, 2004.

"Pain Management, Ocular Trauma, PRK and PTK, Rio Honda Optometric Society. Torrance, CA. June 22, 2004

"Anterior Segment Grand Rounds" Centennial Lecture Series by Adjunct faculty SCCO. June 6, 2004

"Acuvue Advance" Johnson & Johnson / Vistakon, Beverly Hills, CA. May18, 2004.

"Acuvue Advance" Johnson & Johnson / Vistakon, Westwood, CA. May 17, 2004.

"Acuvue Advance" Johnson & Johnson / Vistakon, Opto-West, Orange County, CA. May 1, 2004.
"Acuvue Advance" Johnson & Johnson / Vistakon, Glendale, CA. April 20, 2004

"Acuvue Advance" Johnson & Johnson / Vistakon, Studio City, CA. March 11, 2004.

"Update in Wavefront LASIK treatment". Maloney Vision Institute. Los Angeles, CA. July 29, 2003.

"Foreign Body Removal Workshop" Maloney Vision Institute. Los Angeles, CA. July 22, 2003.

"Anterior Segment Grand Rounds". Rio-Honda Optometry Society. Torrance, CA. May 27, 2003.

"Refractive Surgery Grand Rounds VI". Maloney Vision Institute. Los Angeles, CA. May 23, 2003.

"Foreign Body Removal Workshop" Maloney Vision Institute. Los Angeles, CA, March 25, 2003.

"Update in Anterior Segment Pathology; Corneal Infection versus inflammation, Diagnosis and management of EBMD, LASIK after PKP". Maloney-Seibel Vision Institute. Los Angeles, CA. February 04, 2003.

"Latest Advancement in Refractive Surgery; Intralase Laser Microkeratome, Conductive Keratoplasty – Comanagement , Autonomous versus VISX (Clinical Results), CAP and Wavefront Treatment (Clinical Results), Cataract Case Presentation." Maloney-Seibel Vision Institute. Los Angeles, CA. October 21, 2002.

"Infectious and Non-Infectious Infiltrative Keratitis along with other white lesions on the cornea". Pacific Vision Institute. San Francisco, CA. March 13, 2002.

"Lacrimal Dilation and Irrigation workshop". Maloney-Seibel Vision Institute. Los Angeles, CA. January 20, 2002.

"Lacrimal Dilation and Irrigation workshop". Maloney-Seibel Vision Institute. Los Angeles, CA. November 27, 2001.

"Lacrimal Dilation and Irrigation workshop". Maloney-Seibel Vision Institute. Los Angeles, CA. March 12, 2001.

"Wave Front Directed Laser Treatment". Rio-Honda Optometry Society. Las Vegas, CA. August 17, 2001.

"Refractive Surgery Grand Rounds V". Maloney Vision Institute. Los Angeles, CA. April 3, 2001.

"Refractive Surgery Grand Rounds IV". Maloney Vision Institute. Los Angeles, CA. Oct 11, 2000.

Clinical Pearls in pre- and post-operative management of LASIK patients". Hawaii Optometric Association, Kawai, HI. Nov 13, 00.

"Corneal Topography, Principles and Practice". Rio-Honda Optometric Society, Cerritos, CA. Sep 26, 00.

"Clinical Pearls in Pre- and Post-Operative Management of LASIK Patients". Pacific Vision Institute, San Francisco, CA. Sep 20, 2000.

"Crash Course in Practice Management of Laser Vision Correction". California Optometric Laser Associates. San Jose, CA. June 29, 00.

"Crash Course in Practice Management of Laser Vision Correction". California Optometric Laser Associates. Santa Rosa, CA. July 13, 00.

"Crash Course in Practice Management of Laser Vision Correction". California Optometric Laser Associates. Sacramento, CA. July 15, 00.

"Keratoconus vs. Corneal Warpage". Continuing Education seminars. Southern California College of Optometry. Fullerton, CA. June 11, 2000.

"Phakic Intra-ocular lenses". Continuing Education seminars. Southern California College of Optometry. Fullerton, CA. June 11, 2000.

"Refractive Surgery Grand Rounds III". Maloney Vision Institute. Los Angeles, CA. May 9, 2000.

Moderator for "Advances in Refractive Surgery" presented by 5 specialists (Assil K, Catania L, Manche E, Maloney R, Rabinowitz Y) at Los Angeles County Optometric Society meeting, February 6, 2000.

"LASIK Complications". Wellish Eye Institute. Las Vegas, Nevada. Jan 27, 2000.

"Refractive Surgery Grand Rounds II". Maloney Vision Institute. Los Angeles, CA. Jan 25, 2000.

"Laser Vision Correction for the Optometric Staff". Annual Alumni SCCO Baja Cruise. Baja, Mexico. Jan 15 and 16, 2000.

"Corneal Topography for the next millennium". Annual Alumni SCCO Baja Cruise. Baja, Mexico. Jan 14, 2000.

"Refractive Surgery Grand Rounds I". Maloney Vision Institute. Los Angeles, CA. August 17, 1999.

"Corneal Topography Analysis". Fourth Annual Young Alumni SCCO Baja Cruise, CE Program. Baja, Mexico. June 5, 1999.

"Hyperopic LASIK: varying the repetition rate with the VISX Star". American Society of Cataract and Refractive Surgery Annual Meeting. Seattle, WA. April 13, 99. Corneal Topography, principals and practices. Annual Linden Optometry CE Meeting. Pasadena, CA. March 25, 1999.

Comanagement and Complication of PRK and LASIK. Ocular Health Procedure III. Southern California College of Optometry. Fullerton, CA. March 17, 1999

Laser Vision Correction for Para-optometric training. California Optometric Association annual meeting. Santa Clara, CA. March 14, 1999.

Update in refractive Surgery. Maloney Vision Institute. Los Angeles, CA. Feb. 21, 1999.

Laser Refractive evaluation (pre- and post-operative) and Corneal Topography Case Management. Pacific Laser Eye Center. Irvine, CA. Sept 12, 1998.

Corneal Topography Case Management. Third Annual Young Alumni SCCO Baja Cruise, CE Program. Baja, Mexico. June 7, 1998.

Ocular Allergy and Its Management. Annual Linden Optometry CE Meeting. Pasadena, CA. May 14, 1998.

Corneal Topography Case Management. Central Arizona Optometric Society CE Meeting. Phoenix, AZ, May 12, 1998.

Complications of refractive surgery. Indian Health Services Annual Eye Care Meeting. Southern California College of Optometry, Fullerton CA, May 7, 1998.

Corneal Topography Case Management. San Fernandino County Optometric Society Continuing Education Seminar. Valley Presbyterian Hospital, CA, April 5, 1998.

Photorefractive keratectomy and LASIK principles and practice. Clinical Seminar Program Session III, Southern California College of Optometry, Fullerton CA. Feb 23, 1998.

Comanagement and Complication of PRK and LASIK. Ocular Health Procedure III. Southern California College of Optometry, Fullerton CA. March 23, 1998.

Case Management Presentations in Contact Lenses, Refractive Surgery, and Corneal Topography. Los Angeles County Optometric Society Continuing Education Seminar. Los Angeles, CA, October 28, 1997.

Don't Place All Your Eggs in One Basket. Southern California College of Optometry Senior Luncheon Presentations. Fullerton, CA, October 29, 1997.

Refractive Surgery Case Management. C&E Ocular Symposium, Fullerton, CA, October 12, 1997.

Photorefractive keratectomy and LASIK principles and practice. Jules Stein Eye Institute, UCLA, School of Medicine, Los Angeles, CA, May 4, 1997.

Refractive surgery and comanagement together with case presentations. Southern California College of Optometry, Orange County, CA, February 1997.

Moderator for Advance refractive surgery presented by 5 refractive surgeons (Assil K, Maloney R, McDonald P, Salz J, Steel D) at Los Angeles County Optometric Society meeting, July 1996.

Corneal topography assists in diagnosis of a case of pseudo-Keratoconus/ corneal warpage induced by toric prism ballasted hydrogel lens. (Poster) American Academy of Optometry, New Orleans, LA. December 1995.

Oxygen transmissibility at various locations of soft toric prism ballasted lenses. (Paper) American Academy of Optometry, San Diego, CA, December 1994.

A clinical experience with piggyback contact lenses on keratoconic eyes. (Poster) American Academy of Optometry, San Diego, CA, December 1994.

Topographic determination of corneal asphericity and its effect on the refractive outcome of radial keratotomy. (Paper) Association for Research in Vision and Ophthalmology meeting, Sarasota, FL, May 1994.

Optometric Assistants crash course and intensive hands-on workshop. Vision Expo, Orange County, CA 1992.

Media Presentations

Eghbali F. Commercial for donation of glasses to third world countries via Lions Club. Aired on various cable channels, 2004.

Eghbali F. Exchange of Color Contact Lenses Among Teenagers. NBC (Channel 4) Evening News special Report. California, March 14, 1998.

Eghbali F. Exchange of Color Contact Lenses Among Teenagers. KFWB News 98. Interview with Dick Morgan. March 1998.

Eghbali F, Matsumoto D, Dwaliby M (Host), Derry G (Co-Host). New Eye Surgeries—Are They for You. Vision and You program aired on cable TV, 1997.

Eghbali F. Refractive Surgery. Radio Sedayeh Iran, November 1995.

Eghbali F. First aid emergency eye care. Radio Sedayeh Iran, august1995.

Eghbali F. Children's vision. Radio Sedayeh Iran, April 1995.

Eghbali F, Rivas M, Dwaliby M (Host). Disaster eye care emergencies. Vision and You program aired on cable TV, 1995.

Eghbali F. Presentation on various topics such as: blepharitis, cataract, contact lenses, children's vision, flashes and floaters, retinal detachment, You and the World of Medicine TV aired cable TV, 1995-present.

FDA Investigation

"A prospective Multi-center clinical trial to evaluate the safety and effectiveness of the viewpoint™ CK system for the correction of presbyopia in emmetropes and hyperopes utilizing the conductive keratoplasty (CK) procedure".

"A prospective study to determine safety and effectiveness of WaveScan™ -derived ablation targets with the VISX STAR™ Excimer laser system".

"A preliminary, non-randomized, unmasked study to determine safety and effectiveness of VISX STAR™ Excimer laser system using WaveScan™ -derived ablation targets for LASIK treatment of sighted eyes with reduced BSCVA after prior refractive surgery".

U.S. Clinical Study of the Artisan Hyperopia Lens Model 203 for the Correction of Hyperopia in Phakic Eyes, phase I.

U.S. Clinical Investigation of the Artisan Myopia Lens for the Correction of High Myopia in Phakic Eyes, phases I, II, and III.

A Prospective Multicenter Clinical Trial to Evaluate the Safety and Effectiveness of the Refractec Corneal Shaping System for the Correction of Hyperopia Utilizing the Conductive Keratoplasty Procedure phase I, II, and III.

Lasik for Consecutive Hyperopia After Previous Corneal Surgery.

Lasik for Consecutive Hyperopic Astigmatism After Previous Corneal Surgery.

Lasik for Consecutive Mixed Astigmatism After Previous Corneal Surgery.

"FDA clinical trails for Consecutive Hyperopia and Hyperopic Astigmatism after previous corneal surgery".

"Patient Response to ACUVUE 1-Day as Opposed to Traditional Daily Wear Soft Contact Lenses, a Worldwide study." Clinical Investigator for Vistakon/ Johnson & Johnson.

"Comparative Acceptability of Complete (TM), Optifree, and Renu with Acuvue lenses". Southern California College of Optometry. Clinical Co-investigator.

"Reproducibility of soft toric prism ballasted lenses". Senior research project.

Volunteer — Active participant in providing vision screening for all ages and all socioeconomic groups voluntarily as an optometrist in the Southern California area, and abroad

ACTIVITIES:

Member/affil.	American Academy of Optometry	1990-2015
Member/affil.	American Optometric Association	1993-2000
Member/affil.	California Optometric Association	1989-2000
Member	Assoc. for Research in Vision and Ophth.	1994-1996
Member	Beta Sigma Kappa Honor fraternity	1992-1993
Member	Contact Lens section of AOA	1993-2000
Member	Los Angeles County Optometric Society	1993-2000
Member	Healing spirit of Hadassah	1993-1999
Liaison	American Academy of Optometry	1990-1992
Treasurer	SCCO Student Association	1992-1993
Item writer	CA State Board of Optom. Examination	1995-1998
Committee	LACOS Education committee	1995-2001
Committee	LACOS Public & Intra-Professional Relations	1997-1999
Committee	OCLA, TPA committee	1996-1997
Committee	Healing spirit of Hadassah, community health	1995-1999
Editor	Iranian Medical Journal	1996-1999

HONORS/AWARDS:

Harold and Pauline Price Fellow Award
American Contact Lens Award
C&E Vision Service Distributing Award
Sunsoft Contact Lens Achievement Award
Vision for Excellence Scholarship
Honorable mention in case report contest of Review of Optometry
Ciba Focus Award
Dean's List 1987-89
Outstanding Health Fair Award

Kourosh Eghbali, M.D.

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Education:

Fellowship:

Cornea & Refractive surgery
University of California Irvine School of Medicine, Department of Ophthalmology
2004-2005

Residency:

Chief Resident in Ophthalmology
University of California Irvine School of Medicine, Department of Ophthalmology
2003-2004

Ophthalmology Residency
University of California Irvine School of Medicine, Department of Ophthalmology
2001-2004

Surgery
University of California Los Angeles (UCLA) School of Medicine, Department of Surgery
2000-2001

Medical School:

Medical Degree (M.D)
University of California Davis School of Medicine
2000

Undergraduate:

Bachelor of Science (B.S) with Honors (Summa Cum Laude)
Molecular and Cellular Biology
University of California Los Angeles (UCLA)

Research Experience:

Ophthalmology:

Oxygen transmissibility at various locations of soft toric prism ballasted lenses

Diagnosis of the glaucoma in the pediatric aphakes

Hepatitis C related Mooren's ulcer

Keratopigmentation

Herpes Zoster ophthalmicus

Penetrating keratoplasty and glaucoma

Post Lasik complications

Intravitreal drug delivery system

Gene associated with ARMD

Cardiothoracic Surgery:

Cerebral retroperfusion as treatment for intraoperative stroke caused by solid emboli (Both in an animal model & human)

The effect of chronic alcohol use on the heart prior to and after transplantation

Fixed subaortic obstruction

Monoclonal antibody in heart and lung transplant

Cardiac Tumors

Intracoronary adenovirus-mediated gene transfer of immunosuppressive cytokines to cardiac allografts

Cardiomyoplasty by using the Latissimus Dorsi muscle

Gross and microvascular distribution of retrograde cardioplegia in explanted human hearts

Experimental cardiac allograft vasculopathy

Protecting the IMA by Gore-Tex envelope (Coronary artery bypass graft CABG)

Transposition of the great artery

Effect of cyclosporine on the transplanted heart

Cardiomyophathy database

Cancer:

Selective accumulation of T-cell population in cutaneous squamous cell carcinoma

Effects of IL-1 on epidermal keratinocyte and sclerosing basal cell carcinoma adhesion to normal fibroblasts

Effects of transforming growth factor-B (TGF-B) and platelet derived growth factor (PDGF) on collagen synthesis by fibroblast cultures derived from sclerosing and nodular basal cell carcinoma

Presence of myofibroblasts in sclerosing basal cell carcinoma

Evaluation of surgical margins in treatment of malignant melanoma

HMB-45 quick staining of melanocytic lesions

Effect of thrombin activated platelet derived wound healing formula (PDWHF) on human fibroblast collagen production.

Book Chapter:

Shami N, Eghbali K, Mcdonnell P. (Book Chapter) Lasik complication; etiology, prevention and management. **Smolin & Thoft: Cornea. 4th edition, Boston: Little Brown. 2003**

Peer Reviewed Publications:

Eghbali F, Hsui EH, Eghbali K, Weisman BA. Oxygen transmissibility at various locations in hydrogel toric prism-ballasted contact lenses. **Optometry and vision science 1996;73(3):164-168.**

Takkenmberg J, Wang H, Trento A, Popov A, Freimark D, Eghbali K, Wang C, Blanche C, Czer L. The effect of chronic alcohol use on the heart prior and after transplantation in an experimental model in the rat. **Journal of Heart and Lung Transplantation 1997;16:939-945.**

Brauner R, Laks H, Drinkwater DC, Shvarts O, Eghbali K, Galindo A. Benefits of early repair in fixed subaortic stenosis. **Journal of the American College of Cardiology 1997;30:1835-1842.**

Esmailian F, Laks H, Drinkwater DC, Eghbali K. Retrograde cerebral perfusion as an adjunct to prolonged hypothermic circulatory arrest with extended applications. **Chest 1999;116(4):887-891.**

Mannis MJ, Eghbali K, Schwab IR. Keratopigmentation: A review of corneal tattooing. **Cornea 1999;18(6):633-637**

Eghbali K, Funtana G, Laks H. Complete resection and reconstruction of the right atrium following a cardiac tumor. **Submitted for publication to Annals of Thoracic Surgery.**

Eghbali K, McCarthy M, Schwab IR, Mannis MJ. Hepatitis C related Mooren's ulcer. **Will submit for publication to Cornea.**

Eghbali K, McCarthy M, Mannis MJ, Schwab IR. Especial case of Herpes Zoster Ophthalmicus. **Will submit for publication to American Journal of Ophthalmology.**

McCarthy M, Eghbali K, Scwab IR, Brant JD, Mannis MJ. Penetrating keratoplasty and glaucoma. **Will submit to the American Journal of Ophthalmology.**

Shami N, Eghbali K, Mcdonnell P. (Book Chapter) Lasik complication; etiology, prevention and management. **Smolin & Thoft: Cornea. 4th edition, Boston: Little Brown. 2003**

De Carvalho RAP, Eghbali K, Weber DA, Chou DC, Kuppermann BD. Pharmacokinetics of a novel intravitreous dexamethasone biodegradable drug delivery system. **Will submit to Retina**

Abstracts:

Takkennberg J, Wang HM, Czer L, Popov A, Eghbali K, Freimark D, Aleksic I, Blanche C, Trento A. The effect of chronic alcohol use on the heart prior and after transplantation in an experimental model in rat. Echocardiographic and in vitro hemodynamic studies. **International Society for Heart and Lung Transplantation.**

Brauner R, Laks H, Drinkwater DC, Shvartz O, Eghbali K. Long-term follow-up in fixed subaortic obstruction: Early surgical repair decreases recurrence and progression of aortic valve disease. **Circullation (Supplement) Vol. 94, Number 8, Oct 15,96, I-652.**

Eghbali F, Hsui HS, Eghbali K, Weisman BA. Oxygen transmissibility at various locations of soft toric prism ballasted lenses. **Optometry Vision Science 1994; December (suppl):77.**

Esmailian F, Laks H, Drinkwater DC, Eghbali K. Retrograde cerebral perfusion as an adjunct to prolonged hypothermic circulatory arrest with extended applications. **Chest 1997.**

Presentations:

Eghbali F, Hsue EH, Eghbali K, Weissman BA. Oxygen transmissibility at various locations of soft toric prism ballasted lenses. **American Academy of Optometry, San Diego, CA, December 1994**

Brauner R, Laks H, Drinkwater DC, Shvartz O, Eghbali K. Long-term follow-up in fixed subaortic obstruction: Early surgical repair decreases recurrence and progression of aortic valve disease. **American Heart Association, 69th Scientific Sessions, New Orleans, Louisiana, November 10-13, 1996.**

Esmailian F, Laks H, Drinkwater DC, Eghbali K. Retrograde cerebral perfusion as an adjunct to prolonged hypothermic circulatory arrest with extended applications. **Chest, 63rd Annual International Scientific Assembly of American College of Chest Physician, New Orleans, Louisiana, October 26-30, 1997.**

Davidorf J, Eghbali K, Onclix T, Eghbali F, Maloney RK. Heperopic LASIK with varying the optical zone using the VISX star S2 laser. **American Academy of Ophthalmology Annual meeting 1999.**

Teaching:

Teaching and attending residents surgical cases at UC Irvine and Long Beach VA Hospital 2004-2005

Lecturer in cardiac surgery and SICU for 3rd and 4th year medical students. UCLA School of Medicine. 2000-2001.

Molecular and Cellular biology TA, University of California Los Angeles (UCLA) 1993.

Calculus based physics tutor, University of California Los Angeles (UCLA) 91-92.

Volunteer, Activities & Memberships:

Member of American Academy of Ophthalmology

Member of American Society of Cataract and Refractive Surgery

Member of American College of Surgeons

Member of American Medical Association

Member of California Medical Association

Member of the Golden Key National Honor Society

Member of the Alpha Phi Gamma

Active participant in the Golden Key National Honor Society

Volunteer at the Cedar-Sina Medical Center (MICU & RICU) 1991-93

Volunteer at the West Side Hospital (Dept. of Surgery) 1990-91

Volunteer at the UCLA Medical Center (ER & Dept. of Surgery) 1991-93

Volunteer at the free clinics for underserved population run by the UC Davis School of Medicine. 1994-97

President of the UCLA Premedical Club sponsored by the UCLA School of Medicine for 2 years. 1993-95

Co-president of the Medical Subspecialty Club at UCD School of Medicine. 1997-98

Serving in the UCD School of Medicine admission committee for interviewing the incoming medical students. 1997-99.

Honors/Awards:

Award for outstanding performance in ophthalmology residency, Department of Veterans Affairs-VA Long Beach Health Care System 2004

Physician recognition award from the American Medical Association 2004

Bachelors of Science from UCLA College of Honors (Summa Cum Ladda)

Highest departmental Honor from the department of the Molecular Biology

Dean's Honor List

Honor from Alpha Gamma Sigma

Honors from Extended Opportunity Program

Award from California Honor Scholarship Society

Regent Scholarship

SoCalEye Southern California Eye Physicians & Associates

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Larry A. Pasquali, M.D., F.A.C.S.
Carl T. Hartman, M.D., F.A.C.S.
Trinh T. Nhu, M.D., F.A.C.S.
Emma L. Clay, M.D., F.A.C.S.
Michelle M. Okabe, O.D.
Bernice S. Lim, O.D.
Michelle A. Belo, O.D.

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562-531-2020

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March 19, 2016

To: California State Board of Optometry

Attention: Kristina Eklund

SoCalEye dba Lakewood Eye Physicians will be hosting our annual continuing education ocular symposium on May 11th, 2016. The event is open to all licensed optometrists in California. As the hosts of the event, SoCalEye will maintain and keep all documents associated with the event for at least three years as required by the California State Board of Optometry. If you have questions, feel free to contact me directly.

Regards,

Marty Wilcox

Director of Affiliate Development

562-234-4479

scanned & placed in pending file for Committee 2/24/16

Agenda Item 3F

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY

EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170, F (916) 575-7292 www.optometry .ca.gov

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OPTOMETRY

Request for Approval of Continuing Education Course(s)

Lakewood Eye Physicians/SoCalEye
3300 E. South Street
Suite 105
Long Beach, Ca. 90805
Attn: Marty Wilcox

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
F-00160	6191486	6191498	$0

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Clinical Trials-How they work and the real	5/11/16	Ted Pasquali, M.D.	0.5			
benefits to your patients and practice						
Amniotic Membranes; not just for babies	5/11/16	Emma Clay, M.D.	0.5			
A practical approach to ocular surface disease	5/11/16	Trinh Nhu, M.D.	0.5			
and making a multifocal IOL patient happy						
Neurophthalmology on a busy clinic day;	5/11/16	Carl Hartman, M.D.	0.5			
the swollen disc						

COMMITTEE COMMENTS:

TOPICAL OUTLINE

CONTINUING EDUCATION SEMINAR MAY 11TH, 2016-TOPICAL OUTLINE

A. TOPIC- ***"CLINICAL TRIALS-HOW THEY WORK AND THE REAL BENEFIT TO YOUR PATIENTS AND PRACTICE" – SPEAKER: TED PASQUALI, M.D.- TIME 30 MINUTES***

1. ***VIDEO AND SLIDE PRESENTATION OF CURRENT AND UPCOMING CLINICAL TRIALS***
2. ***CLINICAL DISCUSSION OF EACH TRIAL***
3. ***PROTOCOL AND CRITERIA NEEDED FOR PATIENT ELIGIBILITY***
4. ***CLINICAL DISCUSSION OF PATIENT CARE AND MONITORING***
5. ***BENEFITS TO THE OPTOMETRIC PRACTICE***
6. ***QUESTION AND ANSWER SESSION***

B.TOPIC- ***"AMNIOTIC MEMBRANES; NOT JUST FOR BABIES" –SPEAKER: EMMA CLAY, M.D.-TIME 30 MINUTES***

1. ***VIDEO AND SLIDE PRESENTATION OF ABNORMAL AMNIOTIC MEMBRANES***
2. ***DIAGNOSIS AND TRIAGE PROTOCOL***
3. ***TREATMENT RECOMMENDATIONS***
4. ***COMANAGMENT CARE BETWEEN OPTOMETRISTS AND OPHTHALMOLOGISTS***
5. ***QUESTION AND ANSWER SESSION***

C.TOPIC- ***"A PRACTICAL APPROACH TO OCULAR SURFACE DISEASE AND MAKING A MULTIFOCAL IOL PATIENT HAPPY" – SPEAKER: TRINH NHU, M.D. - TIME 30 MINUTES***

1. ***VIDEO AND SLIDE PRESENTATION OF VARIOUS OCCULAR SURFACE DISEASES AND IRREGULARITIES***
2. ***DIAGNOSING OCCULAR SURFACE DISEASES AND TREATMENTS***
3. ***PATIENT COUNSELING FOR MULTIFOCAL IOL CANDIDACY***
4. ***TYPES OF MULTIFOCAL IOLS AVAILABLE AND DESCRIPTIONS OF EACH PRODUCT***
5. ***POST OPERATIVE CARE FOR THE OPTOMETRIC COMMUNITY***
6. ***QUESTION AND ANSWER SESSION***

D. TOPIC- ***"NEUROPHTHALOMOLOGY ON A BUSY CLINIC DAY; THE SWOLLEN DISC"- SPEAKER: CARL HARTMAN, M.D. – TIME 30 MINUTES***

1. ***OCT PHOTO SLIDE SHOW OF OPTIC DISC INFLAMATION***
2. ***OCT AND FUNDUS INTERPITATION***
2. ***VARIOUS DIAGNOSIS AND CLINICAL TREATMENT AND TRIAGE***
3. ***LONG TERM CLINICAL CARE BY OPTOMETRISTS AND OR OPHTHALMOLOGISTS***
4. ***PATIENT OUTCOMES THROUGH VARIOUS MEDICATIONS AND TREATMENTS***
5. ***QUESTION AND ANSER SESSION***

CURRICULUM VITAES

CARL T. HARTMAN, M.D.

Carl T. Hartman, M.D., F.A.C.S. (known as "Dr. Carl") joined his father, Dr. Ronald Hartman, and Dr. Larry Pasquali in practice in 1990. He is board certified as a Diplomate of the American Board of Ophthalmology, a Fellow of the American College of Surgeons, a Fellow of the American Academy of Ophthalmology, and a clinical professor of Ophthalmology at the University of California, Irvine. Dr. Carl's extensive refractive and cataract surgery credentials include certification in LASIK, PRK, PRKa, PTK, RK, AK, clear corneal sutureless lensectomy, and corneal transplantation, as well as the latest accommodating, multifocal and toric intraocular lenses. He is also certified in the newest WaveFront and IntraLASIK laser vision correction procedures. Thousands of patients, including many fellow physicians, surgeons, community leaders, and family members (including his wife and brother) have chosen Dr. Carl to perform their surgery.

Outside the SoCal Eye practice, Dr. Carl currently serves as an expert in ophthalmology for the state of California. As a designated expert, his testimony and opinions are used to regulate ophthalmologists within the state, often with regards to refractive surgery. At the federal level, Dr. Carl has helped establish national benchmarks for ophthalmic standard of care as it pertains to the U.S. Medicare system. At the local level, his leadership responsibilities have included being chief of staff and chairman of the department of surgery at Lakewood Regional Medical Center, as well as a member of the medical executive committee at Los Alamitos Medical Center. Dr. Carl is one of only three surgeons selected by the California Optometric Laser Associates to work with optometrists throughout Southern California to establish higher standards of care in the co-management of laser vision correction patients. Other honors include being named a “Physician of Excellence” by the Orange County Medical Association, “Best Ophthalmologist” by the Long Beach Press-Telegram Reader’s Choice Survey, a “Top Physician” by U.S. News and World Report, and one of “Southern California’s Best Physicians” as chosen by his peers.

But, in Dr. Carl's view, teaching others is the ultimate honor. He lectures and teaches ophthalmologic surgery and neuro-ophthalmology to other physicians, and actively proctors newly trained surgeons at a number of institutions. A particular source of pride for Dr. Hartman is winning the "Outstanding Teaching Professor of the Year" award four times at the University of California, Irvine. As both a clinical investigator and co-author, he also maintains an active role in research.

Dr. Carl grew up locally and is a graduate of Lakewood High School. He attended the University of Southern California, graduating with honors with a Bachelor of Science in Biological Sciences. In 1982, Dr. Hartman moved to Chicago, where he received his Doctor of Medicine from Chicago Medical School. In 1987, he completed a full Internal Medicine internship at the University of California, Irvine. It was here that Dr. Carl also completed his residency in ophthalmology, and served as chief resident during his final year. He passed the boards in ophthalmology with honors immediately thereafter, and accepted a position on the university's clinical staff.

According to Dr. Carl, "Helping my patients achieve their visual goals in a caring, friendly environment is my primary concern. It gives me great joy when I hear that a patient found my practice through a friend or family member who was happy with our care and service. Being able to serve my patients, while practicing alongside my father, is a blessing beyond description."

EDUCATION

University of Southern California

Los Angeles, CA

Major: Biological Sciences/Marine Biology

Degree: Bachelor of Science with Honors

1978-1982

Chicago Medical School

North Chicago, IL

Doctor of Medicine

1982-1986

University of California, Irvine

Irvine, CA

Internal Medicine Internship

1986-1987

University of California Irvine

Irvine, CA

Ophthalmology Residency

Chief Resident, 1989-1990

1987-1990

Board Certification

Diplomate of the American Board of Ophthalmology

12/13/91

APPOINTMENTS

Clinical Professor of Ophthalmology, University of California, Irvine

Expert Reviewer, State of California, California Medical Board

Certified Excimer Laser Instructor, Nidek International

Clinical and Surgical Teaching Staff, Long Beach Memorial Medical Center

Clinical and Surgical Teaching Staff, Long Beach Veterans Administration Medical Center

One of America's Top Ophthalmologists, Consumer's Research Council of America

Refractive Surgeon, California Optometric Laser Associates

REFRACTIVE SURGERY CREDENTIALS

Actively performing refractive surgery since entering practice in 1990

Lecturer and Instructor for Multiple Refractive Surgery Seminars

Ophthalmology Residency with training in Corneal Transplantation, under Chairman Richard Keates, M.D.

Corneal Transplantation and Refractive Surgery Techniques, Max Fine, M.D.

Corneal and Refractive Surgery Course, Herbert Kaufman, M.D.

Radial and Astigmatic Keratotomy Certification, American Academy of Ophthalmology

Keratorefractive Surgery and Certification, Miles Friedlander, M.D.

Advanced Refractive Surgery and Astigmatism Update and Recertification in Modern Refractive Surgery Techniques, Lee Nordan, M.D.

VISX University Excimer Laser System Certification

VISX CustomVue Laser Correction Certification

Phacorefractive Surgery, The Barnet Dulaney Eye Foundation

Corneal Topography and Refractive Surgery Update, Beckman Laser Institute at Universityof California, Irvine

Advanced Corneal Topography, American Academy of Ophthalmology

Advanced Refractive Keratoplasty, American Academy of Ophthalmology

C-LASIK: Lamellar Refractive Surgery Certification, Stephen G. Slade, M.D.

LASIK and Hansatome Certification, Stephen G. Slade, M.D.

NIDEK Excimer Laser Certification

IntraLASIK Certification, Intralase Corporation

Wavefront CustomVue Certification, VISX Corporation

VISX Fourier Wavefront Certification, VISX Corporation

CustomVue Hyperopia and Hyperopic Astigmatism Certification, VISX Corporation

Certified Refractive Surgeon, Council for Refractive Surgery Quality Assurance Certification (CRSQA)

Z-LASIK Femtosecond Certification, Zeimer Corporation

Ongoing continuing education courses, recertifications, academic meetings, and attendance

PROFESSIONAL ASSOCIATIONS

Fellow of the American Academy of Ophthalmology

Fellow of the American College of Surgeons

American Society of Corneal and Refractive Surgery

Refractive Surgery Interest Group - American Academy of Ophthalmology

International Society of Refractive Surgery

Phi Delta Epsilon Medical Fraternity - President, Beta Tau Chapter, 1984-1985

Los Angeles County Medical Association

Long Beach Medical Association

California Medical Association

American Medical Association

Orange County Society of Ophthalmology

Orange County Medical Association

RESEARCH

Principle Investigator -- Visiogen Study SYNC-601-IOL: A prospective multi-center clinical study to evaluate the safety and effectiveness of Synchrony dual optic intraocular lens in patients undergoing cataract extraction (Phase 1)

Principle Investigator -- Visiogen Study SYNC-601-IOL: A prospective multi-center clinical study to evaluate the safety and effectiveness of Synchrony dual optic intraocular lens in patients undergoing cataract extraction (Phase 2)

Subinvestigator -- Study AZ04; Collaborative Neuroscience

Subinvestigator -- Study DSP; Collaborative Neuroscience

Subinvestigator -- Study Seroquel D1443-C0040; Collaborative Neuroscience

Subinvestigator -- Lens Opacification Classification System III; Forest II study; CNS

Subinvestigator -- Lens Opacification Classification System III; Forest 36 study; CNS

Clinical Investigator: Ophthalmologic effects of Interferon in treating Hepatitis C, 2003

Clinical Investigator: Allergan, Inc. - Efficacy of Bimatoprost (lumigan) in lowering intraocular pressure in chronic open angle glaucoma, 2002

Clinical Investigator: Pharmacia - 920 Silicone Foldable Intraocular Lens in Small Incision Cataract Surgery, 1998

In vitro study of "Incisional Refractive Surgery using Investigational Endothelial Microscopy Guided Diamond Knife," 1996

Computerized Vector Analysis of Corneal Astigmatism Based on Surgical Technique, 1996

Clinical Investigator Chiron Ophthalmics Collagen Shields in Ophthalmic Surgery, 1992

Ophthalmologic Examiner grading Cataract Formation Secondary to usage of FDA investigational Cholesterol Lowering Medication, 1990

Clinical Investigator for trials of "Cytomegalovirus Retinopathy Suppression in AIDS Patients using Gancyclovir (DHPG)" University of California, Irvine, 1989

"Leukemic infiltration of the optic nerve head," 1988

"Fluorophotometric comparison of tear flow and corneal permeability in keratoconjunctivitis sicca and normal subjects" Presented at ARVO, 1987

University of California Irvine "Quantitative conjunctival impression cytology in diseases of mucin deficiency" Presented at ARVO, 1985

University of Southern California Institute of Marine & Coastal Studies, Catalina, CA "Underwater studies using SCUBA of the subtidal flora & fauna interactions," 1977-1978

STAFF SURGICAL PRIVILEGES

Beckman Laser Institute, UC Irvine

Active

Lakewood Regional Medical Center

Active

Los Alamitos Medical Center

Active

Lakewood Eye Physicians SurgiCenter

Active

University of California Irvine Medical Center

Consultant

Long Beach Veterans Hospital

Consultant

ELECTED POSITIONS AND COMMITTEES

Chief of Staff, Lakewood Regional Medical Center

Vice Chief of Staff, Lakewood Regional Medical Center

Chairman - Department of Surgery, Lakewood Regional Medical Center

Medical Executive Committee, Lakewood Regional Medical Center

Medical Executive Committee, Los Alamitos Medical Center

Governing Board, Lakewood Regional Medical Center

Chairman - Operating Room Operations Committee, Lakewood Regional Medical Center

Chairman - Credentials, Lakewood Regional Medical Center

Chairman - Utilization Review / Medical Records, Lakewood Regional Medical Center

Patient Safety Committee, Los Alamitos Medical Center

Bylaws Committee, Long Beach Memorial Medical Center

Utilization Review, Lakewood Health Plan

Utilization Review, Long Beach Memorial IPA

Chairman - Credentials, Lakewood Eye Physicians SurgiCenter

Utilization Review, Community Care Network

Board of Directors, Lakewood Physicians Association

Program Director, Orange County Medical Association/ University of California, Irvine Student Shadowing Program

LECTURES AND PRESENTATIONS

Multifocal and Accommodating Intraocular Lens Implantation with Cataract or Clear Lens Extraction

Orange County Society Of Ophthalmology

Refractive & Anterior Segment Surgery Course and Wet Lab, Principal Instructor

University of California, Irvine and Alcon Laboratories

Phacoemulsification and Modern Intraocular Lens Implantation, Principal Instructor

University of California, Irvine

Trilateral Retinoblastoma and Gene Mutations in Retinoblastoma

Albert Einstein College of Medicine / Montefiore

Quantitative Impression Cytology in Keratoconjunctivitis Sicca

New York University

Epithelial Damage and Corneal Permeability Changes Measured by Flourphotometry

University of Chicago / Pritzker School of Medicine

Future Trends and Advanced Techniques in Refractive Surgery

Rio Hondo Optometric Society

Monocular and Binocular Diplopia,

University of Southern California Doheny Eye Hospital

Modern Advances in Excimer Laser Technology

Vail Multi-disciplinary Medical Conference

Advanced Techniques in Incisional and Laser Assisted Refractive Surgery

Annual Aspen Medical Conference

Corneal Transplantation, Advanced Techniques and Innovations, Key Note Speaker

Lions Club of Southern California

Ophthalmologic Emergencies and Ocular Trauma, Telluride Medical Meeting

Swelling of the Optic Nerve -- Neuropathies, Neuritis, and Compression

Rio Hondo Optometric Society

Surgery of the Anterior Segment -- History, Current Techniques, and Advances Management and Gold Team

Allergan, Inc., Irvine, California

Trends and Innovations in Refractive Surgery

Allergan, Inc., Irvine, California

Orbital Tumors and Proptosis -- Diagnosis and Treatment

University of California, Irvine

TRINH NHU, M.D.

Trinh T. Nhu, M.D., F.A.C.S, joined SoCal Eye in 1997, with the opening of their second office in Los Alamitos. Dr. Nhu is a Diplomate of the American Board of Ophthalmology, a Fellow of the American Academy of Ophthalmology, a fellow of the American College of Surgeons, and a member of Alpha Omega Alpha Honor Medical Society. She is also a professor of ophthalmology at the University of California Irvine School of Medicine.

As a board-certified ophthalmologist for over seventeen years, Dr. Nhu has extensive experience treating all eye diseases. In addition to performing cataract surgery with the latest accommodating, multifocal, and toric intraocular lenses, she also performs clear lensectomy, glaucoma, pterygium, eyelid cancer removal and reconstruction, as well as blepharoplasty. Most important of all, Dr. Nhu is committed to providing her patients with exceptional eye care.

EDUCATION

University of Southern California

Los Angeles, CA

Major: Biomedical Engineering

Degree: Bachelor of Science - Summa Cum Laude

1985-1989

University of California, Irvine

School of Medicine

Irvine, CA

Doctor of Medicine - AOA Honors

1989-1993

University of California, Irvine

Irvine, CA

Internal Medicine Internship

1993-1994

University of California, Irvine

Department of Ophthalmology

Irvine, CA

Ophthalmology Residency

1994-1997

BOARD CERTIFICATION

American Board of Ophthalmology

2000

APPOINTMENTS

Partner Ophthalmologist, SoCal Eye

Clinical Instructor of Ophthalmology, University of California, Irvine

School of Medicine

STAFF SURGICAL PRIVILEGES

Los Alamitos Medical Center

Active

Lakewood Eye Physicians SurgiCenter

Active

UCI Medical Center

Active

Lakewood Regional Medical Center

Courtesy

PROFESSIONAL AND HONOR SOCIETIES

Fellow of American Academy of Ophthalmology

Fellow of American College of Surgeons

Member of Alpha Omega Alpha Medical Honor Society

Member of Phi Beta Kappa Honor Society

Member of Phi Kappa Phi Honor Society

Member of Tau Beta Pi Engineering Honor Society

HONORS AND AWARDS

Alpha Omega Alpha Honor Medical Society

1994

Roger G. Hauser, M.D. Memorial Trust Scholarship

1991-1992

Department of Obstetrics and Gynecology, Letter of Commendation

1991-1992

Department of Pediatrics, Letter of Commendation

1991-1992

Basic Science Award for Academic Excellence

1991

Rotary Club Award

1991

McGraw Hill Award for Top 2 Medical Students

1990

Department of Microbiology, Letter of Commendation

1989-1990

USC Honors Engineering Program

1985-1990

USC Associate Scholar

1985-1989

RESEARCH / PUBLICATIONS

Subinvestigator – Study AZ04; Collaborative Neuroscience

Subinvestigator – Study DSP; Collaborative Neuroscience

Subinvestigator – Study Seroquel D1443-C0040; Collaborative Neuroscience

Subinvestigator – Lens Opacification Classification System III; Forest II study; CNS

Subinvestigator – Lens Opacification Classification System III; Forest 36 study; CNS

UCI Department of Ophthalmology

Posterior Chamber Secondary IOL - Advantages & Morbidity. 1996-1997

UCI Department of Ophthalmology

Applications of PAR Corneal Topography to PRK.

1995-1996

UCI Department of Ophthalmology / Beckman Laser Institute

Effect of Misalignment of the 193nm Excimer Laser and its Implication on Human Corneal Surgery. PRK clinical studies.

1992

UCI Family Practice Research Fellowship

A Survey of Ophthalmic Screening for Diabetics by Primary Care Physicians.

Y Baribeau, J Eugene, TT Nhu, M Berns, S Firestein, Y Liaw, L Yow, M Wilson

1990

American Heart Association Fellowship

Beckman Laser Institute

Application of the KTP and Excimer Laser in Performing Endarterectomies; Presented at the annual American Heart Association student researcher meeting.

Excimer Laser Radiation of Endarterectomy of Experimental Atheromas, Journal of Investigative Surgery, 1991; 4(3): 247-258

EMMA CLAY, M.D.

Emma Clay joins SoCal Eye from the UCLA Medical Center, Jules Stein Eye Institute, Department of Ophthalmology. Dr. Clay completed her eye surgery training after graduating from Jefferson Medical College in Philadelphia, Pennsylvania. During her time in medical school, Dr. Clay was inducted into the prestigious medical honor society Alpha Omega Alpha, and has received numerous other honors and awards. Since joining SoCal Eye, she has been appointed a fellow in the American Academy of Ophthalmology and the American College of Surgeons, and a diplomate of the American Board of Ophthalmology.

For the last ten years, Dr. Clay has been actively involved in performing the full spectrum of eye surgery. Her expertise in small incision cataract removal, and implantation of monofocal, toric, accommodating, and multifocal intraocular lens implants provides our patients with many vision-correcting options. For patients interested in laser vision correction, Dr. Clay is certified in numerous refractive procedures, including LASIK, PRK, PTK, and clear corneal lens exchange. Dr. Clay also has a special interest in facial rejuvenation, and performs upper and lower lid blepharoplasties. Antiaging treatments include Botox, Dysport, and Restylane injections.

Dr. Clay believes in being an active member of her community and lectures to numerous local and retirement groups. She is also a consultant at the Veterans Hospital in Long Beach and appreciates the opportunity to give back to those who have served our country.

PUBLICATIONS

Hollander DA, Clay EL, Sidikaro Y, Infectious Crystalline Keratopathy Associated with Intravitreal and Posterior Subtenon Triamcinolone Acetonide Injections, Br J Ophthalmology. 2006, May; 90 (5): 656.

Emma Clay, Richard Ou, Jonathan Davidorf, Ocular Trauma and Emergencies, In: Agarwal, A, ed. Handbook of Ophthalmology, New Jersey: Slack; 2005:539-564.

SI Murthy, EL Clay, RC Wang, E Zamir, NA Roa, Irreversible Late Visual Loss in Vogt Koyanagi Harada Disease. (2001). Abstract presented at the Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL.

Melissa A. Carran, Kohler G. Christian, David S. Glosser, Alicia A. Romero, Emma L. Clay, Michael J. O'Connor, Michael R. Sperling (1999). Anxiety Disorder and the Amygdala in Patients with an Aura of Fear. Abstract presented at the American Epilepsy Society 53rd Annual Meeting, December 1999.

PRESENTATIONS

"Treatment of Non-infectious Anterior Uveitis with Infliximab", Presented at 2005 JSEI Clinical and Research Seminar, Jules Stein Eye Institute, UCLA, Los Angeles, CA.

"Infliximab for Uveitis Resistant to Etanercept", Presented at 2004 American Uveitis Society Meeting, at American Academy of Ophthalmology, New Orleans, 2004.

INTERESTS / SKILLS

Dr. Clay speaks Spanish and enjoys swimming, tennis, running, and art history.

EDUCATION

Occidental College

Los Angeles, CA

Major: Biology

Degree: Bachelor of Science — Biological Sciences

1991-1995

Jefferson Medical College, Thomas Jefferson University

Philadelphia, PA

Doctor of Medicine — AOA Honors

Clinical Honors: Ophthalmology, Ocular Pathology, Internal Medicine, Surgery, OB/GYN, Pediatrics, Family Medicine, Psychiatry

Carroll R. Mullen Memorial Prize in Ophthalmology, Honorable Mention

J.Woodrow Savacool Prize in Medical Ethics, Honorable Mention

Beech Full Year Entire Tuition Scholarship, 2000-2001

Skellie Scholarship, 1997-1998

Fisher Scholarship, 1998-1999

1997-2001

UCLA — Harbor Hospital

Torrance, CA

Transitional Year Internship

2001-2002

Jules Stein Eye Institute, UCLA

Los Angeles, CA

Ophthalmology Residency: Second Year Resident Weekly Quiz Prize

2003-2006

Board Certification

American Board of Ophthalmology

2008

EXPERIENCE AND EMPLOYMENT

Lakewood Eye Physicians and Surgeons, Inc.

Lakewood, CA

Los Alamitos, CA

2006-Present

HONORS

Alpha Omega Alpha Honor Medical Society

Clinical Honors: Ophthalmology, Ocular Pathology, Internal Medicine, Surgery, OB/GYN, Pediatrics, Family Medicine, Psychiatry

Carroll R. Mullen Memorial Prize in Ophthalmology, Honorable Mention

J. Woodrow Savacool Prize in Medical Ethics, Honorable Mention

STAFF SURGICAL PRIVILEGES

Los Alamitos Medical Center

Active

Lakewood Eye Physicians SurgiCenter

Active

PROFESSIONAL AND HONOR SOCIETIES

Fellow of the American Academy of Ophthalmology

Fellow of the American College of Surgeons

American Society of Corneal and Refractive Surgery

Alpha Omega Alpha

ELECTED POSITIONS AND COMMITTEES

Surgery Scheduling Committee, Department of Surgery, Los Alamitos Medical Center

THEODORE PASQUALI, M.D.

As the newest member of the SoCal Eye team, Dr. Ted A. Pasquali is devoted to providing excellent and personalized patient care in all areas of ophthalmology. After receiving his undergraduate degree from Princeton University and his medical degree at UCLA's David Geffen School of Medicine, Dr. Pasquali completed his internship in medicine at Banner Good Samaritan Hospital in Phoenix, Arizona, his residency in ophthalmology at Cole Eye Institute at the Cleveland Clinic, and a fellowship in refractive surgery at Durrie Vision in Overland Park, Kansas. He is a member of the American Academy of Ophthalmology (AAO), the American Society of Cataract and Refractive Surgery, and the International Society of Refractive Surgery. He enjoys participating in research and has published papers in the Journal of Refractive Surgery and the Journal of Cataract and Refractive Surgery.

BOARD CERTIFICATION

American Board of Ophthalmology

2013-Present

EDUCATION AND TRAINING

Princeton University

Princeton, NJ

Bachelor of Arts

1997-2001

University of California, Los Angeles

Los Angeles, CA

Medical Degree

2006-2008

Banner Good Samaritan Hospital

Phoenix, AZ

Internship in Medicine

2008-2009

Cole Eye Institute

Cleveland, OH

Residency in Ophthalmology

2011-2012

Durrie Vision

Overland Park, KS

Fellowship in Refractive Surgery

2012-2013

RESEARCH

Durrie Vision

Cole Eye Institute

ANNOUNCEMENTS

SoCal eye

You Won't Believe Your Eyes℠

50 Years

Of Serving Our Community

SAVE THE DATE

2016 Ocular Symposium

May 11th, 2016 at 6:00 pm
Old Ranch Country Club
3901 Lampson Ave. Seal Beach, CA 90740

Topics Include:

Neuro-ophthalmology On A Busy Clinic Day; The Swollen Disc
A Practical Approach to Ocular Surface Disease and Making that Multifocal Eye A Happy Camper
Amniotic Membranes; Not Just For Babies!
Clinical Trials: How They Work And the Real Benefit To Your Patients And Your Practice

Ronald Hartman, MD Larry Pasquali, MD Carl Hartman, MD
Trinh Nhu, MD Emma Clay, MD Ted Pasquali, MD

RSVP: Marty Wilcox (562) 234-4479
mwilcox@socaleye.com

TLC Laser Eye Centers® at HARVARD Eye Associates

To whom it may concern:

Our proposed course, LASIK Grand Rounds, is open to all optometrists in the state of California.

This program will contribute to the advancement of professional skills and knowledge in the practice of optometry by allowing optometrists to understand laser vision correction procedures such as LASIK and PRK by observing the procedure and interacting with the surgeon. We also will go over proper co-management protocol for the optometrists so they can understand how to better manage laser vision correction patients in-office.

We agree to maintain and furnish to the Board and licensing attendee such records of course content and attendance as the board requires, for a period of at least 3 years from the date of course presentation.

This program will be on-going for 1 year from March 1, 2016.

Sincerely,

Isabell Choi, OD
Clinical Director/Optometrist
TLC Laser Eye Centers at Harvard Eye Associates

CURRICULUM VITAE
John A. Hovanesian, M.D.

Personal

Address/phone:	Harvard Eye Associates 24401 Calle De La Louisa, Suite 300 Laguna Hills, California USA (949) 951-2020 Voice: (949) 951-2020, FAX: (949) 951-9244
Medical Licenses:	California: G83665 Michigan: 4301059581 DEA: BH4893980
Board Certification:	American Board of Ophthalmology, 1997

Education/Employment

Undergraduate:	Bachelor of Science in Honors Chemistry *Summa Cum Laude*, graduated in three years University of Michigan, Ann Arbor, Michigan 1985-1988
Medical School:	Doctor of Medicine University of Michigan, Ann Arbor, Michigan 1988-1992
Internship:	Department of Medicine, Transitional Internship William Beaumont Hospital, Royal Oak, Michigan 1992-1993
Residency:	Department of Ophthalmology Henry Ford Hospital, Detroit, Michigan 1993-1996
Chief Resident:	Department of Ophthalmology Henry Ford Hospital, Detroit, Michigan 1996-1997
Fellowship:	Refractive Surgery, Cornea, and External Disease Jules Stein Eye Institute, University of California Los Angeles 1997-1999

Practice/Teaching	Private Practice	Academic Affiliation
	Harvard Eye Associates Laguna Hills, California	Clinical Instructor UCLA Jules Stein Eye Institute

10/31/13

1999-present 1999-present

Consulting & Scientific Advisory Boards (denoted by *)

Baxter Bioscience, 2004-2006
Ista Pharmaceuticals, 2005-2012*
Dupont, Inc., 2006
Innovative Ophthalmic Products, Inc., 2005-present*
Visiogen, Inc., 2007-2010
Vistakon, Inc., 2007-2009
Bausch & Lomb Surgical, 2006-present*
Kurtis Eyewear, 2006-2010
Allergan, Inc., 2007-2010
Sirion Therapeutics, 2007-2010*
Inspire Pharmaceuticals, 2007-present
Revision Optics, 2008-present
Diopter, 2008-present*
Ocular Therapeutix, 2008-present*
Ivantis, Inc. 2008-present*
SARcode, Inc., 2012
Sarentis Therapeutics, 2012
Sight Sciences, 2012
Mylan Pharmaceuticals, 2012*

Honors and Awards

James B. Angell Scholar, University of Michigan, 1985-1988
Phi Beta Kappa as college junior, University of Michigan, 1987
CIBA/Geigy Award for Outstanding Community Service, University of Michigan Medical School, 1990
Silver Beaver Award, highest volunteer honor given by the National Court of Honor, Boy Scouts of America, 1994
Resident of the Year, Henry Ford Hospital, 1996
David May II Fellowship, Jules Stein Eye Institute, Los Angeles, California,1997
David May II Fellowship, Jules Stein Eye Institute, Los Angeles, California, 1998
Best Paper of Session, International Society of Refractive Surgery Symposium, New Orleans, Louisiana, 1998
National Telly Award for PBS Television "American Health Journal" program on new technology intraocular implants, 2004
Best Paper of Session, American Society of Cataract and Refractive Surgery Symposium, San Francisco, 2009
Achievement Award, American Academy of Ophthalmology, 2009
Speaker of the Day, Royal Hawaiian Eye Meeting, 2011
Speaker of the Day, Royal Hawaiian Eye Meeting, 2012
Gold Medal, Intraocular Implant and Refractive Society, India, 2012

Patents

US Patent 7780653 "Method for Astigmatism Correction" issued August, 2010

Professional Societies

American Academy of Ophthalmology
American Society of Cataract and Refractive Surgery
International Society of Refractive Surgery
Orange County Ophthalmology Society

Textbooks

Hovanesian, JA (editor), *Pterygium, Techniques and Technologies for Surgical Success*, Slack, Inc., 2012
Hovanesian, JA (editor), *Refractive Cataract Surgery, an Introduction and Step-by-Step Guide*, Slack, Inc., 2012

Journal & Other Professional Activities

House Staff Council, Henry Ford Hospital, Detroit, Michigan, 1995-1996
Reviewer, *Ophthalmology* journal, 1997-present
Column Editor, "Ophthalmic Outreach", *Ocular Surgery News* recurring column sharing information and inspring volunteerism among ophthalmologists, 2006-present
Column Editor, "State of the Art", *Ocular Surgery News* recurring column evaluating new ophthalmic technologies, 2007-2011
Continuing Medical Education Reviewer, Vindico Medical Education, 2007-present
Editorial Board, *Ocular Surgery News*, 2007-present
Editorial Board, *Cataract & Refractive Surgery Today*, 2009-present
Section Editor, Cataract, *Ocular Surgery News, 2011-present*
Chairman, American Academy of Ophthalmology Cataract/Anterior Segment Committee, Ophthalmic News & Education Network, 2010-present
Committee Member, American Society of Cataract and Refractive Surgery, Cornea Clinical Committee, 2011-present

Charitable Activities

Vice President-Program, Armenian Eye Care Project, international organization raising $11 million for eye care in developing Republic of Armenia, 1997-2009.
Medical Missions to Armenia every six months providing training programs for Armenian surgeons, 1998-present.

Chairman, St. Mary Church "Mr. and Mrs. Club", 2006-2008.
Teacher, St. Mary Church Sunday School, 2008-2010
Chairman, Orange County Armenian Young Professionals organization, 2001-2004.
Boy Scouts of America volunteer at regional and national levels, 1985-present.
- District Commissioner, Scouting for the Handicapped, 1993-1996
- Author of two nationally distributed publications, 1988-1989
- National Scout Jamboree Health and Safety Committee, 1989, 1993
- Den Leader, Cub Scout Pack 35, Laguna Beach, California, 2009-present
- Cubmaster, Cub Scout Pack 35, Laguna Beach, California, 2012-present
- Council Commissioner, Orange County Council, 2013

FDA Studies

Principal Investigator, Phase III Study of an Eye Drop to Treat Meibomian Gland Disease, 2005
Subinvestigator, A Study of a Trabecular Bypass Micro Stent in Combination with Cataract Surgery in Subjects with Open-Angle Glaucoma, 2005-2008
Subinvestigator, Phase III Study of the Visiogen Synchrony Accommodating Intraocular Lens, 2007-2008
Principal Investigator, Phase III Study of the Crystalens HD-100 Accommodating Intraocular Lens, 2007-2008
Principal Investigator, Phase III Study of the I-Zip Ocular Bandage, 2008-2009.
Principal Investigator, Phase III Study of the Toric Crystalens, 2010.
Principal Investigator, Phase IIIb Study of the LipiFlow Thermal Pulsation System, 2012
Principal Investigtor, Phase III Study of the Resure Ocular Sealant, 2011-2012
Principal Investigator, Phase III Study of the Light Adjustable Lens, 2012
Principal Investigator, Collagen Crosslinking (CXLUSA) Study, 2012
Principal Investigator, Phase III Study of a New Topical Drug for Dry Eye, 2012
Principal Investigator, Phase IIIa Study of the Revision Optics Corneal Inlay, 2012

Abstracts/Scientific Presentations

Hovanesian JA, Higginbotham EJ, Lichter PR. Long Term Visual Outcome of Ocular Hypotension After Thermosclerostomy. Poster at Association for Research in Vision and Ophthalmology, Sarasota, Florida, 1991.

Hovanesian JA, Hovanesian JD, Byrd TJ. Change in Corneal Stress Birefringence after Radial Keratotomy. Poster at American Society of Cataract and Refractive Surgery Symposium, Seattle, Washington, 1996.

Hovanesian JA, Shah SS, Maloney RK. Effect of Anti-island Treatment on Visual Acuity and Corneal Topography. Paper at American Society of Cataract and

Refractive Surgery Symposium, San Diego, California, 1998.

Shah SS, **Hovanesian JA**, Maloney RK. Effect of Laser Tuning on the Outcome of Refractive Surgery. Paper at American Society of Cataract and Refractive Surgery Symposium, San Diego, California, 1998.

Shah SS, **Hovanesian JA**, Maloney RK. Effect of Astigmatic Keratotomy on Visual Outcome after Myopic Photorefractive Keratectomy. Paper at American Society of Cataract and Refractive Surgery Symposium, San Diego, California, 1998.

Hovanesian JA, Shah SS, Maloney RK. Effect of Mild Central Islands on Visual Performance. Paper at Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, 1998.

Hovanesian JA, Shah SS, Maloney RK. Quantitative Topographic Irregularity and its Correlation with Best Corrected Visual Acuity after Refractive Surgery. Paper at International Society of Refractive Surgery, Orlando, Florida, 1998.

Hovanesian JA, Eghbali F, Shah SS, Maloney RK. Treating Astigmatism After a Free Lasik Cap by Rotating the Cap. Paper at International Society of Refractive Surgery, New Orleans, Louisiana, 1998.

Hovanesian JA, Faktorovich EG, Shah SS, Maloney RK. Bilateral Bacterial Keratitis after Lasik in a Patient with HIV Infection. Paper at International Society of Refractive Surgery, New Orleans, Louisiana, 1998—voted best paper of session.

Van Horn S, **Hovanesian JA**, Shah SS, Maloney RK. Effect of Volatile Substances on Excimer Laser Energy Delivery. Paper at International Society of Refractive Surgery, New Orleans, Louisiana, 1998.

Hovanesian JA, Shah SS, Maloney RK. Quantitative Topographic Irregularity as a Predictor of Best Corrected Visual Acuity after Refractive Surgery. Poster at American Academy of Ophthalmology, New Orleans, Louisiana, 1998.

Najman J, **Hovanesian JA**, Maloney RK. Effect of Lifting and Repositioning LASIK Flaps to Treat Folds. Poster at Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, 1999.

Hovanesian JA, Hovanesian JD, Maloney RK. Detection of Microkeratome Flap Abnormalities with Corneal Birefringence. Paper at International Society of Refractive Surgery, Orlando, Florida, 1999.

Hovanesian JA, Shah SS, Maloney RK. Recurrent corneal erosion syndrome after PRK and LASIK. Paper at International Society of Refractive Surgery, Orlando, Florida, 1999.

Shamie N, **Hovanesian JA**, Chuck RA, Ohanesian RV. Keratopigmentation: A Surgical Technique with Improved Cosmetic Results for the Removal of Limbal Dermoids. Paper at American Society of Cataract and Refractive Surgery Symposium, San Francisco, California, 2003.

Hovanesian JA. Comparison of Outcomes using Fibrin Tissue Adhesive vs Suture to Secure Conjunctival Limbal Autografts in Pterygium Surgery. Paper at American Society of Cataract and Refractive Surgery Symposium, San Diego, California, 2004.

Hovanesian JA. Follow-up of 98 Cases of Pterygium Surgery with Conjunctival Limbal Autograft Using Fibrin Tissue Adhesive Instead of Suture. Paper at American Society of Cataract and Refractive Surgery Symposium. Washington, DC, 2005

Hovanesian JA, Maloney RK. Treating Astigmatism After a Free Lasik Cap by Rotating the Cap. Paper at American Society of Cataract and Refractive Surgery Symposium. Washington, DC, 2005.

Hovanesian JA. Follow-up of 98 Cases of Pterygium Surgery with Conjunctival Limbal Autograft Using Fibrin Tissue Adhesive Instead of Suture. Paper at World Cornea Congress V. Washington, DC, 2005

Hovanesian JA. Karageozian VH. Simple Method for Watertight Cataract Wound Closure Using Fibrin Tissue Adhesive. Poster at American Academy of Ophthalmolgy Symposium. Las Vegas, Nevada, 2006.

Hovanesian JA. Fibrin Tissue Adhesive: It's Not Just For Breakfast Anymore! Research Symposium, University of California-Irvine, Irvine, California 2006.

Hovanesian JA. Does "Slow Set" Dilution of Fibrin Tissue Adhesive Reduce Its Strength in Ocular Surgery? Poster at American Academy of Ophthalmolgy Symposium. Las Vegas, Nevada, 2006.

Hovanesian JA. Karageozian VH. Simple Method for Watertight Cataract Wound Closure Using Fibrin Tissue Adhesive. Paper at Cornea Society Symposium. Las Vegas, Nevada, 2006.

Hovanesian JA. Does "Slow Set" Dilution of Fibrin Tissue Adhesive Reduce Its Strength in Ocular Surgery? Paper at American Society of Cataract and Refractive Surgery Symposium, San Diego, California, 2007.

Hovanesian JA. FDA Multicenter Study of the Fourth-Generation Eyeonics HD-100 Accommodating IOL. Paper at American Academy of Ophthalmolgy Symposium. New Orleans, Louisiana, 2008.

Hovanesian JA. Conjunctival Chalasis: Diagnosis and Surgical Treatment of Ocular Pain Masquerading as Dry Eye. Film at American Society of Cataract and Refractive Surgery Symposium, Chicago, Illinois, 2008.

Hovanesian JA. FDA Multicenter Study of the Fourth-Generation Eyeonics HD-100 Accommodating IOL. Paper at American Society of Cataract and Refractive Surgery Symposium, Chicago, Illinois, 2008.

Hovanesian JA. Results of Pterygium Excision Using Amnionic Membrane Beneath the Healthy Conjunctiva Surrounding a Conjunctival Autograft. Poster at American Society of Cataract and Refractive Surgery Symposium, Chicago, Illinois, 2008.

Hovanesian JA. Small Wound Leaks Are Associated With Myopic Surprises in Cataract Surgery. Poster at American Academy of Ophthalmology Meeting, Atlanta, Georgia, 2008.

Hovanesian JA. Amnionic Membrane as an Antifibrotic Implant in the Subconjunctival Space Surrounding a Conjunctival Autograft in Pterygium Surgery. Poster at American Academy of Ophthalmology Meeting, Atlanta, Georgia, 2008.

Hovanesian JA. Surgical Adhesive Techniques in Conjunctival, Corneal, and Cataract Surgery. Film at American Society of Cataract and Refractive Surgery Symposium, San Francisco, California, 2009.

Hovanesian JA. Cataract Wound Closure with a Hydrogel Adherent Ocular Bandage. Paper at American Society of Cataract and Refractive Surgery Symposium, San Francisco, California, 2009.

Ongoing Instruction Courses at American Academy of Ophthalmology and American Society of Cataract and Refractive Surgery Symposia

Hovanesian JA, Agarwal A, Hardten DA, Kaufman SC. Use of Fibrin Tissue Adhesive in Conjunctival, Corneal, and Refractive Surgery. 2007-present.

Hovanesian JA, Tseng SC, Hardten DA, Kaufman SC. Use of Fibrin Tissue Adhesive in Conjunctival, Corneal, and Refractive Surgery. American Society of Cataract and Refractive Surgery Annual Symposium. 2005-2007.

Hovanesian JA, Hardten DH, Corcoran KJ. Secrets to Growing the Use of Multifocal/Accommodative Lens Implants in Your Cataract Practice. American Society of Cataract and Refractive Surgery Annual Meeting, 2007-present.

Named Lectures

XXXXXXX Lecture,

Invited Lectures

Hovanesian JA. Physiologic Optics. National Science Foundation Short Course in Applied Optics, Oakland University, Rochester, Michigan, 1994.

Hovanesian JA. Optics of Keratorefractive Surgery. National Science Foundation Short Course in Applied Optics, Oakland University, Rochester, Michigan, 1996.

Shah SS, **Hovanesian JA,** Maloney RK. Phakic Intraocular Lenses-Options for Extreme Myopia. Eye Advance 98, Bombay, India, September, 1998.

Shah SS, **Hovanesian JA,** Maloney RK. Visual Performance after Refractive Surgery. Eye Advance 98, Bombay, India, September, 1998.

Shah SS, **Hovanesian JA,** Maloney RK. Phakic Intraocular Lenses-Options for Extreme Myopia. South Asian Association of Regional Countries Ophthalmological Society, Ahmedabad, September, 1998.

Shah SS, **Hovanesian JA,** Maloney RK. Visual Performance after Refractive Surgery. South Asian Association of Regional Countries Ophthalmological Society, Ahmedabad, September, 1998.

Hovanesian JA. Optics of Keratorefractive Surgery. National Science Foundation Short Course in Applied Optics, Oakland University, Rochester, Michigan, 1998.

Hovanesian JA. Episcleritis and Scleritis, Concepts and Advances. University of California Berkeley Continuing Education Meeting. Pomona, California, 1999.

Hovanesian JA. Moderate and Severe Ocular Allergy. University of California Berkeley Continuing Education Meeting. Pomona, California, 1999.

Hovanesian JA. Use of Fibrin Tissue Adhesive and Amnionic Membrane in Anterior Segment Surgery. Royal Hawaiian Eye Meeting. Maui, Hawaii, 2006.

Hovanesian JA. Use of Fibrin Tissue Adhesive and Amnionic Membrane in Anterior Segment Surgery. Royal Hawaiian Eye Meeting. Kauai, Hawaii, 2007.

Hovanesian JA. Medical Education From Cyberspace. Tenth International Armenian American Ophthalmology Conference. Yerevan, Armenia, 2007.

Hovanesian JA. Intraoperative Clinical Pearls for Presbyopia-Correcting IOLs. Royal Hawaiian Eye Meeting. Kona, Hawaii, 2008.

Hovanesian JA. What's New in Corneal Transplantation. Royal Hawaiian Eye Meeting.

CURRICULUM VITAE

Name: Diana Hope Kersten, MD, FACS
Date of Birth: May 6, 1957
Place of Birth: Iowa City, Iowa
Marital Status: Married: Michael Austin
Medical License: California A42878

Premedical Education **1975 - 1978**
University of Iowa
108 River Street
Iowa City, Iowa 52246
Degree: BS

Medical Education **1978 - 1982**
University of Iowa
108 River Street
Iowa City, Iowa 52246
Degree: MD

Internship, Internal Medicine **1982 - 1983**
Mt. Zion Hospital
UC San Francisco
1600 Divisadero St
San Francisco, CA 94115

Residency in Ophthalmology **1983 - 1986**
Massachusetts Eye and Ear Infirmary
Harvard Medical School
25 Shattuck St
Boston, Massachusetts 02115

Employment **1988-Present**
Harvard Eye Associates – Partner
Laguna Hills, CA

FDA Studies "A study of the XXXX Trabecular Bypass Micro Stent in Combination with Cataract Surgery In Subjects with Open-Angle Glaucoma." **May 2005-Present**

Awards Phi Beta Kappa, University of Iowa **1978**

Barry Freeman Research Award
University of Iowa
College of Medicine **1979**

Honors Society
University of Iowa **1975 - 1979**

Publications

Kersten D, Lessel S, Carlow T: Acute Posterior Multifocal Placoid Pigment Epitheliopathy and Late-Onset Menigo-encephalitis. Ophthalmic Surgery 94:393 - 396, 1987

Lee DA, Hersh P, Kersten D, Melemed S: Complications of subconjunctival 5-Flurouracil following glaucoma filtering surgery.
Ophthalmic Surgery 18(3):187 - 190, 1987

Melemed S, Hersh P, Kersten D, Lee DA, Epstein DO: The use of Glaucoma shell tamponade in leaking filtration blebs.
Ophthalmology 93:839 - 842, 1986

Memberships

American Academy of Ophthalmology
California Medical Association
Fellow, American College of Surgeons
Orange County Medical Association

Overseas Work

Project Orbis, General Ophthalmology and Glaucoma Surgery **1987 - 1988**

Nepal, SEVA Foundation, Volunteer Ophthalmologist **Nov 1986 - Feb 1987**

St. Lucia, West Indies, International Eye Foundation, General Ophthalmology, Cataract and Glaucoma Surgery **May - July 1986**

Nairobi, Kenya Kenyatta National Hospital Clinical Ophthalmology **Feb - April 1982**

Surgical Eye Expeditions & Project Orbis
12 Cataract Surgery Trips
(Laos, Mexico, Bulgaria, Albania, Nigeria) **1989 - Present**

Duna Raoof, MD

2960 Corte Portofino
Newport Beach, CA 92660

(734) 644-6272
duna.raoof@gmail.com

Education

University of Michigan School of Medicine, 2005-2009
Medical Doctorate

University of Michigan, Honors Program, Bachelors of Science with Distinction, 2001-2005
Dual concentration: Cell & Molecular Biology
Arab, Armenian, Persian, Turkish and Islamic Studies

Post-Doctoral Training

Harvard Medical School, Massachusetts Eye and Ear Infirmary, 2014-2015
Cornea & Refractive Surgery Clinical Fellow
Chief Fellow

Harvard Medical School, Schepens Eye Research Institute, 2013-2014
Post-Doctoral Fellow

University of Michigan, Kellogg Eye Center, 2012-2013
Chief Resident, Department of Ophthalmology & Visual Sciences

University of Michigan, Kellogg Eye Center, 2010-2013
Resident, Department of Ophthalmology & Visual Sciences

Oakwood Hospital, Dearborn, Michigan, 2009-2010
Intern, Department of Internal Medicine

Honors

Heed Ophthalmic Foundation Fellow, 2013-2014

Kyoto Prefectural University of Medicine Visiting Fellow, Kyoto, Japan, June 2014

- Selected by MEEI Cornea Department to work with Dr. Shigeru Kinoshita as part of the Harvard Medical School/University of Kyoto exchange program. Learned innovative endothelial cell laboratory and corneal surgical techniques

Chief Cornea & Refractive Surgery Fellow, 2013-2014

- Selected to serve as liaison between cornea fellows (6 fellows) and faculty (14 cornea faculty)
- Coordinated fellow rotations, weekly clinic/OR schedules, call schedules, and conferences

Fellows Representative, Massachusetts Eye & Ear Infirmary, 2013-2014

- Selected to co-represent all MEEI clinical fellows (15 clinical fellows)
- Directed MEEI Fellows Course including serving as guest Associate Editor for the journal Seminars in Ophthalmology

Chief Resident (21 ophthalmology residents), Kellogg Eye Center, 2012-2013

- Organized all residency related schedules, coordinated intra-departmental conferences, maintained communication between faculty and residents
- Coordinated interview day activities and participated in resident selection committee including interviewing residency applicants

Eye Bank Association of America Travel Grant, 2013

- Awarded to cornea fellows and residents who demonstrate potential for future involvement in eye banking and corneal transplantation

Association for Research in Vision and Ophthalmology Travel Grant, 2013

James M. LaBerge Research Award, Kellogg Eye Center, 2011

- Given to most outstanding research by a first-year resident

Midwest Eye-Banks Eye and Vision Research Program, Research Stipend Award, 2010
Ainger Merit Scholarship, University of Michigan School of Medicine, 2005-2008
Ting YE Merit Scholarship, University of Michigan School of Medicine, 2005-2008
Ernest T. Abdel Massih Award for Excellence in Arabic, University of Michigan, 2005
Alpha Epsilon Delta Medical Honor Society, University of Michigan, 2004-2005
Honors Program, University of Michigan, 2001-2005
Regents Merit Scholarship, University of Michigan, 2001-2005
Michigan Competitive Scholarship, State of Michigan, 2001
Ann Arbor Rotary Club Scholarship, University of Michigan, 2001
President's Education Award, University of Michigan, 2001

Community (local and international) Service

Psychiatry Department, Sheikh Khalifa Medical City, Abu Dhabi, United Arab Emirates, May 2009
Amol Eye Center, Amol village, Iran, January 2008
Clinic Coordinator, Robert H. Delonis Homeless Shelter, Ann Arbor, Michigan, 2006-2007
Medical Students for Cuba, Havana, Cuba, May 2005
Vice President, Foundation of International Medical Relief of Children, University of Michigan, 2003-2004
Founder and President, Emergency Medical Response Organization, University of Michigan, 2003-2004

Committee Service

Fellows Education Committee, Massachusetts Eye and Ear Infirmary, Harvard Medical School, 2013-2014
Committee for Continuing Medical Education, Kellogg Eye Center, 2012-2013
Committee for Resident and Fellow Education, Kellogg Eye Center, 2012-2013
Liaison Committee on Medical Education for Accreditation, University of Michigan, 2011-2012
Coordinator, Ophthalmology Interest Group, University of Michigan School of Medicine, 2006-2007

Teaching Activities

Attending, Emergency Wing, Massachusetts Eye and Ear Infirmary (24 shifts), 2013-2015
Overview of American Medical Education, Kyoto Prefectural University of Medicine, Japan, 6/8/2014
A Case of Acanthamoeba Keratitis, Cornea Society VISTA, Orlando, Florida, 5/4/2014
Traumatic Cataracts, Kellogg Eye Center Grand Rounds, University of Michigan, 12/20/2013
Infectious Crystalline Keratitis, Kellogg Eye Center Grand Rounds, University of Michigan, 9/6/2012
Pediatric Lens Dislocations, Kellogg Eye Center Grand Rounds, University of Michigan, 5/3/2012
APMME, Kellogg Eye Center Grand Rounds, University of Michigan, 8/25/2011
Cystoid Macular Edema, Kellogg Eye Center, University of Michigan, 3/7/2011
Biochemistry Instructor, Department of Chemistry, University of Michigan, 2003-2004
Organic Chemistry Instructor, Department of Chemistry, University of Michigan, 2003-2004
Undergraduate Student Leader, Women in Science and Engineering, University of Michigan, 2002-2004
First Aid and CPR Instructor, American Red Cross, 2002-2005

Professional Societies

American Academy of Ophthalmology
Association for Research in Vision and Ophthalmology

Michigan Society of Eye Physicians and Surgeons
Cornea Society
American Society of Cataract and Refractive Surgery

Manuscripts Submitted or In Preparation

Raoof D, Katikireddy KR, Schmed T, Jurkunas UV. *Menadione-Induced ROS Production Leads to Endothelial Cell Rosette Formation and Endothelial Mesenchymal Transition Seen in Fuchs Endothlial Corneal Dystrophy.*

Raoof D, Jacobs D, Jurkunas UV. *Assessment of Corneal Endothelial Function Following Hypoxic Stress.*

Raoof D, Jurkunas UV. *Role of Dietary Factors in Fuchs Endothelial Corneal Dystrophy.*

Raoof D, Colby K. *Descemet's Stripping Without Endothelial Keratoplasty for Fuchs Corneal Endothelial Dystrophy.*

Raoof D, Pineda R. *Use of Brimonidine in Conjunctivochalasis Management.*

Publications

Raoof, Duna, and Roberto Pineda. *Dry Eye after Laser In-Situ Keratomileusis.* Seminars in Ophthalmology 2014; 29: 5-6.

Raoof D, Shtein RM. *Femtosecond Lasers in Ophthalmology.* US Ophthalmic Review, 2013;6(1):38–41

Woodward MA, Raoof D, Mian S, Shtein RM. *Relationship of Visual Acuity and Lamellar Thickness in Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK).* Cornea 2013;32(5).

Raoof D, Shtein RM. *Non-Medical Treatment for Dry Eye Syndrome.* In: Dry Eye Syndrome: Basic and Clinical Perspectives. Future Science Group; 2013, 50-59.

Shtein RM, Raoof D, Lin H, Sugar A, Mian SI, Nan B, Stein JD. *Keratoplasty for Corneal Endothelial Disease, 2001-2009.* Ophthalmology 2012;119(7):1303-10.

Raoof D, Mian SI. *Femtosecond Laser-Assisted Astigmatism Correction.* In: Astigmatism: Optics, Physiology and Management, Michael Goggin. InTech, ISBN: 978-953-51-0230-4.

Moroi SE, Raoof DA, Reed DM, et al. *Progress Toward Personalized Medicine for Glaucoma.* Expert Reviews in Ophthalmology 2009;4(2):145-161.

Badala F, Nouri-Mahdavi K, Raoof DA, et al. *Optic disk and nerve fiber layer imaging to detect glaucoma.* American Journal of Ophthalmology 2007;144(5):724-32.

Lin J, Raoof DA, Wang Z, et al. *Expression and effect of inhibition of the ubiquitin-conjugating enzyme E2C on esophageal adenocarcinoma.* Neoplasia 2006;8(12):1062-71.

Lin J, Raoof DA, Thomas DG, et al. *L-type amino acid transporter-1 overexpression and melphalan sensitivity in Barrett's adenocarcinoma.* Neoplasia 2004;6(1):74-84.

Abstracts and Poster Presentations

Raoof D, Pineda R. *Femtosecond-Assisted Lamellar Corneal Tattooing for Visual Disturbances from Traumatic and Post-Surgical Iris Defects.* World Cornea Congress VII, San Diego, CA, April 15-17, 2015 (accepted).

Raoof D, Katikireddy, Kishore Reddy, Schmedt, Thore, Jurkunas, Ula. *Menadione Induces Endothelial Mesenchymal Transition in Human Corneal Endothelial Cells.* The Association for Research in Vision and Ophthalmology Annual Meeting, Orlando, FL, May 6, 2014.

Raoof D, Shtein RM, Blachley TS, Woodward MA, Mian SI, Sugar A, Stein JD. *Comparison of Resource Consumption in Penetrating versus Endothelial Keratoplasty from 2009-2010.* Eye Bank Association of America Annual Meeting, Chicago, Illinois, June 8, 2013.

Raoof D, Shtein RM, Blachley TS, Woodward MA, Mian SI, Sugar A, Stein JD. *Comparison of Resource Consumption in Penetrating versus Endothelial Keratoplasty from 2009-2010.* University of Michigan Kellogg Eye Center Research Day, Ann Arbor, Michigan, June 1, 2013.

Raoof D, Shtein RM, Terry M, Woodward MA. *Correlation of Descemet's Stripping Endothelial Keratoplasty (DSAEK) Postoperative Graft Thickness with Visual Acuity over Time.* University of Michigan Kellogg Eye Center Research Day, Ann Arbor, Michigan, June 8, 2012.

Raoof D, Shtein RM, Lin H, Nan B, Stein JD. *Trends in Keratoplasty for Corneal Endothelial Disease 2001-2009.* University of Michigan Kellogg Eye Center Research Day, Ann Arbor, Michigan, June, 3, 2011.

Raoof D, Shtein RM, Blachley TS, Woodward MA, Mian SI, Sugar A, Stein JD. *Comparison of Resource Consumption in Penetrating versus Endothelial Keratoplasty from 2009-2010.* The Association for Research in Vision and Ophthalmology Annual Meeting, Ft Lauderdale, FL, May 8, 2013.

Raoof D, Woodward MA, Elner VM, Shtein RM. *Vital Dye Staining of Endothelial Cells Following Ultra-thin Graft Preparation for Descemet's-Stripping Endothelial Keratoplasty.* American Academy of Ophthalmology and Asia-Pacific Academy of Ophthalmology Joint Meeting, Chicago, Illinois, November 11, 2012.

Raoof D, Hussain M, Woodward MA, Shtein RM, Soong, HK, Sugar A, Mian, SI. *Treatment of Ocular Graft-vs-Host Disease with Topical Loteprednol Etabonate 0.5%.* American Academy of Ophthalmology and Asia-Pacific Academy of Ophthalmology Joint Meeting, Chicago, Illinois, November 12, 2012.

Raoof D, Shtein RM, Terry M, Woodward MA. *Correlation of Descemet's Stripping Endothelial Keratoplasty (DSAEK) Postoperative Graft Thickness with Visual Acuity over Time.* The Association for Research in Vision and Ophthalmology Annual Meeting, Ft Lauderdale, FL, May 6, 2012.

Raoof D, Shtein RM, Lin H, Nan B, Stein JD. *Trends in Keratoplasty for Corneal Endothelial Disease 2001-2009.* The Association for Research in Vision and Ophthalmology Annual Meeting, Ft Lauderdale, FL, May 5, 2011.

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2/23/16 XE

Agenda Item 3G

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA STATE BOARD OF OPTOMETRY

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170, F (916) 575-7292 www.optometry .ca.gov

2016 FEB -1 PM 3:14

Request for Approval of Continuing Education Course(s)

TLC Laser Eye Centers at
Harvard Eye Associates
24401 Calle de La Louisa
#300
Laguna Hills, CA 92653
Contact: Isabell Choi, OD

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-00204	6194708	6194714	50

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider TLC @ HEA
- Course title(s) LASIK Grand Rounds
- Date(s) the course is scheduled to be offered on going for 1 year
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

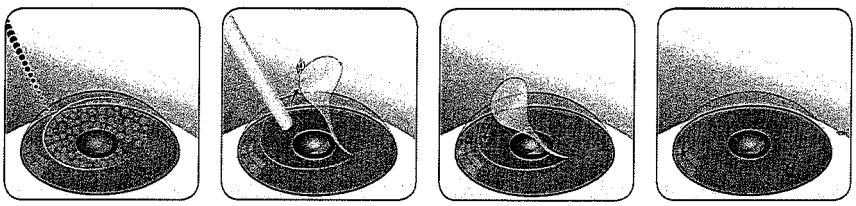
Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
LASIK Grand Rounds	1yr	Diana Kersten, MD John Hovanesian, MD	4			

COMMITTEE COMMENTS:

TLC
Laser Eye Centers®
at HARVARD
Eye Associates

REFRACTIVE SURGERY OBSERVATION FOR CE CREDIT!

TLC Laser Eye Centers® at
Harvard Eye invites you to
OBSERVE LASIK SURGERY
in Laguna Hills!



TLC Laser Eye Centers at Harvard Eye is approved by the California State Board of Optometry to offer up to 4 hours of CE credit!

Please call us at 949.916.4477 to schedule today!

TLC
Laser Eye Centers
at HARVARD
Eye Associates

TLC Laser Eye Centers at Harvard Eye
24401 Calle de la Louisa
Suite 300
Laguna Hills, CA 92653

2/23/16 scanned & placed in pending folder for committee RC

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY

EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

Request for Approval of Continuing Education Course(s)

Dougherty Laser Vision
4353 Park Terrace Dr. #150
Westlake Village, CA 91361

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-00205	6194719	6186592	50

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

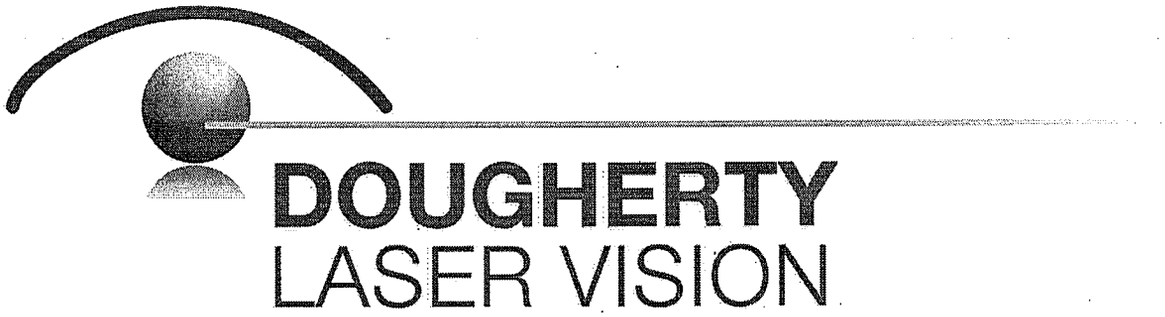
The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

(rev. 11/18/14)

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Cataract Surgery - Z8 Laser	2/22/16	Paul Daugherty	1			

COMMITTEE COMMENTS:



Valentine's Day FREE Two Hour CE Event

Cataract Surgery- The New Z8 Laser

Paul J Dougherty, M.D.

Post Ops- What You Can Do To Optimize Outcomes For Second Eye Cataract Surgery

Paul J Dougherty, M.D.

In honor of Valentine's Day, bring an optometrist to this CE as a date for a special gift!

Monday February 22nd, 2016 starting at 6PM

Dougherty Laser Vision
1821 E. Daily Drive, Camarillo, CA

Catering Provided by Wood Ranch
Wine and Beer Served

To attend this program please RSVP by February 18th, 2016

Doctor Name_____

Seating is limited to the first 40 RSVP's.
RESERVE YOUR SEAT NOW!
E-MAIL/Text/or Call in YOUR RSVP
E-MAIL Apope@Doughertylaservision.com
Call/Text (805)205-0102

Paul J. Dougherty, MD

Dougherty Laser Vision

Westlake Village, California

Camarillo, California

Beverly Hills, California

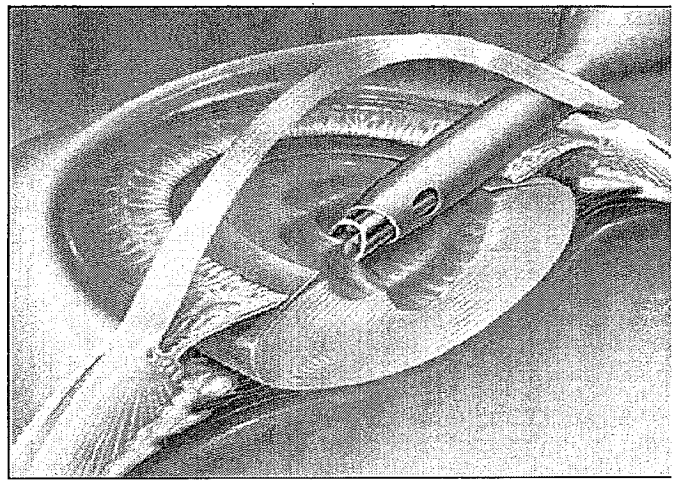
Jules Stein Eye Institute

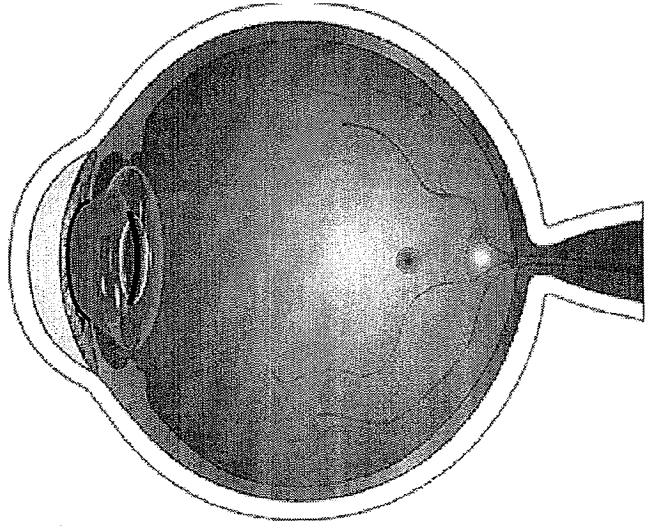
Los Angeles, California

Cataract Surgery Co-management

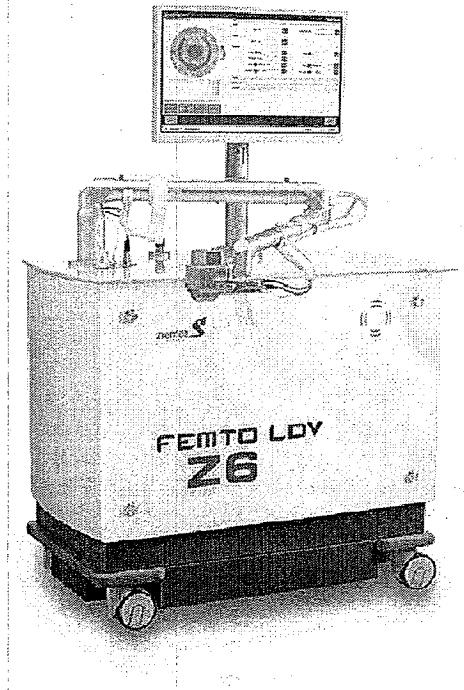
Cataract/IOL

- +/- laser then phaco (ultrasound)
- Eyedrop anesthetic
- 5 minutes/eye
- Minimal discomfort
- Vision returns quickly





ZIEMER Z6



- The future of femto cataract surgery has finally arrived
- Unique femto technology
- Outstanding Clinical Results

Competing Laser-Assisted Cataract Lasers

- Alcon LenSx
- AMO Optimedica
- B/L Victus
- LensAr

Competing Laser-Assisted Cataract Lasers

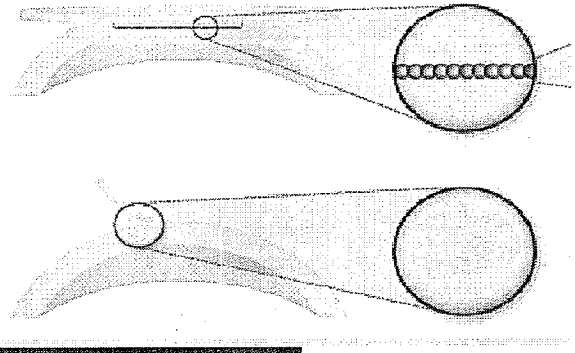
- All large spot size (10u) so less precise
- High energy– damages tissue
- All affiliated with dropped nuclei
- All affiliated with capsular radialization
- Poor incision architecture – need to open with a dull instrument
- Non-mobile – have to transport patient
- None do Intacs channels
- None do LASIK flaps (except Victus)

Z6 Unique Femto Technology

- Laser-Assisted Cataract Surgery
- LASIK Flaps
- Intacs Channels
- Completely mobile – easier for patients

7

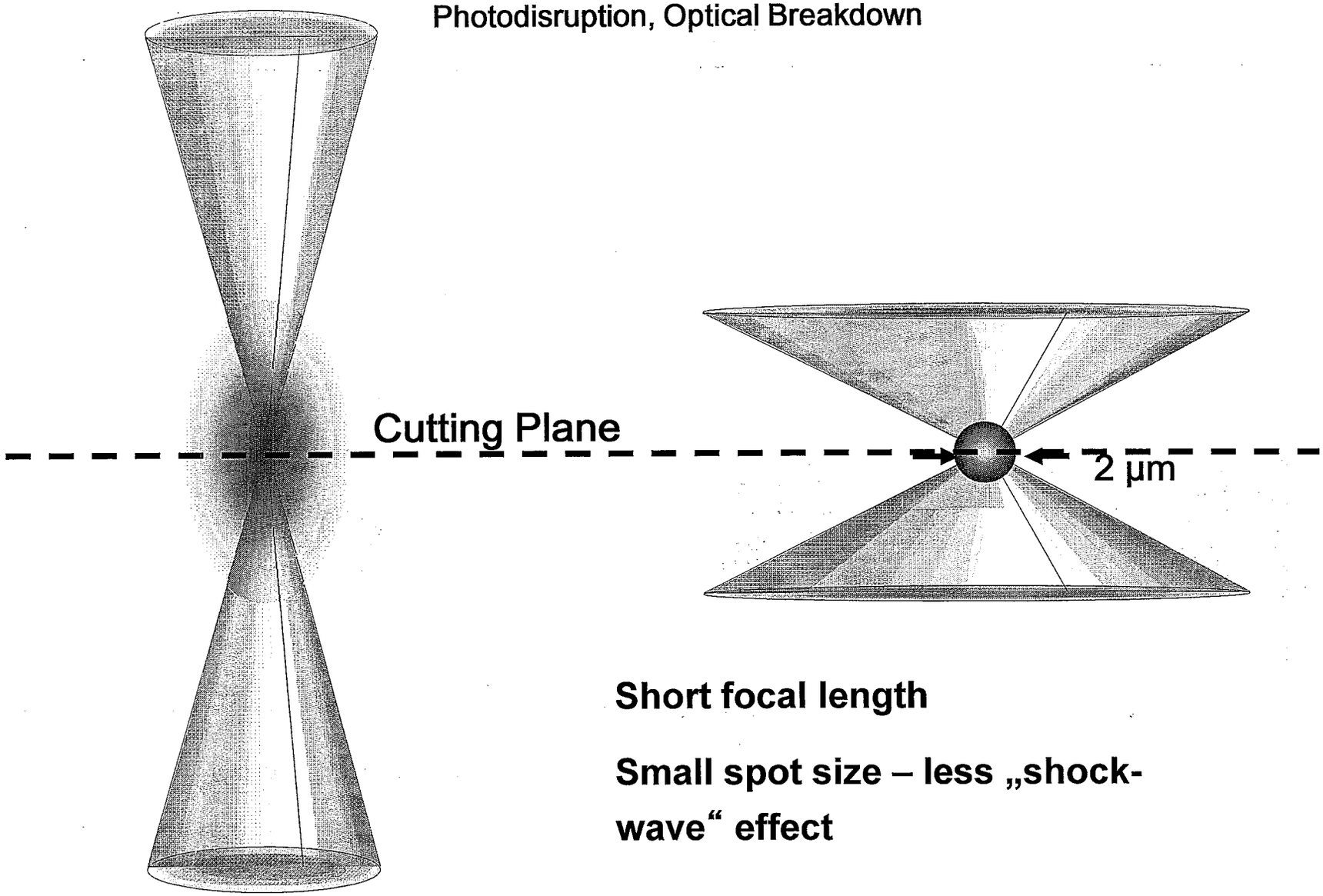
Z6 Unique Femto Technology



Low Energy Delivery

- 2u spot size (20% of others)
- 10% of the energy of other lasers
- Minimal Side Effects
- Easy Tissue Dissection

Photodisruption, Optical Breakdown



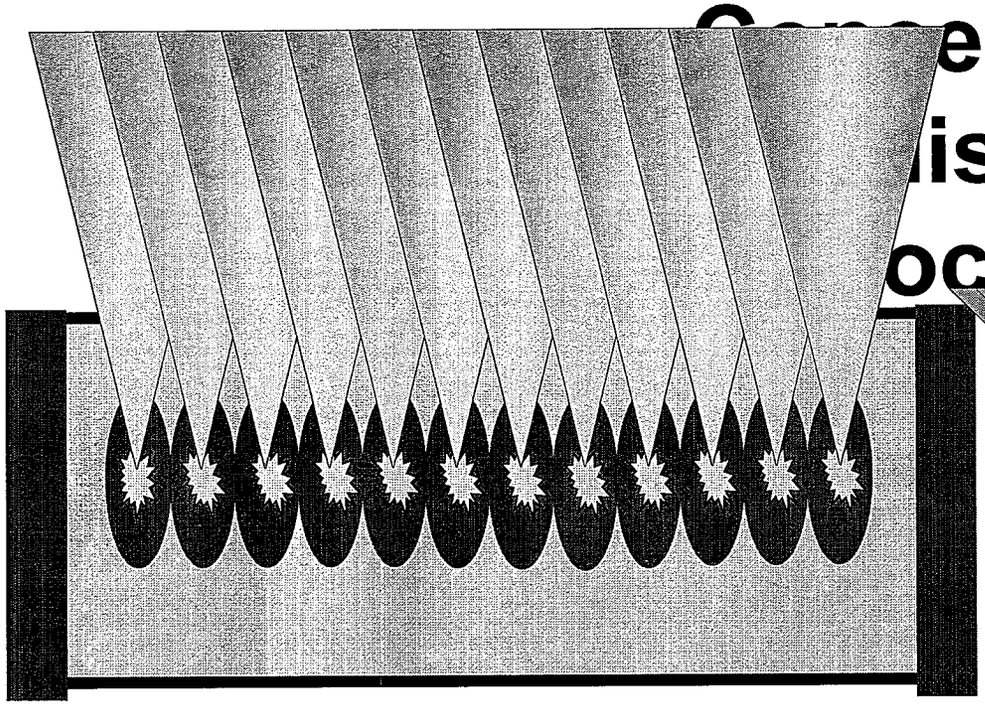
Short focal length

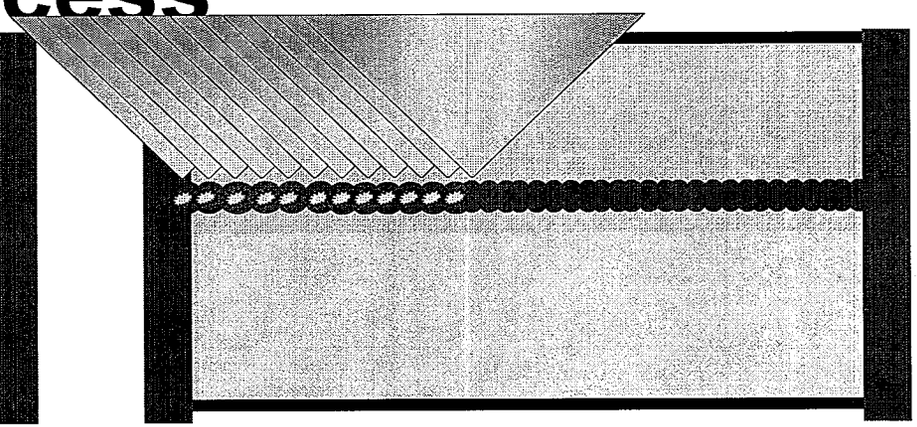
Small spot size – less „shock-wave“ effect

“other Femtolasers”

LDV Laser Optics

Two Different Concepts in Disruption Process





"High" pulse energy (µJ)
"Low" pulse frequency (kHz)
small aperture / long focus
(IntraLase and others)

"Low" pulse energy (nJ)
"High" pulse frequency (MHz)
Wide aperture / short focus
(LDV)

Z6 OUTSTANDING RESULTS

FAST VISUAL RECOVERY

- Less Damage to Surrounding Tissue
- Easy to Open Incisions
- Fast Healing Incisions – No Leakage
- $1000/eye to patient

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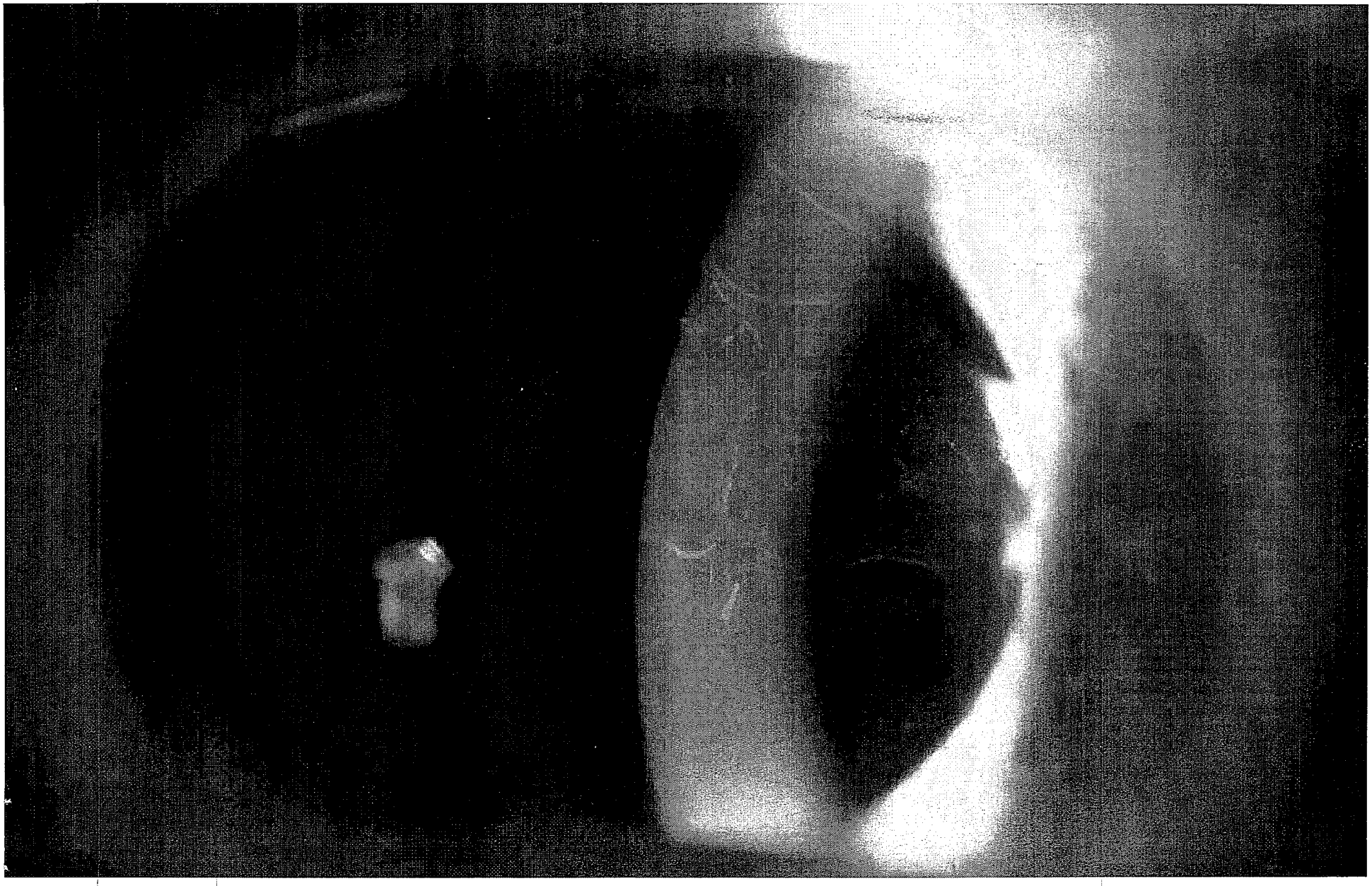
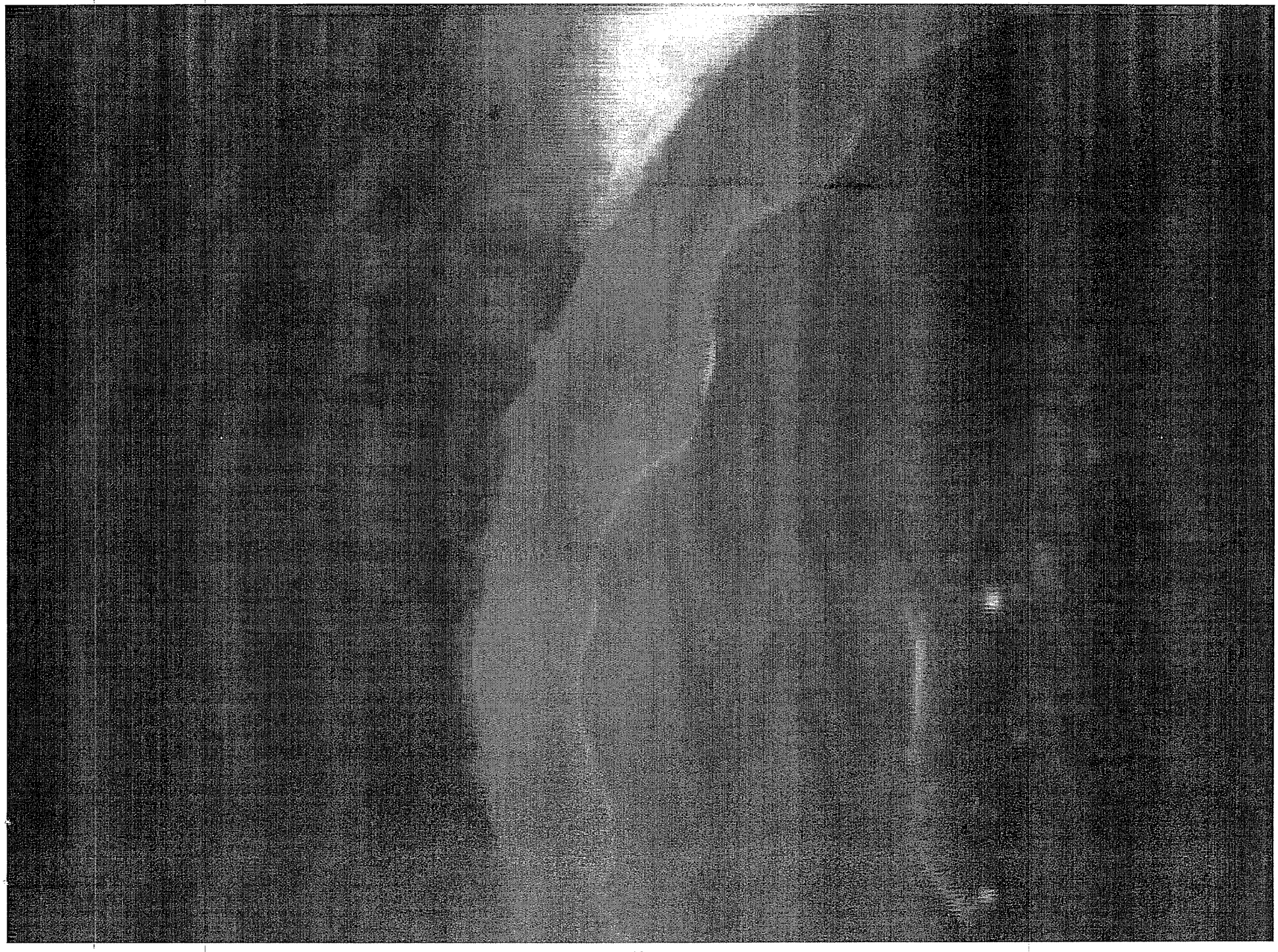
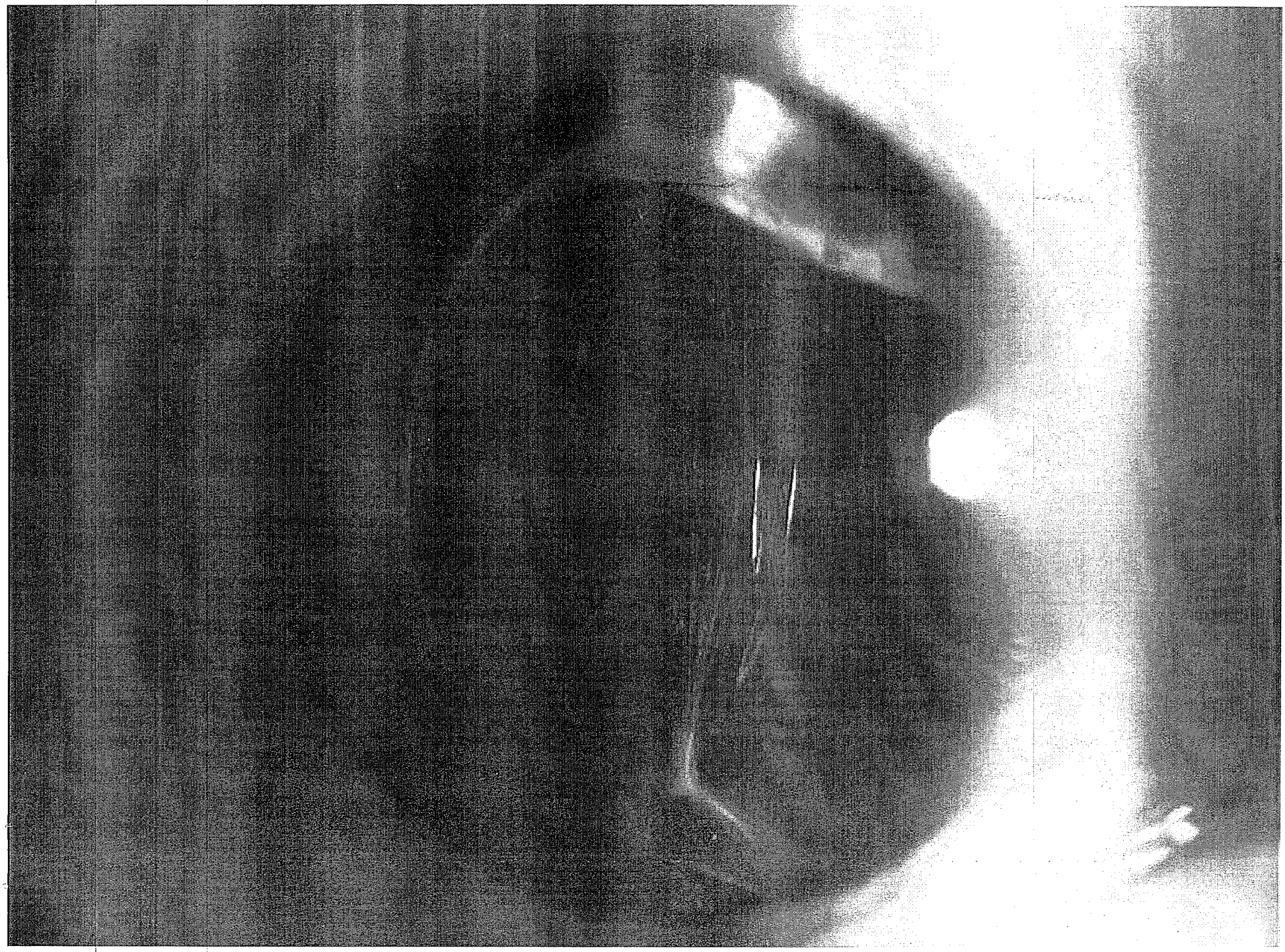
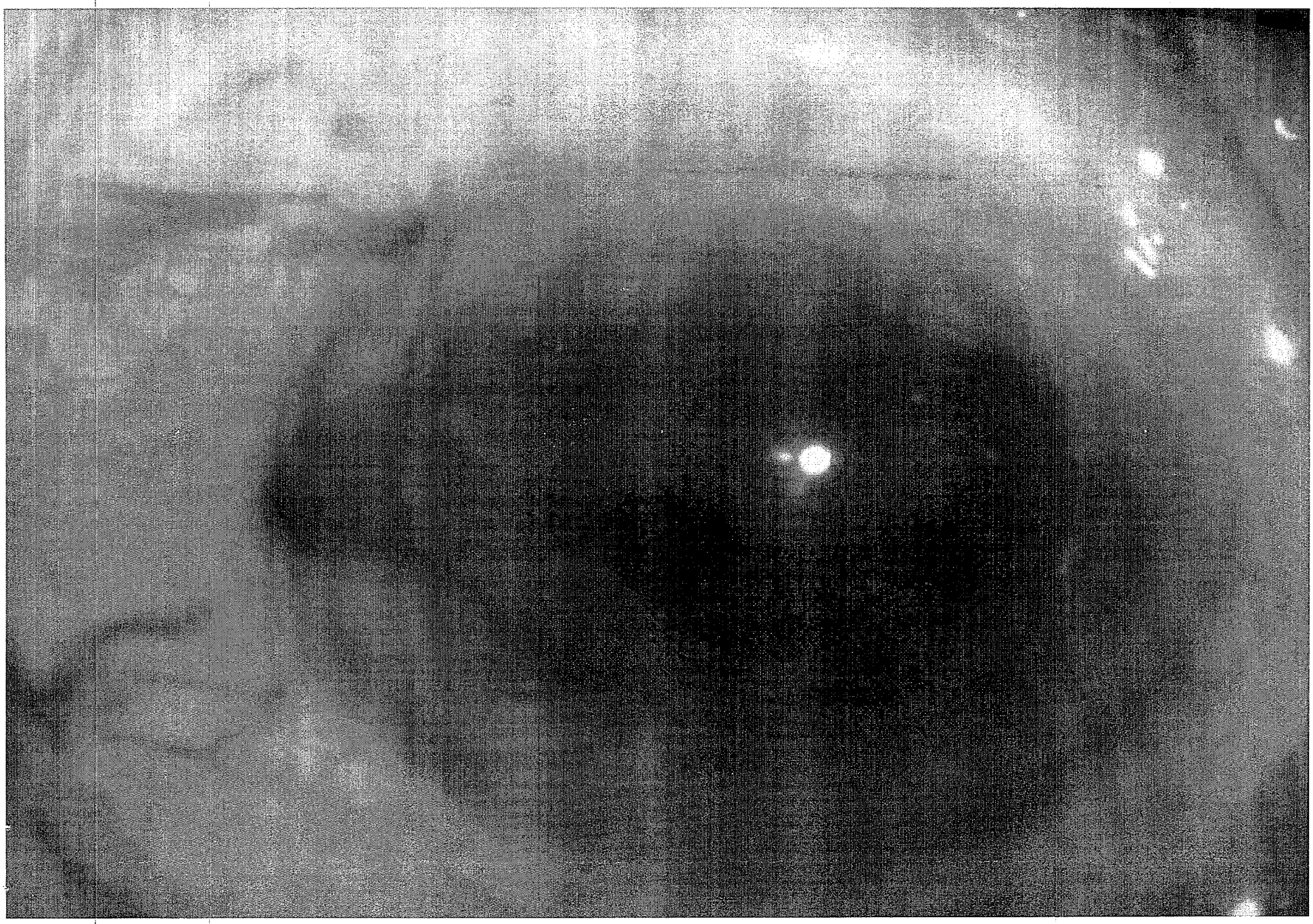
Cataract Pre-Op Work Up

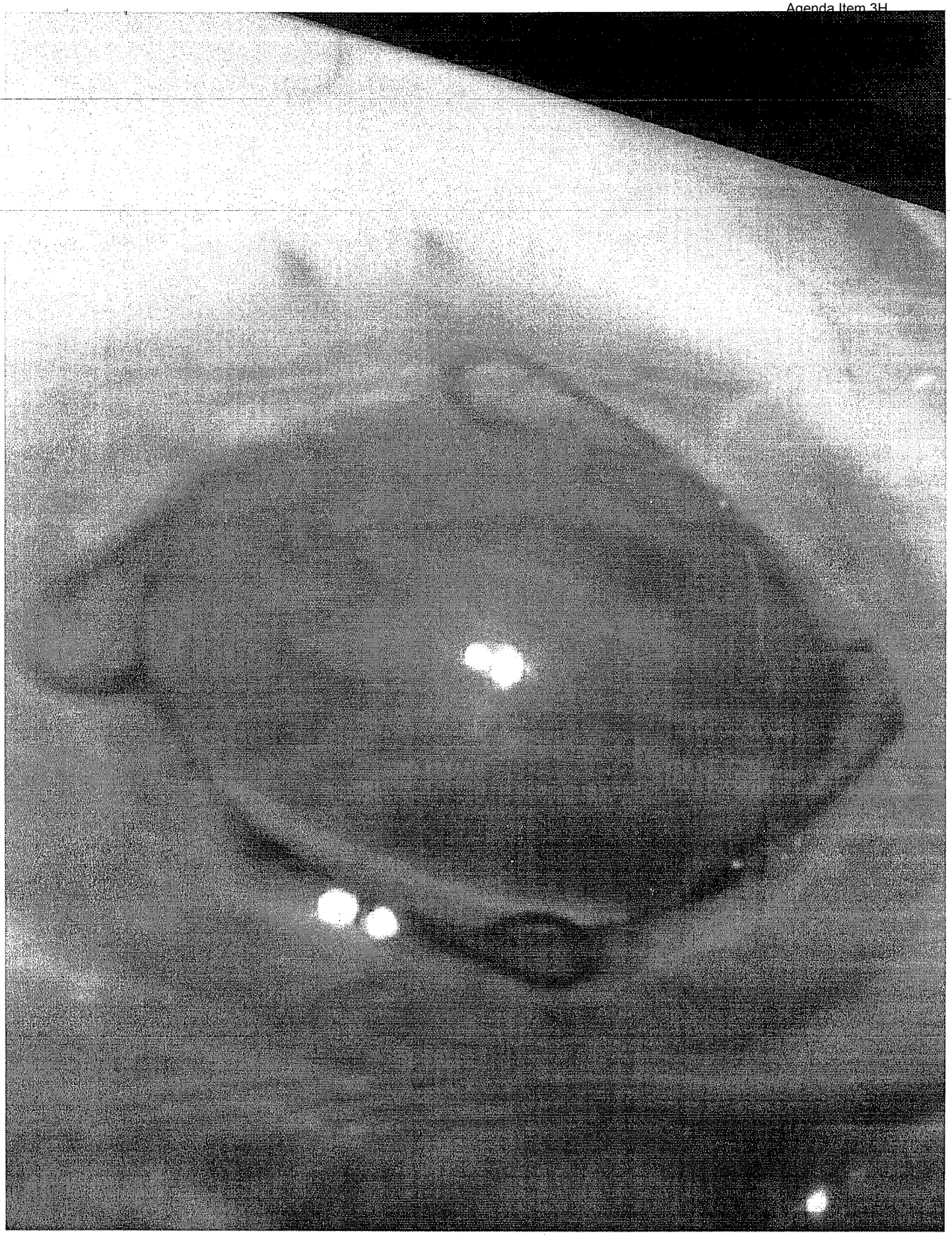
- Always document a functional complaint (reading, night driving, seeing TV)
- Document decreased BCVA (20/40 with BAT) and lack of spectacle improvement
- Ask about history of trauma, look for phaco/iridodynesis
- Look for corneal guttata – Corneal edema
- B-scan if mature cat to r/o RD, tumor
- We typically start antibiotic/NSAID 3 days prior to surgery to prevent infection/CME

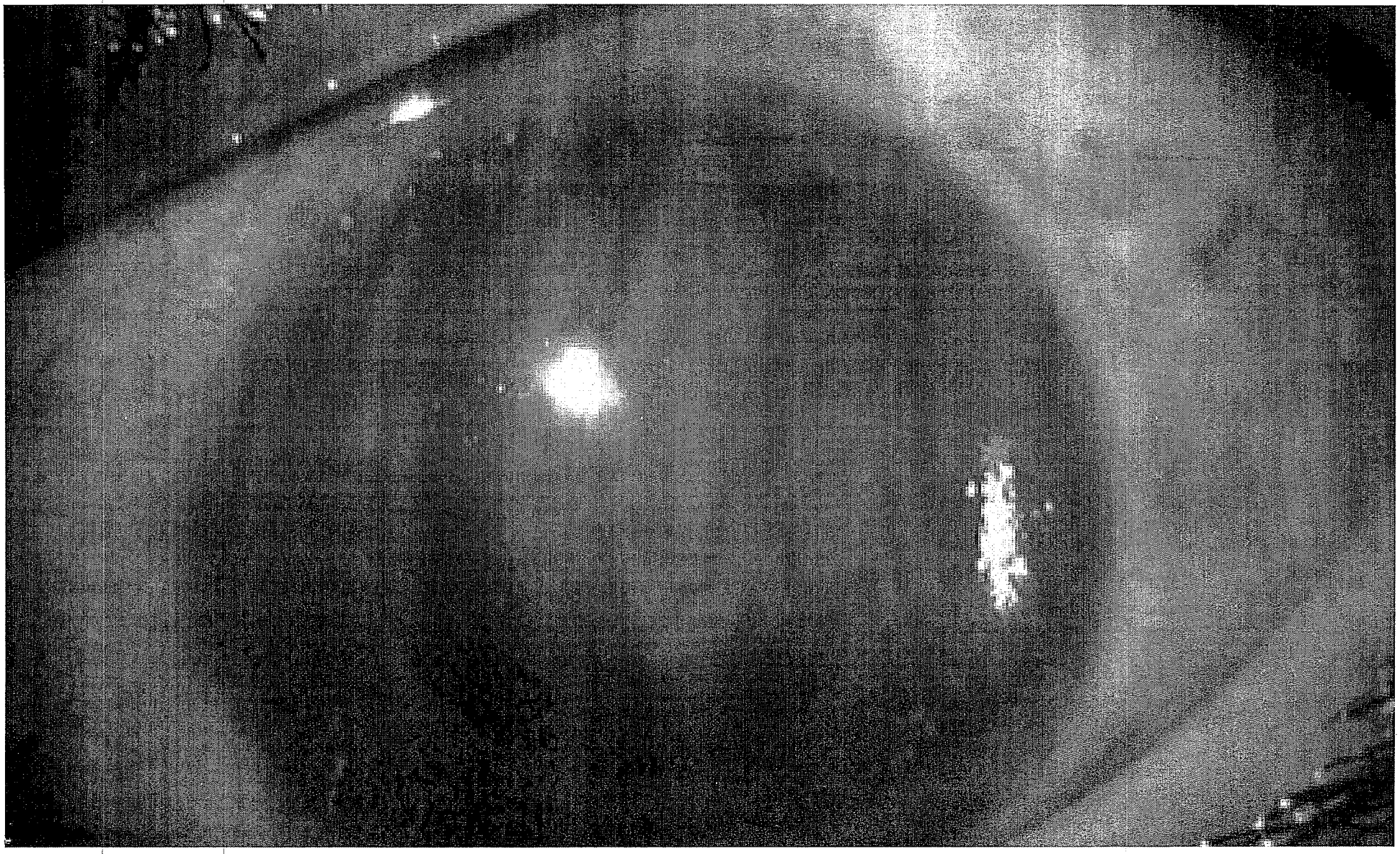












Post-Operative Visit Schedule

- Visits at 1 Day, 1 Week, 1 Month, 3 Months, 1 year
- Refer at 3 months or after for YAG, LVC enhancement
- Refer sooner if any other issues (ie suspected CME, persistant edema/iritis, high IOP)

Immediate Post-op IOP Spike

- Typically from residual viscoelastic day 1
- Higher incidence in glaucoma patients
- Resolves spontaneously in 24-48 hours
- If untreated – risk for CRVO, CRAO
- Associated with microcystic corneal edema and decreased vision
- If IOP <35 and patient comfortable – treat with drops (Alphagan-P, Combigan or Co-sopt). Follow-up later that day or next day
- If IOP >35 or patient uncomfortable – refer for paracentesis

Cataract Post-op Instructions

- Expect blurred vision (edema), red tint to vision (microscope light) for 24-48 hours
- Shield - 1 Week unless stomach sleeper, then 4 weeks
- No dust or sweat for 48 hours
- No swimming for 1 week
- No lifting more than 20 pounds or bending past the waist for 1 week

Cataract Drop Regimen

- **Besivance**/Ofloxacin
  - TID for 1 week
- **Lotemax Gel/**Pred Forte
  - TID for 1 week, then BID for 2 weeks
  - ERM/DM – TID for 2 weeks, BID for 4 weeks
- **Prolensa**/Diclofenac
  - Q day for 3 weeks
  - ERM/DM – Q day for 6 weeks
- Glaucoma Meds
  - Continue except prostaglandins (Increased CME)

YAG Laser

- 3 months or beyond
- Low threshold for treatment with Premium IOL's especially multifocal
- No need for 1 day post-op

Same-Day Bilateral Surgery

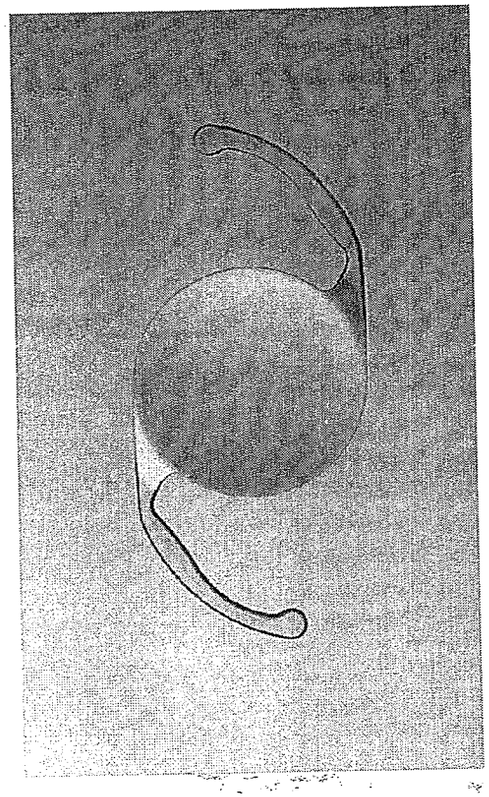
- Routinely offered except for following higher risk circumstances
  - Mature Cataract
  - Previous Refractive Surgery (IOL miscalc)
  - Trauma
  - Glaucoma
  - Guttata/Fuch's Dystrophy
  - Pseduoexfoliation
  - Advanced Diabetes
  - Insurance Cases (pay for 1 eye at a time)

Premium IOL Packages

IOL Options

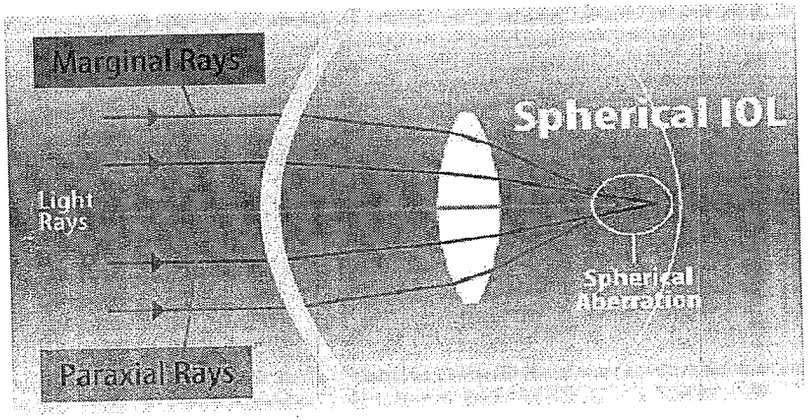
- Standard IOL
  - Spherical distance only
- Premium IOL's
  - Wavefront IOL's
  - Toric IOL's
  - Presbyopic IOL's

Wavefront IOL's



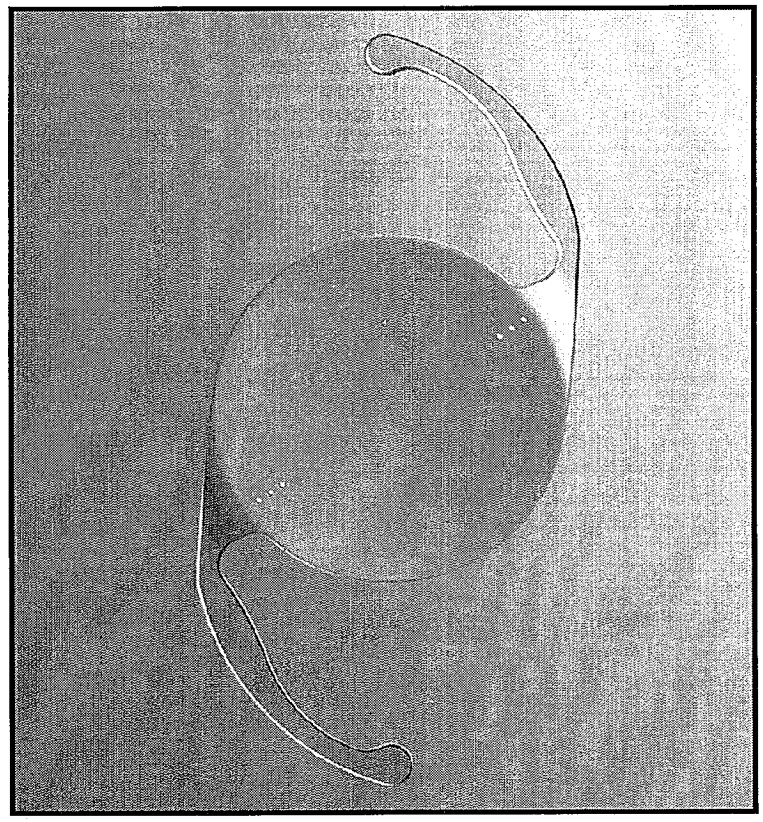
- *Negative or Zero SA offsets the positive SA of the cornea to minimize spherical abberration*
- *Better image quality than standard IOL's*
- *Need to diagnose the corneal asphericity for proper IOL choice*
- *My IOL of choice is typically the Nanoflex – Zero SA*

Ashperic IOL



Toric IOL

- Used to treat astigmatism up to 4.5 D
- Lens rotated into position
- Monofocal only
- Staar: 2.25 D
- Alcon: 4.5 D



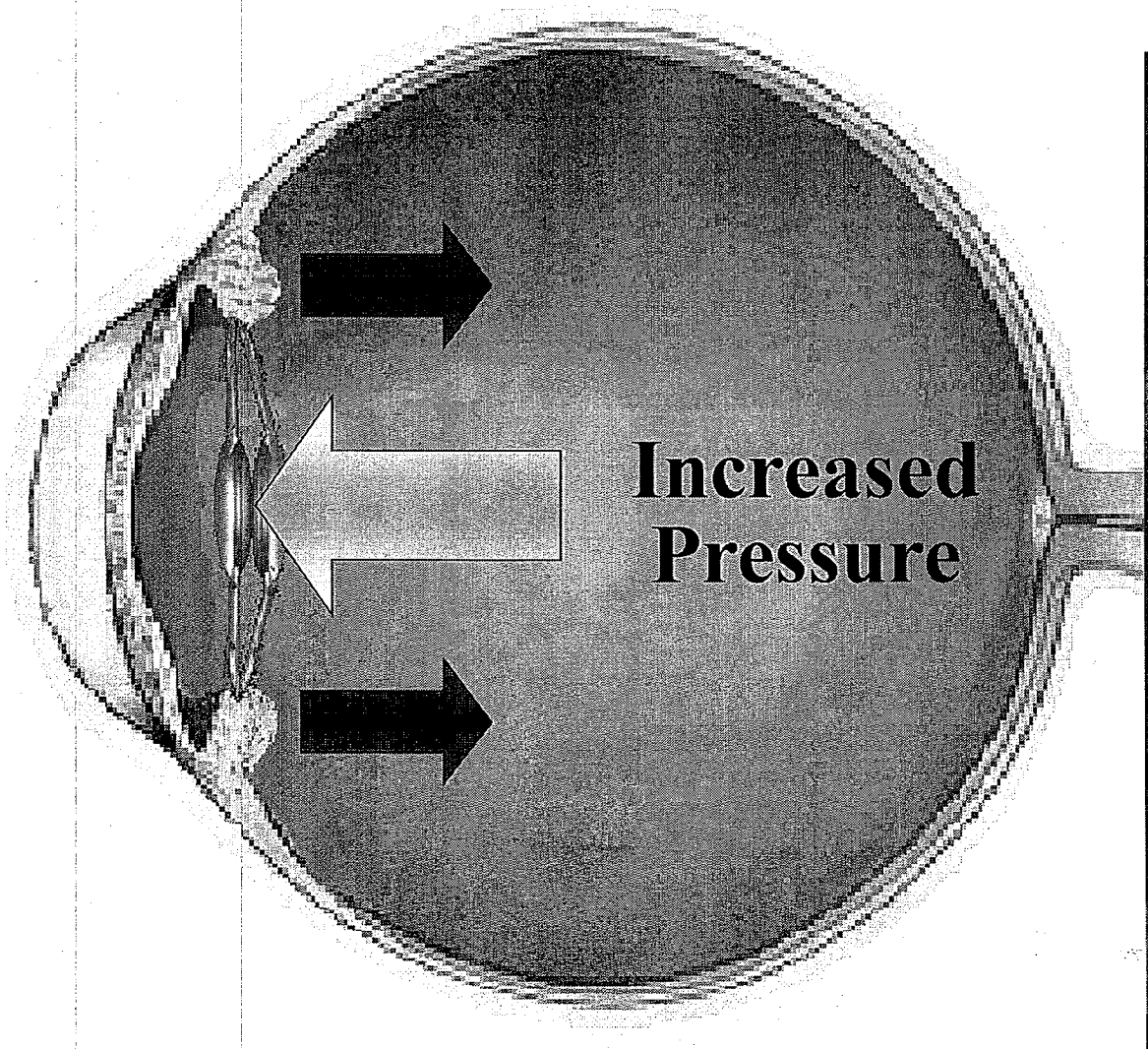
AcrySof Toric IOL

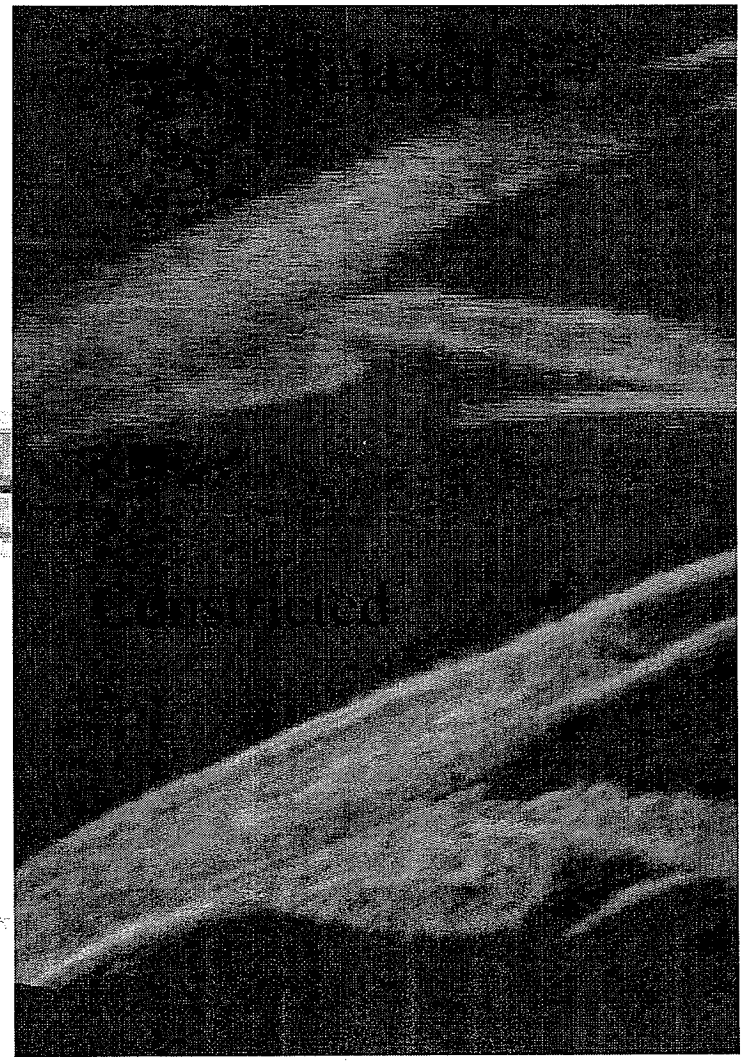
Presyopic IOL's

- Distance, intermediate, near vision
- Multi-focal IOL's
  - Tecnis, Restor
  - Work by spitting light into distance, near components
- Accommodative IOL's
  - Softec HD, Crystalens
  - Work by the eye muscle shifting the lens and increasing HOA's

Primary Mechanism
Optic Movement

UBM

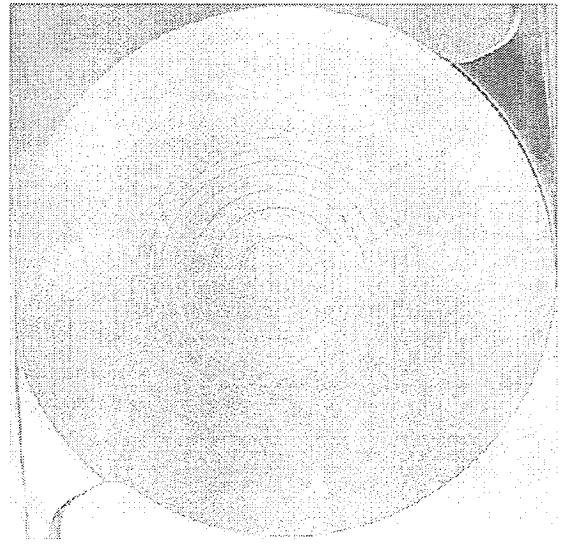




Presyopic IOL's Which One?

- Softec HD
  - When patients want distance and some intermediate without night glare, but will tolerate some reading glass dependence
  - Best vision quality
  - If monovision tolerant – prefer over multifocal if patient wants no readers
  - Don't use Crystalens – variable refractive outcome, edge glare, silicone inflammation, z-syndrome

- Multi-focal
  - When patients want to eliminate dependence on reading glasses but will tolerate night glare
  - Tecnis +4.00 - better reading in all light conditions, but closer near point 14-18”
  - Restor +3.00 - better computer, farther near point 18-22”, decreased reading in low light, varialble reading outcome, “waxy” vision



Contraindications Multi-focals

- Any eye condition associated with loss of contrast
  - Cornea – RK, scars, +/- LASIK
  - Retina – Membranes, ARMD, CSR
- Occupations that require night driving
- Picky patients

Lens Discussion

- Ask the patient if they full distance vs. some reading vision
- If wants better reading – discuss monovision vs multi-focal
- I always prefer mono over a multifocal if patient is open to it or already tolerates it – same vision, fewer side effects

Vision Correction Packages

- Standard IOL
- Economy Package
- Premium Package

Standard IOL Package

- Basic government-issue IOL
- No diagnosis or management of refractive error, astigmatism, SA, or laser-assisted
- Glasses for every distance
- No charge to patient
- Co-management fee – 20% only

Economy Vision Correction Package

- Diagnosis and management of refractive error, astigmatism, SA
- Laser-assisted surgery
- Aspheric IOL, LRI for cylinder, $500 LVC
- $950/eye to patient ($1450 if previous LASIK/PRK/RK)
- Co-management fee – $250/eye plus 20% (does not include LVC post-op fee)

Premium Vision Correction Package

- Diagnosis and management of refractive error, astigmatism, SA
- LVC at no charge. LRI if necessary
- Toric, accommodating or multi-focal IOL
- Laser-assisted surgery
- $2950/eye to patient ($3450 if previous LASIK/PRK/RK)
- Co-management fee – $500/eye plus 20%

20%

- Medicare
  - $155/eye allowable
  - We can bill on your behalf if you are a Medicare provider
- Commercial
  - Fee varies based on carrier
  - We bill on your behalf

Summary

- The emerging standard of care in cataract surgery is offering patients premium IOL's and laser-assisted surgery
- Aspheric – for best vision quality
- Softec HD – Monovision, best vision quality
- Multifocal (Tecnis) – Monovision intolerant who want reading, ok with halos
- Toric – Significant Astigmatism

Summary

- Standard IOL
  - Glasses for everything
  - No charge to the patient
- Economy Vision Correction Package
  - Aspheric IOL, LRI, monovision, laser,$500 LVC
  - $950 to patient, $250 to OD
- Premium Vision Correction Package
  - Premium IOL, LRI, laser-assisted, Free LVC
  - $2950 to patient, $500 to OD

Paul Joseph Dougherty, MD

April, 2014

Dougherty Laser Vision - Westlake
4353 Park Terrace Drive, Suite 150
Westlake Village, California 91361

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818.707.7668 fax

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Beverly Hills, CA 90210

323.466.7337 phone

Dougherty Laser Vision - Camarillo
1877 Daily Drive, Suite D-1
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805.987.5300 phone
805.383.7900 fax

866.987.2020 toll free

www.doughertylaservision.com
www.pauldougherty.com
www.advfoundation.com
www.seeforyourselfbook.com

PHILANTHROPIC INSTITUTION:

Andrew Dougherty Vision Foundation
"So The World May See"
Los Angeles, California
www.advfoundation.com
501c3 – In progress
Mission: Surgical Vision Correction for Those in Need

ACADEMIC AFFILIATION:

Clinical Instructor of Ophthalmology
Jules Stein Eye Institute
UCLA School of Medicine
Los Angeles, California

PROFESSIONAL INTERESTS:

Refractive Surgery Innovations
Cataract Surgery Innovations
Laser Vision Correction
Lens-Based Refractive Surgery
Refractive Surgery Complications
Refractive Cataract Surgery
Surgical Correction of Presbyopia
Surgical Treatment of Keratoconus

SURGICAL CENTER AND HOSPITAL AFFILIATIONS:

Specialty Surgical Center
696 Hampshire Road, Suite 100
Westlake Village, California 91361

UCLA School of Medicine
Los Angeles, California

Community Memorial Hospital
147 N. Brent Street
Ventura, California 93003
Consulting Staff

TRAINING:

Fellowship, REFRACTIVE AND CORNEAL SURGERY
Preceptor: Richard L. Lindstrom, MD
Phillips Eye Institute
Minneapolis, Minnesota
July, 1993-July, 1994

Residency, **JULES STEIN EYE INSTITUTE**
Department of Ophthalmology
UCLA School of Medicine
Los Angeles, California
July, 1990-June, 1993

Internship, **UCLA MEDICAL CENTER**
Department of Medicine
UCLA School of Medicine
Los Angeles, California
July 1989-June, 1990

EDUCATION:

MD, UCLA SCHOOL OF MEDICINE
Los Angeles, California
September, 1985-June, 1989
Class Valedictorian
Alpha Omega Alpha (elected junior year)

BA, UNIVERSITY OF PENNSYLVANIA
Philadelphia, Pennsylvania
September, 1981-May, 1985
Major: Biological Basis of Behavior
Summa cum laude Graduate

SECONDARY, LEWISTOWN AREA HIGH SCHOOL
Lewistown, Pennsylvania
September, 1977-June, 1981
Class of 1981 Salutatorian

REFRACTIVE SURGERY EXPERIENCE:

Dr. Dougherty has been performing laser vision correction since 1993 and has personally performed over 20,000 laser vision and over 10,000 lens-based vision correction procedures since 1996. Dr. Dougherty is one of the leading implanters and performed the first bilateral, simultaneous Visian ICL procedure in the United States. Dr. Dougherty underwent successful bilateral LASIK for myopic astigmatism in his own eyes in January 1997.

BOARD CERTIFICATION:

American Board of Ophthalmology: Diplomat. Certificate Expires 2024

ORGANIZATIONS AND PROFESSIONAL MEMBERSHIPS:

American College of Eye Surgeons
Alpha Omega Alpha
American Society of Cataract and Refractive Surgery
European Society of Cataract and Refractive Surgery
American Academy of Ophthalmology
International Society of Refractive Surgery
Phi Beta Kappa
UCLA Department of Ophthalmology Alumni Association
UCLA Medical Alumni Association
NIDEK Speakers Bureau
STAAR Surgical Speakers Bureau
Bausch and Lomb Speakers Bureau
Inspire Pharmaceutical Speakers Bureau

HONORS AND AWARDS:

Ventura County Star 2014 Best LASIK Center in West County, April 2014

Winner – Honorable Mention, Non-Fiction (See For Yourself: The Eye-Opening Guide to Vision Correction) at the Paris Book Festival, Paris, France. June 2013.

Ventrua County Reporter 2013 Best LASIK Center in Ventura County, March 2013

Ventura County Reporter 2012 Best LASIK Center in Ventura County, March 2012

America's Top Ophthalmologists Award Recipient presented by the Consumers' Research Council of America, 2010-2011

Ventura County Reporter 2011 Best LASIK Center in Ventura County, March 2011

Premier Surgeon Magazine The PS 250 – Top 250 leading innovators in the field of premium IOL surgery, March/April 2010

Ventura County Reporter 2010 Best LASIK Center in Ventura County, 2010

American Society for Cataract and Refractive Surgery Symposium and Congress Best Poster, Intraocular Category, April 2010

Ventura County Reporter 2009 Best LASIK Center in Ventura County, 2009

Best of Santa Barbara Award presented by the US Commerce Association, 2009

Ventura County Reporter 2008 Best LASIK Center in Ventura County, March 2008

American Academy of Ophthalmology Achievement Award. 2008

Ventura County Reporter 2007 Best LASIK Center in Ventura County, 2007

Royal Hawaiian Eye Meeting Physician Speaker of the Day. 2008 Hawaiian Eye Meeting. The Big Island, Hawaii. January 2008.

Eyeonics Crystalens Center of Excellence. 2008

STAAR Surgical Award for Top Implanter of the Visian ICL for Myopia in the United States. November 2006

Staar Surgical Visian ICL Center of Excellence, 2006

America's Top Ophthalmologists Award Recipient presented by the Consumers' Research Council of America, 2004-2005

LA Daily News "LASIK Center of the Year," 2004

Camarillo Health Care District Apple of Excellence Award Physician Nominee, 2003

NRCC National Leadership Award, 2003

NRCC Physicians' Advisory Board Honorary Co-Chairman, 2003

ISRS Award, Best Paper in Microkeratome Section, 2001

VISX Star Surgeon, 1999

Tri-County Optometric Society Honorary O.D. of the Year, 1996

Jules Stein Eye Inst. Award for Best Resident Research Paper, 1993

Stafford L. Warren Outstanding Academic Achievement Medal, 1989

Hewlett-Packard Top Medical Graduate Award, 1989

Junior Alpha Omega Alpha, 1988

Alpha Omega Alpha, Delta Chapter Co-President, 1988-1989

UCLA Alumni Association Distinguished Scholar Award, 1988

UCLA School of Medicine Academic Scholarship, 1987

Victor E. Hall Prize for Outstanding Achievement in Physiology, 1986

Lazar Medical Scholarship, 1985

Phi Beta Kappa, 1985

Beta Theta Pi Fraternity Scholarship and Leadership Award, 1985

LICENSURE AND CERTIFICATION:

Diplomat, American Board of Ophthalmology, Expires 2024

State of California Physician and Surgeon License

Drug Enforcement Agency Certificate

Diplomat, National Board of Medical Examiners
Completion of Ziemer Femtosecond Laser Flap Creation Course, April 2010.

Completion of Intralase Femtosecond Laser Flap Creation Course, September 2006.

Completion of VISX CustomVue High Myopia Course. November 22, 2005.

Completion of VISX CustomVue Mixed Astigmatism Course. May 2, 2005.

Completion of AMO Verisyse Training Course. April 20, 2005.

Completion of VISX CustomVue Hyperopia and Hyperopic Astigmatism Course. December 16, 2004.

Completion of VISX Physician CustomVue Certification Course. June 11, 2003.

Completion of Alcon LADARVision Certification Course. 2003.

Completion of VISX Hyperopic Certification Course, 2001

Completion of NIDEK EC-5000 Hyperopia and Hyperopic Astigmatism Certification Course. 2000

Completion of NIDEK EC-5000 Certification Course. 2000.

Completion of VISX Myopia Certification Course. 1996. Presented by VISX.

Completion of Summit Myopia Certification Course. 1995.

FDA AND CLINICAL INVESTIGATIONAL TRIALS:

1. Principal Investigator for Multi-center Clinical Study – Comparison of Pulsed Versus Continuous Ultraviolet Crosslinking with Riboflavin for Keratoconus, Ectasia and Unstable Radial Keratotomy. April 2103 – Present

2. Prinicipal Investigator for Addition Technologies Study of Intac Corneal Implants for the Treatment of Keratoconus. 2010 – Present

3. Principal Investigator for RVO Presbylens Corneal Inlay study FDA Clinical Trial. April 2012

4. Principal Investigator for Dougherty Laser Vision In-House Clinical Study – Long-Term Safety and Efficacy of Advanced Surface Ablation (PRK) for Myopia, Hyperopia and Astigmatism in Patients with Suspicious Corneal Topographies (Forme-Frust Keratoconus and Pellucid Marginal Degeneration. 2006 to present.

5. Principal Investigator for Lenstec Tetraflex Accommodating IOL FDA Clinical Trial. December 2005 to present.

6. Principal Investigator for Lenstec HD Double Aspheric IOL FDA Clinical Trial. November, 2006 to November 2009.

7. Principal Investigator for NIDEK Technologies FDA Trial. Safety and Effectiveness of the NIDEK EC-5000 Excimer Laser System Using Customized Aspheric Transition Zone (CATz) Guided LASIK for the Treatment of Myopic Astigmatism in Virgin Eyes with Corneal irregularity. December 2005 to December 2007.

8. Principal Investigator for Allergan. "Acular LS for Prevention of CME." September 2005 to November 2006.

9. Principal Investigator for Allergan "Effect of Topical Acular LS on LASIK Intra- and Post-Operative Pain." June 2005-December 2005.

10. Principal Investigator for STAAR Hyperopic Implantable Collamer Lens. March 2000 to present

11. Principal Investigator for STAAR Myopic Implantable Collamer Lens. October 2004 to November 2008.

12. Principal Investigator for Allergan Restasis. "Review of Efficacy and Safety in the Relief of Dry Eye." October 2004 to October 2006.

13. Principal Investigator for "Long-Term Outcomes of Surface Laser for Myopia and Myopic Astigmatism in Eyes with Suspicious Topographies." Co-investigator William Trattler, Miami, Florida.

14. Principal Investigator for Sonomed. Improving accuracy of Phakic IOL (Vision ICL – Staar Surgical) sizing utilizing high frequency ultrasound (UBM) with Sonomed VuMax II. September 2008 to present.

OPHTHALMIC INDUSTRY CONSULTING/INVESTIGATOR POSITIONS:

Investigator/Consultant – Revision Optics, Lake Forest, CA

Investigator/Consultant - NIDEK Technologies, Ltd. Gamagamori, Japan

Investigator/Consultant - Lenstec Inc. St. Petersburg, FL

Investigator/Consultant - STAAR Surgical Inc. Monrovia, CA

MEDICAL MONITOR POSITIONS:

Medical Monitor, Comparison of Pulsed Versus Continuous Ultraviolet Crosslinking with Riboflavin for Keratoconus, Ectasia and Unstable Radial Keratotomy – Multi-Center Clinical Trial. April 2103 – Present

EC-5000 for Hyperopia and Hyperopic Astigmatism Medical Advisor, NIDEK Technologies, Ltd. Gamagamori, Japan. October 2006 –present.

Nidek Navex CATz Topography-Guided LASIK Medical Advisor – Nidek Technologies, Ltd. Gamagamori, Japan March 2008 - present

GUEST EDITORSHIPS:

J Refract Surg 21;5(S), The Official Journal of the ISRS/AAO, Proceedings of the 10th NIDEK International Refractive Surgery Symposium and Asia-Pacific Refractive Surgery Symposium, September/October 2005.

J Refract Surg 22;9 (S), The Official Journal of the ISRS/AAO, Advanced Diagnostics and Treatment in Refractive Surgery, Sponsored by NIDEK Co. Ltd, November 2006.

SCIENTIFIC JOURNAL PHYSICIAN REVIEW STAFF:

Journal of Refractive Surgery
Journal of Cataract and Refractive Surgery
American Journal of Ophthalmology
Clinical Ophthalmology

PEER-REVIEWED SCIENTIFIC ARTICLES:

1. Donald Sanders, MD, PhD; Monica L. Sanders, BS; **Paul J. Dougherty, MD;** Tetraflex Presbyopic IOL Study Group. US FDA Clinical Trial of the Tetraflex Potentially Accommodating IOL: Comparison to Concurrent Age-matched Monofocal Controls. Journal of Refractive Surgery. Volume 26, No. 10. October, 2010

2. Robert P.Rivera MD, **Paul J. Dougherty MD,** David Bernitsky MD, Del Yazzie MPH. Short-Interval Bilateral Surgery for Implantation of the Visian Implantable Collamer Lens: Nonrandomized Multicenter Retrospective Analysis of 328 Consecutive Eyes. Journal of Refractive Surgery. Submitted.

3. Dong Zhe, Zhu Siquan, Wang Ningli and **Paul J. Dougherty**. Vision, subjective accommodation and lens mobility after Tetraflex accommodative IOL implantation. Journal of Refractive Surgery. Submitted.

4. Jeffrey K. Luttrull, **Paul J. Dougherty**, Huawei Zhao, Martin A. Mainster. Concentric ring dysphotopsias in diffractive bifocal pseudophakia. Ophthalmic Surgery, Lasers and Imaging. 2010 Sep 29;41 Online. doi: 10.3928/15428877-20100929-11. July 27, 2010

5. Claude Kaufmann, Michael A. Thiel, Adrian Esterman, **Paul J. Dougherty,** Michael Goggin. Astigmatic change in biaxial microincisional cataract surgery with enlargement of one wound – a prospective controlled study. Journal of Refractive Surgery. Submitted.

6. Fang Wu, Yabo Yang and **Paul J. Dougherty**. Contralateral comparison of wavefront-guided LASIK surgery with iris recognition versus without iris recognition using the MEL 80 excimer laser system. Clinical and Experimental Optometry. In press.

7. **Paul J. Dougherty.** Robert P. Rivera, David Schneider, Steven S. Lane, David Brown and John Vukich. Improving accuracy of phakic IOL (Visian ICL – Staar Surgical) sizing utilizing high frequency ultrasound (UBM) with the Sonomed Vumax II. Journal of Cataract and Refractive Surgery. December 2010.

8. Yuehua Zhou, MD; Lei Tian, MD; NingLi Wang, MD; **Paul J. Dougherty, MD.** Anterior Segment Optical Coherence Tomography Measurement of LASIK Flaps: Femtosecond Laser vs Microkeratome. Journal of Refractive Surgery. November 2010.

9. David Brown, **Paul Dougherty**, James P. Gills, John Hunkeler, Donald R. Sanders, Monica L. Sanders. Functional Reading Acuity and Performance with the Tetraflex Accommodating IOL vs. the Crystalens Accommodating IOL. Journal of Cataract and Refractive Surgery 35:10: 1711-1714, 2009.

10. Sanders DL, Sanders ML, **Dougherty PJ.** Tetraflex Presbyopic IOL Study Group. US FDA Clinical Trial of the Tetraflex Potentially Accommodating IOL: Comparison to Concurrent Age-Matched Monofocal Controls. Journey of Refractive Surgery, December 2009.

11. **Paul J. Dougherty.** Acular LS for control of intraoperative and postoperative LASIK pain. Journal of Refractive Surgery. 25;2: 210-213, 2009.

12. **Paul J. Dougherty** and Hakaran S. Bains. Comparison of outcomes between the Nidek EC-5000, Visx CustomView and Alcon CustomCornea laser systems. Journal of Refractive Surgery. 24;9: 891-896, 2008.

13. **Paul J. Dougherty**, Hakaran S. Bains, George O. Waring III, Arturo S. Chayet, Jeffrey Fischer and Barbara S. Fant. Treatment of primary myopia with topography-guided custom ablation with the Nidek CXII customized aspheric treatment zone (CATz). Journal of Cataract and Refractive Surgery 34, 2008.

14. George O. Waring III, **Paul J. Dougherty**, Arturo S. Chayet, Jeffrey Fischer Barbara S. Fant, Gary Stevens and Hakaran S. Bains. Topographically guided LASIK for myopia using the Nidek CXII customized aspheric treatment zone (CATz). Trans Am Ophthalmol Soc 105: 240-248, 2007.

15. **Paul J. Dougherty, MD.** Thin Flap LASIK. Clinical and Surgical Ophthalmology (The Journal of the Canadian Society of Cataract and Refractive Surgery). 2/24(2): 56, 2006.

16. Ya-bo Yang, Chi-xin Du, Yan Sheng, Fang Wu, Fan He, Ke Yao and **Paul J. Dougherty**. Preoperative characteristics of patients undergoing LASIK in 1997 versus 2004 at surgical eye center in China. Journal of Refractive Surgery 22;7: 703-707, 2006.

17. Du Chi-xin, Ya-boYang, Ye Shen, Yang Wang and **Paul J. Dougherty**. Bilateral comparison of conventional versus topographic-guided customized ablation for myopic LASIK with the Nidek EC-5000. Journal of Refractive Surgery 22;7: 642-646, 2006.

18. Carlos Carillo, Arturo S. Chayet , **Paul J. Dougherty**, Miguel Montes, Roberto Magallanes, Jacobo Najman, Jacobo Fleitman and Alfredo Morales. Incidence of Complications During Flap Creation in LASIK Using the NIDEK MK-2000 Microkeratome in 26,600 Cases. Journal of Refractive Surgery 21: S655-S657, 2005

19. **Paul J. Dougherty, MD.** The Thin-Flap LASIK Technique. Journal of Refractive Surgery. 21:S650-S654, 2005

20. **Paul J. Dougherty, MD.** Thin Flap LASIK. Clinical and Surgical Ophthalmology (The Journal of the Canadian Society of Cataract and Refractive Surgery). 1/21(8): 326-330, 2003.

21. **Paul J. Dougherty, MD,** David R. Hardten, MD, and Richard L. Lindstrom, MD. Effect of surgeon experience on outcome in excimer laser photorefractive keratectomy for myopia. Journal of Refractive Surgery. 13:33-39,1997.

22. **Paul J. Dougherty, MD,** David R. Hardten, MD, and Richard L. Lindstrom, MD. Case report: Corneo-scleral melt after pterygium surgery using single-dose mitomycin-C. Cornea 15 (5) 1995.

23. **Paul J. Dougherty, MD,** Kent L. Wellish, MD, and Robert K. Maloney, MD. Excimer laser ablation rate and corneal hydration. American Journal of Ophthalmology. 118:169-176, 1994.

24. Richard L. Lindstrom, MD, David R. Hardten, MD (by invitation), and **Paul J. Dougherty, MD (by invitation).** Excimer laser photorefractive keratectomy for myopia: A single surgeon best case analysis. Transactions of the American Ophthalmological Society. XCII:235-249, 1994.

25. **Paul J. Dougherty, MD,** Perry S. Binder, MD, Bartly J. Mondino, MD and Ben J. Glasgow, MD. *Acanthamoeba* sclerokeratitis. American Journal of Ophthalmology. 117:475-479, 1994

26. **Paul J. Dougherty, MD,** Rita F. Engelhardt, DrPH, David A. Lee, MD and the UCLA Mobile Eye Clinic Staff. The epidemiology of eye disease among ambulatory Jewish senior citizens. Journal of Community Health. 19:271-283, 1994.

LETTERS TO THE EDITOR:

1. Luttrull JK, Dougherty PJ. Reduced stereopsis during vitreous surgery for epiretinal membrane through Rezoom multifocal intraocular lens (letter). J Refract Surg. 2007 April; 23 (4) 329-330.

PUBLISHED ABSTRACTS AND PRESENTATIONS AT SCIENTIFIC MEETINGS

1. **Paul J. Dougherty.** Update on presbyopia surgery. Congreso 2013 Sociedad Cubana de Oftalmología, Havana, Cuba. June 29, 2013

2. **Paul J. Dougherty.** Refractive cataract surgery with Premium IOLs. Congreso 2013 Sociedad Cubana de Oftalmología, Havana, Cuba. June 29, 2013

3. **Paul J. Dougherty.** Visian ICL Phakic IOL. Congreso 2013 Sociedad Cubana de Oftalmología, Havana, Cuba. June 29, 2013

4. **Paul J. Dougherty.** Safety of Same-Day Bilateral Phacoemulsification and IOL Implantation. American Society for Cataract and Refractive Surgery Symposium and Congress, San Francisco, California. April 22, 2013.

5. **Paul J. Dougherty**. Predictability of Nanojoule Femtosecond Laser Flap Thicknesses Measured with Corneal Waveform Ultrasound Technology. Presented at the International Society of Refractive Surgery Meeting at the American Academy of Ophthalmology Annual Meeting, Chicago, Illinois, November 9, 2012.

6. **Paul J. Dougherty.** Posterior Chamber Phakic IOLs. 2nd Joint International Congress – Refr@ctive Online & SICSSCO Meeting, Rome, Italy. June 29, 2012.

7. **Paul J. Dougherty.** Comparison Of Two Methods for Intraocular Lens Power Calculation After LASIK or RK. 2nd Joint International Congress – Refr@ctive Online & SICSSCO Meeting, Rome, Italy. June 29, 2012.

8. **Paul J. Dougherty**. Safety and Stability of Silicone Plate Toric IOLs. American Society for Cataract and Refractive Surgery Symposium and Congress, Chicago, Illinois, April 23, 2012.

9. **Paul J. Dougherty.** Mid-Term Safety and Effectiveness of a Posterior Chamber Phakic IOL for Treating Young Low and Moderate Myopes. American Society for Cataract and Refractive Surgery Symposium and Congress, Chicago, Illinois, April 22, 2012.

10. **Paul J. Dougherty**. Safety and Stability of Staar Silicone Plate Toric IOLs. American Academy of Ophthalmology Annual Meeting, Orlando, Florida, October 22, 2011.

11. **Paul J. Dougherty**. Update on Visian ICL Outcomes in Young Low and Moderate Myopes. American Academy of Ophthalmology Annual Meeting, Orlando, Florida, October 22, 2011.

12. **Paul J. Dougherty, MD.** Laser in Situ Keratomileusis Followed by ICL for High Myopic Astigmatism. American Society for Cataract and Refractive Surgery Symposium and Congress, San Diego, California, March 28, 2011.

13. **Paul J. Dougherty, MD.** Early Experience and Current Technique with the Ziemer LDV Femtosecond Laser. American Society for Cataract and Refractive Surgery Symposium and Congress, San Diego, California, March 26, 2011.

14. **Paul J. Dougherty, MD.** Same-day Bioptics at the Time of Cataract Surgery with a minus Powered IOL and a Visian ICL for an Extremely High Myope. Caribbean Eye. St. Thomas, US Virgin Islands. February 12, 2011.

15. **Paul J. Dougherty, MD,** Taylor Priver. Efficacy and Safety of the Visian ICL in low and moderate myopes aged 40 and under. Poster Presented at the International Society of Refractive Surgery of the American Academy of Ophthalmology Sub-specialty Day Meeting, Chicago, Illinois, October 15, 2010.

16. **Paul J. Dougherty, MD.** Complications with the Ziemer LDV Femtosecond laser keratome. Poster Presented at the International Society of Refractive Surgery of the American Academy of Ophthalmology Sub-specialty Day Meeting, Chicago, Illinois, October 15, 2010.

17. Robert P. Rivera, **Paul J. Dougherty,** David M Schneider, Steven S. Lane. Sizing nomogram for ICL vault determination using sulcus-to-sulcus measurements obtained with high-frequency ultrasound. American Society for Cataract and Refractive Surgery Symposium and Congress, Boston, Massachusetts, April 10, 2010.

18. **Paul J. Dougherty**. Spectacle Independence and Functional Near Acuity Testing (MN Read) with Tetraflex, Crystalens and a Monofocal Control IOL. American Academy of Ophthalmology Annual Meeting, San Francisco, California, October 27, 2009.

19. Luttrull JK, **Dougherty PJ**, Zhao H, Mainster MA: Concentric ring dysphotopsias in diffractive multifocal pseudophakia. Combined meeting of the American Society of Retinal Specialists, Macula Society, and Retina Society, New York, New York, Sept 30, 2009.

20. Luttrull JK, **Dougherty PJ**, Zhao H, Mainster MA: Concentric Ring Dysphotopsias in Diffractive Multifocal Pseudophakia. European Society of Cataract and Refractive Surgery Annual Meeting, Barcelona, Spain, Sept. 14, 2009

21. **Paul J. Dougherty**, Robert P. Rivera, David Schneider, Steven S. Lane, David Brown and John Vukich. Development of a new sizing nomogram for ICL implantation using high frequency ultrasound with the Sonomed VuMax II. European Society of Cataract and Refractive Surgery Annual Meeting, Barcelona, Spain, Sept. 14, 2009

22. Robert P. Rivera, **Paul J. Dougherty**, David Schneider, Steven S. Lane, David Brown and John Vukich. Prospective analysis of ICL Vault: A Predictive Nomogram Derived from Preoperative Sulcus to Sulcus Measurements Obtained with High Frequency Ultrasound. European Society of Cataract and Refractive Surgery Annual Meeting, Barcelona, Spain, Sept. 13, 2009

23. Robert P. Rivera, **Paul J. Dougherty MD**, David Bernitsky MD, Del Yazzie MPH.Short-Interval Bilateral Surgery for Implantation of the Visian Implantable Collamer Lens: Nonrandomized Multicenter Retrospective Analysis of 328 Consecutive Eyes. American Society for Cataract and Refractive Surgery Symposium and Congress. San Francisco, California. April 6, 2009

24. **Paul J. Dougherty, MD.** Update on Nidek Navex CATz Topography-Guided LASIK. American College of Eye Surgeons Caribbean Eye Meeting, Montego Bay, Jamaica, BWI, February 2009.

25. **Paul J. Dougherty, MD**. Comparison of Reading Speeds with the Tetraflex versus the Crystalens. American College of Eye Surgeons Caribbean Eye Meeting, Montego Bay, Jamaica, BWI, February 2009.

26. Peter Trueb, MD, **Paul J. Dougherty, MD,** Hakaran S. Bains. Higher Order Aberrations after Visian ICL Implantation. Presented at the European Society of Cataract and Refractive Surgery Annual Meeting, Berlin, Germany, September 2008.

27. George O. Waring, III, MD, **Paul J. Dougherty, MD**. Topographically Guided LASIK for Myopia with the Customized Aspheric Treatment Zone (CATz). Presented at the European Society of Cataract and Refractive Surgery Annual Meeting, Berlin, Germany, September 2008.

28. **Paul J. Dougherty, MD.** Visian ICL Sizing: UBM Sulcus to Sulcus versus White to White. Poster Presented at the American Academy of Ophthalmology Annual Meeting, New Orleans, Louisiana, November 2007.

29. **Paul J. Dougherty, MD,** M.A. Malleat, MD. Complications of Late-Onset Traumatic Flap Dislocation After LASIK. Presented at the American Society of Cataract and Refractive Surgery Symposium and Congress, San Diego, California, April 2007.

30. **Paul J. Dougherty, MD.**. Lens Implantation in an In-Office Surgery Suite. Presented at the American Society of Cataract and Refractive Surgery Symposium and Congress, San Diego, California, April 2007.

31. **Paul J. Dougherty, MD.**. Intralase 60 Hz: Why I switched. Presented at the AMO Intralase Continuing Medical Education Series at the American Society of Cataract and Refractive Surgery Symposium and Congress, San Diego, California, April 2007.

32. **Paul J. Dougherty, MD.**. Visian ICL Sizing: UBM versus White to White. Presented at the First US Staar Visian ICL Users Meeting at the American Society of Cataract and Refractive Surgery Symposium and Congress, San Diego, California, April 2007.

33. John Wittpenn, Steve Silverstein, John Hunkler, Barry Schecter, Frank Price, Ralph Chu, Bruce Wallace, William Trattler, **Paul J. Dougherty**, Damien Goldenberg, Henry Perry, Kerry Solomon, Eric Donnenfeld, Ken Kenyon and Calvin Roberts. Masked Comparison of Acular LS Plus Steroid Versus Steroid Alone for the Prevention of Macular Leakage in Cataract Patients. Poster Presented at the American Academy of Ophthalmology Annual Meeting, Las Vegas, Nevada, November 2006.

34. **Paul J. Dougherty, MD.** Case report: Laser Vision Correction in Marfan's Syndrome. Poster presented at the European Society of Cataract and Refractive Surgery Annual Meeting, London, England, September 2006.

35. **Paul J. Dougherty, MD.** Refractive Lensectomy for the Treatment of Refractive Error. Poster presented at the European Society of Cataract and Refractive Surgery Annual Meeting, London, England, September 2006.

36. **Paul J. Dougherty, MD**. Wavefront Guided LASIK Versus Conventional LASIK in High Myopia: Comparison of Outcomes. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, San Francisco, California. March 21, 2006

37. **Paul J. Dougherty, MD.** Comparison between the NIDEK EC-5000, CustomVue and Alcon CustomCornea Laser systems; 3-month outcomes. Presented at the European Society of Cataract and Refractive Surgery Annual Meeting, Lisbon, Portugal, September 2005

38. **Paul J. Dougherty, MD.** Expert Management of LASIK Flap Complications. Presented at the Nidek Asia-Pacific Refractive Surgery Symposium, Beijing, People's Republic of China, June 2005.

39. **Paul J. Dougherty, MD.** Thin Flap LASIK. Presented at the Nidek Asia-Pacific Refractive Surgery Symposium, Beijing, People's Republic of China, June 2005.

40. **Paul J. Dougherty, MD.** Case Studies of Nidek NAVEX Customized Aspheric Transition Zone (CATz) Treatment of Irregular Astigmatism. Presented at the Nidek Asia-Pacific Refractive Surgery Symposium, Beijing, People's Republic of China, June 2005.

41. **Paul J. Dougherty, MD.** Comparison of Outcomes between the Nidek EC-5000, Alcon CustomCornea and Visx CustomVue Excimer Laser Systems. Presented at the Nidek Asia-Pacific Refractive Surgery Symposium, Beijing, People's Republic of China, June 2005.

42. **Paul J. Dougherty, MD.** Comparison of Outcomes between the Nidek EC-5000, Alcon CustomCornea and Visx CustomVue Excimer Laser Systems. Presented at the American Society of Cataract and Refractive Surgery Meeting, Washington, DC, April 2005.

43. **Paul J. Dougherty, MD.** Second Eyes Have More Pain than First Eyes in Simultaneous, Bilateral LASIK. Presented at the American Society of Cataract and Refractive Surgery Meeting, Washington, DC, April 2005.

44. **Paul J. Dougherty, MD.** Comparison of Outcomes between the Nidek EC-5000, Alcon CustomCornea and Visx CustomVue Excimer Laser Systems. Presented at the 10th International Nidek Refractive Surgery Symposium, Dubai, United Arab Emirates, April 2005.

45. **Paul J. Dougherty, MD.** Comparison of Phakic IOL Technology: AMO Verisyse and Staar ICL, Hawaiian Eye Meeting, Kona, Hawaii, January 2005

46. **Paul J. Dougherty, MD.** LASIK using the NIDEK EC-5000 Excimer Laser. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, San Diego, California, May 2004

47. **Paul J. Dougherty, MD.** Effect of Conventional LASIK on OPD-Measured Higher-Order Aberrations. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, San Diego, California, May 2004.

48. **Paul J. Dougherty, MD.** Safety and Reliability of the BD Beaver Microkeratome Blade in LASIK. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, San Diego, California, May 2004.

49. **Paul J. Dougherty, MD.** Update on One-Year Outcomes of the U.S. FDA Trial of the Implantable Contact Lens for Hyperopia. Presented at the American Academy of Ophthalmology Annual Meeting, Anaheim, California, November 2003.

50. **Paul J. Dougherty, MD.** Factors Influencing Flap Thickness in LASIK. Presented at the European Society of Cataract and Refractive Surgery Annual Meeting, Munich, Germany, September 2003.

51. **Paul J. Dougherty, MD.** One-Year Outcomes of the U.S. FDA Trial of the Implantable Contact Lens for Hyperopia. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, San Francisco, California, April 2003.

52. **Paul J. Dougherty, MD.** Reliability and Safety of the BD K-4000 Microkeratome in LASIK. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, San Francisco, California, April 2003.

53. **Paul J. Dougherty, MD.** Factors Influencing Flap Diameter in LASIK. Presented and the International Society of Refractive Surgery Annual Meeting, Orlando, Florida, November 2002.

54. **Paul J. Dougherty, MD.** My Experience with the BD K-3000 Microkeratome in LASIK. Presented at the European Society of Cataract and Refractive Surgery Annual Meeting, Nice, France, September 2002

55. **Paul J. Dougherty, MD.** Comparison of Visual Outcomes and Safety Using a 130 um Microkeratome Head Versus a 160 um Head in LASIK. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, Philadelphia, Pennsylvania, June 2002.

56. **Paul J. Dougherty, MD.** Reliability and Safety of the Becton Dickinson K-3000 Microkeratome in LASIK. Presented at the International Society of Refractive Surgery Fall Symposium, New Orleans, Louisiana, November 2001.

57. **Paul J. Dougherty, MD**. Efficacy and Safety of a 130 micron Microkeratome Head in LASIK. Presented at the International Society of Refractive Surgery Mid-Summer Symposium, Orlando, Florida, July 2001.

58. **Paul J. Dougherty, MD**. LASIK flap management using an automated microkeratome and scanning slit laser. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, San Diego, California, April 2001.

59. **Paul J. Dougherty, MD**. Comparison of epithelial defects and microstria following LASIK using a track and rail versus a rotational microkeratome. Presented at the International Society of Refractive Surgery Mid-Summer Symposium, Miami, Florida, July 2000.

60. **Paul J. Dougherty, MD**. Comparison of early post-operative visual acuity after myopic LASIK using a broad beam versus smooth scan laser. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, Boston, Massachusetts, April 2000.

61. **Paul J. Dougherty, MD**. Clear lens extraction for myopic and hyperopic astigmatism using a Staar Surgical Toric IOL. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, Boston, Massachusetts, April 2000.

62. **Paul J. Dougherty, MD**. Ablatable disc excimer laser technology for the treatment of hyperopia. Video presented at the American Society of Cataract and Refractive Surgery Annual Meeting, Boston, Massachusetts, April 2000.

63. **Paul J. Dougherty, MD**. Myopic LASIK Enhancement. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, Seattle, Washington, April 1999.

64. Richard L. Lindstrom, MD, David R. Hardten, MD (by invitation), and **Paul J. Dougherty, MD (by invitation)**. Excimer laser photorefractive keratectomy for myopia: A single surgeon best case analysis. Presented at the American Ophthalmological Society Meeting, May 1994.

65. David R. Hardten, MD, **Paul J. Dougherty, MD**, and Richard L. Lindstrom, MD. Case report: Corneo-scleral melt after pterygium surgery using single-dose mitomycin-C. Presented at the International Anterior Segment Congress, Toronto, Canada, June 1994.

66. David R. Hardten, MD, Stephen S. Lane, MD, Donald J. Doughman, MD, Richard L. Lindstrom, MD, Neal A. Sher, MD, and **Paul J. Dougherty, MD**. Use of the 193-nm excimer laser for removal of corneal scars. Presented at the International Anterior Segment Congress, Toronto, Canada, June 1994.

67. **Paul J. Dougherty, MD**, David R. Hardten, MD, Michael F. W. Moller and Richard L. Lindstrom, MD. Asymmetric 6 incision radial keratotomy for myopia with low astigmatism. Invest Ophthalmol Vis Sci (suppl.) 1994, 35 (4): 1298.

68. David R. Hardten, MD, **Paul J. Dougherty, MD**, Neal A. Sher, MD, Stephen S. Lane, MD, Emmett Carpel, MD, Charles S. Ostrov, MD, Donald J. Doughman, MD and Richard L. Lindstrom, MD. Phototherapeutic keratectomy for anterior corneal scars and dystrophies. Invest Ophthalmol Vis Sci (suppl.) 1994, 35 (4): 1298.

69. Paula J. Parker, David R. Hardten, MD, **Paul J. Dougherty, MD** and Richard L. Lindstrom, MD. Corneal topography following automated lamellar keratoplasty. Invest Opthalmol Vis Sci (suppl.) 1994, 35 (4): 2024.

70. **Paul J. Dougherty, MD**, Perry S. Binder, MD, Bartly J. Mondino, MD and Ben J. Glasgow, MD. *Acanthamoeba* sclerokeratitis. Presented at the 27th Annual Ocular Microbiology and Immunology Group Meeting, Chicago, Illinois, November 1993.

71. David R. Hardten, MD, **Paul J. Dougherty, MD**, Neal A. Sher, MD, Stephen S. Lane, MD, Emmett Carpel, MD, Charles S. Ostrov, MD, Donald J. Doughman, MD and Richard L. Lindstrom, MD. Update on excimer laser phototherapeutic keratectomy. Presented at the International Society of Refractive Keratoplasty Pre-Academy Meeting, Chicago, Illinois, November 1993.

72. Kent L. Wellish, MD, **Paul J. Dougherty, MD**, Francisco Beltran, MD, and Robert K. Maloney, MD. Excimer laser myopic keratomileusis and corneal hydration. Presented at the International Society of Refractive Keratoplasty Pre-Academy Meeting, Chicago, Illinois, November 1993.

73. **Paul J. Dougherty, MD**, Kent L. Wellish, MD, and Robert K. Maloney, MD. Excimer laser ablation rate and corneal hydration. Invest Ophthalmol Vis Sci (suppl.) 1993, 34 (4): 801.

74. Kent L. Wellish, MD, **Paul J. Dougherty, MD**, Francisco Beltran, MD, and Robert K. Maloney, MD. Antidessication chamber-keratomileusis. Presented at the American Society of Cataract and Refractive Surgery Annual Meeting, Seattle, Washington, May, 1993.

75. **Paul J. Dougherty, MD**, Rita F. Engelhardt, DrPH, David A. Lee, MD and the UCLA Mobile Eye Clinic Staff. The epidemiology of eye disease among ambulatory Jewish senior citizens. Invest Ophthalmol Vis Sci (suppl.) 1991, 32 (4): 115.

PUBLISHED BOOKS:

1. **Paul J. Dougherty, MD.** *See for Yourself: The Eye-Opening Guide to Permanent Vision Correction.* Published by Visionary Press, Los Angeles, California. Winner – Honorable Mention, Non-Fiction at the Paris Book Festival, Paris, France, June 2013. Library of Congress Control Number 2012932413. Originally published May, 2012.

BOOK CHAPTERS:

1. **Paul J. Dougherty, MD.** Tetraflex Accommodating IOL. Chapter 185. Pages 391-392. *Cataract Surgery Today: The Best Cataract and Refractive IOL Articles from Cataract and Refractive Surgery Today.* David F. Chang (ed.). Bryn Mawr Communications LLC, Wayne, Pennsylvania. 2009.

2. **Paul J. Dougherty, MD.** The Tetraflex Accommodating Intraocular Lens. Chapter 58. Pages 215-217. *Mastering Refractive IOL's – The Art and Science: A Clinical Manual.* David F. Chang (ed). Slack Inc., Thorofare, New Jersey. 2008.

3. George O. Waring III, MD, **Paul J.Dougherty, MD,** Barbara Fant, Pharm. D, Arturo Chayet, MD, Jeffery Fischer, MD and Hakaran Bains. Optimizing Treatment of the Normal Cornea: Topographically-Guided LASIK for Myopia Using the NIDEK Customized Aspheric Treatment Zone. *Irregular Astigmatism: Diagnosis and Treatment.* Ming Wang, MD, PhD (ed.). Slack Inc., Thorofare, New Jersey. 2008.

4. **Paul J. Dougherty, MD,** Richard L. Lindstrom, MD and David R. Hardten, MD. Secondary Posterior Chamber Lens Implantation. *Precis de Techniques Chirgicales en Ophthalmologie.* Laroche L, Lebuisson D and Montard M (eds). 1994.

EDUCATIONAL SYMPOSIUM FACULTY:

1. **Paul J. Dougherty MD,** Robert P. Rivera MD, Paul Harton MD, and Roberto Zaldivar MD. "Advanced Techniques in Visian ICL Surgery: Clinical and Surgical Pearls for Explanting Collagen Copolymer Phakic ICL." ASCRS & ASOA. Boston, Massachusetts, April 11, 2010.

2. **Paul J. Dougherty MD,** Robert P. Rivera MD, Paul Harton MD, and Roberto Zaldivar MD. "Advanced Techniques in Visian ICL Surgery: Clinical and Surgical Pearls for Explanting Collagen Copolymer Phakic ICL." ASCRS & ASOA. San Francisco, April, 2009.

3. **Paul J. Dougherty, MD,** "Incorporating Premium IOL's into Your Practice." Maximizing Outcomes With Premium IOL's CME Lunch Seminar, Sponsored by Alcon. Royal Hawaiian Eye Meeting, Kona, Hawaii. January 22, 2008.

4. **Paul J. Dougherty, MD** "Surface Ablation and NSAID's; Clinical Studies Analgesia and Wound Healing." Improving Surgical Outcomes and Maximizing Patient Expectations in

Cataract and Refractive Surgery CME Breakfast Seminar, Sponsored by Alcon. Royal Hawaiian Eye Meeting, Kona, Hawaii. January 22, 2008.

5. **Paul J. Dougherty, MD,** "Making the Case for a Dry Eye Treatment Strategy: Case Studies and Discussion." ASCRS & ASOA. San Francisco, California, March 18, 2006

CONFERENCE MODERATOR POSITIONS:

1. Physician Moderator, Visian ICL Conference, Second Staar Surgical North American Visian Excellence Group, Colorado Springs, Colorado. August 17, 2013.

2. Physician Moderator, Presbyopia Conference, Congreso 2013 Sociedad Cubana de Oftalmología, Havana, Cuba. June 29, 2013

3. Physician Moderator, Visian ICL Conference, First Staar Surgical North American Visian Excellence Group, Salt Lake City, Utah. August 29, 2012.

4. Physician Moderator, Visian ICL Conference, Visian ICL Global Surgeon Symposium Sponsored by Staar Surgical. Paris, France. September, 2010

5. Physician Moderator, Ziemer Group 1st Asia-Pacific Ziemer LDV Experts Meeting. Phuket, Thailand. November 20,2010.

6. Physician Moderator, Staar Surgical Annual Visian ICL Users Meeting at the American Academy of Ophthalmology Annual Meeting – Beyond the Basics – Alternatives to Laser Iridotomies for the Visian ICL. Atlanta, Georgia. November 7, 2008.

7. Physician Moderator, Inspire Pharmaceutical Roundtable for Optometrists. Westlake Village, California, February 24, 2009.

ROUNDTABLES:

1. "Laser Refractive and Question & Answer." 2011 Caribbean Eye Annual Meeting. Montego Bay, Jamaica. February 14, 2011

2. Inspire Pharmaceutical Roundtable on Azasite. Caribbean Eye/American College of Eye Surgeons Annual Meeting, Montego Bay, Jamaica. February 9, 2009.

3. Expert Roundtable on Cataract and Refractive Surgery. "What are you doing differently in 2009?" Jules Stein Eye Institute and the American Society of Cataract and Refractive Surgery Joint Symposium, Los Angeles, California. February 8, 2009.

4. STAAR Surgical Visian ICL Experts Seminar. 2004 European Society of Cataract & Refractive Surgeons Annual Meeting, Paris, France. September 20, 2004.

5. Refractive Surgery Roundtable. Jules Stein Eye Institute/UCLA Clinical and Research Seminar. Los Angeles, California. May 20, 2004.

6. "Flap Management During LASIK." 2002 Hawaiian Eye Meeting. Waikoloa, Hawaii. January 21, 2002.

SCIENTIFIC MODERATOR POSITIONS:

1. Panelist, Surgical Management of Astigmatism with IOL's. American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery, San Francisco, California. April 22, 2013.

2. Panelist, Intraocular Surgery - Phakic IOLs. American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery, Chicago, Illinois. April 23, 2012.

3. Panelist, Intraocular Surgery – Phakic IOLs. American Society for Cataract and Refractive Surgery Symposium and Congress, San Diego, California, March 28, 2011.

4. Moderator, STAAR Surgical US Experts Symposium, Chicago, Illinois, October 15, 2010.

5. Panelist, STAAR Surgical International ICL Experts Symposium, Paris, France, September 2, 2010.

6. Panelist, Intraocular Surgery Phakic IOLs, American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery Boston, Massachusetts April 11, 2010.

7. Panelist, Allergan Dry Eye Physician Think-Tank (DEPTH), American Academy of Ophthalmology Annual Meeting, Las Vegas, Nevada. November 2006.

8. Panelist, Current Refractive Surgery Practices. Swiss Society of Ophthalmology 99th Annual Meeting. Lugano, Switzerland, September 7, 2006.

9. Panelist, Cataract: Phacoemulsification Technology (Chopping, Torsional, Incisions). American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery San Francisco, California. March 2006.

10. Panelist, Allergan Clinical Consultants Committee Meeting, American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery San Francisco, California. March 2006

11. Panelist, Allergan Dry Eye Physician Think-Tank (DEPTH), American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery San Francisco, California. March 2006.

12. Panelist, Current Treatment of Hyperopia Section. American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery, Washington, DC. May 2005

13. Panelist, Allergan Clinical Consultants Committee Meeting, American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery Washington, DC. May 2005

14. Panelist, Allergan Clinical Consultants Committee Meeting, American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery Kona, Hawaii, January 2005

15. Panelist, Microkeratome Section. American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery, San Diego, California. May 2004

16. Panelist, Microkeratome Section. American Society of Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery, San Francisco, California. April 2003.

INVITED LECTURES:

1. Refractive Surgery Innovations "Surgical Management of Keratoconus." "The Optometrist's Role In Premium IOL's In Cataract Surgery." Tri County Optometric Society, Oxnard, California. January 26, 2014

1. "Overcoming Objections to the Visian ICL." Second Staar Surgical North American Visian Excellence Group (NAVEG), Colorado Springs, Colorado. August 17, 2013.

2. "Update on Refractive Technology." Los Angeles County Optometric Society. Los Angeles, California. June 9, 2013.

3. "Update on Visian ICL Outcomes in Young Low and Moderate Myopes." Presented at the Staar Surgical Booth at the American Academy of Ophthalmology Annual Meeting, Chicago, Illinois. November 10, 2012.

4. Update on the Visian ICL for Young Low and Moderate Myopes. First Staar Surgical North American Visian Excellence Group (NAVEG), Salt Lake City, Utah. August 29, 2012.

5. Incorporating the Softec HD as a Premium IOL In Your Practice. Presented at the Lenstec Booth at the American Society for Cataract and Refractive Surgery Symposium and Congress, Chicago, Illinois, April 22, 2012.

6. "Differential Diagnosis and Management of Ocular Surface Disease", Orange, CA May 20, 2012

7. "Pharmaceutical Treatment of Blepharitis/Meibomitis" – Focused on Azasite, Orange, CA May 20, 2012

8. TCOS Event, ICL and Intacs for Keratoconus. Santa Barbara, CA May 20, 2012

9. LACOS Fall Seminar. Northridge, CA. October 2, 2011. "Doctor, I can't see after cataract surgery."

10. Caribbean Eye Annual Meeting. St. Thomas, US Virgin Islands. February 12, 2011. "Same-day Bioptics at the Time of Cataract Surgery with a Minus Powered IOL and a Visian ICL for an Extremely High Myope."

11. Ziemer Group 1st Asia-Pacific Ziemer LDV Experts Meeting. Phuket, Thailand. November 20, 2010. "Flap Management with My First 200 Cases with the Ziemer LDV Laser Keratome."

12. Ziemer Group 1st Asia-Pacific Ziemer LDV Experts Meeting. Phuket, Thailand. November 20, 2010. "Flap Recuts with the Ziemer LDV Laser Keratome."

13. Ziemer Group 1st Asia-Pacific Ziemer LDV Experts Meeting. Phuket, Thailand. November 20, 2010. "Marketing the Ziemer LDV in My Practice."

14. STAAR Surgical US Visian ICL Experts Symposium, Chicago, Illinois, October 15, 2010. "Efficacy & Safety of The Visian ICL in Low to Moderate Myopes."

15. Dougherty Laser Vision Symposium for Optometrists, Los Angeles, California, September 15, 2010. "True All-Laser LASIK with the Ziemer LDV laser keratome – Live Surgery"

16. STAAR Surgical International Visian ICL Experts Symposium, Paris, France, September 2, 2010. "Efficacy & Safety of The Visian ICL in Low to Moderate Myopes."

17. Dougherty Laser Vision Symposium for Optometrists, Camarillo, California, August 13, 2010. "True All-Laser LASIK with the Ziemer LDV laser keratome – Live Surgery"

18. V University International Course, University of Chile, Santiago, Chile, July 30, 2010. "Premium IOL's for the Correction of Presbyopia."

19. V University International Course, University of Chile, Santiago, Chile, July 30, 2010. "Reading Speed with Accommodating IOLs – Tetraflex versus Crystalens."

20. V University International Course, University of Chile, Santiago, Chile, July 30, 2010. "Update on the FDA Study of the Tetraflex Accommodating IOL."

21. V University International Course, University of Chile, Santiago, Chile, July 30, 2010. "Visian ICL versus LASIK."

22. V University International Course, University of Chile, Santiago, Chile, July 30, 2010. "Sizing of the Visian ICL Using Sulcus to Sulcus Measurement with UBM."

23. Bausch and Lomb Symposium for Optometrists, Oxnard, California, June 8, 2010. "Ocular Antibiotics and Anti-Inflammatory Agents."

24. University of Havana – Pando Ferrar Eye Institute Symposium, Havana, Cuba, May 17, 2010. "Update on the FDA Trial of the Tetraflex KH 3500 Accommodating IOL."

25. University of Havana – Pando Ferrar Eye Institute Symposium, Havana, Cuba, May 17, 2010. "Clinical Use of the Ziemer LDV Femtosecond Laser Keratome."

26. University of Havana – Pando Ferrar Eye Institute Symposium, Havana, Cuba, May 17, 2010. "The Vista Vision ICL Procedure."

27. Inspire Symposium for Ophthalmologists, Houston, Texas, April 23, 2010. "Azasite for the Treatment of Ocular Surface Disease."

28. Inspire Symposium for Ophthalmologists, Boston, Massachusetts, April 9, 2010. "Azasite for the Treatment of Ocular Surface Disease."

29. Southern California Biomedical Council Update on Technology, April 29, 2020. "Vista Vision Techology and Centers."

30. Ventura County Star Medical Symposium. Ventura, California, April 8, 2010. "Update on Advances in Vision Correction Surgery."

31. Ocular Drug and Surgical Therapy Update, Dana Point, California, February 13, 2010. "Refractive: Managing Complication of LASIK."

32. Ocular Drug and Surgical Therapy Update, Dana Point, California, February 13, 2010. "Refractive: Mastering the Art of Lens Based Refractive Surgery."

33. Ocular Drug and Surgical Therapy Update, Dana Point, California, February 13, 2010. "Night Vision Problems."

34. Ocular Drug and Surgical Therapy Update, Dana Point, California, February 13, 2010. "Phakic IOLs vs. LASIK."

35. Inspire Symposium for Ophthalmologists, Denver, Colorado, December 10, 2009. "Azasite for the Treatment of Ocular Surface Disease."

36. Inspire Symposium for Ophthalmologists, Salt Lake City, Utah, December 3, 2009. "Azasite for the Treatment of Ocular Surface Disease."

37. Bausch and Lomb Symposium for Optometrists, Ventura, California, November 15, 2009. "Besivance for Peri-operative Intra-ocular Surgical Prophylaxis."

38. Visian ICL Experts Symposium, San Francisco, California, October 23, 2009. "Optimal ICL Sizing: UBM or White-to-White?"

39. Inspire Symposium for Ophthalmologists, Raleigh, North Carolina, October 15, 2009. "Azasite for the Treatment of Ocular Surface Disease."

40. Inspire Symposium for Ophthalmologists, San Diego, California, October 8, 2009. "Azasite for the Treatment of Ocular Surface Disease."

41. Inspire Symposium for Ophthalmologists, Dallas, Texas, October 1, 2009. "Azasite for the Treatment of Ocular Surface Disease."

42. Dougherty Laser Vision Symposium for Optometrists, Camarillo, California, August 24, 2009. "Presbyopic IOL's"

43. Bausch and Lomb Symposium for Optometrists, Ventura, California, August 17, 2009. "Besivance for Peri-operative Intra-ocular Surgical Prophylaxis."

44. Inspire Symposium for Ophthalmologists, Chicago, Illinois, August 14, 2009. "Azasite for the Treatment of Ocular Surface Disease."

45. Inspire Symposium for Optometrists, Woodland Hills, California, July 27, 2009. "Azasite for the Treatment of Ocular Surface Disease."

46. Inspire Symposium for Ophthalmologists, Tucson, Arizona, July 23, 2009. "Azasite for the Treatment of Ocular Surface Disease."

47. Inspire Symposium for Optometrists, Los Angeles, California, July 21, 2009. "Azasite for the Treatment of Ocular Surface Disease."

48. Dougherty Laser Vision Symposium for Optometrists, Camarillo, California, June 25, 2009. "Better Than LASIK – The Visian ICL"

49. Inspire Symposium for Optometrists, Westlake Village, California. "Azasite for the Treatment of Ocular Surface Disease."

50. Inspire Symposium for Optometrists, Moorpark, California, June 8, 2009. "Azasite for the Treatment of Ocular Surface Disease."

51. Dougherty Laser Vision Symposium for Optometrists, Los Angeles, California, June 2, 2009. "Better Than LASIK – The Visian ICL"

52. Inspire Symposium for Ophthalmologists, Phoenix, Arizona, May 21, 2009. "Azasite for the Treatment of Ocular Surface Disease."

53. Inspire Symposium for Optometrists, Ojai, California, May 11, 2009. "Azasite for the Treatment of Ocular Surface Disease."

54. Inspire Symposium for Ophthalmologists at the American Society for Cataract and Refractive Surgery, San Francisco, California, February 23, 2009. "Azasite for the Treatment of Ocular Surface Disease."

55. Cedars-Sinai Medical Center, Division of Ophthalmology, Quarterly Meeting, Beverly Hills, California, February 23, 2009. "Azasite for the Treatment of Ocular Surface Disease."

56. Caribbean Eye/American College of Eye Surgeons Annual Meeting, Montego Bay, Jamaica. February 10, 2009. "Update on the Tetraflex Accommodating IOL."

57. Caribbean Eye/American College of Eye Surgeons Annual Meeting, Montego Bay, Jamaica. February 9, 2009. "Topographically-Guided Laser Vision Correction."

58. Jules Stein Eye Institute and the American Society of Cataract and Refractive Surgery Joint Symposium, Los Angeles, California. February 7, 2009. "CATz Topography-Guided LASIK."

59. Jules Stein Eye Institute and the American Society of Cataract and Refractive Surgery Joint Symposium, Los Angeles, California. February 7, 2009. "Update on the Tetraflex Accommodating IOL."

60. Inspire Pharmaceutical Lecture Series, Las Vegas, Nevada. January 23, 2009. "Azasite for the Treatment of Infections and Ocular Surface Disease."

61. IV University International Course, Universitario Internacional, Santiago, Chile, July 2008. "Diagnosis and Management of Flap Complications."

62. IV University International Course, Universitario Internacional, Santiago, Chile, July 2008. "Update on the Tetraflex Accommodating IOL in Clinical Practice."

63. IV University International Course, Universitario Internacional, Santiago, Chile, July 2008. "Update on Customized Aspheric Treatment Zone (CATz) Topography-Guided Custom Corneal Ablations in Myopia and Myopic Astigmatism."

64. IV University International Course, Universitario Internacional, Santiago, Chile, July 2008. "Clincial Use of the Visian ICL."

65. Turkish Society of Ophthalmology, Ankara, Turkey, April 12, 2008. "Vigamox® (Moxifloxacin): A New 4th generation Fluoroquinolone - Surgical Prophylaxis and Treatment of External Eye Infections."

66. Keynote Address. Staar Surgical Annual US Visian ICL Users Meeting, Chicago, Illinois, April 3, 2008. "My Commitment to the Visian ICL: Marketing Techniques."

67. Johns Hopkins University 25th Current Concepts in Ophthalmology Meeting, Vail, Colorado, March 10, 2008. "Maximizing Perioperative Techniques to Reduce Endophthalmitis Post-Op"

68. Johns Hopkins University 25th Current Concepts in Ophthalmology Meeting, Vail, Colorado, March 10, 2008. "Clinical Update: Reducing Our Risk of CME Post-Cataract."

69. Johns Hopkins University 25th Current Concepts in Ophthalmology Meeting, Vail, Colorado, March 10, 2008. "Update on the FDA Trial of the Tetraflex Accommodating IOL."

70. Johns Hopkins University 25th Current Concepts in Ophthalmology Meeting, Vail, Colorado, March 11, 2008. "Building a Successful Presbyopic IOL Practice."

71. Alcon Pharmaceutical Anterior Segment Advisory Board Meeting. Las Vegas, Nevada, March 1, 2008. "Clinical Pearls for Endophthalmitis Prophylaxis in Lens Surgery."

72. Alcon Pharmaceutical Anterior Segment Advisory Board Meeting. Las Vegas, Nevada, March 1, 2008. "Nepafenac: Safety Studies in Surface Laser Treatment."

73. Royal Hawaiian Eye Meeting Physicians Program. Kona, Hawaii, January 21, 2008. "Update of the FDA Trial of Nidek CATz Topography-Guided LASIK for Myopia and Astigmatism."

74. Royal Hawaiian Eye Meeting Physicians Program. Kona, Hawaii, January 21, 2008. "Update on the FDA Trial of the Lenstec Tetraflex Accommodating IOL"

75. Royal Hawaiian Eye Meeting Nursing and Allied Health Personnel Program, sponsored by JHCPA. Kona, Hawaii, January 21, 2008. "Bilateral Sequential Same-Day Intra-Ocular Surgery; The Emerging Standard of Care."

76. Nidek Topography-Guided Ablation Symposium at the American Academy of Ophthalmology Annual Meeting, New Orleans, Louisiana, November 10, 2007. "Experience with Therapeutic Topography-Guided Custom LASIK Using CATz."

77. American Academy of Ophthalmology Annual Meeting, NIDEK Continuing Education Lecture Series, New Orleans, Louisiana, November 10, 2007. "Update on the FDA Trial of Nidek Navex CATz Topography-Guided LASIK."

78. Slovakian Society of Cataract and Refractive Surgery Annual Meeting, Bratislava, Slovakia. October 16, 2007. "Experience with the Lenstec Tetraflex KH 3500 Accommodating IOL in Presbyopic Patients."

79. Czech Society of Cataract and Refractive Surgery Annual Meeting, Prague, Czech Republic. October 14, 2007. "Experience with the Lenstec Tetraflex KH 3500 Accommodating IOL in Presbyopic Patients."

80. Featured Lecture, Taiwan Academy of Ophthalmology Annual Meeting, Kaohsiung, Taiwan, Republic of China. October 6, 2007. "Experience with the Lenstec Tetrafllex KH 3500 Accommodating IOL in Presbyopic Patients."

81. Taiwan Society of Cataract and Refractive Surgery Symposium Kaohsiung, Taiwan, Republic of China. October 6, 2007. "Optical Advantages of the Lenstec Softec HD Double Aspheric IOL."

82. Taiwan Academy of Ophthalmology Annual Meeting, Cornea Symposium, Kaohsiung, Taiwan, Republic of China. October 7, 2007. "Intralase: My Experience."

83. Australasian Society of Cataract and Refractive Surgery Meeting. Kingscliff, New South Wales, Australia. July 14, 2007. "Update on the US FDA Trial of the Lenstec Tetraflex Accommodating IOL."

84. Australasian Society of Cataract and Refractive Surgery Meeting. Kingscliff, New South Wales, Australia. July 15, 2007. "Update on the US FDA Trial of the Lenstec Softec HD Double Aspheric IOL."

85. 4th STAAR Surgical International ICL Experts Meeting. Stockholm, Sweden. September 15, 2007. "My Marketing Approach with the Visian ICL."

86. Visian ICL Surgeon Training Course. Hong Kong, China. April 16th, 2007. "Visian ICL: My experience."

87. Visian ICL Surgeon Training Course. Hong Kong, China. April 16, 2007. "Visian ICL: Complications Avoidance and Management."

88. 7th Chinese Ophthalmology and Optometry Congress. Shaghai, People's Republic of China. April 14, 2007. "Visian ICL for Beginners."

89. Visian ICL Surgeon Training Course. Shanghai, People's Republic of China. April 14, 2007. "Visian ICL: My experience."

90. Lenstec Tetraflex Surgeon Training Course at the 7th Chinese Ophthalmology and Optometry Congress. Shanghai, People's Republic of China. April 15, 2007. "Clinical Experience with the Tetraflex KH 3500 Accommodating Intraocular Lens."

91. Royal Hawaiian Eye Meeting. Kaui, Hawaii, January, 2007. "CATz Topography-Guided LASIK for Myopia and Astigmatism."

92. Royal Hawaiian Eye Meeting. Kaui, Hawaii, January, 2007. "Update on the Lenstec Tetraflex Accommodating IOL.""

93. American Academy of Ophthalmology Annual Meeting, Intralase Corporation Continuing Education Lecture Series, Las Vegas, Nevada, November 12, 2006. "The Intralase FS 60 Femtosecond Laser; Why I Switched from Conventional Microkeratome Technology"

94. American Academy of Ophthalmology Annual Meeting, NIDEK Continuing Education Lecture Series, Las Vegas, Nevada, November 12, 2006. "Use of the NIDEK EC-5000 in Clinical Practice."

95. First Annual STAAR Visian ICL Users Meeting, Henderson, Nevada, November 9, 2006. "My LASIK Practice: What I Had to Change for the Visian ICL."

96. LADARvision System Users' Meeting. W Hotel, Dallas, Texas, October 29, 2006. "Treating High Astigmatism with the LADARVision."

97. Swiss Society of Ophthalmology 99th Annual Meeting Refractive Surgery Workshop. Lugano, Switzerland, September 8, 2006. "LASIK Complications."

98. Swiss Society of Ophthalmology 99th Annual Meeting. Lugano, Switzerland, September 7, 2006. "The Use of Phakic IOL's in Clinical Practice."

99. Swiss Society of Ophthalmology 99th Annual Meeting Residents Training Course. Lugano, Switzerland, September 7, 2006. "Pre-operative Evaluation of the Refractive Surgery Patient."

100. Pan-Asian Society of Ophthalmology Annual Meeting, Continuing Education Seminar for Physicians sponsored by Lenstec, Inc. Beijing, People's Republic of China, September 2, 2006. "Update on the Tetraflex Accommodating IOL."

101. III University International Course, Universitario Internacional, Santiago, Chile, July 28, 2006. "Corneal Ectasia After LASIK."

102. III University International Course, Universitario Internacional, Santiago, Chile, July 28, 2006. "Use of the Tetraflex Accommodating IOL in Clinical Practice."

103. III University International Course, Universitario Internacional, Santiago, Chile, July 28, 2006. "Update on Customized Aspheric Treatment Zone (CATz) Topography-Guided Custom Corneal Ablations in Myopia and Myopic Astigmatism."

104. III University International Course, Universitario Internacional, Santiago, Chile, July 28, 2006. "Phakic IOL: AMO Verisyse Versus Staar Visian ICL."

105. STAAR Surgical National Sales Meeting. Carlsbad, California, June 1, 2006. "The LASIK Procedure: The Good, bad and ugly MD."

106. STAAR Surgical National Sales Meeting. Carlsbad, California. June 1, 2006. "My LASIK Practice: What I had to change for Visian ICL."

107. Tetraflex USERS Group Meeting. San Francisco, California. March 20, 2006. "Use of the Tetraflex KH-3500 Tetraflex Lens in a Refractive Practice."

108. Los Angeles County Optometric Society Spring Continuing Education. Los Angeles, California. March 5, 2006. "Treatment of Chronic Dry Eye."

109. Royal Hawaiian Eye Meeting. Maui, Hawaii, January 20, 2006. "Visian ICL Implantation in an In-Office Surgery Suite."

110. External Disease Regional Consultant Meeting. Key Biscayne, Florida. November, 2005. "Update on Ocular Surface Disease and Restasis Therapy."

111. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Renaissance Agoura Hills, California. September 21, 2005. "Phakic IOL & Crystalens Co-Management"

112. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Renaissance Agoura Hills, California. September 21, 2005. "New Refractive Custom Treatments"

113. European Society of Cataract & Refractive Surgeons Annual Meeting, Lisbon, Portugal, September 2005. "Update on Comparison of Outcomes Between the Nidek EC-5000, Alcon CustomCornea, and Visx CustomVue Excimer Laser Systems."

114. American Society of Cataract and Refractive Surgery Annual Meeting, Nidek Technologies Speaker's Forum, Chicago, Illinois, April 5, 2005. "Therapeutic Treatments with the NIDEK NAVEX CATz Topographically-Guided Laser System: Mitigation of Litigation."

115. American Society of Cataract and Refractive Surgery Annual Meeting, Nidek Technologies Speaker's Forum, Chicago, Illinois, April 5, 2005. "NIDEK NAVEX CATz Topographically-Guided LASIK; US FDA Trial Results."

116. American Society of Cataract and Refractive Surgery Annual Meeting, BD Ophthalmics Speaker's Forum, Washington, DC, April, 2005. "Thin Flap LASIK."

117. American Society of Cataract and Refractive Surgery Annual Meeting, Nidek Technologies Speaker's Forum, Washington, DC, April, 2005. "LASIK with the NIDEK EC-5000 Excimer Laser System."

118. Royal Hawaiian Eye Meeting, Kona, Hawaii, January 2005. "Update on the Hyperopic Implantable Lens FDA Clinical Trial.

119. Community Memorial Hospital, Ventura, California, December 21, 2004. "NAVEX for Treatment of Irregular Astigmatism" and "The Implantable Contact Lens for Myopia and Hyperopia."

120. San Gabriel Valley Optometric Society, Pasadena, California, November 17, 2004. "Pain Management in PRK and LASEK."

121. San Gabriel Valley Optometric Society, Pasadena, California, November 17, 2004. "Treatment of Irregular Astigmatism with the Nidek NAVEX System."

122. San Gabriel Valley Optometric Society, Pasadena, California, November 17, 2004. "Visian ICL Implantation and Outcomes."

123. Dougherty Laser Vision Continuing Education Series. Windows Restaurant, Los Angeles, California, October 27, 2004. "Pain Management in PRK and LASEK."

124. Dougherty Laser Vision Continuing Education Series. Windows Restaurant, Los Angeles, California, October 27, 2004. "Crystalens."

125. Dougherty Laser Vision Continuing Education Series. Windows Restaurant, Los Angeles, California, October 27, 2004. "Visian ICL Implantation and Outcomes."

126. American Academy of Ophthalmology Annual Meeting, BD Ophthalmics Continuing Education Lecture Series, New Orleans, Louisiana, October 24, 2004. "Thin Flap LASIK."

127. American Academy of Ophthalmology Annual Meeting, Nidek Continuing Education Lecture Series, New Orleans, Louisiana, October 24, 2004. "Treatment of Irregular Astigmatism with the Nidek NAVEX System."

128. Jules Stein Eye Institute/UCLA Seminar for Optometrists, Los Angeles, California, September 26, 2004. "OPD Scan/Custom LASIK."

129. European Society of Cataract & Refractive Surgeons Annual Meeting Nidek Technologies Lecture Series, Paris, France, September 19, 2004. "Comparison Study: Conventional LASIK vs. Custom LASIK."

130. European Society of Cataract & Refractive Surgeons Annual Meeting Nidek Technologies Lecture Series, Paris, France, September 19, 2004. "Treatment of Irregular Astigmatism with NAVEX."

131. Dougherty Laser Vision Continuing Education at Warner Center Marriott, Woodland Hills, California, August 4, 2004. "Pain Management in PRK and LASEK."

132. Dougherty Laser Vision Continuing Education Series. Warner Center Marriott, Woodland Hills, California, August 4, 2004. "Crystalens."

133. Dougherty Laser Vision Continuing Education Series. Woodland Hills Marriott, Woodland Hills, California, August 4, 2004. "Visian ICL."

134. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "Thin Flap LASIK."

135. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "LASIK Flap Complications."

136. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "NAVEX Custom Ablations for Irregular Astigmatism."

137. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "ICL Implantation for Myopia and Hyperopia."

138. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "Excimer Laser Surface Ablation."

139. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "Clear Lensectomy using the Crystalens Accommodating IOL."

140. Jules Stein Eye Institute Annual Clinical and Research Seminar 2004, Los Angeles, California, May 20, 2004. "Patient Selection in Custom LASIK Primary and Custom LASIK Enhancement Procedures."

141. Nidek Technologies Speaker's Forum at the American Society of Cataract and Refractive Surgery Annual Meeting, San Diego, California, May 2004. "Use of the NIDEK EC-5000 Excimer Laser in Clinical Practice."

142. BD Ophthalmic Systems Booth Presentation at the American Society of Cataract and Refractive Surgery Annual Meeting, San Diego, California, May 2004. "Thin Flap LASIK with the BD K-4000 Microkeratome."

143. Staar Surgical Lecture Series at the American Society of Cataract and Refractive Surgery Annual Meeting, San Diego, California, May 2004. "In-Office ICL Implantation."

144. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Santa Monica, California. April 20, 2004. "Pain Management in Surface Laser Vision Correction; PRK and LASEK." Sponsored by the Southern California College of Optometry.

145. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Santa Monica, California. April 20, 2004. "Wavefront-Guided LASIK." Sponsored by the Southern California College of Optometry.

146. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Woodland Hills, California. April 13, 2004. "Diagnosis and Flap Complications." Sponsored by Care Credit, Allergan, and Alcon.

147. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Woodland Hills, California. April 13, 2004. "Treatment of Chronic Dry Eye." Sponsored by Care Credit, Allergan, and Alcon.

148. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Santa Barbara, California. April 6, 2004. "Transitioning to Ladarvision."

149. BD Ophthalmic Systems Booth Presentation at the American Academy of Ophthalmology Annual Meeting, Anaheim, California, November 2003. "Thin Flap LASIK with the BD K-4000 Microkeratome."

150. Nidek Technologies Speaker's Forum at the American Academy of Ophthalmology Annual Meeting, Anaheim, California, November 2003. "The Effect of Conventional LASIK on OPD-Measured Higher Order Aberrations."

151. Staar Surgical Lecture Series at the American Academy of Ophthalmology Annual Meeting, Anaheim, California, November 2003. "In-Office ICL Implantation."

152. BD Ophthalmic Systems Booth Presentation at the American Society of Cataract and Refractive Surgery Annual Meeting, San Francisco, California, April 15, 2003. "Thin Flap LASIK with the BD K-4000 Microkeratome."

153. Miju/BD Joint Symposium. Seoul, South Korea. November 15, 2002. "Flap Creation and Performance with the BD K-3000 Microkeratome."

154. Staar Surgical Lecture Series at the American Academy of Ophthalmology Annual Meeting, Orlando, Florida, October 2002. "Staar Surgical ICL Implantation and Hyperopic Outcomes."

155. BD Ophthalmic Systems Booth Presentation at the American Academy of Ophthalmology Annual Meeting, Orlando, Florida, October 2002. "Thin Flap LASIK."

156. Jules Stein Eye Institute Annual Research and Alumni Day Meeting, Los Angeles, California, June 7, 2002. "Evaluation of a New Microkeratome Technology."

157. Center for Sight Optometric Grand Rounds, Sacramento, California, June 22, 2002. "LASIK Complications and ICL Implantation."

158. Tri-County Optometric Society Summer 2002 Continuing Education Seminar, Beullton, California. June 15, 2002. "Refractive Lensectomy and Implantable Contact Lenses."

159. Staar Surgical Lecture Series at the American Society of Cataract and Refractive Surgery Annual Meeting, Philadelphia, Pennsylvania, June 2002. "Staar Surgical ICL Implantation and Complications."

160. BD Ophthalmic Systems Booth Presentation at the American Society of Cataract and Refractive Surgery Annual Meeting, Philadelphia, Pennsylvania, June 2002. "Diagnosis and Management of LASIK Flap Complications."

161. American College of Eye Surgeons 16th Annual Meeting, Miami Beach, Florida. February 7, 2002. "Flap Creation and Management Using the BD K-3000 Microkeratome."

162. BD Ophthalmic Systems Booth Presentation at the American Academy of Ophthalmology Annual Meeting, New Orleans, Louisiana, October, 2001. "Flap Creation and Management Using the BD K-3000 Microkeratome.

163. Dougherty Laser Vision Institute Continuing Medical Education for Optometrists, Camarillo, California. June 13, 2001. "Pre and Post Operative Evaluation of LASIK Patients and LASIK Flap Complications." Sponsored by the Southern California College of Optometry.

164. Becton Dickinson Annual Sales Meeting, Phoenix, Arizona. January 6, 2001. "LASIK Flap Management using the BD K-3000 Microkeratome."

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169. Tri-County Optometric Society, Ojai, California. February 3, 1998. "LASIK Co-Management; A Practical Guide for Optometrists."

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171. St. John's Medical Center Lecture Series, Oxnard, California. May 20, 1997. "LASIK for the Treatment of Myopia, Hyperopia and Astigmatism."

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174. Vision Correction Centers Continuing Medical Education for Optometrists, Santa Monica, California. February 26, 1997. "Refractive Surgery Co Management."

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176. Merck Ophthalmics Symposium on Glaucoma, Ojai, California. December 12, 1996. "Update on Glaucoma Treatment: Timoptic XE, Trusopt and the Glaucoma Laser Trial." Sponsored by Merck Ophthalmics, Inc.

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178. University of South Florida Grand Rounds, Tampa, Florida. September 12, 1996. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

179. Santa Barbara Eye Society, Santa Barbara, California. April 18, 1996. "Introduction to Excimer Laser Photorefractive Keratectomy for the Correction of Myopia." Sponsored by Merck Ophthalmics, Inc.

180. Bakersfield Ophthalmologic Society, Bakersfield, California. April 9, 1996. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

181. Health System Minnesota Inservice Program, Minneapolis, Minnesota. March 22, 1996. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

182. Phillips Eye Institute Continuing Education Lecture Series, Minneapolis, Minnesota. March 21, 1996. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

183. Swiss Ophthalmic Association, Gstaadt, Switzerland. March 2, 1996. "Current Refractive Surgical Practice in the United States."

184. Tri-County Optometric Society, Ojai, California. February 3, 1996. "Radial Keratotomy: Past, Present and Future."

185. Community Memorial Hospital Lecture Series, Ventura, California. December 5, 1995. "Excimer Laser Photorefractive Keratectomy for the Treatment of Myopia."

186. Clark County Optometric Society, Las Vegas, Nevada. May 16, 1995. "Introduction to Mini-Radial Keratotomy and Astigmatic Keratotomy for the Correction of Myopia and Astigmatism."

187. Clark County Optometric Society, Las Vegas, Nevada. April 11, 1995. "Introduction to Excimer Laser Photorefractive Keratectomy for the Correction of Myopia."

188. Chattanooga Society of Ophthalmology, Chattanooga, Tennessee. May 4, 1995. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

189. Sierra Hospital Medical Society, El Paso, Texas. May 2, 1995. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

190. University of California, Irvine/Kaiser Permanente Journal Club, Irvine, California. April 30, 1995. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

191. Roanoke Valley Ophthalmology Society, Roanoke, Virginia. April 24, 1995. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

192. Eastern North Carolina Ophthalmology Society, New Bern, North Carolina. March 22, 1995. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

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194. Intercounty Ophthalmological Society, Lansdale, Pennsylvania. February 20, 1995. "Diagnosis and Management of Ocular Allergies." Sponsored by Alcon Ophthalmics, Inc.

GUEST EDITORIALS:

1. "Introduction to Advanced Diagnostics and Treatment in Refractive Surgery", Sponsored by NIDEK Co. Ltd. Journal of Refractive Surgery, The Official Journal of the ISRS/AAO. 21; 5:S1012-S1013, 2006.

2. "Introduction to the 10th NIDEK International Refractive Surgery Symposium and Asia Pacific Refractive Surgery Symposium: A Tale of Two Cities." Journal of Refractive Surgery, The Official Journal of the ISRS/AAO. 21;5: S593-S594, 2005.

3. "Sticking with LASIK Despite the Times; Staying the Course." Ophthalmology Management, Vol. 6. No. 5, May 2002.

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5. "LASIK: My Experience as a Patient." The Visionary – The Official Publication of the Tri-County Optometric Society. March 1998, p.3.

6. "Why LASIK?" The Visionary - The Official Publication of the Tri-County Optometric Society. March 1998, p.6.

PHYSICIAN COURSES/LIVE SURGERIES:

1. Senior Instructor. AAO Physician Instructional Course. "Visian ICL for Beginners." American Academy of Ophthalmology/Pan-American Society of Ophthalmology Joint Meeting. Las Vegas, Nevada. November 13, 2006.

2. Physician Director. NIDEK AAO Physician Certification Course for Hyperopia and Hyperopic Astigmatism Treatment with the EC-5000 Excimer Laser System. Las Vegas, Nevada. November 11, 2006

3. Co-Host, Lecturer, and Didactic Surgeon. ICL Mini-Fellowship. "Clinical Pearls and Personal Visian ICL Experience." Live Visian ICL Surgery, Dougherty Laser Vision, Los Angeles, CA, January 16, 2006.

4. Co-Host, Lecturer, and Didactic Surgeon. STAAR Visian ICL Mini-Fellowship. "Clinical Pearls and Personal Visian ICL Experience." Live ICL Surgery, 2:00 PM., Dougherty Laser Vision, Los Angeles, CA, August 21, 2004.

5. Senior Instructor. ASCRS Physician Instructional Course. "Expert management of LASIK flap complications." American Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery. San Diego, California. May 3, 2004.

6. Physician Director. NIDEK AAO Physician Certification Course. Dougherty Laser Vision, Camarillo, CA, November 13, 2003.

7. Senior Instructor. ASCRS Physician Instructional Course. "Expert management of LASIK flap complications." American Society of Cataract and Refractive Surgery Annual Symposium on Cataract, IOL and Refractive Surgery. San Francisco, California. April 13, 2003.

RECURRING MEDIA EXPERT:

1. **KFWB News Radio 980AM/KCBSLA.COM**, Los Angeles, California. Ophthalmology consultant for The Bob McCormack Show.

NATIONALLY TELEVISED REALITY PROGRAMS:

1. "Modern Beauty" Staff LASIK Surgeon. Nationally syndicated reality series airing on The Style Network. 2008 Season

2. "Ten Years Younger" Staff LASIK Surgeon. Nationally syndicated reality series produced by The Learning Channel. 2004 and 2005 Seasons.

MAKEOVER PROGRAMS:

"Sensational Makeover" Staff LASIK Surgeon. Contest sponsored by the *Ventura County Star* and KBBY Radio. 2004.

OPHTHALMIC NEWS MEDIA:

1. Eye World. "Getting Up-close and personel with new accomodative IOLs". February 2012

2. Cataract & Refractive Surgery Today. Arthur Cummings, FRCSED; Louis E. Probst, MD; and Paul J. Dougherty, MD. Decentered LASIK Ablation. January, 2011

3. Ophthalmology Management. A Surgeon's Case for Same-day Bilateral Procedures. December, 2011.

4. Journal of Refractive Surgery. Anterior Segment Optical Coherence Tomography Measurements of Lasik Flaps Femtosecond Laser vs Microkeratome

5. Physician Nexus. Online Blog. "High-frequency ultrasound biomicroscopy optimizes lens sizing, vault." April 11, 2011.

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7. SaintNicholasHospital.com. Online article. "Los Angeles Eye Surgeon Dr. Paul Dougherty Performs His 500th Ziemer LDV Lasik Surgery On Southern California Patients" April 5, 2011.

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9. Lasik-Optics.com. Online article. "Los Angeles Eye Surgeon Dr. Paul Dougherty Performs His 500th Ziemer LDV Lasik Surgery On Southern California Patients" April 5, 2011.

10. Lasik Refractive Surgery. Online article. "Los Angeles Eye Surgeon Dr. Paul Dougherty Performs His 500th Ziemer LDV Lasik Surgery On Southern California Patients" April 5, 2011.

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13. Laser Eye Surgery Info. Online article. "Los Angeles Eye Surgeon Dr. Paul Dougherty Performs His 500th Ziemer LDV Lasik Surgery On Southern California Patients" April 5, 2011.

14. Medical Informer. Online article. "Los Angeles Eye Surgeon Dr. Paul Dougherty Performs His 500th Ziemer LDV Lasik Surgery On Southern California Patients" April 5, 2011.

15. Cataract and Refractive Surgery Today, News Section. "Ultrasound Biomicroscopy Improves Phakic IOL Sizing." Pg 10-11. February 2011.

16. Review of Ophthalmology. "Accommodating IOLs Come into Focus." Volume 18, Number 2. February 2011.

17. www.lazereyesurgeryblog.com. "Implantable Contacts for Kids with Lazy Eye – Visian ICL." May 19, 2010

18. OSN Supersite News. "Ultrasound Sulcus-to-Sulcus Measurement Offers Accurate Sizing for Implantable Lens." April 12, 2010

19. American Health and Beauty. "Visian ICL Gives Homeless Blind Man Gift of Sight and Hope." December 15, 2009

20. Review of Ophthalmology. "Re-Inventing the Presbyopic Lens; Tetraflex." Volume 16, Number 4. April 2009.

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PUBLIC NEWS MEDIA:

1. **Calabasas Style,** "ADVF Brings Vision Worldwide." March 2014

2. **YHC Magazine Your Health Connection,** "Local Vision Correction Surgeon Gives Sight to the Poor and Needy." November 2013

3. **YHC Magazine Your Health Connection,** "A Vision For Vision" September 2013

4. **Westlake Magazine,** "Teaching New Technologies." May/June 2013

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6. **Exercise,** "For Your Eyes Only" March 2013

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8. **ABC Nightline and ABC World News Tonight**, June 15, 2012 Haiti Mission Trip, World Vision Project

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38. **KFWB News Radio, 980AM,** Los Angeles, California. Live radio interview. "The Bob McCormack Show". July, 2011.

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59. **The National Enquirer.** Featured in "A Sight for Sore Eyes: First thing nearly blind woman sees alter operation is fiance on one knee with diamond ring." November 23, 2009, page 8.

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90. **AOL News.** Online Article. "Implantable Contact Lens – ICL- Corrects Moderate to High Farsightedness; Phase III Trial One-Year Outcomes Presented at ASCRS." April 14, 2003.

91. **Google News Alert.** Online Article. Implantable Contact Lens – ICL- Corrects Moderate to High Farsightedness; Phase III Trial One-Year Outcomes Presented at ASCRS. April 14, 2003.

92. **Yahoo! Finance.** Online Article. "Implantable Contact Lens – ICL- Corrects Moderate to High Farsightedness" April 14, 2003.

93. **Healthwire from Businesswire.** Online Article. "Implantable Contact Lens – ICL- Corrects Moderate to High Farsightedness; Phase III Trial One-Year Outcomes Presented at ASCRS" April 14, 2003.

94. **Lifescapes Magazine,** Thousand Oaks, California. Magazine Article. "Prevention of Vision Loss." November/December 2002.

95. **Reuters Health,** New York, New York. Quotes in News Article. "BD Ophthalmics Systems Device Lets More Patients Qualify For LASIK." June 7, 2002.

96. **KFWB News Radio, 980AM,** Los Angeles, California. Live radio interview. "Do the Rolling Blackouts affect LASIK?" March 20, 2001.

97. **Adelphia Cable Systems,** Camarillo, California. Best of Ventura County Television Program. "Laser Vision Correction." January 2001.

98. **KVEN Talk Radio,** 1420AM, Ventura, California. Live radio Broadcast. LASIK Surgery on Disc Jockey Cindy Ovalle. May 20, 1998.

99. **To Your Health Newsletter,** Ventura, California. "New Techniques Make Better Vision Possible." Fall 1995.

TEACHING EXPERIENCE:

1. Lead Instructor, "Visian ICL for Beginners." Course given at the American Academy of Ophthalmology Annual Meeting, Las Vegas, Nevada, November 9, 2006.

2. Instructor. M 201 Basic Eye Exam Course for Second-Year Medical Students. Jules Stein Eye Institute, David Geffen School of Medicine at UCLA. Los Angeles, California. October 24, 2006.

3. Instructor. STAAR Surgical U.S. ICL Physician Training Course at Dougherty Laser Vision Institute, Los Angeles, California. January 13, 2006.

4. Instructor. M 201 Basic Eye Exam Course for Second-Year Medical Students. Jules Stein Eye Institute, David Geffen School of Medicine at UCLA. Los Angeles, California. November 2005.

5. Faculty, Nidek Asia-Pacific World Refractive Surgery Symposium, Beijing, People's Republic of China. June 2, 2005.

6. Faculty, Nidek Pan-Arab World Refractive Surgery Symposium, Dubai, United Arab Emirates, April 2005.

7. Instructor. Southern California College of Optometry, Teaching Clinic. Los Angeles, CA. Ongoing.

8. Instructor. M 201 Basic Eye Exam Course for Second-Year Medical Students. Jules Stein Eye Institute, David Geffen School of Medicine at UCLA. Los Angeles, California. November 30, 2004.

9. Instructor. Staar Surgical Western U.S. ICL Physician Training Course at Dougherty Laser Vision Institute, Los Angeles, California. August 21, 2004.

10. Physician Instructional Course. Diagnosis and Management of Flap Complications in LASIK. American Society of Cataract and Refractive Surgery Annual Meeting, San Francisco, California. April 13, 2003.

11. Nidek Technology's 2003 AAO Physician Training Course at Dougherty Laser Vision Institute, Camarillo, California. November 13, 2003.

12. Instructor. Nidek EC-5000 Excimer Laser Physician Training Course. June 2001 until present.

13. Associate Instructor. Advanced Phacoemulsification Course. American Academy of Ophthalmology Annual Meeting, Chicago, Illinois. October 29, 1997.

14. Preceptor. Clinical Ophthalmic Therapeutics for Optometrists, Southern California College of Optometry, Fullerton, California. February 1996 until present.

15. Associate Instructor. Advanced Phacoemulsification Course. American Academy of Ophthalmology Annual Meeting, Chicago, Illinois. October 29, 1996.

16. Associate Instructor. Advanced Phacoemulsification Course. American Academy of Ophthalmology Annual Meeting, Atlanta, Georgia. November 2, 1995.

17. Assistant Instructor. Mini-fellowship for practicing ophthalmologists in Automated Lamellar Keratoplasty for the Correction of High Myopia sponsored by Chiron Ophthalmics, Inc. Phillips Eye Institute Center for Teaching and Research, Minneapolis, Minnesota. Bi-monthly from January 1994 through July 1994.

18. Instructor. Introduction to Computerized Corneal Topography. St. Paul-Ramsey Medical Center Continuing Education Program for Ophthalmic Medical Personnel, St. Paul, Minnesota. May 14, 1994.

19. Instructor. Basic Ophthalmic Microbiology: Methods for obtaining and processing specimens for diagnosis. St. Paul-Ramsey Medical Center Continuing Education Program for Ophthalmic Medical Personnel, St. Paul, Minnesota. May 14, 1994.

ACTING EXPERIENCE:

1. Background Actor, CBS Sitcom *Rules of Engagement*, Episode #214 "Buyer's Remorse". Scene A. Filmed at Sony Pictures Television Studio, Stage 28, Culver City, California, April 29, 2008

PHYSICIAN ADVISORY PANELS:

1. International Cosmetic Awards Advisory Board. 2007

OTHER PRESENTATIONS:

1. Congenital nystagmus. Jules Stein Eye Institute Ophthalmology Basic and Clinical Science Course. March 17, 1993.

2. *Acanthamoeba* sclerokeratitis. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. May 26, 1993.

3. Sympathetic ophthalmia. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. April 21, 1993.

4. Rheumatoid keratolysis. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. March 31, 1993.

5. Excimer laser ablation rate and corneal hydration. Jules Stein Eye Institute Resident Research and Alumni Day. February 27, 1993.

6. Cavernous sinus syndrome. Jules Stein Eye Institute Ophthalmology Basic and Clinical Science Course. February 24, 1993.

7. Leber's idiopathic stellate neuroretinitis. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. February 17, 1993.

8. Optic nerve meningioma. Jules Stein Eye Institute Ophthalmology Basic and Clinical Science Course. February 17, 1993.

9. The optics of the keratometer. Jules Stein Eye Institute Ophthalmology Basic and Clinical Science Course. January 6, 1993.

10. Adult-type foveomacular vitelliform dystrophy. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. September 28, 1992.

11. Pseudoxanthoma elasticum. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. May 6, 1992.

12. Waardenburg syndrome. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. April 22, 1992.

13. Ocular manifestations of Marfan's syndrome. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. February 26, 1992.

14. The epidemiology of eye disease among ambulatory Jewish senior citizens. Jules Stein Eye Institute Resident Research and Alumni Day. February 1, 1992.

15. Double elevator palsy. Jules Stein Eye Institute Pediatric Ophthalmology Clinical Case Conference. January 24, 1992.

16. Marcus-Gunn jaw-winking ptosis. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. January 24, 1992.

17. Blepharophimosis syndrome. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. January 22, 1992.

18. Arteritic anterior ischemic optic neuropathy. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. December 4, 1991.

19. Carotid-cavernous aneurysm. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. October 2, 1991.

20. Granular dystrophy of the cornea. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. May 27, 1991.

21. Choroidal metastases. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. March 13, 1991.

22. Spheroidal degeneration of the cornea. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. February 27, 1991.

23. Retinal arterial macroaneurisms. Jules Stein Eye Institute Ophthalmology Basic and Clinical Science Course. November 14, 1990.

24. Tolosa-Hunt Syndrome. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. November 7, 1990.

25. Medication-induced retinal toxicity. Jules Stein Eye Institute Ophthalmology Basic and Clinical Science Course. October 24, 1990.

26. Cavernous sinus metastases. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. October 17, 1990.

27. Fleck dystrophy of the cornea. Jules Stein Eye Institute Ophthalmology Clinical Case Conference. October 3, 1990.

COMMUNITY SERVICE & PHILANTHROPIC OUTREACH:

Surgery for Palestinian Refugees, co-sponsored by The United Nations Refugee Agency (UNRWA) and 5 Day Missions. Beirut, Lebanon. Provided free cataract surgery to 53 visually impaired Palestinian refugees. May 23-May 27, 2011.

Surgery for Palestinian Refugees, co-sponsored by The United Nations Refugee Agency (UNRWA), The Bank of Palestine, St. John Eye Hospital and Project Peace on Earth, Hebron, West Bank, Palestine. Provided free cataract surgery to 40 visually impaired Palestinian refugees. September 28 and 29, 2010.

Surgeon, Vision for Vets, co- sponsored by Heroes Night Out and Motorcycle Charities benefiting Injured Military. Transported eight severely injured war veterans from the Warrior Transition Facility at Ft. Hood, Texas to Los Angeles and provided free LASIK surgery. May 12, 2010.

Participant, Santa Monica Civic Center Annual Westside Thanksgiving Event. Provided free eye exams and glasses and Vista Vision ICL and LASIK surgery to homeless members of the community. 2008, 2009, 2010

Changing 100 Lives in 100 Minutes, Co-sponsored by Bausch and Lomb Surgical. Provided 2 free cataract surgeries to a blind, destitute patient.

Mission Cataract. Provide free cataract surgeries to patients in need. 2005-present.

Member, Camarillo Health Care District Administrative Community Leaders Advisory Panel. 2004-present.

Member, Camarillo Health Care District Blue Ribbon Medical Advisory Panel. 2004-present.

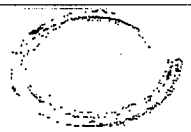
Board of Directors, Corey Pavin Annual Golf Classic benefiting Big Brothers/Big Sisters of Ventura County. 2005-present.

Founder, Dougherty Laser Vision Annual Scholarship Program for Ventura County Community Colleges

Science Night Instructor, Los Colinas Middle School

PERSONAL:

Happily Divorced
Twin Children: Abigail Susan Dougherty and Andrew Paul Dougherty (deceased 2004) – born 1998
Hobbies: Family, self-actualization through spirituality, travel, weight training, golf, skiing, road biking



ADVANCEDEYECARE
THE EYEWEAR GALLERY

March 9, 2016

The proposed courses were available and open to all optometrists in California.

We agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance, as the Board requires, for a period of at least three years from the date of the course presentation.

This request is being requested retroactively. I spoke to a representative of the Board on 2/1/2016 and was assured that a retroactive approval was possible.

SCOTT E. SCHACHTER, O.D.
300 JAMES WAY, SUITE 210 | PISMO BEACH, CA 93449 | PHONE: 805-773-6000 | WWW.PISMOEYEDOC.COM

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

2016 FEB

Request for Approval of Continuing Education Course(s)

Scott Schachter
300 James Way, Suite 210
Pismo Beach, CA 93449

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-00209	3662268	3662268	100 -

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Update on Age Related Macular Degeneratio	1/25/16	Steven Ferrucci	1			
Glaucoma: Practical Tips	1/25/16	Steven Ferrucci	1			

COMMITTEE COMMENTS:

COPE ID: 42196-PS
Course Title: Update on Age Related Macular Degeneration

Format: Live Category: Trt/Mngmnt Posterior Segment Total CE Hours: 1

Description: This course will discuss the current treatment options for AMD, as well as discuss some of the treatments in the pipeline. Topics such as the latest VEGF agents, genetic testing and new diagnostic equipment will be highlighted.

Expires: Course Expires: 07/25/2017

Instructor: Steven Ferrucci O.D.

You have been invited to Steve Ferrucci, 2 hours CE.

Dr Ferrucci will present 2 hours of CE, one on AMD, one on GLC. This is strictly a CE meeting, no regular meeting.

Happy holidays!

DATE

January 25 at 6:30PM to January 25 at 9:00PM

HOST

Scott Schachter

LOCATION

Cliffhouse Inn

ADDRESS

6602 Old Pacific Coast Hwy
Ventura, CA 93001

UPDATE ON AMD

Steven Ferrucci, OD,FAAO
Chief, Optometry, Sepulveda VA
Professor, SCCO/MBKU

Disclosures

- Speakers bureau/advisory board:
  - Alcon
  - Allergan
  - B&L
  - Heidelberg
  - Macula Risk
  - MacuLogix
  - Nicox
  - Science Based Health
  - ThromboGenics

Introduction

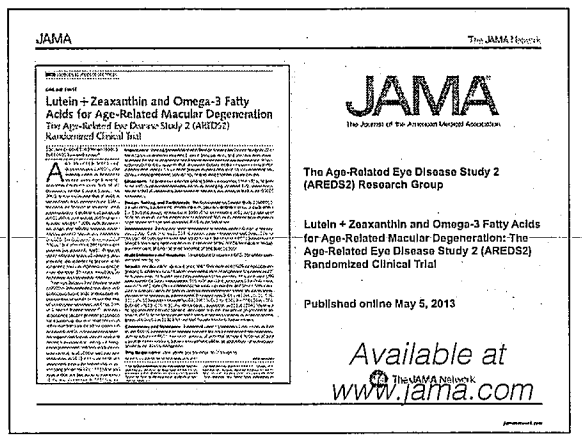
- Exciting time to be interested in AMD
- Many new treatments now available for AMD
  - Years ago, we had nothing at all to offer patients with AMD
- Current Treatments
- Potential Treatments
- New Diagnostic Equipment

Dry AMD

- Currently mainstay treatment for Dry AMD revolves around prevention of progression through vitamins, nutrition and lifestyle changes
  - Rheophoresis, Laser, Anecortave Acetate did not prove effective
- Early detection of conversion from dry to wet may result in better treatment for patients

AREDS 2

- AREDS 2: Enrollment ended June 2008 with ≈4200 patients followed for six years
  - Effect of lutein, zeaxanthin and omega 3 on AMD
  - Effect of eliminating beta carotene on AMD
  - Effect of reducing zinc on AMD
  - Effect of supplements on cataracts
  - Validate the AMD scale from original AREDS
- Results released May 5, 2013


JAMA

Lutein + Zeaxanthin and Omega-3 Fatty Acids for Age-Related Macular Degeneration
The Age-Related Eye Disease Study 2 (AREDS2) Randomized Clinical Trial

JAMA
The Journal of the American Medical Association

The Age-Related Eye Disease Study 2 (AREDS2) Research Group

Lutein + Zeaxanthin and Omega-3 Fatty Acids for Age-Related Macular Degeneration: The Age-Related Eye Disease Study 2 (AREDS2) Randomized Clinical Trial

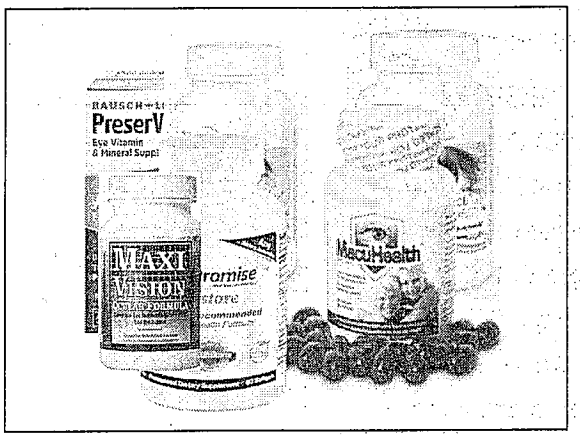
Published online May 5, 2013

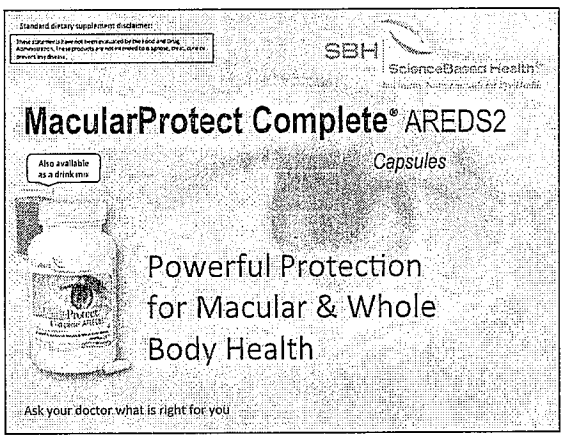
Available at www.jama.com

Age-Related Eye Disease Study 2

AREDS2 Formulation

- Vitamin C (500 mg)
- Vitamin E (400 IU)
- ~~Beta-Carotene (15 mg)~~
- **Lutein (10 mg)/Zeaxanthin (2 mg)**
- Zinc (80 mg zinc oxide)
- Copper (2 mg cupric oxide)
- ~~Omega-3 fatty acids (DHA/EPA)~~





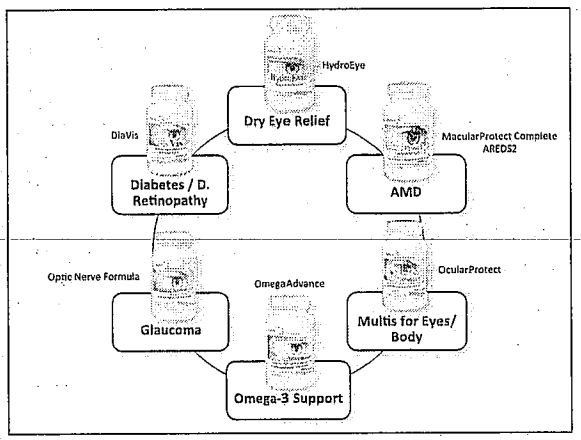
MacularProtect *Complete* *AREDS2*

- AREDS2 + Complete Multi
- Meets NEI current recommendation (incl. 10 mg lutein, 2 mg zeaxanthin)
- Multi component:
  -
  -
    - Alpha lipoic acid, trans-reveratrol, billberry, lemon bioflavonoids, quercetin, ginkgo, turmeric, lycopene, NAC

MPC Highlights

All in one (AREDS + Multi) offers:

- Best Value
- Safety (eliminates mixing & matching, inappropriate combos)
- B-vitamins – wide array of antioxidants
- Convenience for patient
- Keeps control in doctor's hands



The HydroEye Clinical Trial

Learn more, watch video:
SBH.com/HydroEyeTria

Sheppard JD, Pflugfelder SC, et al. Long-term supplementation with n-6 and n-3 PUFAs improves moderate-to-severe Keratoconjunctivitis Sicca: A randomized double-blind clinical trial. Cornea 32: 1297-1304, 2013.

SUMMARY OF FINDINGS:

HydroEye users showed:

- Significant improvement in irritation symptoms & significantly better symptom scores vs. placebo
- Significantly better corneal smoothness vs. placebo
- Significantly lower levels of inflammatory markers vs. placebo.

Wet AMD

- Various agents currently being used as intravitreal injection
  - Macugen® (pegatanib sodium) Dec 2004
  - Lucentis (ranibizumab) June 2006
  - Avastin (bevacizumab) Not FDA approved
  - Eylea (aflibicert) Nov 2011

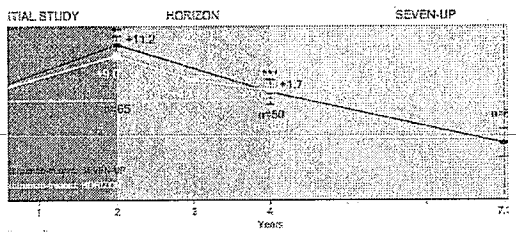
Seven-Up study

:n-Year Outcomes in Ranibizumab-Tre:
ents in ANCHOR, MARINA, and
RIZON

ulticenter Cohort Study (SEVEN-UP)

*igha, MD, MPH,[1] Robert B. Bhisitkul, MD, PhD,[1] David S. Boyer, MD,[2] SriniVas R. Sadda, g, MD, PhD,[4] for the SEVEN-UP Study Group**

Seven-Up Study



Avastin vs. Lucentis

What is the Treatment of Choice?

- Complications of Age-Related Macular Degeneration Treatment Trial (CATT)
  - NEI/NIH sponsored trial
  - First year results released May 1, 2011 NEJM
- 1208 patients randomized
  - Lucentis with 4 week dosing
  - Avastin with 4 week dosing
  - Lucentis with variable dosing (PRN)
  - Avastin with variable dosing (PRN)

CATT: 1 yr results

- Equivalent effects on visual acuity with same administration
  - Lucentis monthly 8.5 letters gained
  - Avastin monthly 8.0 letters gained
  - Lucentis PRN 6.8 letters gained
  - Avastin PRN 5.9 letters gained

CATT: 1 yr results

- Central retinal thickness:
  - Greater effect in Lucentis monthly group (196um decrease) than in other groups
    - 164 um Avastin monthly
    - 168 Lucentis as needed
    - 152 Avastin as needed
  - Fluid on OCT
    - At 4 weeks, no fluid in 27.5% of pts w/ Lucentis vs. 17.3% with Avastin
    - At 1 yr, no fluid in 43.7% Lucentis monthly 19.2% Avastin PRN

CATT: 1 yr results

- Adverse effects
  - When dosing regimens combined, slightly more serious adverse events in Avastin group
    - 24.1% for Avastin
    - 19.0% for Lucentis
    - Risk ratio 1.29 for avastin as compared to Lucentis

CATT: 1 yr summary

- Vision with Lucentis vs. Avastin relatively equal over course of first year
  - Some evidence of more effect with Lucentis on anatomical structure, ie more decrease in RT on OCT, but did NOT correlate with improved visual function
  - Some hint that less systemic events with Lucentis
  - HUGE cost differential
- Avastin wins most of the time, with select cases benefiting from Lucentis

CATT: 1 yr results

- Average cost for first year treatment:
  - $23,400 for Lucentis monthly
  - $13, 800 for Lucentis PRN
  - $595 for Avastin monthly
  - $385 for Avastin PRN

Cost implications

Avastin per year	Lucentis per year
• Cost per injection: $50	• Cost per injection: $2000
• Monthly/yr: $600	• Monthly/yr: $24000
• PRN: $350	• PRN: $14000
• 250,000 Americans:	• 250,000 Americans:
• Monthly/yr: 150,000,000	• Monthly/yr: 6,000,000,000
• PRN/yr: 87,500,000	• PRN/yr: 3,500,000,000

CATT 2 yr Results

- At end of 2 years, both had similar effects on vision when the dosing regimen was the same
  - Mean gain in acuity, proportion gaining or losing 3 lines, % better than 20/40 all similar
- Mean gain slightly better for monthly vs. as needed, 2.4 letters
- Rates of death and thrombotic events similar
- Pts with serious systemic adverse effects higher with Avastin (39.9% vs. 31.7%)

CATT 2 yr results

- GA most in Lucentis monthly, but more in both monthly
- Less fluid at 1 and 2 yrs with Lucentis
- Led to 0.6 more injection with Avastin in second yr, 1.5 more over 2 yrs

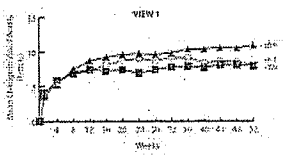
Other studies

- Multiple other comparative studies have confirmed no clinically significant differences between Avastin and Lucentis
  - CATT (US)
  - IVAN (Great Britain)
  - MANTA (Austria)
  - GEFAL (France)
  - BRAMD (Netherlands)
  - LUCAS (Norway)

Eylea

View 1

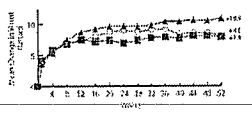
- 95% of pts receiving 2 mg q 2 mos achieved maintenance of vision vs. 94% with Lucentis monthly
- 7.9 letter mean improvement of vision (vs. 8.1 with Lucentis monthly)

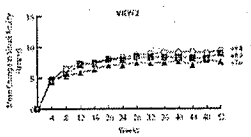


Eylea

View 2

- 95% of pts receiving 2 mg q 2 mos achieved maintenance of vision vs. 94% with Lucentis monthly
- 8.9 letter mean improvement of vision (vs. 9.4 with Lucentis monthly)





Eylea

- Cost: Eylea ≈$1850/injection, with injection every 2 months
  - Therefore ½ of Lucentis montlhy
- Second year study will evaluate use PRN

Eylea

- Second year results (unpublished) found virtually similar results when Eylea vs Lucentis used as needed
  - Elyea 4.2 injections for the year
  - Lucentis 4.7

Potential Therapies

- Currently, there are ≈ 1222 studies evaluating AMD, both Wet and Dry
  - www.clinicaltrials.gov (October 2015)
    - More than:
      - glaucoma
      - dry eye
      - diabetic eye disease
- Exciting time to be involved, with many possible therapies that may prove useful for our AMD patients

Potential Therapies

- Better Efficacy
  - Better drug
  - Different Mechanism
- Reduced administration
- Different delivery System
  - Eye drops
  - Oral
  - Others
- Earlier Diagnosis

FoVista

- Anti-PDGF agent
- Theory is that when used in conjunction with anti-VEGF agents, will have a better effect due to synergistic effect
- Ophthotech
  - Currently in stage 2b studies

FoVista

- Initial phase 1 trial to show safety
  - 59 % had improvement of three lines or more
- Phase 2b study: 449 patients
  - Fovista/Lucentis combination gained 10.6 letters at 24 weeks, vs. 6.5 with Lucentis alone
    - 62% additional benefit
    - First study to show results BETTER THAN Lucentis
- Phase 3: Fovista 1.5 mg with anti-VEGF vs anti-VEGF monotherapy underway

Zimura

- Complement factor C5 inhibitor (Ophthotech)
- Intravitreal injection in combo with anti-VEGF
- Subgroup analysis of 43 wet AMD previously untreated patients
  - 13.6 letters with 0.3 mg at 24 weeks
  - 11.7 with 1.0 mg
  - 15.3 letters with 2.0 mg
- Phase 2/3 trial for GA underway

OPHTHOTECH

Abicipar Pegol

- Vegf- DARPin: Designed Ankyrin Repeat Protein
  - Allergan
- Binds VEGF A with higher affinity
- Longer half life
  - Potential to last 12 weeks
- Phase II Trials: 25 pts
  - at 20 weeks, mean VA improvement
    - Abicipar Pegol 2mg: 9.0 letters
    - Abicipar Pegol 1 mg: 7.1 letters
    - Lucentis: 4.7 letters

ESBA 1008

- Single chain antibody fragment (scFv)
- Smaller than current agents, yet potentially longer duration
- Alcon/Novartis
- Phase II study: 194 patients
  - ESBA 1008 0.5, 3, 4.5, or 6 mg vs. o.5 mg Lucentis
  - At 1 mos, mean VA improvement
    - 6 mg ESBA 1008: 10.4 letters
    - 0.5 mg Lucentis: 6.5 letters

ESBA 1008

- Now Renamed RTH258
- Phase 2 study
  - 6 mg of RTH258 vs. 2 mg Eylea in 90 eyes
  - "Promising visual acuity gains that were non-inferior to Eylea"
  - Well tolerated, no adverse events
  - Perhaps a prolonged duration of action, potentially reduced treatment burden
- Two phase 3 trials will look at RTH258 in about 1700 pts every 3 months

Lampalizumab

- Intravitreal Injection for GA (Roche)
- MAHALO Study
  - 20% reduction in GA lesion progression over 18 mos who monthly injections
  - Subset of pts with CFI injection had 44% reduction
- Phase III: 986 patients currently underway
- CHROMA, SPECTRI STUDIES

Replenish®

- Replenish® drug delivery pump by Alcon/ Novartis
- Fully programmable, refillable pump
- Rechargeable to support chronic use
- Applicable to back of eye disorders
- May prove alternative to injections
- Looking at with ESBA 1008 Proof of concept

Illuvien®

- Fluocinolone Acetonide intravitreal insert
  - Alimera Sciences
- Currently FDA approved for treatment of DME and edema from BRVO/CRVO
- MAP-GA looking at role in GA
  - 0.2 or 0.5 µg of FA per day

Brimonidine®

- Glaucoma medication by Allergan
- Long suspected to have neuro-protective properties
  - New studies point at retinal neuroprotection in animals
- BEACON STUDY
  - Evaluating an intravitreal insert for GA

CNTF

- Ciliary neurotrophic factor (CNTF) intraocular implant, Renexus (formerly NT-501)
  - Recent study of patients with GA
    - After 12 mos, 96.3% of high-dose group had stable vision vs. 75% with sham
    - Also showed increase in retinal thickness in treated group at 12 months
  - Also, for RP and Macular Telangiectasia
  - Interesting fact: Headquarters in Cumberland, RI

Topical Treatment

- ATG0033 (CoMentis)
  - No results yet
- GATE (ALCON)
- Squalamine (Ohr Pharmaceuticals)
- MacuClear
- Pazopanib
  - Encouraging phase 1
  - Phase 2 ended early due to lack of effect
- OT-551
  - OMEGA Terminated after 18 mos due to failureto show results
- TG100572
  - Phase 2 study terminated after promising stage 1 for unknown reasons

Squalamine

- Eye drop derived from shark fin that has shown to have Anti-VEGF, Anti-PDGF, and Anti-bFGF properties
- Phase II trials
  - Primary endpoint of reduced frequency of injections not met
    - 6.2 vs. 6.4 over study
  - Lucentis PRN plus Squalamine bid had increased BCVA vs Lucentis alone
    - 48.3% vs. 21.2% had >15 letters gain
    - 10.4 mean gain vs. 6.3 gain
- Phase III enrolling
  - Looking at visual acuity gains over 6 mos

MC-1101

- MacuCLEAR
- Active ingredient FDA approved as anti-hypertensive
- Eye drop to prevent AMD by:
  - Restoring Choridal blood flow
  - Preventing rupture of Bruch's Membrane
  - Treating inflammation and oxidative stress
- Phase 1 b studies :
  - Safe and well tolerated
  - Reached back of the eye
  - Has biological effect on choridal blood flow

Regorafenib (Stivarga)

- Currently FDA approved oral med for colorectal and certain GI tumors (Bayer)
- 57 Monkeys with laser induced CNVM
  - 23 no treatment
  - 16 treated with 50 uL BID x 21 days
  - 18 Lucentis injection
  - At 21 days, treatment with gtts similar to Lucentis, with approx. 7 % of pts developing Type 4 lesions (vs 21 in control
  - No adverse reactions
- Currently phase III underway

Eximustat Hcl

- Acuecela's Oral Visual Cycle Modulator
- Targets RPE65, a toxic byproduct of the visual cycle
- Phase 2B/3 clinical studies for GA associated with Dry AMD Progression
- Also being study in DR, Stargardts, RP, and ROP

ORACEA®

- Low dose Doxycycline
  - 40mg per day
  - anti-inflammatory
- TOGA: Treatment with Oracea for Geographic Atrophy
  - 246 pts, 40 mg per day for 24 mos
  - Primary outcome: progression of GA on fundus photos

NRTI's

- HIV drugs, Nucleoside Reverse Transcription Inhibitors (NRTIs), found to block inflammation
- Stavudine and zodovudine prevented GA in a mouse study
  - Prevented GA progression in 5/6 mice administered orally daily vs. 0/6 control
  - Prevented GA in 8/9 mice received twice daily abdominal injections vs. 0/8 control
- Two additional trails under way: one oral and one intravitreal injection

Stem Cells

- 50,000 to 200,000 cells injected into RPE
  - Human Embryonic (hESC)
  - Induced Pluripotent Stem cells (iPS)
  - Adult Stem Cells
  - Umbilical Cord Stem Cells
  - Bone Marrow Stem Cells (BMSC)

Stem cells

- Ocata Therapeutics (hESC) 2015
  - 4 males with AMD
    - ¾ improved VA
    - ¼ no change
- Advanced Cell Technologies (hESC) 2014
  - 9 GA pts, 9 Stargardt's, 22 mos follow-up
    - 10/18 increased VA
    - 7/18 no change
    - 1/18 decreased VA

Stem Cells

Table 1: Active Stem Cell Investigations in Retinal Disease

Investigational Product	Cell Type	Sponsor	Administration Route	Number of Cells	Patient Population	Clinical Trials	Status	Length	# Subjects
MA09-NRPE	hESC-derived RPE	Ocata Therapeutics	Subretinal transplantation	50K - 200K	Dry AMD with GA	Phase I/II, NCT01344993	Ongoing, Not rec	12 months	10
MA09-NRPE	hESC-derived RPE	Ocata Therapeutics	Subretinal transplantation	50K - 200K	Stargardt's disease	Phase I/II, NCT01345006	Ongoing, Not rec	12 months	16
MAHP-NRPE	hESC-derived RPE	ACLA	Subretinal transplantation	Unknown	Myopic macular degeneration	Phase I/II, NCT02122159	Not yet recruiting	12 months	Unknown
HuCNS-SC	Acute neural SC	Stem Cell Inc	Subretinal transplantation	200K - 1M	Dry AMD with GA	Phase I/II, NCT01632527	Closed	12 months	16
CNTO 2476	hESC	Janssen RAD	Subretinal transplantation	6K - 300K	Dry AMD with GA	Phase I/II, NCT01226069	Closed	12 months	24
PF-05206396	hESC-derived RPE	Pfizer	Subretinal transplantation	17 mm sheet	Wet AMD	Phase I, NCT01691261	Not yet recruiting	12 months	
	BM-derived SC	Bone Sun Pouts	Intravitreal injection	1M	Dry AMD, wet AMD and Stargardts	Phase I/II, NCT01510127	Enrolling	12 months	10

Genetic Treatment

- If defective gene responsible for abnormal VEGF expression can be localized, perhaps a replacement, or fixer gene, can be injected into the eye ONE TIME!
  - Genzyme
    - AAV2.sFLT01
  - Avalanche Biotechnologies
    - AVA-101
  - Oxford BioMedica
    - RetinoStat
  - For Sight Labs
  - NeuroTech

Avalanche Biotechnologies: AAV2

- Viral vector harboring a gene that encodes a protein (sFLT-1/VEGFR-1) for the treatment of Wet AMD
- 8 eyes with wet AMD
  - Injected with Lucentis, then AAVs, then 2nd Lucentis
  - 5/6 with AAV2 gained +8.7 letters (low dose) or +6.3 (high dose)
  - -3.5 letters in control
  - Only 2/6 needed additional injection in first year
- 2a study in Australia underway (32 pts)
- 2b Enrolling in US late 2015

MacuLogix's AdaptDx

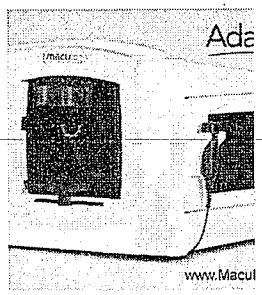
- Dark adaptation is a sensitive marker for early AMD
- The AdaptDx measures dark adaptation
- A rapid test of dark adaptation using the AdaptDx has been found to have a 90% sensitivity for detecting dark adaptation impairment associated with AMD
- Decreased dark adaptation may precede clinical findings of AMD
- Dark adaptation is more sensitive than other tests such as Snellen acuity, contrast sensitivity, or visual fields which are about 25% sensitive.

AdaptDx Study at VA

- Tested whether the AdaptDx could detect AMD in a typical VA clinical setting
- Rapid test run on 19 AMD patients (AREDS stage: 1 to 3)
- 18 of 19 patients failed to dark adapt before the maximum test time of 6.5 minutes. The diagnostic test sensitivity was 94.7%
- The AdaptDx exhibited similar sensitivity in a working VA clinic compared with a multi-site clinical study
- Next step is to use the AdaptDx to find patients with undiagnosed AMD or subclinical AMD

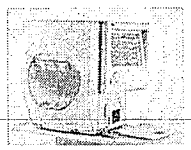
AdaptDx Advantages

- No preadaptation required
- Protocols as rapid as 5 minutes
- Low patient burden
- Easy to operate
- CPT 92284 ($64 avg.)
- FDA 510K cleared (K100954)



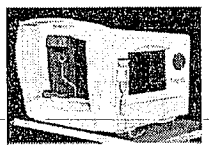
Successful Precedent

Glaucoma



Humphrey Perimeter
- Psychophysical test
- 5 minute duration
- $65 reimbursement (CPT 92083)
- *Current* eye care profit center

AMD



MacuLogix AdaptDx
- Psychophysical test
- 5 minute duration
- $65 reimbursement (CPT 92284)
- *New, potentially larger* eye care profit center

Glaucoma:
Practical Tips to get you started

Steven Ferrucci, OD, FAAO
Chief, Optometry; Sepulveda VA
Professor; SCCO@MBKU

Disclosure Statement

- **Speakers bureau/Advisory Board for:**
  - **Allergan**
  - **Alcon**
  - **B&L**
  - **Heidelberg**
  - **Macula Risk**
  - **Maculogix**
  - **Science Based Health**

Introduction: Principles of Glaucoma Medical Therapy

- Balance benefits with risks
- Use least amount to achieve desired response with fewest side effects
- Individualize treatment
- Focus treatment on preserving vision and the optic nerve
- Consider patient compliance

START WITH A PROSTAGLANDIN UNLESS GOOD REASON NOT TO

Evolution in Primary Therapy

- Over the past 12+ years, clinicians have switched from topical B-blockers to prostaglandin agents
  - Prostaglandin analogues
    - Superior efficacy - 30-35% reduction (or more!)
    - Systemic safety
    - Diurnal control of IOP
    - Convenience / enhanced compliance
    - Relatively few side effects

Prostaglandins

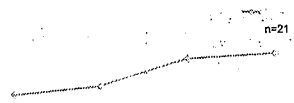
- Latanoprost (Xalatan) Pharmacia- Aug 1996
- Unoprostone (Rescula) Novartis- Sept 2000
- Brimatoprost (Lumigan) Allergan- March 2001
- Travoprost (Travatan) Alcon- March 2001
- Generic latanoprost- March 2011
- Tafluprost (Zioptan) Merck-Feb 2012

Prostaglandin: pros

- Very few systemic side effects
- Once daily administration
- Long action with flattening of diurnal curve
- Few drug/drug interactions

Travoprost - Long Duration of Effect After Discontinuation of Dosing

IOP Change From Baseline At 8 AM Visits



Adapted from Dubiner, H.B., et al. Clinical Therapeutics, 2004, Vol. 26, No. 1

p=0.0001 for IOP change from baseline at all points

Prostaglandins: cons

- Mild hyperemia
  - Subsides over time, 2 weeks or less
  - While 35-50% do reports some level of hyperemia, only 3% discontinued due to hyperemia
- Eyelash growth: low incidence 0.8%
- Iris color change: benign, cosmetic change
  - 2-3%

Prostaglandins: cons

- CME
- Iritis
  - Avoid in patients with h/o iritis, as can precipitate attack
  - Consider d/c while in post-op cataract period
- Re-activation of HSV
- Non-response: 8-9%
  - Similar or better than virtually all other classes

Generic Latanoprost

- March, 2011
- Several companies
  - Apotex, Inc.
  - Mylan Pharmaceuticals, Inc.
  - B&L Pharmaceuticals
  - Greenstone, Ltd.
  - Falcon Pharmaceuticals

Generic Latanoprost

- Few studies indicate if equivalent
- Indian J of Ophth 2007 Study
  - Xalatan group had slightly lower IOP reduction than generic, 38% vs. 25%
  - If switched from generic to trade, just under 1 mm decrease (16.98 to 16.09)
  - If switched from trade to generic IOP rose just over 1 pt (14.29 to 15.36)
  - Adverse effects: initial, 8/11 in trade name vs. 16/18 in generic; 11/11 switched to generic vs. only 6 of 18

Generic Latanoprost

- Bottom line:
  - Fairly similar IOP response
  - Maybe more adverse reaction in generic
  - Generics may need extra counseling etc.
  - Have back for IOP change after switch?
  - Difference among generics?
- Cost:
  - $104.99 for 2.5 ml for trade vs. $22.99 for generic

Other Generic PGs

- Lumigan 0.03%
  - Generic, but not widely available
- Travatan 0.004%
- Travatan z 0.004%

Beta Blockers: pros

- Long, proven track record
- Few ocular side effects
- Relatively inexpensive
  - Multiple generics

Beta Blockers: cons

- Long term drift
  - After 2 years – nearly 50% change therapy
- Systemic side effects:
  - Breathing issues, pulse rate, depression, decreased libido, caution in diabetics etc, etc.
- BID administration
- Many drug/drug issues
  - Systemic b-blockers, cardiac meds (digitalis, CA channel blockers)

IF NEED LOWER IOP, THEN WHAT?

Try Switching first

- Clinical trials – adding prostaglandin to timolol monotherapy – 25% further IOP reduction
- Switching from timolol to prostaglandin – similar IOP reduction
  - Approximately 23%
- Different class of medication
- Different medication with class
  - Some evidence that pt may respond better to one PG vs. another

Why Switch?

- Fewer adverse effects
- Better compliance
  - Less meds=better compliance
- Lower cost
  - Less meds=less cost

What to add next?

- OHTS Study: at 60 mos, 49% of patients required 2 or more meds to reach target IOP
- So what is best additive to PG?
  - Beta-Blocker?
  - Alpha-agonist?
  - CAI?
  - Fixed combinations?

What to add next?

- "All 3 classes of meds are similarly effective in lowering mean diurnal IOP when used in combination with PGAs"

Adjunctive Therapy with Latanoprost

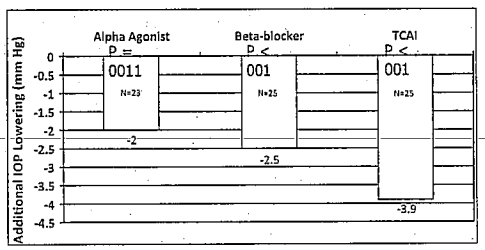
PURPOSE: To determine the additive IOP reduction of various topical IOP-lowering agents used adjunctively with latanoprost

METHODS:

- Retrospective evaluation of 73 eyes of 73 patients with glaucoma and inadequate IOP control on latanoprost alone
- Each patient received adjunctive treatment with an additional IOP-lowering agent (dorzolamide, brimonidine, timolol, or other beta-blockers) for 1 year

O'Connor DJ, et al. *Am J Ophthalmol*. 2002; 133(6): 836-7.

Additive IOP-Lowering Effect



O'Connor DJ, et al. *Am J Ophthalmol*. 2002; 133(6): 836-7.

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Brinzolamide vs. Timolol as Adjuncts to Latanoprost

PURPOSE: To compare the diurnal and nocturnal effects of brinzolamide and timolol on IOP in patients already receiving monotherapy with latanoprost

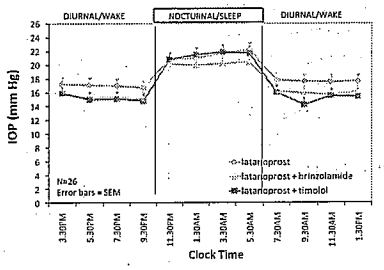
DESIGN: Prospective, open-label, and crossover clinical trial

METHODS:

- Baseline data of 24 hr IOP were collected in a sleep laboratory while patients were receiving latanoprost monotherapy
- Measurements were taken every 2 hrs in the sitting and supine positions during the 16-hr diurnal/wake period and in a supine position during the 8-hr nocturnal/sleep period
- Patients were randomly assigned to receive an add-on treatment with either brinzolamide 1% 3 times per day or timolol 0.5% gel forming solution once every morning for 8 weeks
- Cross over to receive the other add-on treatment

Liu JH, et al. *Ophthalmology* 2009; 116(3): 449-54.

Brinzolamide vs. Timolol: Adjunct to Latanoprost in an Open-Label Study



Liu JH, et al. *Ophthalmology* 2009; 116(3): 449-54.

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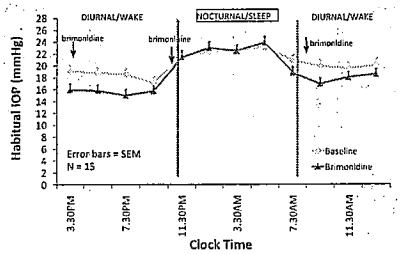
Brimonidine Efficacy During Nocturnal Period



Liu JH, et al. *Ophthalmology* 2010; 117: 2075–2079.

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Brimonidine vs. Brinzolamide as Adjuncts to Travoprost

PURPOSE: To compare efficacies of adjunctive therapy with brimonidine 0.15% or brinzolamide 1% in combination with travoprost 0.004%

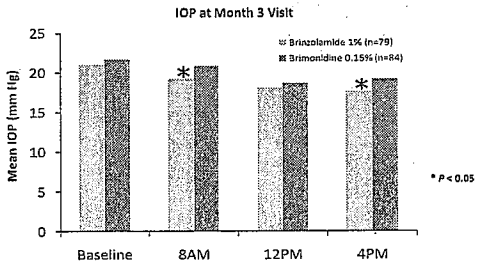
DESIGN: Three-month randomized, parallel-group, double-masked, multicenter clinical trial

METHODS:

- Patients were randomized to receive adjunctive therapy with brimonidine (N = 79) or brinzolamide (N = 84)
- Treatment efficacy was assessed after 1 and 3 months of concomitant therapy
- IOP was measured at 8:00 AM, noon, and 4:00 PM at baseline (on travoprost monotherapy) and after 3 months of concomitant therapy

Feldman RM, et al. *Ophthalmology* 2007; 114: 1248-1254.

Brinzolamide vs. Brimonidine: Adjunct to Travoprost



Feldman RM, et al. *Ophthalmology* 2007; 114: 1248-1254.

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What to add next?

- Alpha-agonist/CAI
  - Alphagan/Trusopt or Azopt
- CAI/Alpha-agonist
- Beta-blocker
- Fixed combination as appropriate

FIXED COMBINATIONS

Benefits of Fixed Combinations for Glaucoma Management

- Dosing-one drop vs two drops
- Convenience may help patient compliance
- No risk of washout from second drug[1]
- Possible cost savings (only 1 copay)

[1]Choudhri et al. *Am J Ophthalmol.* 2000

Compliance with Eyedrops

- Once daily – 49%
- More than twice daily – 39%
- More than one kind – 32%

Current Fixed Combinations

- Dorzolamide hydrochloride-timolol maleate ophthalmic solution (*Cosopt*®)
- Brimonidine tartrate/timolol maleate ophthalmic solution 0.2%/0.5% (*Combigan*™)
- Brinzolamide 1%/brimonidine 0.2% (Simbrinza™)

Cosopt

- 2% dorzolomide/0.5% timoptic
- BID
- 1st combo for glc (1998)
- Generic as well as trade name (Merck)
- Studies showed combo lowered pressure more than either timoptic or dorzolomide alone

Combigan

- Timoptic 0.5%/brimonindine 0.2% BID (Allergan)
  - October 2007
- IOP lowering effect of Combigan BID was slightly less than T 0.5% BID and brimonindine 0.2% TID concurrently
- BID administration
- Not approved as first line therapy at this time only as adjunctive

Simbrinza™

- Brinzolamide 1%/brimonidine 0.2% SUSPENSION by Alcon
  - SUSPENSION so needs to be shaken
- First combo without beta-blocker!!!
- FDA Approved: April 19, 2013
- Cost: ≈$100 for 8 ml bottle

Simbrinza™

- Efficacy proven in 2 Phase 3 randomized, multi-centered, double-masked studies
  - IOP was reduced an additional 1-3 mm vs. individual components
  - IOP reduced 21-35% at month 3 (.5 to 9 mm)
- Most frequent adverse effecs (3-5%)
  - Blurred vision
  - Eye irritation
  - Dysgeusia (bas taste)
  - Dry mouth
  - Allergy
- Rate of discontinuation ≈ 11%
- Beware with sulfonamide allergies

PG/Beta Blocker?

- DouTrav available in Europe (Alcon)
- Xalacom (Pfizer) also in Europe
- To date, no PG combo FDA approved in US
  - Studies have not shown that combo qd is as good as separate components
  - Increased compliance alone is not enough for FDA

Preservative free options

Zioptan (tafluprost 0.0015%)

- FDA approved Feb 13th, 2012
- First preservative-free PG
- Indicated for reducing elevated IOP in patients with open-angle glaucoma or ocular hypertension

Zioptan (tafluprost 0.0015%)

- FDA approval based on 5 clinical studies of 905 pts
  - IOP lowered 6-8 mm at 3 mos, 5-8 mm at 6 mos in pts with baseline IOP of 23 to 26 mm
- Dosed once daily in the evening
- Cost: ≈ $97 for 30-day supply

Zioptan (tafluprost 0.0015%)

- Side effects:
  - Increased length, color, thickness and shape of lashes
  - Usually reversible upon d/c
  - Increased iris pigmentation
  - Redness of eyes

Cosopt PF

- Preservative-free Cosopt by Merck
  - Dorzolomide 2%/timoptic 0.5%
- FDA approved Feb 1, 2012
- Commercially available June, 2012
- 0.2 ml individual vials

Cosopt PF

- In a controlled study of 26 pts with IOP ≥ 21mm, IOP lowering effect same as traditional Cosopt
- IOP effect of Cosopt PF bid was greater (1-3 mm) than either dorzolomide 2% tid or timoptic 0.5% bid alone
- Cost: ≈$85 mos supply

TREATMENT OTHER THAN DROPS

Optic Nerve Formula (ONF) Focus: Neuroprotection

- Despite lowering IOP, some glaucoma patients will continue to suffer disease progression.
- Researchers therefore now looking beyond just IOP
- Neuroprotection aims to protect neurons along the entire visual pathway, chiefly retinal ganglion cell (RGC) axons.

Optic Nerve Formula®

Nutrition Support for Glaucoma

Targeted support for glaucoma / optic nerve health.

- Delivers eye-healthy omega-3 fatty acids and key antioxidants including alpha-lipoic acid, vitamins C and E, and n-acetyl cysteine.
- Provides Ginkgo biloba and flavonoids to promote ocular blood flow, as well as select B vitamins, magnesium, taurine, to promote normal vascular function.
- Supports mitochondrial function with CoQ_{10}

Retail: $39.95
Wh/sale: $26.50
Staff: $16.00

Optic Nerve Formula®

Nutrition Support for Glaucoma

Supplement Facts

Serving Size 4 softgels — Servings per Container 30

	Amount per Serving	% Daily Value
Calories	10	
Calories from Fat	14	
Total Fat	1 g	2%
Vitamin C (ascorbic acid)	250 mg	417%
Vitamin E (from d-alpha tocopherol, mixed tocopherols)	30 IU	100%
Vitamin B6 (from pyridoxine hydrochloride)	10 mg	500%
Folate (50% from folic acid, 50% from calcium folinate)	400 mcg	100%
Vitamin B12 (as methylcobalamin)	300 mcg	5000%
Magnesium (from magnesium oxide, aspartate)	120 mg	30%
Taurine	250 mg	†
N-Acetylcysteine (NAC)	300 mg	†
Alpha Lipoic Acid	200 mg	†
Ginkgo Biloba Extract (leaf) (24% ginkgoflavonic glycosides)	120 mg	†
Omega-3 Fatty Acids (100 mg DHA, 20 mg EPA)	120 mg	†
Bilberry Fruit Extract (25% anthocyanosides)	115 mg	†
Coenzyme Q10 (CoQ10)	50 mg	†
Grape Seed Extract (95% proanthocyanidins)	50 mg	†
Quercetin	50 mg	†

† Daily Value not established.

Other Ingredients: Flax Seed Oil**, Gelatin, Glycerin, Water, Beeswax, Lecithin, Lemon Oil Flavoring, Caramel Color and Titanium Dioxide.

Contains lecithin made from soybeans.

**Provides 460 mg of additional omega-3 fatty acids from flax seed oil.

Examples of ONF Ingredient targets:

Oxidative Stress – High metabolic activity of retinal tissues make RGCs especially vulnerable to oxidative stress *(especially in mitochondria)*

Antioxidants: Vitamins C, E, NAC (glutathione precursor), alpha lipoic acid, CoQ_{10} (protects mitochondria in RGC axons)

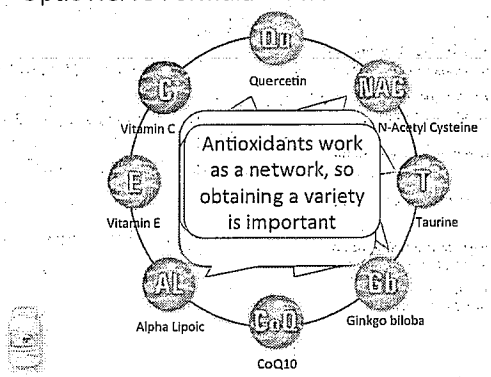
Glutamate induced excitotoxicity – High glutamate levels can be toxic to neurons

Anti-Glutamate: Taurine & alpha lipoic counter effects

Vascular insufficiency —Ischemia at the post-laminar optic nerve head affects retinal ganglion cell axons

Blood Flow Support: **ginkgo biloba, bilberry & grape seed extracts, vitamin C, magnesium & B-vitamins (lower Hcy)**

Optic Nerve Formula – Selected Antioxidants



Rationale for Antioxidants in Glaucoma

- Oxidative stress shown to cause DNA damage in trabecular meshwork in tissue from glaucoma patients.
- Increased DNA damage correlated with higher IOP and greater visual field loss
- Oxidative injury to mitochondria – cells' energy producing centers – is implicated in damage to trabecular meshwork, death of RGCs, decreased retinal blood flow

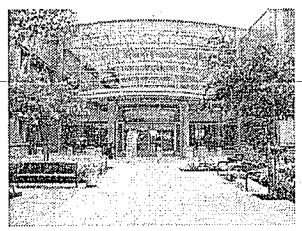
KNOW WHEN TO REFER

When to refer

- Pt progressing despite adequate IOP
- Unable to get IOP to target despite several attempts
- Poor compliance despite several DOCUMENTED discussions
- Advanced disease
- Simply not comfortable
- BETTER TO REFER EARLY THAN LATE!!!
- You do not want to be the last person a patient sees before he goes blind!!

THANK YOU!!

- Steven.ferrucci@va.gov



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Education

Residency in Primary Care/Hospital-Based/ Geriatric Optometry; July 1996 to June 1997
Sepulveda Veterans Affairs Medical Center
Sepulveda, California

Doctor of Optometry; May 1994
New England College of Optometry
Boston, Massachusetts

Bachelor of Arts, Magnum Cum Laude, in Ancient History; May 1990
Brandeis University
Waltham, Massachusetts

Current Academic Appointments

Residency Coordinator, Primary Care/Geriatric Optometry, Sepulveda VA Ambulatory Care Center
Professor, Tenured, Southern California College of Optometry

Professional Licenses

Tennessee # 2208 (Injectables and Therapeutics)
California #10759TLG (Therapeutics with Glaucoma)

Fellowship

Optometric Retinal Society, 2004
American Academy of Optometry, December 1998

Board Certification

The American Board of Certification in Medical Optometry, May 2010

National Boards

ACMO Exam- June 2005
Part III -November 1994
Part II and TMOD -December 1993
Part I -April 1992

Professional Experience

January 2001 to Present
Chief, Optometry Sepulveda VA Ambulatory Care Center
Providing full-scope optometric services in a Hospital setting. Emphasis on ocular disease, including glaucoma, cataracts, diabetic retinopathy, and posterior segment disease. Also, perform on-site flourescein angiography, including injections and digital imaging. Duties also include direct supervision and education for three optometric residents, and weekly grand rounds.

October 2009 to Present
Consultant, Studio City Optometry
Provide consultation to busy private optometric practice, mostly in area of retinal disease, ocular pathology, digital imaging and technology.

June 1999 to January 2001
Chief of Optometric Services Hu Hu Kam Memorial Hospital
January 1998 to May 1999
Staff Optometrist Hu Hu Kam Memorial Hospital; Sacaton, AZ
Clinical responsibilities include primary and secondary eye care with emphasis on ocular disease and diabetic eye care. Full hospital privileges, including advanced therapeutic procedures. Also, supervise and staff fourth year optometric students from two different colleges. Administrative duties include supervisory and budgetary, as well as participating on various hospital wide committees, such as Diabetes Task Force, Continuing Education, and Executive Medical Staff.

July 1997 to December 1997
Optometrist West Coast Eye Care Associates; San Diego, CA
Provided primary and secondary optometric care in a medically-oriented group practice. Emphasis on contact lenses, post-op cataract care, and eye health examinations. Co-management of refractive surgery patients and glaucoma patients with staff ophthalmologists.

August 1996 to December 1997
Instructor Optometric Center of Fullerton and the Southern California College of Optometry; Fullerton, CA
Staffed and supervised third year optometric students in a full-service teaching institution. Enhanced clinical skills, conducted case presentations, and taught advanced examination techniques.

July 1996 to June 1997
Resident Sepulveda Veterans Affairs Medical Center; Sepulveda, CA
Extensive vision and eye health examinations, including advanced therapeutic procedures, in a hospital setting. Co-managed patients with ophthalmologists and other health care specialists. Special emphasis on urgent care referrals and anterior segment disease, including cataracts and glaucoma.

February 1995 to June 1996
Optometrist Bellevue Vision Clinic; Bellevue, NE
Extensive vision and eye health examining in a private setting, specializing in pediatrics and vision therapy. Advanced fitting utilizing all types of contact lenses, with special emphasis on RGP lens designs.

January 1995 to June 1996
Optometrist Universal Vision Services/KNS Vision Services; Omaha, NE
Provided primary care optometry in a busy multi-office environment. Vision and eye health examinations, contact lens fittings, and patient follow-up. Managed various business aspects associated with running an efficient office.

Continuing Education Presentations

Update on AMD and *Retinal Manifestations of Systemic Disease* The Hawaii Optometric Association

2015Pacific Rim Conference; Kona, HI: Nov 2015.

Update on AMD Opt-Ed Empire CE Meeting; Albany, NY: Oct 2015.

Retina SIG Symposium: Diabetes: A Comprehensive Team Approach (Moderator) and *Update on AMD* American Academy of Optometry; New Orleans, LA: October 2015.

Pain Management in the Optometric Practice C&E's Ocular Symposium; Orange, CA: October 2015.

Controversies in Nutrition (with Jeff Gerson and Diana Shechtman) Vision Expo West; Las Vegas, NV: Sept 2015.

AMD Primer and *OD's Role in Diabetes* MBKU/USC CE Collaboration; Fullerton, CA: Sept 2015.

Update on AMD, Diabetes Essentials for the Primary Care OD, and *Retinal and OCT Grand Rounds* Idaho Optometric Physicians Annual Congress: Coeur d'Alene, Idaho: September 2015.

Rapid Fire Retina Panel (with Mark Dunbar and Diana Shechtman), A Closer Look at the Ocular Manifestations of Systemic Disease EyeSight 20/20; Natick, MA: September 2015.

One Case, Two Opinions (with Marc Bloomenstein), Diabetic Retinopathy Ocular Disease, Part 2: Southern California College of Optometry; Fullerton CA: July 2015.

Pardon The Objection: Posterior Segment, Crossfire: Retina, ORS: The Future of Retinal Imaging Has Arrived, AOA's Optometry's Meeting; Seattle, WA: June 2015.

Glaucoma Case Management Glaucoma, Phase II Course, SCCO; Fullerton, CA: June 2015

Diabetes Treatment and Management, Update on AMD, Posterior Segment Grand Rounds including Glaucoma National Vision, Inc. Annual Meeting; Chicago, IL: June 2015.

Posterior Segment Disease Case Challenges and Retinal Clues to Systemic Disease California Optometric Association OptoWest South ; Anaheim, CA; May 2015.

Update on AMD, Retinal and OCT Grand Rounds, and *Diabetes Essentials for the Primary Care Optometrist* Mountain West Council Of Optometry; Las Vegas, NV: April 2015.

Pain Management in the Optometric Practice, Genetic Testing and AMD, Diabetes Essentials and *Nutritional Options for AMD.* SECO International 2015: Atlanta ,GA: March 2015.

Genetic Testing and AMD and *Retinal Clues to Systemic Disease* Ocular Disease Part 1 SCCO; Fullerton, CA: March 2015.

Update on AMD and *Managing Ocular Manifestations of Systemic Disease* Washington State Board of Optometry 50th Annual Postgraduate Seminar; Seattle, WA: March 2015.

OCT and Retinal Grand Rounds Inland Empire Optometric Society; Ontario, CA: March 2015.

Systemic Panel and *Retina Panel* 2015 Texas Optometric Association Annual Convention; Austin, TX; Feb 2015.

Continuing Education Presentations, cont.

Posterior Segment Disease Case Challenges and *Retinal Clues to Systemic Disease* California Optometric Association OptoWest North; San Jose, CA; Feb 2015.

Practice Tips to Get You Started Glaucoma Pearls for Certified OD's; SCCO, Fullerton, CA: February 2015.

OCT and Retinal Grand Rounds and *Diabetes: Treatment and Management* Oregon Optometric Physicians Association 2015 Columbia Optometry Conference; Vancouver, WA: February 2015.

Retinal Special Interest Group: Innovations in Retinal Care (Moderator), Diabetic Retinopathy, and *Co-Management of Intravitreal Injections* American Academy of Optometry; Denver, CO: Nov 2014.

Retinal and OCT Grand Rounds, Posterior Segment, Disease Case Challenges, Update on AMD, and *Diabetes: Treatment and Management* California Optometric Association, Monterey Symposium; Monterey, CA: Nov 2014.

Retinal and OCT Grand Rounds and Pain Management in the Optometric Practice The Hawaii Optometric Association 2014 Pacific Rim Conference; Oahu, HI: Nov 2014.

Retinal Manifestations of Systemic Disease and *All About the OCT (with Mike Chaglasian)* Illinois College of Optometry Alumni Weekend; Chicago, Il: October 2014.

Posterior Segment Disease Case Challenges Opt-Ed Empire CE Meeting; Rochester, NY: Sept 2014.

Diabetes: Treatment and Management and *Update on Age-related Macular Degeneration* Central Pennsylvania Optometric Society; Hershey, PA: Sept 2014.

The Greatest Posterior Segment Course Ever! (with M. Dunbar and Jerry Sherman), Discussions in Posterior Segment and Retinal Disease (with Mark Dunbar), A Closer Look at Ocular Manifestations of Systemic Disease, and *Diabetes Essentials for the Primary Care OD (with Jay Haynie)* Vision Expo West 2014; Las Vegas, NV: September 2014.

A day at the VA: Grand Rounds Treatment and Management of Ocular Disease Annual CE Program Featuring VA Faculty. SCCO; Fullerton, CA: Sept 2014.

Pain Management in the Optometric Practice, Nutritional Options for AMD, Retinal and OCT Findings, Optometric Comanagement of Retinal Procedures. UAB School of Optometry Continuing Education and Alumni Weekend.: Birmingham, AL: August 2014.

Understanding VF (Para Course), Genetic Testing and AMD, Pardon The Objection: Posterior Segment Updates, Pardon The Objection, Posterior Segment Clinical Case Debates, Pain Management in the Optometric Practice AOA's Optometry's Meeting, Philadelphia, PA: June 2014.

Managing Ocular Manifestations of Systemic Disease, New Technology of the Anterior and Posterior Segment and *Posterior Segment Grand Rounds* New Technologies and Treatments in Vision Care, Review of Optometry's Meeting of Clinical Excellence; Orlando, FL: June 2014.

Update on AMD Inland Empire Optometric Society, Ontario, CA: June 2014.

Use of Anti-VEGF Agents in Retinal Disorders and Co-management of Retinal Procedures Indian Health Service CE Program; Fullerton, CA: June 2014.

Continuing Education Presentations, cont.

Retinal and OCT Grand Rounds SFVOS Spring CE; Van Nuys, CA: June 2014.

Oculosystemic Disease and *Retinal and OCT Grand Rounds* AZOA 2014 Spring Congress: Tucson, AZ; May 2014.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: May 2014.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: April 2014.

Pain Management in the Optometric Practice, Update on AMD, Armed Forces Optometric Society Meeting, Atlanta, GA: March 2014.

Pain Management in the Optometric Practice Ocular Disease, Part 1; SCCO; Fullerton, CA: March 2014.

Pain Management in the Optometric Practice, Posterior Segment Disease Case Challenges, Update on AMD, Nutritional Options for AMD San Diego Optometric Association; San Diego, CA: Feb 2014.

Glaucoma Case Management Glaucoma, Phase II Course, SCCO; Fullerton, CA: Feb 2014.

Oculosystemic Disease and *New Technology in AMD* Triad Eye Group Annual Meeting: Tulsa, OK: Jan 2014.

Posterior Segment Disease Case Challenges New Advances in Anterior and Posterior Segment Disease; SCCO; Fullerton, CA: Jan 2014.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: Nov 2013.

Update on AMD, Optometric Co-management of Retinal Procedures CPRO; Montreal, CA: Nov 2013.

Diabetic Retinopathy, Current Treatment Options for Wet AMD, New Methods to Diagnose AMD American Academy of Optometry; Seattle, WA: October 2013.

Diabetes: Treatment and Management, Posterior Segment Disease Eye Sight 20/20; Natick, MA: October 2013.

The Greatest Posterior Segment Course Ever! (with M. Dunbar and Jay Haynie), Pain Management in the Optometric Practice, and Diabetes: Treatment and Management Vision ExpoWest 2012; Las Vegas, NV: October 2013.

Diabetes Essentials for the Primary Care Optometrist, Pain Management in the Optometric Practice, Optometric Co-management of Retinal Procedures and *Oculosystemic Disease* Great Western Council Of Optometry 2013 Congress; Portland OR: Sept 2014.

Retinal Potpourri Treatment and Management of Ocular Disease with VA Faculty; SCCO; Fullerton, CA: Sept 2013.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: Sept 2013.

One Patient, Two Opinions (with Marc Bloomenstein OD, FAAO) and *New Methods to Diagnose AMD* Ocular Disease Part II, SCCO; Fullerton, CA: July 2013.

AMD Update and *Posterior Segment Disease Case Challenges* Eye Symposium Northwest; Spokane, WA: July 2013.

Continuing Education Presentations, cont.

ORS: the New Frontier, Nutritional Options for AMD, Pardon The Objection, Part 1: Diagnosis, Pardon The Objection, Part 2: Treatment, and *AMD: From A to Z* AOA's Optometry's Meeting, San Diego, CA: June 2013.

Nutritional Options for AMD Los Angeles County Optometric Society's Spring Seminar; Los Angeles, CA: June 2013.

Glaucoma Case Management Glaucoma, Phase II Course, SCCO; Fullerton, CA: June 2013.

Retinal Clues to Systemic Disease and *Diabetes: Treatment and Management* North Carolina State Optometric Society Annual Spring Congress; Myrtle Beach, NC: June 2013

AMD and Diabetes Update and *Posterior Segment Disease Case Challenges* Morgan/Sarver Symposium 2013; Berkeley, CA: April 2013.

OCT and Retinal Grand Rounds, Pain Management, and *Optometric Co-Management of Retinal Procedures* Kentucky Optometry Association Spring Conference; Lexington, KY: April 2013.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: April 2013.

OCT and Retinal Grand Rounds and *Posterior Segment Disease Case Challenges* Massachusetts Society of Optometrists; Marlborough, MA: March 2013.

Pain Management, Posterior Segment Disease Case Challenges and *All About the OCT (with Michael Chaglasian, OD)* SECO International 2013: Atlanta ,GA: March 2013.

Update on AMD, Optometric Co-Management of Retinal Procedures, , Posterior Segment Disease Case Challenges Heart of America Contact Lens Society, Kansas City, KS: February 2013.

Diabetes: Treatment and Management Kaiser Permanente 2013 Optometry Symposium, Huntington Beach, CA: January 2013

Retina Update: Diagnostic Dilemmas and *Retina Update: Co-Management* Optometric Management's Symposium on Contemporary Eye Care Orlando, FL: Dec 2012.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: November 2012.

Co-Management of Intravitreal Injections and *Nutritional Options for AMD* Virginia Eye Associates Fall Meeting; Norfolk, VA: Nov 2012.

Diabetic Case Reports, Posterior Segment Disease Case Challenges Hawaii Optometric Association 2012 Pacific Rim Optometric Conference; Kona, HI: Nov 2012.

Diabetic Case Reports, Posterior Segment Disease Case Challenges and *Update on AMD* Texas Optometric Association Eye Con 2012; Dallas, TX: Nov 2012.

New Technology in the Mgt of ARMD, C&E's Ocular Symposium; Norwalk, CA: October 2012.

Update on AMD and *Co-Management of Intravitreal Injections* American Academy of Optometry; Phoenix, AZ: October 2012.

Continuing Education Presentations, cont.

Diabetes; Treatment and Management and *Retinal* and *OCT Grand Rounds* Rosenberg School of Optometry Fall Seminar 2012; San Antonio, Texas: Oct 2012.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: Sept. 2012.

OCT and Retinal Grand Rounds Treatment and Management of Ocular Disease with VA Faculty SCCO; Fullerton, CA: September 2012

Diabetes: Treatment and Management (with Jay Haynie), OCT and Retinal Grand Rounds, and *The*

*Greatest Posterior Segment Course Ever! (with M. Dunbar and D. Shectman)*Vision ExpoWest 2012; Las Vegas, NV: Sept 2012.

Nutrition from A to Z (with Kim Reed, OD), All About the OCT (with Michael Chaglasian, OD) and *Co-Management of Retinal Procedures* Seco International; Vancouver, Canada: July 2012.

Two OD,s One Case(with Marc Bloomenstein, OD) and *Pain Management in the Optometric Practice* SCCO's Ocular Disease Forum; Fullerton, CA: July 2012.

Glaucoma Rio Hondo Optometric Society's 20th Annual Summer Spectacular ; Buena Park, CA: July 2012.

A Closer Look at the Ocular Manifestations of Systemic Disease, and *Guide to Posterior Segment Disease Diagnosis and Management (with Michael Chaglasian, OD)* Review of Optometry, Maui 2012;Maui, HI: June 2012.

Nutrition in Optometry and *Advances in the Treatment of* AMD Indian Health Services Biennial Eye care Meeting: Fullerton, CA: May 2012.

Diabetes: Treatment and Management, New Technology in the Mgt of ARMD, Cloak and Dagger: Retinal Clues to Systemic Disease, and *Clinical Grand Rounds* New Jersey Chapter of the American Academy of Optometry 19th Annual Educational Conference ; Myrtle Beach, CA: April 2012.

Diabetic Case Reports, Posterior Segment Disease Case Challenges, and *Glaucoma Care* 2012 New Mexico Optometric Association's Annual Convention ; Albuquerque, NM: April, 2012.

Oculosystemic Disease Essentials, Posterior Segment Disease Case Challenges, and *Tales from the Trenches (with Mark Dunbar)* Optowest 2012, Indian Wells, CA: April 2012.

Diabetes: Treatment and Management (with Jay Haynie),Nutritional Options for ARMD, New Technology in the Mgt of ARMD, Think Outside the Grid: A novel tool for monitoring macular function and *Old Dogs, New Tricks: Cases from the ORS (with Mark Dunbar and Leo Semes)* Vision Expo East 2012; New York City, March 2012.

Diabetes: Treatment and Management, Update on AMD, Nutritional Options for ARMD, Optometric Co-Management of Retinal Procedures and *New Technology in the Mgt of ARMD* Montana Optometric Association 2012 Big Sky Conference: Big Sky, Montana: March 2012.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: March 2012.

Ocular Vitamins Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: February 2012.

Posterior Segment Disease Case Challenges South Bay Optometric Society: Torrance, CA: February 2012.

Continuing Education Presentations, cont.

Glaucoma Case Management Glaucoma, Phase II Course, SCCO; Fullerton, CA: February 2012.

Oculosystemic Disease Essentials Tri-County Optometric Society Winter CE; Ventura CA: January 2012.

Diabetes: Treatment and Management, New Technology in the Mgt of ARMD, Nutritional Options for ARMD, Clinical Grand Rounds and *Contemporary Treatment options for Wet and Dry AMD* Hawaii Optometric Association Pacific Rim Conference 2011 Koloa, HI; November 2011.

Diabetes: Treatment and Management, New Technology in the Mgt of ARMD, Nutritional Options for ARMD, and *Clinical Grand Rounds* Kentucky Optometric Association Fall Conference: Gatlinburg, TN:

November 2011.

New Technology in the Mgt of ARMD, Update on AMD and *Co-Management of Intravitreal Injections* American Academy of Optometry; Boston, MA: October 2011.

Oculosystemic Disease Essentials, and *Posterior Segment Disease Case Challenges* Indiana Optometric Association Fall Seminar; Bloomington, IN: October 2011.

Glaucoma Case Management Glaucoma, Phase II Course, SCCO; Fullerton, CA: October 2011.

New Technology in AMD, Nutritional Options for AMD, Nebraska Optometric Association Fall Conference; Kearney, NE: Sept 2011.

Oculosystemic Disease Essentials, Posterior Segment Disease Case Challenges, Pain Management in the

Optometric Practice and *New Technology in AMD* Vision ExpoWest 2011; Las Vegas, NV: Sept 2011.

Oculosystemic Disease Essentials Treatment and Management of Ocular Disease with VA Faculty SCCO; Fullerton, CA: September 2011.

New Information on Medical and Surgical Management of Vaso-occlusive Disease: What we already know ORS Conference; Orlando, FL: August 2011.

Glaucoma Case Management Glaucoma, Phase II Course, SCCO; Fullerton, CA: August 2011.

New Technology in the Mgt of ARMD and *The Latest in Diabetes Care* 114th Annual AOA Congress, Salt Lake City, UT: June 2011.

New Developments in Posterior Pole Management Pinnacle Meetings & Events: Scottsdale, AZ: May 2011.

Diabetes: Tx and Mgt, Nutritional Options for ARMD and *Advancements in the Fight Against ARMD* Optowest; Palm Springs, CA: April 2011.

Diabetes: Tx and Mgt, and *Retinal Grand Rounds (with Hajir Dadgostar, MD)* San Fernando Valley Spring CE; Studio City, CA: March 2011.

Optometric Co-Management of Retinal Procedures and *Macular Disease* Ocular Disease Part 1, SCCO; Fullerton, CA: March 2011.

Cloak and Dagger: Retinal Clues to Systemic Disease, New Developments in Posterior Pole Management, Clinical Grand Rounds, and *Nutritional Options for ARMD* 27th Annual See & Ski Lake Tahoe Education Conference; South Lake Tahoe, NV: March 2011.

Continuing Education Presentations, cont.

New Technology in the Mgt of ARMD and *New Developments in Posterior Pole Management* Annual SCCO Alumni CE Program; Fullerton, CA: Feb 2011.

New Technology in the Mgt of ARMD, and *Optometric Co-Management of Retinal Procedures.* American Academy of Optometry; San Francisco, CA: November 2010.

Diabetes: Tx and Mgt, Retinal Clues to Systemic Disease, Nutritional Options for ARMD, and *Advancements in the Fight Against ARMD* Tropical CE; Puerto Vallarta, Mexico: November 2010.

Cracking the Case: Diabetic Case Reports, Pain Management in the Optometric Practice, and *New Developments in Posterior Pole Management* Eye Sight 20/20; Natick, MA: October 2010.

Advancements in the Fight against ARMD Inland Empire Optometric Association; La Mirada, CA: October 2010.

Advancements in the Fight against ARMD Optometric Retinal Society 2010 Annual Meeting; Las Vegas, NV: October 2010.

Diabetes: Tx and Mgt and *Nutrition and other Advances in ARMD* SCO Homecoming and Fall CE Weekend 2010; Memphis, TN: October 2010.

Clinical Grand Rounds, New Developments in Posterior Pole Disease and *Scleritis, Episcleritis, and other Inflammatory Conditions Vision* Expo West; Las Vegas, NV: October 2010.

Advancements in the Fight against ARMD Rio Hondo Optometric Association; La Mirada, CA: September 2010.

Retina Grand Rounds Treatment and Management of Ocular Disease, SCCO; Fullerton, CA: Sept 2010.

Cracking the Case: Diabetic Case Reports Southern California College of Optometry. Ocular Disease Symposium Part 2; Fullerton, CA: July 2010.

5 Minute Retina: Rapid Fire, Retinal Clues to Systemic Disease, Pain Management in the Optometric Practice, and *Advancements in the Fight Against ARMD* 113th Annual AOA Congress, Orlando, FL: June 2010.

Nutritional Options for ARMD, and *Advancements in the Fight against ARMD* First Sight Vision Services, Inc; Stockton, Claremont and San Diego CA: June 2010.

Nutritional Options for ARMD, and *Contemporary Treatment Options for Wet and Dry ARMD* Indian Health Service Biennial Eye Care Meeting, Southern California College of Optometry; Fullerton, CA: May 2010.

Diabetes: Treatment and Management, Update on Diagnosis and Management of AMD (with Diana Shechtman) and *Challenging Macula Cases: You Make the Call (with Diana Shechtman)* Mountain West Council of Optometrists 2010 Annual Congress; Las Vegas, NV; April 2010.

Nutritional Options for ARMD, Advancements in the Fight against ARMD, and Retinal Manifestations of Systemic Disease Alaska Optometric Association; Juneau, AK: March 2010.

Retina and Ocular Nutrition Alcon CPE Optometry Program for Fourth Year Students; Fort Worth, TX: March 2010.

Continuing Education Presentations, cont.

Update on ARMD and DR, and Contemporary Treatment Options for Wet and Dry ARMD, Southern California College of Optometry. Ocular Disease Symposium Part 1; Fullerton, CA: March 2010.

Scleritis, Episcleritis, and other Inflammatory Conditions, Update on ARMD and DR, and *Pain Management in the Optometric Practice* San Diego Optometric Association; San Diego, CA: February 2010.

Clinical Grand Rounds Armed Forces Optometric Society 41st Annual Meeting; Atlanta, GA: February 2010.

Update on ARMD Jules Stein Eye Institute Cornea and Retina Symposium; Los Angeles, CA: January 2010.

Cracking the Case: Diabetic Case Reports Tri-County Optometric Society; Ventura, CA: January 2010.

Advancements in the Fight against ARMD, Nutritional Options for ARMD and *Optometric Co-Management of Retinal Procedures.* American Academy of Optometry; Orlando, FL: October 2009.

Nutritional Options for ARMD San Fernando Valley Optometric Society, Fall Symposium; Tarzana, CA: October 2009.

Good Vibrations in Glaucoma Care, An Endless Summer of New Technology (with Paul Karpecki, OD and Scot Morris, OD), and Help me, Retina New Technologies and Treatments in Vision Care, Review of Optometry; La Jolla, CA: September 2009.

Nutritional Options for ARMD Southern Arizona Optometric Society; Tucson, AZ: September 2009.

Scleritis, Episcleritis, and other Inflammatory Conditions, Retinal Manifestations of Systemic Disease Eye Sight 20/20; Natick, MA: September 2009.

Age-Related Macular Degeneration: New Technologies to Detect it and New Treatments (With Rex Ballinger, OD) Contemporary Topics in Retina, Optometric Retinal Society 2009 Annual Meeting; Philadelphia, PA: September 2009.

Age-Related Macular Degeneration: New Technologies to Detect it and New Treatments (With Rex Ballinger, OD) Contemporary Topics in Retina, Optometric Retinal Society 2009 Annual Meeting; Philadelphia, PA: September 2009.

Vitamins and their role in ARMD 2009 Orange County Optometric Society Pathology Symposium, Santa Ana, CA: August 2009.

The Role of Nutritional Supplements in the Fight Against ARMD Ocular Disease Symposium, Part 2 Southern California College of Optometry; Fullerton, CA: July 2009.

Retinal Manifestations of Systemic Disease and *Advances in the Management of AMD (with M. Durbar and D. Shechtman)* 112th Annual AOA Congress, Washington, DC: June 2009.

Benefits of Ocular Nutriceuticals San Gabriel Optometric Society, Arcadia, CA: June 2009.

Diabetes: Treatment and Management and *Current Treatment of ARMD* Express Lens Lab CE Program, Costa Mesa, CA: June 2009.

Continuing Education Presentations, cont.

Beyond AREDS: New Thinking in the Prevention of ARMD The Los Angeles County Optometric Society, Spring CE Program: Los Angeles, CA: June 2009.

Vitamins and their role in ARMD Rio Hondo Optometric Association; La Mirada, CA; May 2009.

Pain Management in the Optometric Practice, Scleritis and Episcleritis, and *Contemporary Treatment for Wet and Dry AMD* New Mexico Optometric Association 2009 Annual Convention; Albuquerque, NM: May 2009.

Posterior Segment Laser, Retinal Manifestations of Systemic Disease Arizona Optometric Association 2009 Spring Congress; Glendale, AZ: May 2009.

Retinal Manifestations of Systemic Disease, Pain Management in the Optometric Practice, New Developments in Posterior Pole Management, Clinical Grand Rounds Montana Optometric Association Annual Education Conference and Exposition; Great Falls, MT; May 2009.

Scleritis, Episcleritis, and Other Inflammatory Conditions and *Update on Diabetes and ARMD* Kansas Optometric Association 2009 Annual Convention and Seminar; Overland Park, KS: April 2009.

Vitamins and their role in ARMD Asian Optometric Association; Brea, CA; April 2009.

Retina: My Favorite Cases Southern California College of Optometry. Ocular Disease Symposium Part 1; Fullerton, CA: March 2009

Diabetes Treatment and Management C&E's Ocular Symposium; Norwalk, CA: January 2009.

Contemporary Treatment Options for Wet and Dry ARMD, Update on Diabetes and ARMD, Posterior Segment Laser and *Diabetes Treatment and Management* California Optometric Association's Monterey Symposium 2008; Monterey CA: November 2008.

Contemporary Treatment Options for Wet and Dry ARMD and *Beyond AREDS: New Thinking in the Prevention of ARMD* American Academy of Optometry; Anaheim, CA: October 2008.

Diabetes Treatment and Management; Macular Disease; Pain Management in the Optometric Practice; Posterior Segment Laser; and *Retinal Clues to Systemic Disease.* Eastwest Eye Conference, Cleveland, OH: October 2008.

Rapid Fire-Challenge the Experts (with Lori Vollmer); Retinal Vascular Diseases: Grand Rounds (with Joe Sowka et al); ARMD 2008: Novel Approaches and Combined Therapies (with Jeff Gerson et al) Optometric Retinal Society, The Retina: What You Need to Know, Boston, MA: September 2008.

Retinal Manifestations of Systemic Disease Rio Hondo Optometric Society, Buena Park, CA: July 2008.

Diagnosing with the Stars: Posterior Grand Rounds (with John McGreal); The Amazing Race: New Technologies in Eye Care (with Joe Shovlin); Deal or No Deal: Case Presentations (with Joe Shovlin and Paul Karpecki); Graves Anatomy and other Ocular Manifestations of Systemic Disease Review of Optometry, Maui, HI: June 2008.

New Trends in the Fight against ARMD 6th Annual Ocular Disease Program, Southern California College of Optometry, Fullerton, CA: March 2008.

Continuing Education Presentations, cont.

ARMD Update Southern California College of Optometry's Faculty-on-the–Road Lecture Series, Santa Clara, CA

Beyond AREDS: New Thinking in the Prevention of ARMD and *Contemporary Treatment Options for Wet and Dry ARMD* Texas Optometric Association, Austin, TX: February 2008: February, 2008.

Diabetic Retinopathy Jules Stein Eye Institute Cornea and Refractive Symposium, Los Angeles, CA: January 2008.

Contemporary Treatment of Wet and Dry ARMD San Fernando Valley Optometric Association, Van Nuys; CA: October 2007.

Contemporary Treatment Options for Wet and Dry ARMD and *Beyond AREDS: New Thinking in the Prevention of ARMD* American Academy of Optometry; Tampa, FL: October 2007.

Cracking the Case: Diabetic Case Reports, Cloak and Dagger: Retinal Clues to Systemic Disease, and *The Great Debate, Anterior Segment vs. Posterior Segment: Who really has the new stuff?* Review Optometry, New Technology and Treatments in Vision Care Meeting; San Diego, CA: September 200

Update on Diabetes and ARMD CE at SCCO Featuring VA Faculty, Southern California College of Optometry; Fullerton, CA: September 2007.

Retinal Manifestation of Systemic Disease C&E's Ocular Symposium; Anaheim, CA: May 2007

Which "-itis" is it: Episcleritis, Scleritis, or Uveitis? and *Emerging Developments in Posterior Segment Laser and Flourescein Angiography* The 22nd Annual Morgan/Sarver Symposium; *Berkeley* CA: April 2007.

Contemporary Treatment of Wet and Dry ARMD Optometric Retina Society 4th Annual Meeting; Las Vegas, NV: April 2007

The Retina in Systemic Disease 5th Annual Ocular Disease Program, Southern California College of Optometry; Fullerton CA: March 2007.

Scleritis, Episcleritis and other Inflammatory Conditions, Posterior Segment Laser, and *Fluorescein Angiography* Montana Optometric Association; Helena, MT: January 2007

Update on Diabetes and ARMD and *Posterior Segment Laser* Missouri Optometric Association; Jefferson City, MO; January 2007.

Grand Rounds: Glaucoma, Retina, and Neuro-Optometry: CMV treated with Oral Valganciclovir American Academy of Optometry; Denver, CO: December 2006.

Beyond AREDS: New Thinking in the Prevention of ARMD, Scleritis/Episcleritis and other Inflammatory Conditions, and *Update on Diabetes and ARMD* Arizona Optometric Association: November 2006.

Pain Management in the Optometric Practice, Beyond *AREDS: New Thinking in the Prevention of ARMD, Scleritis/Episcleritis and other Inflammatory Conditions, New Developments in Posterior Pole Therapy,* and *Flourescein Angiography* Great Western Council of Optometry; Portland, OR: October 2006.

Laser Treatment of Posterior Segment Disorders and *Care of the Diabetic Patient: Case Reports* South Bay Optometric Association Annual Forum; Torrance, CA: August 2006.

Continuing Education Presentations, cont.

Fluorescein Angiography and *Posterior Laser Treatment* Rio Hondo Optometric Society; La Mirada, CA April 2006

Case Presentations in Retina with Interactive Panel Discussion Optometric Retina Society; Boston, MA: March 2006.

Update on ARMD and Diabetes SCCO Ocular Disease Program, Part 1; Fullerton, CA: March 2006.

Grand Rounds: Miscellaneous Disorders of the Eye and Visual System: Astrocytic Hamartoma and *Fluorescein Angiography Injection Workshop* American Academy of Optometry; San Diego, CA: December 2005.

Glaucoma Compliance San Fernando Valley Optometric Society; Tarzana, CA: September 2005.

Beyond AREDS: New Thinking in the Prevention of ARMD CE at SCCO Featuring VA Faculty, Southern California College of Optometry; Fullerton, CA: September 2005.

Update on ARMD and Diabetes Tri-County Optometric Society; Buelton, CA: July 2005.

New Developments in Posterior Pole Treatment and *Care of the Diabetic Patient: Case Presentations* American Optometric Association; Dallas, TX: June 2005.

Pain Management in the Optometric Practice Clinical Topics in Optometry, Southern California College of Optometry; Fullerton, CA: May 2005.

Update on ARMD and Diabetes C&E's Optometric Symposium; Fullerton, CA: April 2005.

Case Presentations in Retina with Interactive Panel Discussion Optometric Retina Society; San Francisco, CA: March 2005.

Fluorescein Angiography Injection Workshop American Academy of Optometry; Tampa, FL: December 2004.

B*eyond AREDS: New Thinking in the Prevention of ARMD* San Fernando Valley Optometric Society: Van Nuys, CA: November 2004.

Scleritis, Episcleritis, and Other Inflammatory Conditions, Care of the Diabetic Patient: Case Presentations and *Fluorescein Angiography* Federal Service Optometry Annual Meeting; Las Vegas, NV: November 2004.

Scleritis, Episcleritis, and Other Inflammatory Conditions San Gabriel Valley Optometric Society: Pasadena, CA: October 2004.

Scleritis, Episcleritis, and Other Inflammatory Conditions San Fernando Valley Optometric Society: Van Nuys, CA: September 2004.

Scleritis, Episcleritis, and Other Inflammatory Conditions San Diego Optometric Society: San Diego, CA: September 2004.

What's New with ARMD? and *Care of the Diabetic Patient: Case Presentations* CE at SCCO Featuring VA Faculty, Southern California College of Optometry; Fullerton, CA: September 2004.

Update on Diabetes and ARMD Asian American Optometric Student Association, Southern California College of Optometry; Fullerton, CA: August 2004.

Continuing Education Presentations, cont.

Scleritis, Episcleritis, and other Inflammatory Conditions Sacramento Valley Optometric Society's Tahoe Seminar; South Lake Tahoe, CA: July 2004.

Diabetes: Treatment and Management Ocular Disease Symposium, Southern California College of Optometry; Fullerton, CA: July 2004.

Care of the Diabetic Patient: Case Reports Rio Hondo Optometric Society; La Mirada, CA: May 2004.

Care of the Diabetic Patient: Case Reports, Scleritis/Episcleritis and Other Inflammatory Conditions and *New Developments in Posterior Pole Therapy* Optowest 2004; Anaheim, CA: May 2004.

Diabetes: Treatment and Management and *Scleritis/Episcleritis and Other Inflammatory Conditions* C&E'sOptometric Symposium; Fullerton, CA: April 2004.

Care of the Diabetic Patient-Case Reports Central California Optometric Society; Fresno, CA: March 2004

Posterior Laser Treatment Southern California College of Optometry; Fullerton, CA: January, 2004.

Emerging Developments in Posterior Pole Treatment American Academy of Optometry; Dallas, TX: December 2003

Fluorescein Angiography Made Simple and *Age-related Macular Degeneration* Southern California College of Optometry; Fullerton, CA: September, 2003.

Scleritis, Episcleritis, and other Inflammatory Conditions Southern California College of Optometry; Fullerton, CA: July, 2003.

Care of the Diabetic Patient: Case Reports American Academy of Optometry; San Diego, CA: December 2002.

Current Approach to Diabetes Southern California College of Optometry; Fullerton, CA: September 2002

Posterior Segment Laser Therapy, Ophthalmic Complications of Diabetes: Opportunities and Challenges and *Advances in Diabetic Retinopathy Management* American Optometric Association; New Orleans, LA: June 2002.

Fluorescein Angiography Made Simple and *Care of the Diabetic Patient: Case Reports* Arizona Optometric Association Spring Congress; Goodyear, AZ: June 2002.

Care of the Diabetic Patient: Case Reports American Academy of Optometry; Philadelphia, PA: December 2001.

Diabetes: Treatment and Management San Fernando Valley Optometric Society; Sherman Oaks, CA: October 2001.

Diabetes: Treatment and Management Southern California College of Optometry; Fullerton, CA: September 2001.

New Advances in the Management of Diabetic Retinopathy and *Corneal Topography/Corneal Pachymetry Workshop* American Optometric Association; Boston, MA: June 2001.

Diabetic Eye Disease Residency Case Forum, Southern California College of Optometry; Fullerton, CA: May 2001.

Continuing Education Presentations, cont.

Diabetes: Treatment and Management and *Gonioscopy/Fundus Lens Workshop* American Optometric Association; Las Vegas, NV: June 2000.

Fluorescein Angiography Injection Workshop American Academy of Optometry; Seattle, WA: December 1999.

Diabetes: Treatment and Management Arizona Optometric Association, Spring Congress; Tucson, AZ: July 1999.

Retinitis Pigmentosa Inversa Residency Case Forum, Southern California College of Optometry; Fullerton, CA: May 1997.

Intralesional Injections/Chemical Removal of Papilloma Workshop Alberta Association of Optometrists; Edmonton, Canada: April 1997.

Greater Los Angeles Optometric Education Program

Age-related Macular Degeneration Sept 2015
Diabetes Sept 2015
Fluorescein Angiography Sept 2015
Retinal Manifestations of Systemic Disease May 2015
Ocular and Systemic Emergencies January 2015
Macular Diseases January 2015
Co-Management of Retinal Procedures December 2015
Diabetes, Part 1 and 2, September 2014
Ocular and Systemic Emergencies January 2014
Macular Diseases January 2014
Co-Management of Retinal Procedures December 2013
Diabetes, Part 1 and 2, September 2013
Retinal Manifestations of Systemic Disease May 2013
Episcleritis, Scleritis, and Iritis, May 2013
Age-related Macular Degeneration March 2013
Ocular and Systemic Emergencies January 2013
Macular Diseases January 2013
Diabetes, Part 1 and 2 September 2012
Fluorescein Angiography August 2012
Fluorescein Angiography Workshop August 2012
Retinal Manifestations of Systemic Disease May 2012
Episcleritis, Scleritis, and Iritis, May 2012
Macular Diseases January 2012
Diabetes, Part 1 and 2, September 2011
Fluorescein Angiography August 2011
Fluorescein Angiography Workshop August 2011
Retinal Manifestations of Systemic Disease May 2011
Age-related Macular Degeneration March 2011
Ocular and Systemic Emergencies January 2011
Macular Diseases January 2011
Diabetes, Part I and II September 2010
Retinal Manifestations of Systemic Disease May 2010
Episcleritis, Scleritis, and Iritis, April 2010
Co-Management of Retinal Procedures March 2010
Age-related Macular Degeneration March 2010
Ocular and Systemic Emergencies January 2010

Greater Los Angeles Optometric Education Program, Cont.

Macular Diseases January 2010
Diabetes, Part I and II September 2009
Fluorescein Angiography August 2009
Fluorescein Angiography Workshop August 2009
Posterior Segment Laser April 2009
Ocular and Systemic Urgencies and Emergencies Feb 2009
Episcleritis, Scleritis, and Iritis, May 2009
Ocular Manifestations of Systemic Disease May 2009
Age-related Macular Degeneration March 2009
Ocular and Systemic Emergencies January 2009
Macular Diseases January 2009
Diabetes: Part I and II September 2008
Fluorescein Angiography August 2008
Fluorescein Angiography Workshop July 2008
Ocular Manifestations of Systemic Disease May 2008
Age-related Macular Degeneration May 2008
Episcleritis, Scleritis, and Iritis, April 2008
Posterior Segment Laser April 2008
Macular Diseases January 2008

Ocular and Systemic Emergencies January 2008
Diabetes Part 1 and 2, September 2007
Episcleritis, Scleritis, and Iritis, April 2007
Posterior Segment Laser April 2007
Age-related Macular Degeneration March 2007
Ocular and Systemic Emergencies January 2007
Macular Diseases January 2007
Contemporary Glaucoma Management November 2006
Fluorescein Angiography Workshop October 2006
Diabetes: Part I and II September 2006
Fluorescein Angiography September 2006
Scleritis, Episcleritis and other Inflammatory Conditions April 2006
Laser Treatment of Posterior Segment Disorders April 2006
ARMD and Macular Disease March 2006
Ocular and Systemic Urgencies and Emergencies January 2005
Fluorescein Angiography Workshop October 2005
Diabetes: Part I and II October 2005
Fluorescein Angiography September 2005
Dilation and Irrigation of Lacrimal System, Chalazion Injection, and Injection Techniques Workshop (With David Bright, OD) May 2005
Suture Placement and Removal Workshop May 2005
Posterior Laser Treatment March 2005
ARMD and Macular Disease March 2005
Episcleritis, Scleritis, and other Inflammatory Conditions February 2005
Ocular and Systemic Urgencies and Emergencies January 2005
Fluorescein Angiography Workshop October 2004
Diabetes: Part I and Part II September 2004
Fluorescein Angiography Workshop August 2004
Suture Placement and Removal Workshop May 2004
Ocular Photodynamic Therapy March 2004
Posterior Laser Treatment March 2004
Beyond AREDS: New Thinking in the Prevention of ARMD March 2004
Age-related Macular Degeneration March 2004
Episcleritis and Scleritis February 2004

Greater Los Angeles Optometric Education Program, Cont.

Ocular and Systemic Urgencies and Emergencies January 2004
Dilation and Irrigation of Lacrimal System, Chalazion Injection, and Injection Techniques Workshop (With David Bright, OD) November 2003
Diabetes: Part I and Part II September 2003
Fluorescein Angiography Workshop August 2003
Posterior Segment Laser Workshop May 2003
Suture Placement and Removal Workshop May 2003
Laser Management of Posterior Segment Disorders April 2003
Age Related Macular Degeneration February 2003
Ocular Photodynamic Therapy February 2003
Ocular and Systemic Urgencies and Emergencies 2003
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Posterior Segment Laser Workshop May 2002
Ocular Photodynamic Therapy April 2002.
Laser Management of Posterior Segment Disorders April 2002
Fluorescein Angiography Workshop March 2002

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Dilation and Irrigation of Lacrimal System, Chalazion Injection, and Injection Techniques Workshop (With David Bright, OD) November 2001
Diabetes: Part I and Part II October 2001
Fluorescein Angiography September 2001
Ultrasonography and Scleral Depression Workshop July 2001
Suture Placement and Removal Workshop May 2001
Posterior Segment Laser Workshop May 2001

Other Presentations

Lecture *The Complete Glaucoma Examination,* Heidelberg National Sales Meeting; Carlsbad, CA: January 2015.

Poster Presentation *Macular Schisis* (With Alyssa Shandrick, OD) American Academy of Optometry; Denver, CO; Nov 2014.

Poster Presentation *American Academy of Optometry Retina SIG Information Poster*, American Academy of Optometry; Denver, CO; Nov 2014.

Poster Presentation *American Academy of Optometry Retina SIG Information Poster*, American Academy of Optometry; Seattle, WA: October 2013.

Lecture *Diabetic Retinopathy* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: February 2013.

Keynote Address *The Importance of Advanced Clinical Privileges* COA's President and Leadership Council, COA, Sept 2012.

Lecture *Diabetic Retinopathy* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: October 2011.

Other Presentations, cont.

Lecture *Retina 101*AOSA's Western Regional Conference 2011 Fullerton, CA: October 2011.

Lecture *Macular Degeneration* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: May 2011.

Southern California College of Optometry on-line CE Program *Diabetic Retinopathy*, on-going

Poster presentation (with Sunny Field, OD) Clinical Findings and Management of Traumatic Hyphema Secondary to Closed Globe Injury SECO International,: Atlanta GA: March 2009.

Lecture *Geriatric Eye Care* GRECC Lecture Series, Greater Los Angeles VA Healthcare System; Sepulveda, CA: March 2009.

Lecture *Macular Degeneration* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: November 2008.

Poster presentation (with Sunny Field and Jeremiah Tampoya) *Peripheral Choroidal Neovascularization: Diagnosis, Treatment and Management* SECO International: Atlanta GA: March 2008.

Poster presentation (with Jeremiah Tampoya and Sunny Field) *Conjunctival Intraepithelial Neoplasia* SECO International: Atlanta GA: March 2008.

Lecture *The Aging Eye* ITT&D Lecture Series; Sepulveda, CA: November 2007.

Lecture *Treatment of ARMD at the VA* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: November 2007.

Lecture *Common Eye Conditions;* Sepulveda VA Patient Education Resource Center Eye Health Day Sepulveda, CA: September 2007

Lecture *Diabetes Treatment and Management* and *Retina Grand Rounds*; Southern California College of Optometry, Block Lectures; Fullerton, CA: August 2007.

Lecture *Geriatric Vision Loss* Early Vision Rehabilitation Intervention Class; Sepulveda, CA: July 2007.

Lecture *The Retina in Systemic Disease* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: March 2007.

Poster Presentation (with Philip Do, OD) *Band Keratopathy* American Optometric Association; Las Vegas, NV: June 2006.

Lecture *Geriatric Eye Disease* ITT&D Lecture Series; Sepulveda, CA: December 2005.

Lecture *Diabetic Retinopathy* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: September 2005.

Poster Presentation (with Carol Lee, OD and David Bright, OD) *Cytomegalovirus Treated with Oral Valgancyclovir* American Optometric Association; Dallas, TX: June 2005.

Lecture *Ocular Emergencies* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: February 2005.

Lecture *Geriatric Eye Disease* ITT&D Lecture Series; Sepulveda, CA: January 2005

Other Presentations, cont.

Poster Presentation (with Sandra Lin, OD) *Primary Acquired Melanosis* American Academy of Optometry; Tampa, FL: December 2004

Lecture *Ocular Urgencies and Emergencies* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: August 2004.

Lecture *Diabetic Retinopathy* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: April 2004.

Lecture *Geriatric Eye Disease* UCLA Multicampus Program in Geriatrics and Gerontology, Division of Geriatrics, Geffen School of Medicine; Sepulveda, CA: February 2004.

Lecture *Ocular Urgencies and Emergencies* Medical Grand Rounds Program, Greater Los Angeles VA Healthcare System; Sepulveda, CA: February 2004.

Lecture *Geriatric Eye Disease* ITT&D Lecture Series; Sepulveda, CA: February 2004.

Poster Presentation *Tuberculum Sella Meningioma Associated with Lymphatoid Papulosis* (with Lee Ong, OD) American Academy of Optometry; San Dallas, TX: December 2003

Lecture *Residency Education* Southern California College of Optometry; Fullerton, CA: April 2003.

Poster Presentation *Sector Retinitis Pigmentosa* (with Craig VanWoerkom, OD) American Academy of

Optometry; San Diego, CA: December 2002.

Poster Presentation *The Incidence of Diabetic Retinopathy in a Native American Population* Center for Disease Control/Division of Diabetes Translation Conference; St. Louis, MO: May 2002.

Lecture *Ocular Emergencies and Urgencies* General Medical Grand Rounds, Sepulveda VA Residency Program; Sepulveda, CA: January 2002.

Poster Presentation *The Incidence of Diabetic Retinopathy in a Native American Population* American Academy of Optometry; Philadelphia, PA: December 2001.

Poster Presentation *Macular Coloboma* (with Debi Pian, OD, and Sheila Anderson, OD) American Academy of Optometry; Philadelphia, PA: December 2001.

Lecture *Fluorescein Angiography* Southern California College of Optometry, Block Lectures; Fullerton, CA: November 2001.

Lecture *Why Should I do a Residency?* Sothern California College of Optometry, Block Lectures; Fullerton, CA: November 2001

Lecture *Diabetic Retinopathy in The Pima Indian Population* Hu Hu Kam Memorial Hospital; Phoenix, AZ: November 2000.

Lecture *Ocular Emergencies and Urgencies* Arizona State University, College of Nursing; Phoenix, AZ: October 2000.

Lecture *Diabetic Retinopathy* Arizona State University, College of Nursing; Phoenix, AZ: February, 2000.

Television News Segment *Diabetic Retinopathy* KNVT local ABC affiliate; Phoenix, AZ: November 1999.

Other Presentations, cont.

Lecture *Glaucoma: An Overview* Hu Hu Kam Memorial Hospital; Sacaton, AZ: April 1999.

Lecture *Diabetes and The Eye* Arizona Para-Optometric Association; Carefree, AZ: November 1998.

Lecture *Glaucoma: An Overview* Gila Crossing Health Center; Laveen, AZ: November 1998.

Poster Presentation *Retinitis Pigmentosa Inversa* American Academy of Optometry International Meeting; Sidney, Australia: February 1998.

Poster Presentation *Retinitis Pigmentosa Inversa* American Academy of Optometry; San Antonio, TX: December 1997.

Publications

Ferrucci S. *Age Related Macular Degeneration.* Review of Optometry: 11th Annual Guide to Retinal Disease: A Focus on Clinical Research, November 2014; s3-6.

Ferrucci S. *Nutritional Supplementation and AMD* Advanced Ocular Care, October 2014; 25-26.

Ferrucci S. *The Role of Nutritional Supplementation in Managing Retinal Pathology* Supplement to Advanced Ocular Care, October 2013; 62-64.

Book Review: *Femtosecond Cataract Surgery: A Primer Lois E. Probst and Clara C. Chan* Optometry

and Vision Science, May 2013;90(5): e147-148.

Ferrucci S, Coulter J. *Two cases of VMT, Two Different Management Approaches* Review Of Optometry, 10th Annual Guide to Retinal Disease, April 2013; s18-22.

Book Review: *Review of Ophthalmology, 2nd ed. William B. Trattler, Peter K. Kaiser and Neil J. Friedman* Optometry and Vision Science, February 2013;90(2): e81.

Vydelingum, M. Ferrucci S. *Adult Onset Coats Disease* Clinical and Refractive Optometry, Nov 2012; 23-27.

Ferrucci S, Bloomenstein M. *Pain Management in the Optometric Practice* Review of Optometry, Feb 2012: 78-87.

Lee J, Ferrucci S. *Peripapillary subretinal neovascular membranes: A Review* Optometry: Journal of the American Optometric Association, Nov 2011; 82 (11) 681-8.

Yacoub R, Ferrucci S. *Charles-Bonnet Syndrome.* Optometry: Journal of the American Optometric Association, July 2011; 82 (7): 421-427.

Ferrucci, S. *A Look at Genetic Testing For AMD.*Review of Optometry, June 2011; 148(6):83-88.

Ferrucci, S. *Current Treatment Options for AMD* California Optometry, May/June 2011;38 (3): 48-53.

Yeh B, Ferrucci S. *RPE Tears Following Avastin Injections* Optometry: Journal of the American Optometric Association, March 2011; 82: 148-151.

Publications, cont.

Ferrucci S, Haynie JM. *PHP Technology: A New Concept in Monitoring AMD* The Seventh Annual Guide to Retinal Disease, Supplement to Review of Optometry, Nov 2010; (11):s 8-11.

Rossi V, Martin K, Ferrucci S, Pian D. *Retinal Astrocytic Hamartoma.* Optometry: Journal of the American Optometric Association, May 2010; 81:221-233.

Ferrucci S. *Diabetic Macular Edema: New Solutions to an Old Problem?* The Sixth Annual Guide to Retinal Disease, Supplement to Review of Optometry, Nov 2009; (11):s20-22.

Wu J, Ferrucci S. *Idiopathic Juxtafoveal Retinal Telagiectasia.* Optometry: Journal of the American Optometric Association, November 2008: 79 (11); 653-662

Ferrucci S. *The ABCs of Anti-Vegf* The Fourth Annual Guide to Retinal Disease, Supplement to Review of Optometry, Nov 2007; 144 (11):s12-15.

Lam A, Ferrucci S. *Interferon Retinopathy Associated with Hepatitis C.* Clinical and Refractive Optometry, July 2007; 18(7); 202-207.

Lam A, Ferrucci S. *Interferon Retinopathy Associated with Hepatitis C.* Clinical and Refractive Optometry, August 2006; 17(8); 286-294.

Ferrucci S. *ORS focuses on retina studies.* Primary Care Optometry News 2006:11(7):40.

Lin SM, Ferrucci S. *Primary Acquired Melanosis of the Conjunctiva.* Optometry: Journal of the American Optometric Association, May 2006: 77 (5); 223-228

Do P, Ferrucci S. *Adult-onset Foveomacular Vitelliform Dystrophy*. Optometry: Journal of the American Optometric Association, April 2006; 77(4): 156-166.

Lee CH, Bright DC, Ferrucci S. *Treatment of cytomegalovirus retinitis with oral valganciclovir in an acquired immunodeficiency syndrome patient unresponsive to combination antiretroviral therapy.* Optometry: Journal of the American Optometric Association, April 2006; 77(4): 167-176.

Ferrucci, S. *Route Your Patients on a Compliance Course.* Optometric Management, June 2005: 78-82.

Ferrucci S. *What's your Diagnosis?* Primary Care Optometry News, May 2005; 10(5): 49-50.

VanWoerkom CA, Ferrucci S. *Sector Retinitis Pigmentosa.* Optometry: Journal of the American Optometric Association, May 2005; 76(5); 309-317.

Ong L, Ferrucci S. *Tuberculum Sellae Meningioma.* Optometry: Journal of the American Optometric Association, March 2005; 76 (30): 250-260.

Kashiwada S, Ferrucci S, Peschke K, Grimes A. *Idiopathic Choroidal Folds* Clinical and Refractive Optometry, November/December 2004; 15(11/12): 298-302.

Kim M, Pian D, Ferrucci S. *Idiopathic Sclerochoroidal Calcification.* Optometry: Journal of the American Optometric Association, August 2004; 75(8): 487-495.

Ferrucci S. *What's your Diagnosis?* Primary Care Optometry News, March 2004; 9(3): 37-38.

Truong M, Ferrucci S. *Optic Nerve Head Drusen: Three Case Reports* Clinical and Refractive Optometry, September 2003; 1/14 (8): 218-226.

Publications, cont.

Pian D, Ferrucci S, Anderson SF, Wu C. *Paramacular Coloboma.* Optometry and Vision Science, August 2003; 80 (8): 556-563.

Book Review: *Ocular Photodymanic Therapy by Carmen A. Puliafito.* Optometry and Vision Science, October 2002; 79(10): 630.

Hoobyar AR, Ferrucci S, Anderson SF, Townsend JC. *Juxtapapillary Capillary Hemangioblastoma.* Optometry and Vision Science, June 2002; 79(6): 346-352.

Ferrucci S, Anderson SF, Townsend JC. *Retinitis Pigmentosa Inversa.* Optometry and Vision Science, 1998; 75(8):560-570.

Ferrucci S, Kurtz D. *Access to Eye Care in Massachusetts: The Distribution of Optometrists and Ophthalmologists.* New England Journal of Optometry; Winter 1994: Vol 47, No 1

Honors and Awards

Editors' Eagle Award, *Optometry: Journal of the American Optometric Association,* 2006
GLAVAHS Goal Sharing Award Program 2007, Gold Level Achievement: Diabetic Sepulveda Eye Screening
GLAVAHS Goal Sharing Award Program 2003, Gold Level Achievement: Reducing Waits in GLA Optometry Clinics.
GLAVAHS Process Improvement Exposition 2002, Winner, Access Category: "Reducing Scheduling Delays and Improving Efficiency in GLA Optometry Clinics."
GLAVAHS Special Contribution Award, October 2002, September 2004 and September 2006.
Optometric Editors Association, Honorable Mention: Best Technical Article, State/Regional, 1994

Beider Scholar, New England College of Optometry, 1993
Beta Sigma Kappa, Optometric Honor Society

Professional Membership

American Academy of Optometry Retina SIG, Founding Chair, March 2013 to Present
Optometric Retina Society
Board of Directors, March 2006 to present
Vice President, October 2014 to present
Secretary, September 2008 to October 2010
Editor, E- Newsletter, May 2005 to present
Clinical Advisory Board, ODs on Facebook, June 2015 to present
Advanced Competency in Medical Optometry (ACMO) Examination Development Committee
Vice Chair, January 2010 to January 2014
Member, October 2006 to January 2014
Advanced Competency in Medical Optometry (ACMO) Examination Council, Jan 2010-Jan 2014
American Optometric Association Optometric Clinical Practice Guideline: Care of the Patient with Age-related Macular Degeneration Task Force
American Optometric Association, Nutrition and Ocular Health Committee, November 2009 to present
American Academy of Optometry, Committee on Admittance, Federal Service
Chair, January 2011 to January 2013
Vice Chair, January 2007 to January 2011
Member, January 2003 to January 2007

Professional Membership, cont.

California Optometric Association Continuing Education Committee,
March 2015 to present
March 2009 to March 2013
San Fernando Valley Optometric Society
Board member, March 2010 to March 2012
Past president, March 2008 to March 2010
President, March 2006 to March 2008
President-Elect, March 2004 to March 2006
Chairman of Continuing Education, January 2002 to March 2006. March 2008-March 2010
Board of Directors January 2002 to present
Southern California College of Optometry Area Representative, San Fernando Valley, February 2006 to present
California Optometric Association, Employed and Affiliated OD Task Force, March 2006 to March 2009
Editorial Board, *Review of Optometry*, March 2011 to present
Editorial Advisory Board, Retina Section, *Optometry Times*
January 2009 to December 2012, January 2014 to present
Journal Reviewer, *Review Of Optometry*, July 2006 to present
Journal Reviewer, *Optometry: Journal of the AOA*, June 2005 to June 2012
Journal Reviewer, *Optometry and Vision Science*, June 2003 to present
Coordinator, Optometry Education Program, Greater Los Angeles VA Healthcare System, June 2001 to April 2011
Consultant, Accreditation Council on Optometric Education, 2002 to present
Fellow, American Academy of Optometry
Member, California Optometric Association
Member, National Association of VA Optometrists
Member, American Optometric Association
Phi Beta Kappa, Mu Chapter, Brandeis University

Advisory Boards

AutoGenomics
B&L Nutrition
Science Based Health
Maculogix
Macula Risk

References

Available upon request

NVISION
EYE CENTERS

STATE BOARD OF OPTOMETRY
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

January 5, 2016

On behalf of NVISION Eye Centers, we are writing to request approval of 1.5 (one and a half) hours Continuing Education to California doctors of optometry. The education will be delivered by Board Certified Ophthalmologists, clinical investigators and experts in technology and patient consultation.

Program Date: February 9, 2016, and additional dates thereafter.

Location: NVISION Center – La Jolla, 3655 Nobel Drive, Suite 130, San Diego, CA 92122
This course will be repeated by NVISION surgeons and affiliate surgeons at centers and venues located in and around Camarillo, Fullerton, Laguna Hills, Murrieta, Newport Beach, Ontario, Palm Desert, Sacramento, San Diego, San Francisco, San Luis Obispo, and Torrance.

Program Name and Description:

Corneal Astigmatism Correction During Cataract Surgery – 1.5 Hours
Surgeons have more options—and decisions—than ever before. This course reviews surgical treatment options for managing astigmatism, including complications, preoperative measurements, surgical technology and variable IOLs.

We are seeking a total of 1.5 hours of continuing education credit for these courses. The contact person for this program is myself, and I can be reached at 949.243.7482 or cynthia.adame@nvisioncenters.com.

Sincerely,

Cynthia Adame
NVISION Laser Eye Centers
Continuing Education and Special Projects Coordinator

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
p: 949.274.4652 • *f:* 949.509.4858 • *e:* info@nvisioncenters.com • *w:* www.nvisioncenters.com

AIS# 19960

STATE AND CONSUMER SERVICES AGENCY GOVERNOR EDMUND G. BROWN JR.

OPTOMETRY

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUTIE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

2016 OCT 3 AM 11:46

Request for Approval of Continuing Education Course(s)

Cynthia Adame
NVISION Eye Centers
75 Enterprise, Suite 200
Aliso Viejo, CA 92656

Cashiering and Board Use Only			
Receipt#	Payor ID#	Beneficiary ID#	Amount
1-00268	6199013	6199017	150

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

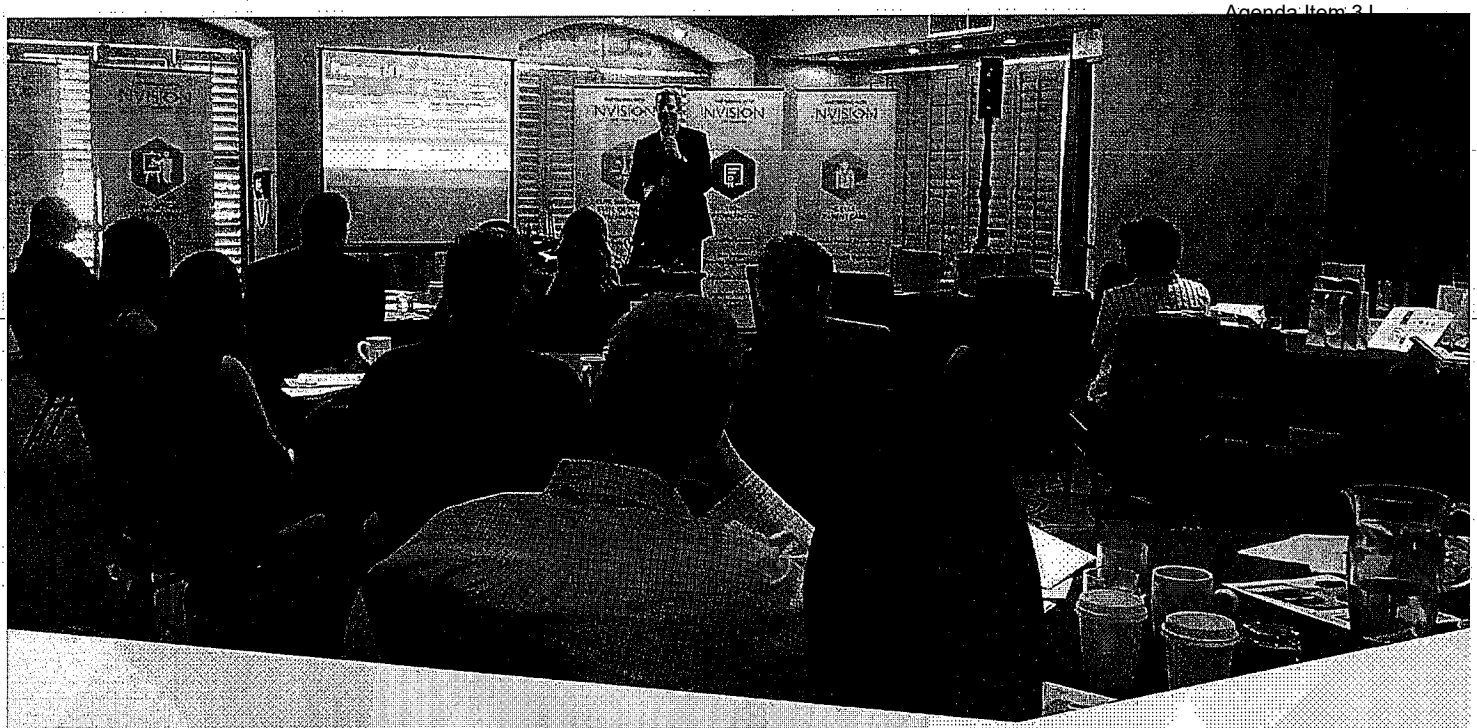
- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

CE Committee Member

NVISION EYE CENTERS				FOR BOARD USE ONLY		
Course Title	Date(s) of Course	Instructor(s)/ Lecturer(s)	CE Hours Requested	Approved	Disapproved	ID#
Corneal Astigmatism Correction During Cataract Surgery	2/9/16 and ongoing	Mitra Ayazifar, MD George Baerveldt, MD Amarpreet Brar, MD Richard Burns, MD Paul Casey, MD John Davidson, MD	1.5			
		Loren Little, MD Franklin Lusby, MD Patrick Lydon, OD Jeff Machat, MD Mihir Parikh, MD Steward Park, MD Jonathan Pirnazar, MD Archana Reddy, MD Sheri Rowen, MD Richard Meister, MD Stanley Teplick, MD Thomas Tooma, MD Emil Stein, MD Jon-Marc Weston, MD				
		TOTAL TIME	1.5			
COMMITTEE COMMENTS:						



YOU'RE INVITED TO THE NVISION LA JOLLA
Journal Club CE - Corneal Astigmatism

Tuesday, February 9, 2016 | 6:00 – 8:00 PM

NVISION Center | 3655 Nobel Drive, Suite 130 | San Diego, CA 92122

Join us as we discuss this month's Journal article, "Corneal Astigmatism Correction During Cataract Surgery", with Dr. Mihir Parikh.

Our monthly journal article will be available to review prior to the CE.
Earn 1.5 hours of CE Credits.

6:00 - 6:30 PM **Registration and Dinner**

6:30 - 8:00 PM **1.5 - Hour CE**

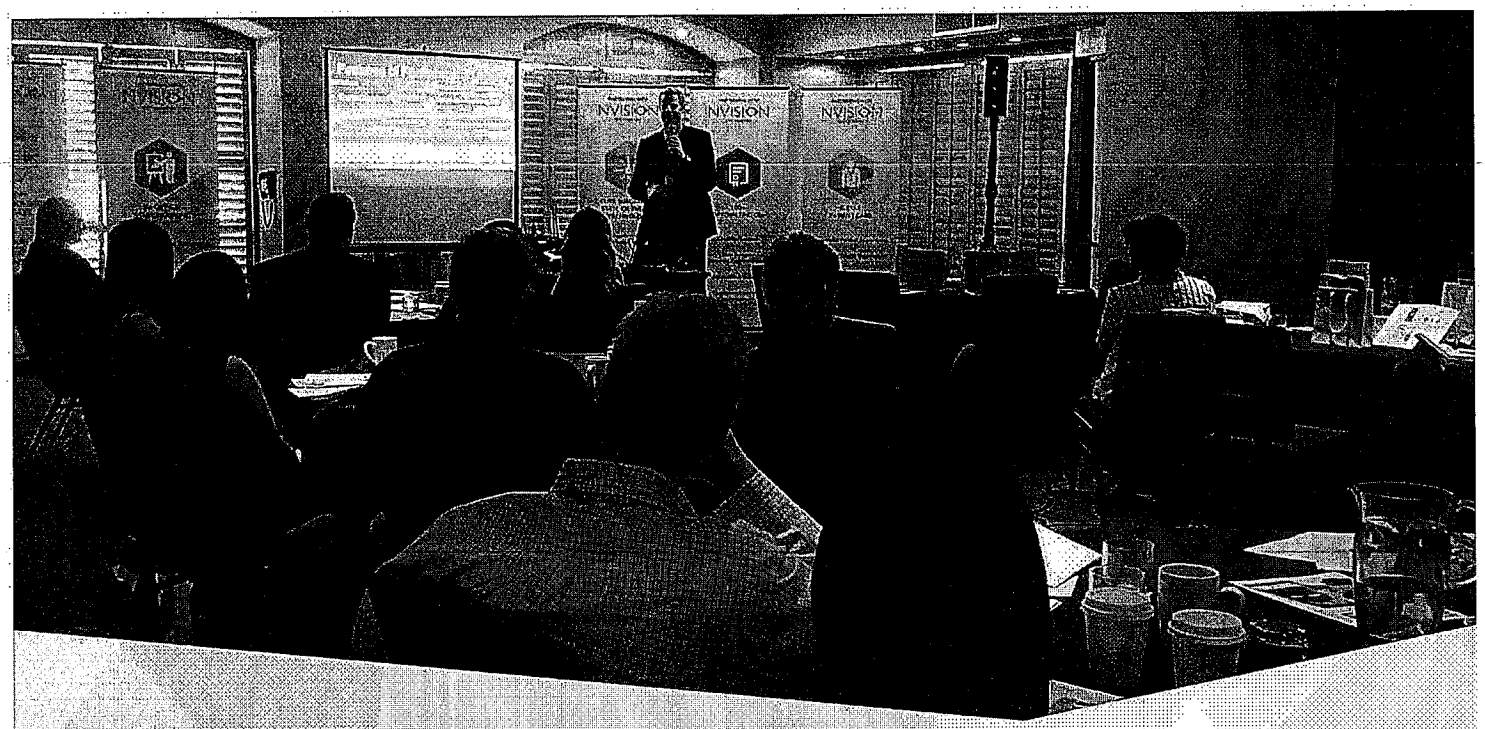
Limited Spots | Questions? Call **Ariel Weaver (619) 933 - 7649**

REGISTER ONLINE: **LaJolla-Journal-Club.eventbrite.com**

WE LOOK FORWARD TO SEEING YOU THERE

NVISION
EYE CENTERS

*CE pending COPE/California State Board of Optometry approval



YOU'RE INVITED TO THE NVISION LA JOLLA

Journal Club CE - Corneal Astigmatism

Tuesday, February 9, 2016 | 6:00 – 8:00 PM

NVISION Center | 3655 Nobel Drive, Suite 130 | San Diego, CA 92122

Join us as we discuss this month's Journal article, "Corneal Astigmatism Correction During Cataract Surgery", with Dr. Mihir Parikh.

Our monthly journal article will be available to review prior to the CE.
Earn 1.5 hours of CE Credits.

6:00 - 6:30 PM **Registration and Dinner**

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Limited Spots | Questions? Call **Ariel Weaver (619) 933 - 7649**

REGISTER ONLINE: **LaJolla-Journal-Club.eventbrite.com**

WE LOOK FORWARD TO SEEING YOU THERE

NVISION
EYE CENTERS

*CE pending COPE/California State Board of Optometry approval

2/23/16 scanned & placed in pending folder for Committee

AIS# 19960

Agenda Item 3K

STATE AND CONSUMER SERVICES AGENCY

GOVERNOR EDMUND G. BROWN JR.

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUTIE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

OPTOMETRY

2016 FEB -8 AM 11:45

Request for Approval of Continuing Education Course(s)

Cynthia Adame
NVISION Eye Centers
75 Enterprise, Suite 200
Aliso Viejo, CA 92656

Cashiering and Board Use Only			
Receipt#	**Payor ID#**	**Beneficiary ID#**	**Amount**
1-00269	6199013	6199017	50

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

CE Committee Member

NVISION EYE CENTERS				FOR BOARD USE ONLY		
Course Title	Date(s) of Course	Instructor(s)/ Lecturer(s)	CE Hours Requested	Approved	Disapproved	ID#
Cataract Surgery and Treatment of Dry Eye	1/26/16 and ongoing	Mitra Ayazifar, MD George Baerveldt, MD Amarpreet Brar, MD Richard Burns, MD Paul Casey, MD John Davidson, MD	2			
		Loren Little, MD Franklin Lusby, MD Patrick Lydon, OD Jeff Machat, MD Mihir Parikh, MD Steward Park, MD Jonathan Pirnazar, MD Archana Reddy, MD. Sheri Rowen, MD Richard Meister, MD Stanley Teplick, MD Thomas Tooma, MD Emil Stein, MD Jon-Marc Weston, MD				
		TOTAL TIME	2			
COMMITTEE COMMENTS:						

NVISION
EYE CENTERS

STATE BOARD OF OPTOMETRY
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

December 6, 2015

On behalf of NVISION Eye Centers, we are writing to request approval of 2 (two) hours Continuing Education to California doctors of optometry. The education will be delivered by Board Certified Ophthalmologists, clinical investigators and experts in technology and patient consultation.

Program Date: January 26, 2016, and additional dates thereafter.

Location: JT Schmid's Restaurant & Brewery, 2415 Park Ave, Tustin, CA 9278
This course will be repeated by NVISION surgeons and affiliate surgeons at centers and venues located in and around Camarillo, Fullerton, Laguna Hills, Murrieta, Newport Beach, Ontario, Palm Desert, Sacramento, San Diego, San Francisco, San Luis Obispo, and Torrance.

Program Name and Description:

Cataract Surgery and Treatment of Dry Eye – 2 Hours
This 2-Hour CE is an overview and open discussion for optometrist who wish to learn more about co-managing cataract patients, including patient selection and education. We will review patient selection criteria, assessment strategies and evolved technology, managing expectations. In support of that topic, we will also review dry eye symptoms, causes, and newly discovered risk factors. Includes new diagnosis technology and revised treatment options.

We are seeking a total of 2 hours of continuing education credit for these courses. The contact person for this program is myself, and I can be reached at 949.243.7482 or cynthia.adame@nvisioncenters.com.

Sincerely,

Cynthia Adame
NVISION Laser Eye Centers
Continuing Education and Special Projects Coordinator

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p: 949.274.4652 • *f:* 949.509.4858 • *e:* info@nvisioncenters.com • *w:* www.nvisioncenters.com

YOU'RE INVITED TO OUR FREE

Roundtable 2-HOUR CE*

Tuesday, January 26, 2016

6:30 - 9:00 PM

JT Schmid's Restaurant & Brewery | 2415 Park Ave | Tustin, CA 92782

Discuss elements of Cataract Surgery and have your questions answered by Sheri Rowen, MD and Ngoc Trieu, OD

6:30 - 7:00 PM	**Registration and Dinner**
7:00 - 9:00 PM	**1-Hour CE: Cataracts and Dry Eye**
9:00 PM	**Q&A and Cocktails with Dr. Sheri Rowen and Dr. Ngoc Trieu**

Limited Spots | Raffle Included | Questions? Call James Quinn 949-241-0039

REGISTER ONLINE: NVISION-0126-OC-Roundtable.eventbrite.com

WE LOOK FORWARD TO SEEING YOU THERE

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*CE pending COPE approval

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Medical Doctor Curriculum Vitae

As of January 13, 2016

Mitra Ayazifar, MD

5959 Greenback Lane#310 Mobile: (916) 960-9176
Citrus Heights, CA 95621 Tel: (916)723-7400
E-mail: mayazifar@gmail.com Fax: (916)723-4449

EDUCATION

Undergraduate
University of California at Berkeley
B.A., Molecular and Cellular Biology
Emphasis: Cell and Developmental Biology
January 1988- December 1991

Medical School
George Washington University School of Medicine and Health Sciences
Washington, D.C.
Doctor of Medicine
August 1993- May 1997
Honors and Appointments:
Distinguished Service Award Nominee, 1994
Main Coordinator: Medical School Orientation for Class of 1998 (1994)
GWU Admissions Committee Member, 1996-1997
Coordinator, AMSA's STATS (Students Teaching AIDS To Students)
Community Outreach Program, 1993-1994
Treasurer, Medical School Student Council, 1993-1995
GWU Representative to Organization of Student Representatives (OSR)
at State and national conventions, 1994-1995

POSTGRADUATE TRAINING

Internship Washington Hospital Center
110 Irving Street, N.W.
Washington, D.C. 20010
July 1997- June 1998
Internal Medicine Preliminary Year

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Residency Rhode Island Hospital/ Brown University School of Medicine
Department of Ophthalmology
593 Eddy Street
APC 7th floor Eye Clinic
Providence, RI 02903
July 1998- June 2001

Fellowship Rhode Island Hospital/ Brown Medical School
Department of Ophthalmology
593 Eddy Street, Providence, RI 02903
Chief Resident/ Clinical Assistant Instructor in Surgery (Ophthalmology)
July 2001- June 2002

Rhode Island Hospital/ Brown University Program in Surgery
Department of Ophthalmology
Fellowship in Oculofacial Surgery
Program directors: Yoash Enzer, MD and R. Jeffrey Hofmann, MD
September 2003- August 31, 2004

PROFESSIONAL LICENSES/ BOARD CERTIFICATION

USMLE Step I: pass 6/95
Step II: pass 8/96
Step III: pass 11/01

Medical License Rhode Island State Medical License
Awarded: 2/13/02
Active Status to June 2006

California State Medical License
Awarded: 03/10/06
Active Status to 05/31/2015

American Board Eligible
of Ophthalmology Registered for 3/2015 Written Qualifying Examination

ACADEMIC APPOINTMENTS/ HOSPITAL APPOINTMENTS

Clinical Assistant Instructor of Surgery (Ophthalmology)
Brown Medical School/ Rhode Island Hospital
July 2001- June 2002

Clinical Assistant Professor of Surgery (Ophthalmology)

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Brown Medical School/ Rhode Island Hospital
July 2002- July 2005

Clinical Assistant Professor of Surgery (Ophthalmology)
Veterans Administration Medical Center
Providence, Rhode Island
Staff Ophthalmologist
Comprehensive Ophthalmology and Oculoplastic Service
July 2002-2005

Interim Residency Program Director
Department of Ophthalmology
Rhode Island Hospital
July 2002- June 2003

SOCIETY MEMBERSHIPS

American Academy of Ophthalmology
American Society of Cataract and Refractive Surgery
American Medical Women Association (AMWA)
American Medical Association (AMA)
Roseville Chamber of Commerce

PUBLICATIONS

1- Murphy MA, Ayazifar M. Permanent visual deficits secondary to the HELLP syndrome. Journal of Neuro-Ophthalmology. 25(2): 122-127; June 2005.

2- Strauch M, Ayazifar M. Bent DNA is found in some but not all regions recognized by the Bacillus subtilis AbrB protein. Molecular and General Genetics 1995; 246(6):756-760.

BOOK CHAPTERS

Ayazifar M, Snady-McCoy L. Abnormal appearing Blood Vessels, In: Steidl SM, Hartnett ME eds. Clinical Pathways in Vitreoretinal Disease, New York: Thieme Medical Publishers, pp 183-202, 2002.

INVITED PRESENTATIONS

"***Ophthalmology in the Hospital Setting***" presented at Mercy San Juan Hospital Friday Grand Rounds (January 2015).

"Cosmetic and Functional Oculoplastic Procedures" presented at Nvision's Yearly CEjevent to Optometrists in Northern California (October 2014).

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"Maintaining Younger Looking Eyes" presented at Mercy's **Care Begins with Me** yearly Health Fair for Women (October 2013).

"Benign and Malignant Eyelid Lesions" presented at the Mercy San Juan Medical Center Grand Rounds (April 2012).

"Red Eye", presented quarterly to internal medicine housestaff at the Rhode Island Hospital and the Providence Veterans Administration Medical Center (1999-2001).

"CMV Retinitis", presented at the monthly Combined Retina Conference, Department of Ophthalmology, Rhode Island Hospital (October 1999).

"Ocular Manifestations of Systemic Disease", presented for the Lifespan community education series, Rhode Island Hospital, October 2000.

BCSC Review Lectures series: presented monthly to the ophthalmology residents, Department of Ophthalmology, Rhode Island Hospital (August 2001- 2003).

Oculoplastic surgery lecture series: "Thyroid Orbitopathy", presented to ophthalmology residents, Rhode Island Hospital, April 2002.

Oculoplastic surgery lecture series: "Ectropion, Entropion, and Trichiasis" presented to ophthalmology residents, October 2004.

Oculoplastic surgery lecture series: "The enophthalmic socket and late socket deformities", presented to ophthalmology residents, April 2004.

HOSPITAL TEACHING ROLES

Cataract surgical attending: Weekly cases with residents at Rhode Island Hospital Ambulatory Surgery Center (July 2001- 2005).

Cataract surgical attending: Weekly cases with residents at the Veterans Administration Medical Center (July 2001- 2005).

Clinical Assistant Instructor in Surgery: Department of Ophthalmology, management of the outpatient eye clinic and the inpatient Ophthalmology Consult Service at the Rhode Island Hospital (July 2001- June 2002).

Clinical Assistant Professor of Surgery (Ophthalmology): Management of the general ophthalmology and the oculoplastic service at the VAMC Providence. (July 2002- June 2005).

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Clinical Assistant Professor of Surgery (Ophthalmology): Call coverage for management of complex eyelid, orbital, facial trauma, and ruptured globe repairs, Rhode Island Hospital and the Providence Veterans Administration Medical Center (July 2002-2005).

EMPLOYMENT HISTORY)

December 2013-present
Nvision Sacramento

Capital Eye Medical Group joined Nvision sacramento. I continue to perform all of my previous procedures but have added cataract surgery to my list.

November 2011-December 2013
Capital Eye Medical Group:

Sole Practitioner in private practice in Carmichael, California
Providing comprehensive eye care and Oculoplastic services for the Sacramento area. Majority of my practice includes treatment of functional and cosmetic eyelid procedures including ptosis repair (eyelid and brow), blepharoplasty (upper and lower eyelids), ectropion, entropion, and various eyelid malpositions. The cosmetic procedures offered at my practice includes: Botox, Juvederm, Skin care regimen, and chemical peels. Also, I perform comprehensive eye examination for my patients.

September 2007- November 2011
Ophthalmology Associate Position at Sierra View Medical Eye:

Private Practice in Grass Valley, California including 3 Ophthalmologists and 1 Optometrist with its own optical department and accredited Ambulatory Surgery Center. My practice includes General Ophthalmology patients and all functional and cosmetic ophthalmic plastic procedures. This includes all the procedures mentioned below but expands to include the newer dermal fillers such as Juvederm Ultra and Juvederm Ultra Plus.

May 2006-August 2007

Ophthalmology Associate position at Martel Eye Medical Group: Majority of my practice included treatment of functional and cosmetic eyelid procedures including ptosis repair (eyelid and brow), blepharoplasty (upper and lower eyelids), ectropion, entropion, and various eyelid malpositions. I also performed post traumatic eyelid reconstructive surgery.
The **cosmetic procedures** offered at my clinic included: Botox, Restylane, Perlane, Laser hair removal, Laser Photorejuvenation, Skin care regimen, and chemical peels.

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George Baerveldt, MD

Dr. Baerveldt's international reputation is based on his glaucoma research and surgical innovations. Dr. Baerveldt developed the BaerveldtTM Glaucoma Implant and presently holds six patents related to this invention. He also invented Trabetome®, a minimally-invasive glaucoma surgical instrument for the treatment of adult and infantile open-angle glaucoma which is performed worldwide. In 2012, the American Glaucoma Society awarded Dr. Baerveldt with the Innovator Award for these contributions.

Born and educated in South Africa, Dr. Baerveldt obtained his medical degree from the University of Pretoria and his residency in ophthalmology at the University of the Witwatersrand. In 1980, Dr. Baerveldt, was head of St. John's Eye Hospital in Johannesburg when he was recruited as a fulltime faculty member at the Doheny Eye Institute, University of Southern California. In 1994, he accepted a faculty position as the Director of Glaucoma at the Cleveland Clinic Foundation where he remained until joining University of California at Irvine in 1999 as Director of Glaucoma. He was the Irving H. Leopold Professior and Chair of the Department of Ophthalmology, and Director of the Gavin Herbert Eye Institute from July 2003 - Novemeber 2008.

Dr. Baerveldt received the American Academy of Opthalmology's Senior Achievement Award in 2002 and was honored in Best Doctors in America (1996 - present). He was also named the Top Ophthalmologist by the International Association with the Distinguished Alumnus Award in 2000. He lectures internationally on glaucoma surgery and drugs.

Dr. Baerveldt's humanitarian endeavors have been recognized by the National Society to Prevent Blindness. He also received hte Teacher of the Year award in 1981 from the University of Southern California, and Staff of the Year from the Cleveland Clinic Foundation, 1997/1998 and 1998/1999.

Dr. Baerveldt performs surgery of several NVISION's Southern California locations and looks forward to meeting you and assisting with your glaucoma-related needs. In his spare time, he enjoys spending time with his wife, three children and four grandchildren.

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Amarpreet Brar, MD

A local Southern California native, Dr. Brar grew up skiing, playing basketball, swimming and he always knew he wanted to be a doctor. He found his true calling in Ophthalmology, and today, Dr. Brar is devoted to doing the most advanced types of cataract and LASIK surgeries. After graduating from Baylor College of Medicine in Houston, Texas, Dr. Brar completed his residency in ophthalmology at the University of Oklahoma's Dean McGee Eye Institute in Oklahoma City, then he decided to come home to his beloved Southern California.

Board certified for more than 10 years, Dr. Brar has performed more than 4,000 eye surgeries. He specializes in LASIK, PRK, LASEK, Cataracts, intraocular lenses, Custom LASIK and Wavefront technology. He is also an expert in implanting multifocal, accommodating, TORIC and monofocal intraocular lenses.

Dr. Brar is a member of respected professional societies, including the American Academy of Ophthalmology and the American Society of Cataract and Refractive Surgery. He has also been published in respected medical journals on topics related to Optic Neuritis in Children and Subfoveal Surgery for Removal of Choroidal Neovascular Membranes in submission to Ophthalmology. In addition, Dr. Brar is a frequent lecturer on topics related to refractive surgeries.

In his spare time, Dr. Brar likes to spend time with his wife and two children.

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Richard Burns, MD

Dr. Burns has performed more than 20,000 refractive and cataract procedures and takes particular interest in helping patients achieve their best personal vision through advanced refractive cataract and laser vision correction. His practice has been exclusively limited to cataract and refractive surgery for more than 25 years. Other ophthalmologists often refer the most challenging and complicated cases to Dr. Burns.

Prior to joining NVISION, Dr. Burns was the Chairman of the Department of Surgery as well as the Chairman of the Department of Ophthalmology at the largest multi-specialty group in San Diego. He also has a private practice in San Diego as well as serves as the Director of Refractive Surgical Services for California Eye Professionals in Temecula. He has served as the clinical instructor of ophthalmology for the University of California, San Diego, where he previously completed his residency and served as chief resident. He was also the chief of ophthalmology at Sharp Cabrillo Hospital, where he treated patients for more than eight years.

Dr. Burns is renowned for his success working with other ophthalmologists as well as optometrists, always with the goal of helping patients attain their best vision possible through laser procedures. A frequent lecturer on refractive and cataract procedures, Dr. Burns has also appeared on many television and radio programs sharing information about laser vision correction.

In his spare time, Dr. Burns enjoys golfing, hiking, and traveling. He especially enjoys spending time with his family as well as reading, particularly about history. He is involved in various local charitable works and enjoys participating in an annual work mission to Fiji. Dr. Burns chose the field of ophthalmology stating that "vision is awe inspiring to me."

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Paul Casey, MD

BIOGRAPHICAL DATA:
Date of Birth: January 27, 1962 Birthplace: Glen Ridge, NJ
Wife: Annemarie Children: Emily (23), Olivia (20)

EDUCATION:
1988-90 Florida Atlantic University
Bachelor of Arts, Chemistry
Bachelor of Science, Microbiology

1990-94 University of Miami School of Medicine
Doctor of Medicine

1994-95 David Grant Medical Center
Transitional Internship

1995-98 San Antonio Uniformed Services
Health Education Consortium
Residency in Ophthalmology

HONORS and AWARDS:
1988-90 Dean's List, Florida Atlantic University
1993 Alpha Omega Alpha, University of Miami

PRIVATE PRACTICE: 2002- Nevada Eye Care Professionals

CERTIFICATION:
United States Medical Licensing Examination
Step I- June 1992- 99th percentile
Step II- September 1993- 99th percentile
Step III- December 1995- 98th percentile

Nevada Medical License #10003
Ophthalmology Knowledge Assessment Program
Step I- April 1996- 97th percentile
Step II - April 1997 - 94th percentile
Step III- April 1998 - 93rd percentile

American Board of Ophthalmology Qualifying Exams
Written- April 1999- Passed
Oral- November 1999- Passed
Fellow of the American Board of Ophthalmology

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MIILITARY EXPERIENCE:
1990-1991 HPOIC/SAM
1998-2001 Ophthalmology Element Chief, RAF Lakenheath
2001-2002 Chief, Ophthalmology Service, Nellis AFB

PROFESSIONAL AFFILIATIONS:
1994- American Academy of Ophthalmology
2001- Nevada Ophthalmological Society
PUBLICATIONS:
Zwaan J, Casey P, Bybee L. Eye injuries during training exercises with paint pellets. Military Medicine 1996; 161:720-2.

Casey P et al. Outcome Measures in Diabetic Retinopathy Screening. IOVS 1996; 37:S217.

Casey P et al. Treatment of *Aspergillus* Endophthalmitis: A Prospective, Masked Trial of the Effect of Intravitreal Amphotericin and Dexamethasone in the Rabbit Model". IOVS 1997; 38:S1109.

Casey P et al. Long Term Alignment in Surgically Treated Intermittent Exotropia. IOVS 1998; 39:S555.

Croley J, Casey P, Bauman WC. Sterile Endophthalmitis Induced by Inactivated *Aspergillus* in the Rabbit Model. IOVS 1998; 39:S359.

Allen CS, Casey P, Bauman WC. A Prospective, Masked Trial Evaluating the Use of Intravitreal Dexamethasone Following Pars Plana Vitrectomy in Experimental *Aspergillus* Endophthalmitis. IOVS 1998; 39:S813.

Casey P et al. Treatment of *Aspergillus* Endophthalmitis: A Prospective Masked Trial of the Effect of Pars Plana Vitrectomy in the Rabbit Model. IOVS 1999; 40:S118.

PRESENTATIONS
1996 "Contact Lens Complications in Basic Military Trainees" (WHMC)
2nd Annual Uniformed Services Recruit and Trainee Symposium.

RESEARCH
1996 "Scanning Laser Ophthalmoscopy Before and After Focal Macular Laser Therapy for Clinically Significant Macular Edema"

1994 "A Double-Masked, Placebo-Controlled Trial of the Effect of Hyperbaric Oxygen on Visual Field Defects in Open Angle Glaucoma"

2007 "A Prospective Multicenter Clinical Study to Evaluate the Safety and Effectiveness of the Synchrony Dual Optic Intraocular Lens in Patients Undergoing Cataract Extraction"

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John Davidson, MD

As a board-certified ophthalmologist, Dr. Davidson has performed more than 17,000 refractive and cataract procedures. He is the second-highest Restor implanting surgeon in all of California and has more experience with Restor than any other surgeon in the greater Los Angeles area.

Dr. Davidson earned his M.D. with Highest Distinction in the top 1 percent of his class at Indiana University. After completing his ophthalmology residency, he won the Clinical Fellow Research Award at the Jules Stein Eye Institute at the University of California, Los Angeles.

Education remains a priority to Dr. Davidson, and he continues to train, teach and lecture on vision correction. He is an as sistant clinical professor at his alma mater, the Jules Stein Eye Institute at the University of California, Los Angeles.

Dr. Davidson is the recipient of many prestigious awards. He has been named one of America's Top Ophthalmologists by the Guide to America's Top Ophthalmologists in 2007, 2008 2009, and 2010. He was also named Ventura County's Best LASIK Surgeon of 2009 by Ventura County Reporter magazine.

A charitable person at heart, Dr. Davidson strives to bring the gift of sight to all his patients. Dr. Davidson spends his free time as a volunteer physician for SEE International, which is devoted to helping restore sight in blind individuals worldwide. With SEE International, he has traveled to developing countries worldwide, where he has participated in eye surgery missions. In this charitable work, Dr. Davidson has provided modern eye care to hundreds of people. He has also given the gift of medical training to local ophthalmologists in Albania, Mexico, Venezuela, and Vietnam.

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Loren Little, MD

DATE OF BIRTH:
OCTOBER 28,1941

PLACE OF BIRTH:
SIOUX FALLS, SOUTH DAKOTA

EDUCATION:
1959 - 1963 - BA: MACALESTER COLLEGE, ST. PAUL, MN
1963 - 1965 - BS: UNIV. of S. DAKOTA, VERMILLION, SD
1965 - 1967 - MD: UNIV. of WASHINGTON, SEATTLE, WA

SCHOLARSHIPS: DEWITT-WALLACE GRADUATE SCHOLARSHIP

INTERNSHIP: 1968 - SIOUX VALLEY HOSPITAL, SIOUX FALLS, SD
ROTATING-O

MILITARY SERVICE: SEPT 1968 - ENTERED U.S. ARMY

AWARDS:
1969 - VIETNAM: SILVER STAR, PURPLE HEART,
BRONZE STAR w OLC, AIR MEDAL w OLC, COMBAT MB, PARACHUTIST BADGE, VSM, VTSM,VCM, NDM, VIETNAM CROSS of GALLANTRY w/PALM
1971 - JOINT CHIEF OF STAFF COMMENDATION MEDAL

RESIDENCY:
1971 - 1974 - OPHTHALMOLOGY
WALTER REED ARMY MEDICAL CENTER, WASHINGTON, DC

CHIEF RESIDENT:
1974 - WALTER REED ARMY HOSPITAL OPHTHALMOLOGY SERVICE

TEACHING:
1974 - 1976 - CHIEF OF OPHTHALMOLOGY SERVICE,
WILLIAM BEAUMONT ARMY MEDICAL CENTER,
EL PASO, TEXAS - SERVICE CONSISTED OF THREE OPHTHALMOLOGISTS, EIGHT OPTOMETRISTS. RESPONSIBILITY TO RESIDENTS AND STAFF OF OTHER SERVICES,
INCLUDING ROTATING INTERNS, MEDICAL STUDENTS, AND RESIDENTS/RESERVE DUTY

FELLOWSHIP: JAN - APRIL - INTERNATIONAL EYE FOUNDATION TO PERU
1974

BOARD CERTIFICATIONS:
1968 - DIPLOMATE NATIONAL BOARD OF MEDICAL
EXAMINERS
OCT 1976 - AMERICAN BOARD OF OPHTHALMOLOGY

PRIVATE PRACTICE:
JUL - SEP 1968 - LOCUM TENENS - GENERAL PRACTICE, VIBORG, SD
MAR 1976 - TO PRESENT LAS VEGAS, NEVADA

MEDICAL ORGANIZATIONS:
FELLOW: AMERICAN ACADEMY OF OPHTHALMOLOGY
FELLOW: AMERICAN COLLEGE OF SURGEONS CLARK COUNTY AND NEVADA STATE MEDICAL ASSOCIATION
INTERNATIONAL SOCIETY of REFRACTIVE SURGERY
of the AMERICAN ACADEMY of OPHTHALMOLOGY

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MEDICAL LICENSES: SOUTH DAKOTA #0799 NEVADA #2972

RESEARCH AND PUBLICATIONS:
1) APLASIA OF THE OPTIC NERVES JOURNAL OF PED. OPHTHALMOLOGY VOL.13 (2) 84-88 1976

2) LOCALIZATION OF INTRAORBITAL FOREIGN BODIES ANNUALS of OPHTHALMOLOGY Vol. 8 #5 1976

3) ANTERIOR SEGMENT COMPLICATIONS AND NEOVASCULAR GLAUCOMA FOLLOWING IMPLANTATION OF A POSTERIOR CHAMBER INTRAOCULAR LENS OPHTHALMOLOGY Vol. 91 ISSUE #4 Pg. 403-419 1984

SUBMITTED: 1) FACTORS AFFECTING ARMY MEDICAL TRAINING FACILITIES

PAPERS PRESENTED: WALTER REED ARMY MEDICAL CENTER BIANNUAL OPHTHALMOLOGY MEETING - "CONGENITAL ABSENCE OF RETINAL VESSELS AND OPTIC NERVE" 1974

SUMMARY REPORTS: LOCALIZATION OF INTRAORBITAL FOREIGN BODIES, IN:
1) THE DOCTORS DIGEST
2) OPHTHALMOLOGY DIGEST

ADMINISTRATIVE:
1) EMERGENCY ROOM COMMITTEE - DESERT SPRINGS HOSPITAL - 1989
2) SEC'Y & TREASURER MEDICAL STAFF, DESERT SPRINGS HOSPITAL - 1986
3) PRESIDENT OF SOUTHERN NEVADA EYE CARE OPHTHALMOLOGY SOCIETY - 1984
4) CHIEF OF SURGERY, DESERT SPRINGS HOSPITAL - 1982
5) EXECUTIVE COMMITTEE, DESERT SPRINGS HOSPITAL - 1982 & 1986
6) CHAIRMAN, EMERGENCY ROOM COMMITTEE - 1981
7) CHAIRMAN, TISSUE COMMITTEE, DESERT SPRINGS HOSPITAL - 1980
8) CHIEF OF OPHTHALMOLOGY, DESERT SPRINGS HOSPITAL - 1976 – 1991

DISABILITY CLAIMS EXAMINER for NEVADA STATE 1977 - Present

COMMUNITY: TRUSTEE, NEVADA SCHOOL OF THE ARTS 1983 - 2008

LISTED:
WHO'S WHO IN AMERICA
WHO'S WHO IN ENTERTAINMENT
WHO'S WHO IN MEDICINE AND HEALTH CARE
WHO'S WHO IN HEALTH AND MEDICAL SERVICES
WHO'S WHO IN THE WEST
WHO'S WHO IN THE WORLD

NVISION EYE CENTERS

Franklin Lusby, MD

Home Address:	238 Pacific Avenue, Solana Beach, California 92075
Business Address:	9850 Genesee Avenue, Suite 220 La Jolla, CA 92037 (858) 459-6200
Web address:	www.drlusby.com
Date of Birth:	November 14, 1953
Medical License:	G-41830 (California)
UPIN:	A48707
DEA:	AL9233634
Education:	
High School:	High Point High School Beltsville, Maryland (1971)
College:	Columbia Union College Takoma Park, Maryland (1974) B.A. – Chemistry – Magna cum Laude
Medical School:	Loma Linda University School of Medicine Loma Linda, California (1978) M.D.
Internship:	Flexible Malden Hospital Malden, Massachusetts Boston University School of Medicine (1978-1979)
Pre-Residency Study:	Basic and Clinical Sciences for Ophthalmology Massachusetts Eye and Ear Infirmary Harvard Medical School (September-December 1979)
Residency:	White Memorial Medical Center Los Angeles, California

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Ophthalmology (1980-1983)

Fellowship: Extracapsular Cataract Extraction and Intraocular Lens Implantation
James M. McCaffery, M.D.
Glendale Eye Medical Group (1983-1984)

Examinations: National Board of Medical Examiners (1979)

Board Certification: American Board of Ophthalmology (1985)

Certifications:

Refractive Surgery:
-A System of Precise, Predictable Keratorefractive Surgery: J. Charles Casebeer, M.D., May, 1992
-Fellowship in Advanced Incisional Keratotomy: Lee Nordan, M.D., June-August, 1995
-ExciMed UV200 Certfication, Summit Technology, October, 1995
-Automated Lamellar Keratoplasty: J. Charles Casebeer, M.D., Stephen G. Slade, M.D., November, 1995
-Mini Fellowship in Lamellar Refractive Surgery: Stephen G. Slade, M.D., January, 1996
-CHIRON VISION Advanced Mini Fellowship in C-LASIK: Shanghai, China, January, 1996
-VISX Excimer Laser System PRK Training Course: VISX, July, 1996
-VISX Excimer Laser System Astigmatism Training Course: VISX, May, 1997
-VISX Excimer Laser System PRK with Astigmatism & High Myopia Training Course: VISX, March, 1998
-VISX Excimer Laser System Hyperopia Training Course: VISX, November, 1998
-VISX Excimer Laser System LASIK Training Course: VISX, January, 2000
-VISX Excimer Laser System Blend Zone with Variable Spot Scanning Training Course: VISX, April, 2001
-LADARVision Excimer Laser Workstation Certification: Alcon, October, 2001
-VISX Excimer Laser System LASIK for the Treatment of Mixed Astigmatism Training Course: VISX, March, 2002
-VISX Excimer Laser System Custom CAP Training Course: VISX, June, 2002
-LADARVision Ladarwave Customcornea Certification: Alcon, February, 2003

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-VISX Excimer Laser System CustomVue Training Course: VISX, June 2003
-IntraLASIK Training Course: Intralase, January, 2004
- VISX Excimer Laser System Fourier Algorithm Training Course: VISX, November, 2004
-Allegretto Excimer Laser Certification: Wavelight, November, 2004
- VISX Excimer Laser System CustomVue Hyperopia and Hyperopic Astigmatism: VISX, December, 2004
- VISX Excimer Laser System CustomVue Mixed Astigmatism: VISX, March, 2005
- VISX Excimer Laser System Iris Registration: VISX, March, 2005
- VISX Excimer Laser System CustomVue High Myopia: VISX, October, 2005
- VISX Excimer Laser System CustomVue Treatments for Monovision in Presbyopic Patients with Low to Moderate Myopia and Myopic Astigmatism: VISX, March, 2008

Professional Activity:

Private Practice:

Glendale Eye Medical Group
607 North Central Avenue, Suite 105
Glendale, California 91203
(818) 956-1010
(1984-1989)
(1991-1997)

Franklin W. Lusby, M.D., Inc.
655 North Central Avenue, Suite 209
Glendale, California 91203
(818) 546-2020
(1989-1990)

Franklin W. Lusby, M.D., Inc.
(dba Lusby Eye Medical Group)
205 W. Mission Avenue, Suite M
Escondido, California 92025
(760) 746-6900
(1991-1993)
700 West El Norte Parkway
Escondido, California 92026
(760) 738-7800
(1993-1997)

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Franklin W. Lusby, M.D., Inc.
(dba La Jolla Eye and Laser Surgery Medical Center, Inc.)
6523 La Jolla Boulevard
La Jolla, California 92037
(858) 459-6200
(1994-1996)
7825 Fay Avenue, Suite 140
La Jolla, California 92037
(858) 459-6200
(1996-2006)
(dba Lusby Vision Institute)
9850 Genesee Avenue, Suite 220
La Jolla, California 92037
(858) 459-6200
(2006-current)

Franklin W. Lusby, M.D., Inc.
330 North Brand Boulevard, Suite 110
Glendale, California 91203
(818) 409-0900
(1997-2002)

TLC Laser Eye Center – Newport Beach
3501 Jamboree Road, Suite 1100
Newport Beach, California 92660
(949) 854-7400
(2001-2008)

Medical Directorships:

Pacific Laser Eye Center
Medical Director
4330 Barranca Parkway, Suite 101
Irvine, California 92604
(949) 733-3937
(1998-2000)

Maloney-Lusby Vision Institute
Medical Director
4330 Barranca Parkway , Suite 101
Irvine, California 92604
(949) 733-3937
(2000)

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F. W. Lusby, M.D., Inc.
(dba Lusby Vision Institute-Irvine)
Medical Director
4330 Barranca Parkway , Suite 101
Irvine, California 92604
(949) 733-3937
(2000-2001)
910 East Birch Street, Suite 350
Brea, California 92821
(949) 733-3937
(2001-2005)
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

TLC Laser Eye Centers – Brea
Medical Director
910 East Birch Street, Suite 350
Brea, California 92821
(714) 257-0560
(2001-2005)

TLC Laser Eye Centers – Fullerton @ SCCO
Medical Director
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

ClearSight Laser Center
Medical Director
2121 E. Coast Highway, Suite 200
Corona del Mar, California 92625
(949) 600-4668
(2008-2011)
10 Pointe Dr., Suite 310
Brea, California 92821
(714) 880-8808
(2008-2011)
1680 E. Herndon Ave., Suite 101
Fresno, California 93720
(559) 473-4053
(2008-current)

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9850 Genesee Ave. Suite 220
La Jolla, California 92037
(858) 926-4664
(2008 – 2011)
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Fullerton
Medical Director
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Torrance
Medical Director
23550 Hawthorne Blvd., Suite 220
Torrance, CA 90505
(310) 784-2020
(2011- current)

Society Memberships:

Member - San Diego County Medical Society
Fellow- American Academy of Ophthalmology
Member- American Society of Cataract and Refractive Surgery
Member- International Society of Refractive Surgery
Charter Member- American College of Eye Surgeons
Member- David Paton Society
Member- Research to Prevent Blindness Ophthalmological Soc.

Hospital Affiliations: Scripps Memorial Hospital-La Jolla (1994-Current)
Cedars Sinai Medical Center (1999-2001)
Glendale Adventist Medical Center (1984-2002)
Memorial Hospital of Glendale (1984-2002)
Verdugo Hills Hospital (1984-2002)
Arcadia Outpatient Surgery Center (1984-1988)
Victor Valley Community Hospital (1989-1997)
Palomar Medical Center (1991-1994)
Pomerado Hospital (1991-1997)
Escondido Surgery Center (1991-1997)

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Premiere Surgery Center (1993-2001)
Healthsouth Surgery Center (1994-Current)
Glendale Eye Surgery Center (1989-2002)

Section Chief
Division of Ophthalmology
Department of Surgery
Glendale Adventist Medical Center
(1990-1996)

Laser Center
Affiliations: Mericos Eye Institute
San Diego Excimer Laser Center
TLC Laser Eye Centers

Publications:

1. Oyakawa, R.T., Lusby, F.W., Schachat, A.P., Brown, R.H.: An Irrigating Endo-illuminator for Anterior Vitrectomy. Am. Journal of Ophthalmology (submitted)

2. Byer, L.V., Oyakawa, R.T., Lusby, F.W.: Vitrectomy Instrumentation in Failed Trabeculectomy. Am. Journal of Ophthalmology (submitted)

3. McCaffery, J.M., Lusby, F.W.: A Review of 584 3M Style 30 Intraocular Lens Implants. American Journal of Cataract and Refractive Surgery, 12: 278-280, 1986

4. Lusby, F.W., Franke, J.W., McCaffery, J.M.: Clinical Comparison of Manual and Automated Keratometry in a Geriatric Population. Contact Lens Association of Ophthalmology Journal, Vol 15 #2, 119-121, March, 1987

5. Nordan, L.T., Lusby, F.W.: Refractive Aspects of Cataract Surgery. Current Opinion in Ophthalmology Vol. 6 #1, 36-40, February, 1995

Scientific Presentations:

1. "A Statistical Review of 584 3M Style 30 Intraocular Lens Implants," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

2. "Review of 838 Office-Based Posterior Capsulotomies," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

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3. "The Accuracy of the Assumed Anterior Chamber Depth in the Binkhorst Formula," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

4. "Pre-operative Axial Length vs. Post-operative Axial Length," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

5. "Comparison of the Enhancement Rates of the Casebeer and the Nordan/Maxwell Refractive Surgery Methods," Lusby, F.W., ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

6. "Incisional Keratotomy: Current Status," Lusby, F.W., Mericos Eye Institute Visions in Ophthalmology, La Jolla, CA, March, 1996

Scientific Exhibits:

"An Irrigating Endo-illuminator for Anterior Vitrectomy." Lusby, F.W., Oyakawa, R.T., Schachat, A.P., Brown, R.H. Contact Lens Association of Ophthalmology and the Combined Meeting of the Anterior Segment Societies, Las Vegas, Nevada, 1982

Teaching Appointments:

Faculty: Residents Skills Training Course in Radial Keratotomy, ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

Mentor: Health Professions Preparation Program, UCSD, 1998-Current

Academic Appointment:

Adjunct Clinical Professor
Southern California College of Optometry
Fullerton, California
(2006-2012)

Part-time Clinical Professor
Southern California College of Optometry
Fullerton, California
(2012-current)

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Patrick Lydon, OD

Clinical Research Optometrist –
Manager and Director of Clinical Affairs

Primary Residence:
77-261 Tribecca St. Indian Wells, CA 92210
Home: 760-360-5245
Email: pjlwolf@earthlink.net
Cell: (949)-735-2766

STATEMENT OF PURPOSE

This resume is a condensed summary of my professional, educational, and personal background. It outlines my qualifications in the areas of patient care, training, business management, and clinical trials for medical devices and procedures. I believe that because of my familiarity with the certification processes, as well as my background in research, I am uniquely positioned for consideration in any role related to those fields.

WORK EXPERIENCE

Current:

1. **January 2016 – Consulting Optometrist – NVISION Center Palm Desert California**
   Responsible for Pre Op and Post Op Comanagement LASIK/Cataract

2. **March 2015 to present – Consulting Director of Optometric Services – S. Shah, MD Family Charitable Foundation for Health – Palm Desert , CA**

   Primary Eyecare - directing the clinical program at the Shah Foundation, with special emphasis on Glaucoma Patients, and disadvantaged students of the Coachella Valley, ensuring no student is left behind because of a vision problem.

3. **Nov. 2014 to present - Consulting Director of Clinical And Medical Affairs, Eye Therapies Inc. (Lutronic division)** - San Francisco-based ophthalmic laser medical devices

   - Surgical Trainer – AMD 10 Laser
   - Staff Trainer
   - Site Qualification, Initiation

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- Study Protocol Development and Review
- IRB Submission
- Site Contract Review
- Study Documentation Development and Review

4. **Nov. 2014 to present - Consultant to Refocus Group, Dallas TX – Clinical research** – Medical device company studying the surgical treatment of presbyopia

- Surgical Trainer – VisAbility Implant System (Spain and Ireland)
- Site Staff Training and Managing /Reviewing Subject Enrollment
- Post Marketing Protocol Development and Review

Previous Work Experience: (full time – non consulting)

1. **Eye Therapies, San Francisco, CA – Director of Clinical and Medical Affairs** – Nov. 2014 to March 2015

-Reported directly to the President and CEO

-Credited with designing the clinical program and providing expertise in the Surgical Training for the AMD 10 Ophthalmic Laser

-Co-developed clinical research strategic programs in line with global strategy and supported the local product registration and marketing.

-Acted as a medical resource to the company as a whole and particularly to the clinical research department - protocol and CRF writing, adverse events reporting, discussions with investigators, and internal meetings.

-Worked closely and cooperatively with research centers internationally

-Initiated and Developed clinical trial programs to support product registration and marketing.

-Provided medical and scientific input to global product development teams.

-Provided medical expertise in the review of adverse experiences

-Established ongoing liaison with key opinion leaders, government officials, CRO's and other healthcare organizations to ensure that significant developments in the field are identified and monitored.

-Represented the company at professional worldwide meetings

-Ensured that the interfaces between Medical/Clinical and other departments were managed optimally.

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-Formed informal networks with company senior management, updating them on a regular basis on developments within Medical and progress made with the clinical and regulatory program.

-Worked in conjunction Regulatory, Marketing and Financial people through cross-functional teams, to ensure timely entry of new device to the market

-Worked with company management to determine requirements for clinical programs - involved with the identification and selection of suitable candidates for positions.

-Ensured effective team communication throughout the department through the application of suitable reporting systems and structures and the identification and provision of appropriate training.

2. **Refocus Group, Dallas TX – Global Clinical Affairs Manager** – April, 2014 to Nov 2014.

- Primary responsibility for overseeing all clinical activities related to sites in Spain and England/Ireland.
- Managed trial exclusion and inclusion enrollment.
- Surgical Trainer for VisAbility Implant System
- Qualified clinical investigators and clinical sites on the VisAbility Implant System.
- Obtained and reviewed all required essential documents necessary for study initiation.
- Interacted with all levels of medical and scientific professionals.
- Assisted in the preparation and presentation of clinical training materials for investigator site staff.
- Provided scientific support to health care professionals at clinical sites.
- Independently handled various clinical study assignments including: conceptualizing, planning, designing, executing and monitoring
- Managed staff at site for company in regards to trial activities
- Summer 2014 Visiting Scholar at the University of Terraza, School of Optometry (Barcelona) Spain for the VisAbility Implant Trial
- Managed resource planning, project timelines and effective use of budget
- Managed project related professional meetings and presentations
- Established and maintained ties to Surgeons and Staff Globally
- Responsible for providing assistance in direction of overall corporate strategy and evaluating market potential
- Monitored clinical studies, ensuring site compliance with the clinical protocols; assuring subject rights, safety, and welfare are protected; ensured data integrity through completeness, accuracy, and legibility.
- Reviewed and monitored required corrective actions; conduct follow-up activities on required action items directly with investigator sites. .

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- Maintained professional, product, and market expertise via independent reading, networking, and training.

3. **AcuFocus Inc., Irvine, CA - CRA / Clinical Research Optometrist / Director of Training / Global Training Manager** (Feb 2012-2014 April)

- Clinical Research Optometrist: In this position I was responsible for monitoring sponsor-initiated clinical research studies for the KAMRA Inlay, 020A and 020B trials – conducted monitoring visits to confirm protocol compliance and to ensure sponsor/investigator obligations were met nationally as well as in Australia , New Zealand, Canada , Peru, and Chile.
- Verified that sites were compliant with applicable local requirements and FDA / ICH guidelines
- Monitored the trials to confirm protocol compliance. Included Surgeon (and staff) Training on femtosecond lasers, AcuFocus Home Office training and assessed qualifications of study personnel to ensure "Good Clinical Practice".
- Identified site issues and initiated correction plans based on monitoring reports (including study logs and device accountability) and performed necessary follow-up onsite training
- Verified the data in source documents (EDC) were in agreement with source, initiated data query resolutions, and confirmed resolutions in a timely manner
- Ensured subject safety and adverse event reporting to sponsor and IRB/IEC
- Promoted to Director of Training USA /Global Training Manager – Europe, India and Canada. Worked within the team environment to provide commercial training to team members such as project managers.
- Responsible for developing and training interactions for all trained surgeons and staff in use of the KAMRA inlay. Opened the commercial markets for KAMRA in India and Canada. Monitored the training guidelines and introduced surgeons and staff to the device.
- Initiated the Global Data Base Registry for KAMRA patients in Canada / ROW
- Credited with obtaining the highest volume of clinical KAMRA subjects for new sites in Canada
- Developed the Visiometric AcuFocus HD Acutarget project for site use

4. **NeoVista Inc., Fremont, CA – Clinical Affairs Specialist / CRA/ VA Trainer /Director of Clinical Marketing Training.** May 2006 – April 2012

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- Began at NeoVista as CAS with Retinal Surgeon Training, Monitoring (US And OUS), Radiation Oncologist Training, Medical Physicist Training , and Optometrist trainer.
- Performed IRB, and Protocol submission in the United States, Europe, and South America for multiple NeoVista clinical trials.
- In charge of VA Certification for worldwide trial CABERNET,
- London based Director of Clinical Marketing Training for the MERLOT Trial -23 NHS sites

Specific Job Functions in UK for NeoVista:

- Credited with completing enrollment of subjects on time for the MERLOT trial (373 subjects at 23 sites).
- During the CABERNET And MERLOT clinical studies, initiated frequent interactions with clinical investigators to ensure compliance with protocol and overall clinical project objectives.
- Trained surgeons on use of the VIDEON (radiation device). Trained nursing and radiation staff on use of VIDEON. Represented NeoVista in OR situations worldwide (USA, South America, Europe , Israel and South Africa.
- Responsible for training of medical staff in follow-up to cases performed (AE Reporting)
- Assured studies were conducted in compliance with UK NHS/NICE Good Clinical Practice and appropriate international, federal, state, and local regulations and guidance's.
- Provided assistance in the evaluation and analysis of clinical data.
- Responsible for regular updates to Senior Management on site status.
- Managed the Physics Project NeoVista. Ensuring the on time , replacement and exchange of expiring medical devices in the UK. Credited with "saving" the MERLOT Trial
- Organized and worked closely with an international team (Austria – Germany – UK) to initiate successful clinical trials enrollment strategies
- Audited sites in the United States, Europe, Middle East and South America.
- Maintained accurate and timely sponsor/site correspondence and communication.
- Prepared and presented project progress reports to keep NeoVista management and clinical staff informed
- Presented MERLOT Trial to the Royal College of Surgeons, London UK
- MERLOT Trial Specifics: Responsible for site qualification, initiation, surgeon/ radiation oncology training, data monitoring, adverse event reporting, IRB applications, protocol review, informed consent, and creating SOPs.
- I transferred to AcuFocus (a sister company of NeoVista) in March of 2012. As a Clinical Research Optometrist, I continued in monitoring and training sites worldwide. I worked with refractive surgeons, R & D and Marketing on developing the KAMRA inlay.

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5. **Genentech Corporation Visual Acuity Evaluator/Trainer (August 2002 - May 2006) -**
   - VA Evaluator/Trainer for the Lucentis Series of Clinical Trials ---Focus, Anchor, Marina, Sailor, and Horizon
   - Trained and worked with site staff on VA requirements for Lucentis development.
   - Trained Protocol and Developed New Training Upgrades for Genentech Clinical Trial Managers
   - Extensive US travel – responsible for > 30 sites
   - Contributed to the success of Lucentis with VA results meeting endpoint

   Transferred to NeoVista to continue work in wAMD

Field-Related WORK EXPERIENCE:

- Prior to joining Genentech: Pearle VisionCare HMO of California
- November 1986 – 2002 Starting as a Staff OD in a single office in 1986, my career at Pearle saw my responsibilities expand to include the following positions:

Medical Director/VP Cole Managed Vision (parent company of Pearle)

- Staff OD, Managing OD
- Regional Optometric Coordinator
- 1996 Externship Binder Gordon Laser Vision Institute
- Quality Assurance Committee Chairman
- Director of Doctor Relations PVC California
- Medical Director PVC
- President Pearle Vision Care of California

During these transitional years, my responsibilities grew to include oversight, administration, and clinical decisions for approximately 50 California corporate locations. I was credited for contributing significantly to a business turnaround that reversed downsizing, leveled a financial slide and turned comp growth. During this period, Pearle's California offices improved efficiency dramatically (i.e., fewer offices saw more patients with higher quality). Creation and oversight of a network of over 100 providers. Monitoring performance of direct-reporting OD's, training, coaching, counseling, conducted performance reviews, and recommended merit increases where appropriate. During this tenure I also participated in my first clinical trials. We participated in contact lens development and the solutions used to treat them.

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EDUCATION

- Doctor of Optometry, University of California, Berkeley, School of Optometry
- BS Optometry, University of California , Berkeley
- Certificate in Clinical Research (CRA)
- Kaiser Hospital Staff, Cataract Lens Clinic
- Letterman Hospital , Presidio San Francisco Cataract Rotation and Internship
- Externship Binder and Gordon Laser Vision Institute
- Bachelor of Science, Combined Sciences, Minors in Biochemistry and History, University of Santa Clara - Captain Crew Team / Academic All American
- London School of Economics and Oxford, University of Freiburg, Germany, University of Santa Clara Studies Abroad Program
- Archbishop Mitty High School, Cupertino, California
  - recipient of Alumni Award for Constant Achievement
  - Spanish Award

OUTSIDE INTERESTS

- Athletics: Golf, tennis, bicycling, scuba diving, volleyball
- Hobbies: amateur musician - Currently, member of two musical groups with interests in contemporary, traditional, folk, and Irish/folk music.

STATEMENT

Throughout my career, I've been able to work myself into positions of ever-increasing challenge and responsibility. My background includes clinical care/training and business management at the local, regional, state, national and international levels. I maintain a passion for oversight and training in the research environment, and commercial settings. At my core, I feel a strong dedication to pursuing answers to the question, "What is around the next corner".

It has been a unique journey, from local staff Optometrist, National Medical Director and Vice President at Pearle Vision, to my current positions as a consultant with multiple Global Clinical Research Companies.

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Jeffrey Machat, MD, FRCSC, DABO

13700 Marina Pointe Dr. Ste.#1822 Marina Del Rey, Ca. 90292
416-818-1747, jeff.machat@crystalclearvision.com

Education and Medical Training

Board certification by the American Board of Ophthalmology, November 24, 1991

Board Certification by the Royal College of Physicians & Surgeons of Canada November 16, 1990

Residency 7/1/1987—6/30/1990
University of Toronto, Toronto, On. Canada
Ophthalmology

Internship 7/1/1986—6/30/1990
University of Toronto, Toronto, On. Canada
Comprehensive Medical Internship, Toronto General Hospital

Doctor of Medicine 7/1/1982— 6/12/1986
University of Toronto, Toronto, On. Canada

Undergraduate Program, Life Science
9/1/1980-5/15/1982
University of Toronto, Scarborough, Ontario, Canada

Professional Work History

Founder and Medical Director 02/1/2009—present
Crystal Clear Vision, Toronto, On. Canada

- Crystal Clear Vision is a state of the art facility in downtown, Toronto.
- The clinic has a College approved full ophthalmic surgery operating suite and two laser suites.
- Clinic offers LASIK for the correction of hyperopia, myopia and astigmatism, KAMRA Vision for reading vision correction and premium Laser Cataract Surgery
- The clinic is not only a treatment facility, but a teaching and research facility as well, hosting and training surgeons from across North America.
- Equipped with the most advanced technology including:
  - Schwind AMARIS 750s Excimer Laser system
  - Sirius Corneal and Total Ocular Wavefront Diagnsotics system
  - Specular Microscopy, RT VUE OCT system, Epic system, IOL Master
  - AcuFocus AcuTarget HD and Tagaki microscope for KAMRA surgery
  - Ziemer Z4 Femtosecond Laser for Corneal surgery
  - Victus Femtosecond laser for Cataract surgery

Co-Founder/North American Medical Director 08/01/1993—01/01/2002
TLC Canadian National Medical Director 01/01/2002---02/01/2009
TLC Laser Eye Centers, Toronto, Canada

- Co-founded and developed the largest laser vison correction company in the world, with 83 fixed site clinic across North America, as well as 300 mobile sites.
- Provided clinical training, education and direction for over a 600 surgeons.
- Provided the clinical and operating guidelines for all surgeons, technicians and clinical staff
- Functioned as Chief surgeon at multiple clinics, performing thousands of vision correction surgeries and complication management and care to TLC and non-TLC patients
- Pioneered many techniques and developed surgical instrumentation for LASIK and PRK

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- Functioned as Researcher and Investigator for several excimer laser companies, including Summit, Visx, Technolas, LaserSight and WaveLight
- Primary FDA Investigator for Technolas 217 excimer laser system
- Health Canada Investigator for Summit, Visx, Technolas laser systems
- TLC became a publicly traded company on both the TSX and NASDAQ in 1996.
- After 2002, transitioned position and responsibilities, limiting oversight to 7 Canadian clinics and developing Custom LASIK Centre in 2000, working with Optical Express and helping develop RheoTherapeutics Macular Degeneration Clinics. During this entire period, continued to operate and function as TLC Medical Director for Canada.

Medical Director
Rheo Therapeutics, Toronto, Canada 09/01/2007—06/24/2008

- Instrumental in the development of Macular Degeneration Treatment Centers across Canada.
- Performed research and coordinated policies and procedures for the Retinal Surgeons and other physicians involved with the organization.

Chief Medical Officer/ Strategic Advisor 01/01/2005—06/16/2006
Optical Express, Glasgow, Scotland

- Provided key insights into their clinical and business issues and future development.
- Advised on laser technology, provided surgeon and technician training
- Developed clinical policies and procedures, the consultative approach, diagnostic testing, surgical and post-operative management of patients,
- Developed patient advocacy systems and complication management systems
- Developed training programs and provided a series of educational events for entire employee base of over 1000 employees, optometrists and surgeons.
- Instrumental in growing the company from 11 clinics to 55 clinics over a 2 year period, becoming the largest Laser Vision Correction provider in Europe, with clinics in Scotland, England, Ireland, Holland, Belgium, France and Germany.
- Responsible for the selection and Implementation of Wavefront laser technology.
- Responsible for the development of their International Medical Board.

Founder/Medical Director 03/01/2000—12/31/2004
Custom LASIK Centre, Toronto, Canada

- A treatment and research facility, pioneering Wavefront Technology in Laser Vision Correction.
- First clinic in Canada to utilize custom technology to improve qualitative visual outcomes, prevent night glare and manage complications for other clinics across North America.
- The clinic was equipped with several different laser technologies and Wavefront platforms, including Hartmann-Shack, Tscherning, and Ray Tracing technology

Licensure and Certifications

Board Certified, Royal College of Physicians & Surgeons of Canada, November 16, 1990
Diplomat of The American Board of Ophthalmology, November 24, 1991

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Professional Memberships

Canadian Society of Cataract and Refractive Surgery
Canadian Ophthalmological Society
International Society of Refractive Surgery
American Society of Cataract and Refractive Surgery
American Academy of Ophthalmology
American-European Congress of Ophthalmic Surgery
Member of *AcuFocus International Medical Advisory Board*

Publications

Author of two textbooks:
"Excimer Laser Refractive Surgery- Practice and Principles"
"The Art of LASIK"

Additional Accomplishments

- Early pioneer and innovator of LASIK, learned technique from Dr. Luis Ruiz in Bogota, Columbia over two decades ago, one of the first handful of surgeons in North America to perform LASIK.
- First surgeon in Canada to ultilize Wavefront technology in 2000, third worldwide
- First Surgeon in Canada to perform Custom LASIK in 2000.
- First surgeon in Canada to utilize Femtosecond laser technology in 2003.
- First surgeon to perform Bladeless Custom Lasik with the Intralase femtosecond laser.
- First surgeon in Canada to perform KAMRA Vision reading vision correction.
- First surgeon to perform AMARIS Custom LASIK with the Schwind AMARIS 750S Excimer laser system.
- One of the few Chiron ACS and Hansatome microkeratome certified trainers; Lectured and certified hundreds of physicians across North America, South America, Europe, South Africa, Australia, the Middle East and Asia.
- Investigator and instructor for 8 different laser manufacturers, utilizing 18 different Excimer laser platforms.
- Lectured in over 20 countries on 5 continents on Excimer laser and Femtosecond laser technology, Wavefront technology and other refractive techniques and innovations.
- Developed instrumentation and software for Photorefractive Keratectomy, Laser in situ Keratomileusis (LASIK), and the KAMRA Corneal Inlay procedure.
- Performed over 60,000 laser vision correction procedures, including more than 50,000 LASIK procedures.
- Treated over 600 Optometrists, Ophthalmologists and physicians.
- Has performed additional reading vision correction procedures including Sunrise Holmium Laser Thermokeratoplasty, Visx Multifocal Ablation and RestorVision Scleral Impants.

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NVISION EYE CENTERS

Mihir Parikh, MD

As the San Diego Charger's Official Team Ophthalmologist and former medical director at Advanced Ophthalmology Institute, Dr. Parikh knows the importance of precision in LASIK procedures. And, having undergone LASIK surgery himself, he understands the process both as a surgeon and as a patient.

Board-certified for more than 10 years, Dr. Parikh has performed more than 12,000 LASIK procedures, including many patients who are San Diego Chargers players. He specializes in LASIK, PRK, LASEK, cataracts and intraocular lenses, custom LASIK and Wavefront technology. He was one of the first west-coast surgeons trained in custom Wavefront treatment technology.

Before dedicating his career to the field of medicine, ophthalmology and refractive eye surgery, Dr. Parikh was involved in laboratory research in molecular biology and biochemistry at the University of California, Irvine, and in clinical research at the University of California, San Diego Burn Center.

An award-winning surgeon, Dr. Parikh has been honored with the Laurence Mehlman Prize and was the recipient of the University of California Regents Scholar Award for four years in a row. His presentation on "the effects of intrastromal corneal lens implantation (Intacs) on nerve fiber layer thickness" was honored best paper at the ASCRS 2000 conference in Boston, Massachusetts.

In his spare time, Dr. Parikh teaches principles of ophthalmology and refractive surgery to fellow doctors and surgeons nationally and internationally and has been published in many notable medical journals.

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Steward Park, MD

Professional Experience

Private Practice	Nevada Eye Care July 2004 - Present	Las Vegas, NV

Postgraduate Training

Residency	University of Cincinnati Department of Ophthalmology July 2001 to June 2004	Cincinnati, OH
Internship	University of Illinois Department of Internal Medicine July 2000 to June 2001	Urbana, IL

Education

M.D.	University of Illinois August 1996 to May 2000	Urbana, IL
M.S.	University of Illinois Dept. of Cell and Structural Biology August 1993 to August 1996	Urbana, IL
B.S.	Pomona College Department of Molecular Biology August 1988 to May 1992	Claremont, CA

Board Certification Diplomate – American Board of Ophthalmology
October 2006

Licensure Nevada State Medical License #10937

Honors, Awards, and Achievements

2001	Intern of the Year, UIUC Internal Medicine Residency Program
1996-2000	Awarded UIUC College of Medicine Scholarship
1994-1996	University of Illinois List of Teachers Ranked Excellent by Students
1992	Elected Associate Member of Sigma Xi Research Society
1992	Passed Senior Research Exercise with Distinction
1992	Won F.S. Jennings Memorial Prize for Expository Writing

Memberships and Academic Appointments
American Academy of Ophthalmology, Diplomate
American Society of Cataract and Refractive Surgery
Fellow of the American College of Surgeons
Adjunct Instructor of Ophthalmology, Touro University Nevada College of Osteopathic Medicine

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NVISION EYE CENTERS

Jonathan Pirnazar, MD

For Dr. Pirnazar, complexity is another word for "challenge." Finding solutions to complex eye issues is his specialty, and he has the experience and education to back it up.

Having performed more than 20,000 refractive and cataract surgeries, Dr. Pirnazar's specialties include LASIK, premium multifocal and accommodating intraocular lens implants, and implantable contact lens surgeries. He also specializes in treating glaucoma with laser eye surgery. In addition to his clinical experience, he involves himself in pharmaceutical studies and clinical trials in the treatment of ophthalmic diseases.

He received his M.D. with Honors from the University of Illinois, Chicago School of Medicine and completed his residency at the prestigious Washington University in St. Louis, where he also served as chief director of University Eye Service.

He continued his education with fellowship training in corneal and refractive surgery at the University of California, Irvine, where he also served as an assistant professor. He is a bo ard-certified ophthalmologist.

His extensive experience in both surgeries and pharmaceutical trials has made him a sought-after expert among doctors in the ophthalmology field. He has published articles in respected medical journals, including the American Journal of Ophthalmology and Ophthalmology Times.

When he isn't working on complex eye surgeries or helping other doctors manage complex eye surgeries and ophthalmic emergencies, Dr. Pirnazar enjoys spending time with his wife and two sons, playing tennis and watching Chicago Bears games.

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Archana Reddy, MD

Archana V. Reddy, M.D. is a board certified ophthalmologist. She grew up in Kansas, attended college at Washington University in St. Louis, and completed medical school at the University of Kansas. She did an internship at Kern Medical Center in Bakersfield, CA, and completed her ophthalmology residency at Ohio State University in Columbus, OH.

Dr. Reddy has practiced ophthalmology in Columbus, OH and Seattle, WA prior to moving to Las Vegas. She now happily resides in Las Vegas with her husband and two young children.

EDUCATION & TRAINING

Ohio State University Hospital
Kern Medical Center
University of Kansas School of Medicine

CERTIFICATIONS & LICENSURE

NV State Medical License
2010 - 2015

American Board of Ophthalmology
Ophthalmology

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Sheri Rowen, MD

Office Address:
Mercy Medical Center Office - (410) 332-9500
Eye & Cosmetic Surgery Center Direct - (410) 332-9733
301 St.Paul Place, Suite #514 Fax- (410) 545-5161
Baltimore, Maryland 21202 E-Mail- Srowen10@gmail.com

Education:

- University of Maryland, College Park, Maryland
  B.S., May 1976
- University of Maryland, School of Medicine, Baltimore, Maryland
  M.D, May 28, 1982
- Internship, General Surgery, Johns Hopkins Hospital, Baltimore, Maryland
  July 1, 1982 - June 30, 1983
- General Surgery Fellow, Johns Hopkins, Department of General Surgery, Baltimore, Maryland
  July 1, 1983 - June 30, 1985
- Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1985 - June 30, 1987
- Chief Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1987 - June 30, 1988

Work History:

- Hirsch Eye Group, Fallston, MD 21047
  July 1988 - June 1989
- Katzen Eye Group, Dulaney Valley Rd. . Towson Md. 21204
  June 1989 - December 1996
- Eye & Cosmetic Surgery Ctr. St.Paul Place, Baltimore Md 21202
  Dec 1996 - Present

Honors:
Phi Kappa Phi
Phi Beta Kappa
Eta Beta Rho Honors Society
Cum Laude Graduate, University of Maryland, College Park
Dean's List, 1971-1976, University of Maryland, College Park

Board Certification:
Diplomat & Fellow, American Board of Ophthalmology

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Archana Reddy, MD

Archana V. Reddy, M.D. is a board certified ophthalmologist. She grew up in Kansas, attended college at Washington University in St. Louis, and completed medical school at the University of Kansas. She did an internship at Kern Medical Center in Bakersfield, CA, and completed her ophthalmology residency at Ohio State University in Columbus, OH.

Dr. Reddy has practiced ophthalmology in Columbus, OH and Seattle, WA prior to moving to Las Vegas. She now happily resides in Las Vegas with her husband and two young children.

EDUCATION & TRAINING

Ohio State University Hospital
Kern Medical Center
University of Kansas School of Medicine

CERTIFICATIONS & LICENSURE

NV State Medical License
2010 - 2015

American Board of Ophthalmology
Ophthalmology

NVISION EYE CENTERS

Sheri Rowen, MD

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Baltimore, Maryland 21202 E-Mail- Srowen10@gmail.com

Education:

- University of Maryland, College Park, Maryland
  B.S., May 1976
- University of Maryland, School of Medicine, Baltimore, Maryland
  M.D, May 28, 1982
- Internship, General Surgery, Johns Hopkins Hospital, Baltimore, Maryland
  July 1, 1982 - June 30, 1983
- General Surgery Fellow, Johns Hopkins, Department of General Surgery, Baltimore, Maryland
  July 1, 1983 - June 30, 1985
- Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1985 - June 30, 1987
- Chief Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1987 - June 30, 1988

Work History:

- Hirsch Eye Group, Fallston, MD 21047
  July 1988 - June 1989
- Katzen Eye Group, Dulaney Valley Rd. . Towson Md. 21204
  June 1989 - December 1996
- Eye & Cosmetic Surgery Ctr. St.Paul Place, Baltimore Md 21202
  Dec 1996 - Present

Honors:
Phi Kappa Phi
Phi Beta Kappa
Eta Beta Rho Honors Society
Cum Laude Graduate, University of Maryland, College Park
Dean's List, 1971-1976, University of Maryland, College Park

Board Certification:
Diplomat & Fellow, American Board of Ophthalmology

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Research Appointment:

- Research Assistant, National Institute of Health / National Cancer Institute, Bethesda, Maryland
  1976-1978
- Research Assistant, Baltimore Cancer Research Center, Baltimore, Maryland
  1978-1980
- Research Fellow, Johns Hopkins University School of Medicine, Center for Vitreoretinal Research, Baltimore, Maryland
  1983-1985
- Clinical Investigator, for FDA approved study Staar Collamer Lens
  1996
- Clinical Investigator, for FDA approved study Visian ICL
  1997 - 2006

Academic Appointment:

- Clinical Instructor, University of Maryland School of Medicine, Baltimore, Maryland
  1989 – 1990
- Assistant Clinical Professor of Ophthalmology, University of Maryland School of Medicine, Baltimore, Maryland
  1990- Present
- Clinical Instructor, Johns Hopkins Hospital, Baltimore, Maryland
  1991- Present
- Director: Mercy Medical Center for: Eye & Cosmetic Surgery
  1996- Present
  1996- Investigator: Staar Surgical, FDA Study (Collamer Lens)
  1997- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens)

Professional Memberships:

Member, American Medical Association
Member, Association for Research and Vision in Ophthalmology (1982- 1988)
Member, Maryland Eye Physician and Surgeons
Member, MED CHI of Maryland
Committee Member, Research to Prevent Blindness, Inc.
Member, Universal Scleroderma Foundation
Member, Wilmer Resident's Association
Member, American Society of Cataract & Refractive Surgery
Member, American Diabetes Association
Member, American Society for Laser Medicine and Surgery
Board Member, International Society of Cosmetic Laser Surgeons
Vice President, International Association of Women Eye Surgeons

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Medical Licenses:

Maryland
District Of Columbia
Virginia
North Carolina
New York

Community & Volunteer services:

- Health Mission, "Project Dawn" Guyana
  March 1988
- Free Screening, Mercy Medical Center, and Department of Aging
  1997, 1998
- Son's Of Italy – Current Techniques in Eye Surgery
  1999
- Baltimore County Department of Aging
  1990- 1996
- Health Mission - Cali, Columbia
  February 2008

Television:

The Women's Doctor:
1994- "Topical Anesthesia for Cataract Surgery"
1995- "Topical Anesthesia & Clear Corneal Incisions & Foldable Lens"
1996- "First Use Of C02 laser in Baltimore for Eyelid Surgery & Facial Resurfacing"
1997- " Implantable Lens Correcting Hyperopia & Myopia"
1998 " Laser Resurfacing with Co2 & Erbuim Lasers" For Pre Mature Aging
1999- " Implantable Contact Lens" Lasik Surgery
2000- " Toric Lens" Correcting Astigmatisim

1997- National Television: " Implantable Contact Lens"
1998- Ivanhoe Broadcast: " Implantable Contact Lens"
1998- National Television: " Topical, Clear Corneal Cataract Surgery"

Publication:

- Rowen, S.L. & Glaser, B.M. (1985). "Retinal Pigment Epithelial Cells Release a Chemoattractant For Astrocytes, "ARCHIVES OF OPHTHALMOLOGY, 103 (5), 704-707.
- McDonnell, P.J., Rowen, S.R., Glaser, B.M. & Sato, M. (1985). "Posterior Capsule Opacification." ARCHIVES OF OPHTHALMOLOGY, 103 (9), 1378-1381.
- Rowen, S.L. (1994). "Advanced Phacomachine & New Kelman Tip". PHACO AND FOLDABLES, Vol 7 No. 1.
- OCULAR SURGERY NEWS. (1994) "Leaders in Clear Corneal Incisions"

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- Rowen, S.L. (1996). "Topical Anesthesia in Cataract Surgery". REVIEW OF OPHTHALMOLOGY, Supplement to VOL. 2, No. 6
- OPHTHALMOLOGY TIMES. (1995). "Miochol-E with Topical Anesthesia"
- EYE TECHNOLOGY (1996). "Current Trends in Cataract Surgery".
- Rowen, S.L. (1996) "Yes, You Can Convert To Clear Corneal Incisions". REVIEW OF OPHTHALMOLOGY, Vol. 3 No. 5, 110-115
- OCULAR SURGERY, News Symposium Supplement, Feb. 1996
- OCULAR SURGERY, News Symposium Supplement, Feb. 1997
- Rowen, S.L. (1997) "Understanding the Benefits of Plate Haptic Lenses" REVIEW OF OPHTHALMOLOGY, Vol. IV., and No.7 4B- 6B
- Rowen. S.L. (1999) " Why & How to Convert to Injectable Lens" REVIEW OF OPHTHALMOLOGY, VOL 8, and page87
- Rowen S.L. 9 (1999) "Pre-Operative & Post- Operative Medications used for Cataract Surgery" CURRENT OPINIONS IN OPHTHALMOLOGY, VOL 10, PAGES 29-35

American Academy of Ophthalmology - Annual Meeting:
1994 – 2009: 40 Credits Each Calendar Year

American Society of Cataracts and Refractive Surgery - Annual Meeting:
1995 – 1996, 1998 – 2010: 40 Credits Each Calendar Year

American Meeting International Society of Cosmetic Laser - Surgeons:
1996 - 24 Credits 1999 –24 Credits
1998 - 29 Credits 2000 – 24 Credits

International Society of Refractive Surgeons:
1995, 1998 – 2002, 2004: 16 Credits Each Calendar Year

Maryland Optometric Association
1998- 6 Credits

Baltimore Refractive Surgery Society
1999- 6 Credits

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Greater Baltimore Medical Center
1999- 6 Credits

Visual FreedomCenter
1998- 12 Credits

Preceptorships - Ultrapulse CO2 Laser:
1995 - January - Dr. Robert Adrian, Washington, D.C.
Facial Resurfacing Technique

1995 - February - Dr. Sterling Baker, Oklahoma City, OK.

Preceptor: Coherent Medical:
1996- Present Supervise use of C02 & Erbium Laser

Laser Education Foundation - I.S.C.L.S.
1996- October- Sterling S. Baker MD. , Chicago, IL.
Pre- AAO Cosmetic Symposium

Coherent / Ultra FineErbium
1998- January, Maureen A. Foley, RN, BSN, CNOR
Mercy Hospital

The International Society of Cosmetic Laser Symposium
1998- February – C.William Hanke, MD. , Orlando, FL.

Eyelid Incision Techniques International Workshop on Anesthetic Surgery:
1996 April - Dr. Oscar Remirez, Course Director
Rejuvenation of the Centra Oval of the Face, Perioral Area and Lips

Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course
1992 - August - Dr. Charles Williamson , Course Director

Lamellar Refractive Surgery Course
1997 – May, Dr.Stephan G. Slade, Baltimore, MD.

Visual Freedom Center
1998- February – Dr. Charles Casebeer, Course Director
Introduction / Visx Certification Course, Transition to Lasik/ Wet Lab

VISX University
1998- November – Visx Excimer Laser System
Hyperopia Training Course

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Johns Hopkins Hospital, Wilmer Eye
1998- Preceptorship for PRK, Course Director, Terrance O'Brian MD.

Presentations: Cataracts, Glaucoma, Foldable Lens & Topical Anesthesia

- 1984- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
- 1989- ARVO, Wilmer Eye Meeting, Sarasota, FL.
  "Endothelial Cell Produce a Chemoattractant for Astrocytes"
- 1985- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
  "Retinal Pigment Epithelial Cells Release a Chemoattractant for Astrocytes"
- 1992- Greater Baltimore Medical Center Symposium, Baltimore, MD.
  "The Use of Foldable Lenses in Cataract Surgery"
- 1993- Maryland Eye Physicians and Surgeons
  "No Stitch Incision, Capsulorhexis, and Foldable Lenses" Invited Paper
- 1993-American Academy of Ophthalmology
  IOLAB BOOTH " Perilimbal Incisions and Topical Anesthesia"
- 1994- American Society of Cataract and Refractive Surgeons, Boston, Mass.
  "Perilimbal Incisions Using Topical Anesthesia "
- 1994- American Academy of Ophthalmology , San Francisco, CA
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clinical Decisions in Management of Complications"
  "What I'm Doing Differently This Year"
  "Techniques and Variation of the I. Howard Fine Clear Corneal Incision Course"
- 1995- Staar Surgical: Course Director: Baltimore, MD.
  "Techniques and Variation of the I.Howard Fine Clear Corneal Incision Course"
- 1995- American Society of Cataract and Refractive Surgery, San Diego, CA.
  "The use of Miochol- E for Cataract Surgery and Topical Anesthesia"
  "Advances in Topical Anesthesia and Clear Corneal Incisions"
  "Topical Anesthesia and Clear Corneal Incisions" Staar Booth ASCRS.
- 1995 - American Academy of Ophthalmology: Atlanta, GA.
  "Clinical Decision in Management of Complications"
  "What I Am Doing Differently This Year"
  "Advance Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clear Corneal Incisions" Invited: ASCRS Symposium
- 1996- Techniques and Variations of the I.Howard Fine Clear Corneal Incision Course: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"
- 1996-The New Jersey Academy of Ophthalmology: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"
- 1996-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Cataract Surgery for the 90's" Staar and Chiron
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"

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- 1996-Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course; Minneapolis
  "Cataract Surgery for the 90's" Course Director Invited Presentation
- 1996- American Academy of Ophthalmology": Chicago, IL.
  "Clinical Decisions in Management of Complication in Cataract Surgery"
  "Cataract Surgery of the 90's" Staar & Chiron
  "Advanced Phacoemulsification and Combined Glaucoma – Phaco Surgery"
- 1996- Tarrand County Medical Society: Fort Worth, TX.
  " Cataract Surgery for the 90's"
- 1997- Ophthalmology Society: Bethlehem, PA.
  "Cataract Surgery for the 90's"
- 1998- The Virginia Society of Ophthalmology: Williamsburg, VA.
  "Posterior Chamber Phakic IOLS"
  "Clear Cornea Cataract Surgery"
  " Co2 Laser for Blepharoplasty & Resurfacing"
- 1998- American Academy of Ophthalmology: New Orleans, LA.
  "Clinical Decisions in the Management of Complication in Cataract and IOL Surgery"
  Preceptor for ICL – Staar Booth
- 1998-Hawaii Eye Meeting / Slack Incorp: Hawaii
  "Topical Clear Corneal Cataract with Diclofenc Sodium"
- 1998-Women in Ophthalmology: Aspen, CO.
  "Cataract Surgery for the Millenium"
- 1998- Maryland Physicians & Eye Surgeons: Maryland
  " Cataract Surgery for the 90's"
  " ICL Update"
  " Toric IOL'S"
- 1999-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Advanced Techniques for Cataract Surgery using Topical Anestheia and Clear Corneal Incisions"
  "Pre & Post Op Medications for the ICL"
  Course Instructor – 2 hrs. " Advance Techniques for Cataract Surgery, ICL's & Toric Lenses"
- 1999- Greater Baltimore Medical Center Baltimore, MD.
  "ICL Update"
- 1999-Society of Ophthalmology: Puerto Rico
  "Cataract Surgery for the Millenium"
  "ICL Update" " Toric IOL'S for Cataract Surgery"
- 1999-Los Angeles Society of Ophthalmology: Los Angeles, CA.
  "Cataract Surgery for the Millenium"
- 2000- American Society of Cataract and Refractive Surgery : Boston Mass.
  " International Challenges & Techniques in Advanced Cataract Surgery'

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- 2002- American Academy Of Ophthalmology - Florida
  " Clinical Decision & Management of Complication 2002"
  " Prevention & Management of Iris Prolapse During Cataract Surgery"

Presentations: Cosmetic - Techniques using CO2 & Erbium Lasers:

- 1996- International Society of Cosmetic Laser Surgery: Chicago IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- Coherent / Pre- AAO, Chicago, IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- International Society of Cosmetic Laser Surgery: Washington, DC.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1998- The Virginia Society of Ophthalmology, Williamsburg, VA.
  "Skin Resurfacing with the CO2 & Erbium laser"
- 1998- Maryland Optometric Association: Baltimore, MD.
  "Cosmetic Laser Surgery using the CO2 & Erbium Lasers"
- 1998- 7th. International Society of Cosmetic Laser Surgeons: Orlando, FL.
  "Great Marketing – Minimal Expense – Coordinated Skin care"
- 1999-International Society of Cosmetic Laser Surgeons: New Orleans, LA.
  "Erbium Resurfacing for Xanthelasma"
  " CO2 Laser Blepharoplasty"
- 2002 – International Society of Cosmetic Laser Surgeons : New York
  "Lower Lid Blepharoplasty Multi-Modal approved"
  Presentations: Toric & Implantable Contact Lens:
- 1997- Taustin Eye Center: Louisville, KY.
  " Implantable contact lenses"
  " Toric IOL Update"
- 1998- Maryland Society of Eye Physicians & Surgeons: Baltimore, MD.
  "Intraocular Contact Lens"
- 1998- Sixth Annual Ophthalmic Allied Health Symposium: Wilmington, DE.
  "Implantable Contact Lens, My Personal Experience"
  "Update: Phase 1 & 2"
- 1998- Women in Ophthalmology: Colorado
  "Correction of High Myopia & Hyperopia with Intraocular contacts"
- 1998- American Society of Cataract and Refractive Surgery: San Diego, CA.
  Staar Surgical: ICL
  "Implantable Contact Lenses, My Personal Experience"
  "Phase 1 & 2" " ICL Update"
- 1998- Hoover Naquian Conference: Baltimore, Md.
  "Implantable Contact Lenses for Myopia and Hyperopia"
- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"
  "Implantacle Contact Lens For Myopia & Hyperopia"

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- 1999- American Society of Cataract and Refractive Surgery: Seattle Washington
  Round Table Discussion Group: Starr Surgical: ICL
  "Latest Technique and variations of Refractive Surgery and the Benefits of using the Implantable Contact lens"
- 2000- Hawaii Eye Meeting / Slack Incorp. Hawaii
  "Current Trends in Refractive Surgery"
  "The Implantable Contact Lens FDA update, for Personal Experience & Techniques"
- 2002- New England Ophthalmological Society Inc,
  "Implantable Contact Lens , Personal Experiences"
  " FDA Update" " Toric & IOL "

International Presentation:

1994- Starr Surgical: Australia
Five City Lectures: Sidney, Perth, Melbourne, Adelaide, and Brisbane
"Clear Corneal Incisions Using Topical Anesthesia"

1995- Live Cataract Surgery: Toulouse, France
"Topical Anesthesia and Clear Corneal Incisions"

1995- Live Cataract Surgery: Juan De Pain, France
"Topical Anesthesia and Clear Corneal Incisions"

1997- Live Cataract Surgery: Clinique Sourdille, France
"From Phaco to CO2"
"Topical Anesthesia for Cataract Surgery"

1997- Live Cataract Surgery: University of Bologna, Italy
"Live Cataract Surgery and Discussion"

1998- IV Congresso International DE-Cataract: Rio de Janeiro, Brazil
"Toric Update & Foldable Lens"
"Implantable Contact Lens"
"Advanced Cataract Techniques"

1999- European Society of Ophthalmology
" Live Cataract Surgery" International Society of Women Eye Surgeons

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Richard Meister, MD

Dr. Richard Meister is the Medical Director at NVISION Sacramento. He is a board-certified ophthalmologist who started specializing in refractive surgery as a sub-specialty in 1981, under the tutelage of Ralph Berkeley, MD.

Dr. Meister has performed over 40,000 refractive corneal and cataract procedures and, with the approval of the excimer laser in the United States, he was the first in Sacramento to perform laser refractive surgery on patients in 1995. Dr. Meister has excellent LASIK surgical outcomes with less than a 0.2% enhancement rate. He has also been performing premium intraocular lens surgery with multi-focal lens implants since 1998.

Born and raised in Oklahoma City, Dr. Meister graduated from the University of Oklahoma. He focused his residency training on refractive corneal and cataract surgery under worldrenowned expert, Jack Holiday, MD, at the prestigious Hermann Eye Center at the University of Texas, Houston Medical Eye Center.

Dr. Meister established his practice in 1984 in Sacramento specializing in refractive, corneal and cataract surgery. He was the first to introduce the Russian technique of radial keratotomy to Northern California. He was named the proctor of Sutter Hospital and quickly became the leading expert in the area for other ophthalmologists referring patients for refractive and corneal surgery, including transplants. Dr. Meister trained other ophthalmologists in his area in the use of the operating microscope and extracapsular cataract surgery, and phacoemulsification techniques.

Dr. Meister is frequently invited as a guest lecturer. He received the Visx Star award, after approval of the excimer laser, for being among the top 15 refractive surgeons in the United States. He has served as part of the mentor program for new surgeons as they develop their refractive surgery techniques. Dr. Meister has been the Medical Director of the Eye Surgery Center of Northern California from 2000 until present. He is the owner and was one of the initial planners of the first eye surgery center in the Sacramento area. He has also been an FDA investigator for approval of innovative laser techniques and wavefront technology, and has published several articles.

"It is very gratifying to restore people's vision to achieve their goals for recreational, occupational or functional needs. It is such a compliment to hear from patients on a daily basis how their new vision has improved their quality of life, and how they wish they had done it years before."

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Stanley Teplick, MD

BIO

Dr. Stanley Teplick is the founder and Medical Director of Teplick Custom Vision, a regional Optometric Referral Center with offices throughout Oregon, specializing in refractive surgery. He was involved in the original FDA studies leading to the approval of the Excimer laser in 1995 and has performed over 45,000 refractive surgery procedures.

PERSONAL

Resides: 1930 Egan Way, Lake Oswego, OR 97034

EDUCATION

High School:	Cheltenham High School Wyncote, PA	1965
College	University of Chicago	1965 - 1967
	American Conservatory of Music	1968
	California State University San Francisco	1970 - 1973
	BA Degree Philosophy and Religion	1973
Medical School:	Hahnemann Medical College of Philadelphia	1973 - 1977
	Doctor of Medicine	1977
	Alpha Omega Alpha	1977

TRAINING

Internship:	Mayo Clinic Internal Medicine	1977 - 1978
Residency;	Mayo Clinic Ophthalmology	1979 - 1981
	Chief Resident in Ophthalmology	1981

PROFESSIONAL ACTIVITIES

Jazz Pianist		1968 - 1970
General Medicine	St. Charles, Minnesota	1978
Ophthalmology	Founder and Medical Director The Eye Foundation of Utah	1982 - 1990
Ophthalmology	Stahl Eye Associates Garden City, New York	1990 - 1992
Ophthalmology	Eye Surgery Center of Louisiana New Orleans, Louisiana	1992 - 1995
Laser Vision Correction	President and Medical Director Center for Sight Teplick Vision	1995 - Present

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CERTIFICATION

Diplomat, National Board of Medical Examiners	1978-
Diplomat, American Board of Ophthalmology	1983-
Fellow, American Academy of Ophthalmology	1984-
Member, International Society of Refractive Surgery	1990-
Member, American Society of Cataract and Refractive Surgery	1990-

APPOINTMENTS

Clinical Assistant Professor of Ophthalmology	
University Medical Center, Salt Lake City, Utah	1982 – 1990
Chairman, Department of Ophthalmology	
Cottonwood Hospital, Salt Lake City, Utah	1983 – 1985
Member, National Board of Examiners in Optometry	1989 – 1992
Member, National Advisory Council, Better Vision Institute	1989 – 1995
Member, Educational Advisory Board, Vision Expo	1994 – 1995
Chairman, Comanagement Task Force, Vision Council of America	1993 – 1995
Adjunct Associate Clinical Professor	
State University of New York College of Optometry	1993 –
Adjunct Associate Clinical Professor	
University of Houston College Optometry	1994 –
Member, National Medical Advisory Board, Equivison, Inc.	1994 – 1997
Adjunct Professor of Ophthalmology, Pacific University	1995-

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Presentations

Starr Surgical Intraocular Lens Implantation Course	
Sidney, Australia	June, 1993
Glaucoma and Therapeutic Update (Course Director)	
New Orleans, Louisiana	Nov 1993
SUNY Comprehensive Therapeutic Update Course (Preceptor	
New Orleans, Louisiana	Dec 1993
National Comanagement Conference (Course Director)	
Vision Expo East, New York	1994-2001
Optometric Therapeutics Course	
Brisbane and Melbourne, Australia	April 1994
Western Comanagement Conference (Course Director)	
Vision Expo West, Anaheim, California	1994-1999
Cataract and Refractive Surgery Update (Course Director)	
Vision Expo West, Las Vegas, Nevada	1999-2001
Pacific University College of Optometry	
3rd Year Refractive Surgery Course	2000-present
Oregon Optometric Physicians Association	
Invited Speaker	1998-present
Great Western Council of Optometry	
Invited Speaker	2000-2010
Pacific University College of Optometry Hawaii Course	
Invited Speaker	2000-2014
Teplick Vision Annual Optometric CE Seminar	1995-2015
Speaker	

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Thomas Tooma, MD

Dr. Tooma has performed more than 100,000 LASIK procedures and believes that laser vision correction at NVISION is as safe as it can be. In fact, he has performed LASIK surgery on hundreds of doctors, including 250 eye doctors. That's why NVISION and Dr. Tooma are The Eye Doctors' #1 Choice for their eyes and their patients' eyes. Dr. Tooma believes that the combination of experience and technology gives NVISIONS's patients the highest possible likelihood of achieving 20/20 or better vision through LASIK procedures.

A pioneer in the world of LASIK surgery, Dr. Tooma has been a principal investigator in the field of laser vision correction since 1993. He helped several excimer laser manufacturers obtain FDA approvals for their lasers in the United States. He holds the record for many firsts: he was the first doctor in California to perform LASIK surgery and was the first to perform custom Wavefront-guided LASIK. He was also the first in the U.S. to use the FemtoSecond Laser (IntraLase FS30 — bladeless all laser LASIK), which is safer and more precise than a traditional blade.

In 2010, Dr. Tooma purchased TLC's interest in the 8 Southern California locations and formed NVISION Laser Eye Centers. At NVISION, Dr. Tooma provides his patients with a lifetime commitment, giving them the assurance that if they need any enhancement surgeries in the future, they can be performed at any NVISION center, for life and at no cost.

Dr. Tooma received his M.D. from Loma Linda University School of Medicine, where he also completed his internship in internal medicine and residency in ophthalmology. He completed his fellowship in Corneal and Refractive Surgery at the Emory University Department of Ophthalmology in Atlanta, Georgia. He has been board certified in ophthalmology for more than 25 years.

For Dr. Tooma, helping patients achieve their vision goals is his passion. "I feel privileged and blessed to participate in what is a life-changing experience for my patients," he said.

In his spare time, Dr. Tooma has served on medical teaching missions to Romania, Bulgaria, China and Fiji, helping teach local ophthalmology doctors new surgical techniques. In 2008, he and his wife, Marta Tooma, D.D.S., founded the Mission at Natuvu Creek in Fiji. The Mission serves the 250,000 people living on the island, with medical, dental and eye care provided by visiting physicians, including the Toomas.

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Emil Stein, MD

Emil A. Stein, M.D., F.A.C.S. is a board-certified ophthalmologist and a fellow of the American College of Surgeons. He graduated from Rancho High School prior to attending college at the University of Arizona, where he received the outstanding senior award at graduation. His medical training began at the UCLA School of Medicine, where he became interested in ophthalmology at the Jules Stein Eye Institute.

He completed his residency in ophthalmology at the University of Colorado, in Denver. Subsequently, he served as Chief of Ophthalmology at Fort Campbell, Kentucky, home of the 101st Airbourne Division. His tours included Saudi Arabia (Desert Storm) and Somalia. His clinical practice includes most aspects of medical and surgical ophthalmology, including ongoing clinical research. His patients appreciate his individualized approach to educating them on their conditions.

MEDICAL SCHOOL
David Geffen School Of Medicine At UCLA, University Of California, Los Angeles
Graduated in 1985

INTERNSHIP HOSPITAL
St Joseph Hospital
Complete in 1986

RESIDENCY HOSPITAL
University Of Colorado
Complete in 1989

CERTIFICATIONS & LICENSURE
- American Board of Ophthalmology
  Certified in Ophthalmology
- AZ State Medical License
  Active through 2017
- NV State Medical License
  Active through 2017

AWARDS, HONORS & RECOGNITION
Fellow (FAAO), American Academy of Ophthalmology 2012
Fellow (FACS), American College of Surgeons 2013
Top MD, Consumers Checkbook 2014

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PUBLICATIONS & PRESENTATIONS

Stein, E. A., Cho, K., Higgs, P. I., Zusman, D. R. "Two Ser/Thr protein kinases essential for efficient aggregation and spore morphogenesis in Myxococcus xanthus." Mol Microbiol

Paniagua, R. T., Chang, A., Mariano, M. M., Stein, E. A., Wang, Q., Lindstrom, T. M., Sharpe, O., Roscow, C., Ho, P. P., Lee, D. M., Robinson, W. H. "c-Fms-mediated differentiation and priming of monocyte lineage cells play a central role in autoimmune arthritis." Arthritis Res Ther

Lin, J. T., Stein, E. A., Wong, M. T., Kalpathy, K. J., Su, L. L., Utz, P. J., Robinson, W. H., Fathman, C. G. "Differential mTOR and ERK pathway utilization by effector CD4 T cells suggests combinatorial drug therapy of arthritis." Clin Immunol

Söderström, K., Stein, E., Colmenero, P., Purath, U., Müller-Ladner, U., de Matos, C. T., Tarner, I. H., Robinson, W. H., Engleman, E. G. "Natural killer cells trigger osteoclastogenesis and bone destruction in arthritis." Proc Natl Acad Sci U S A

NVISION EYE CENTERS

Jon-Marc Weston, MD

SPECIALTY

Anterior Segment (Cataract, Glaucoma, Refractive and Laser Surgery)

CURRENT POSITIONS

Medical Director
Vision Surgery & Laser Center, LLC
2435 N.W. Kline Street
Roseburg, OR 97471

Medical Director
Weston Eye Center, PC
2435 NW Kline Street
Roseburg, OR 97471

Principal Investigator
Roseburg Research Associates, LLC
2435 NW Kline Street
Roseburg, OR 97471

EDUCATION

High school: Long Beach Memorial High School, Long Beach, New York
Regents Honors in Science and Language, 1969.

College: State University of New York at Binghamton
(Regents Scholar, Harpur College-Bachelor of Arts Degree, 1973.)

Medical School: Hahnemann Medical College, M.D., 1977-1978, Philadelphia, PA
Flexible PGY-1 Wilmington Medical Center, Wilmington, DE

Ophthalmology Residency: Hahnemann University, 1978-1981

BOARDS AND CERTIFICATION:

National Boards completed: 1978, certificate number 193-183.
American Board of Ophthalmology April 21, 1982.

Certified in cataract surgery : American Board of Eye Surgery April 30, 2007.

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Stein, E. A., Cho, K., Higgs, P. I., Zusman, D. R. "Two Ser/Thr protein kinases essential for efficient aggregation and spore morphogenesis in Myxococcus xanthus." Mol Microbiol

Paniagua, R. T., Chang, A., Mariano, M. M., Stein, E. A., Wang, Q., Lindstrom, T. M., Sharpe, O., Roscow, C., Ho, P. P., Lee, D. M., Robinson, W. H. "c-Fms-mediated differentiation and priming of monocyte lineage cells play a central role in autoimmune arthritis." Arthritis Res Ther

Lin, J. T., Stein, E. A., Wong, M. T., Kalpathy, K. J., Su, L. L., Utz, P. J., Robinson, W. H., Fathman, C. G. "Differential mTOR and ERK pathway utilization by effector CD4 T cells suggests combinatorial drug therapy of arthritis." Clin Immunol

Söderström, K., Stein, E., Colmenero, P., Purath, U., Müller-Ladner, U., de Matos, C. T., Tarner, I. H., Robinson, W. H., Engleman, E. G. "Natural killer cells trigger osteoclastogenesis and bone destruction in arthritis." Proc Natl Acad Sci U S A

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Jon-Marc Weston, MD

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NVISION EYE CENTERS

Ilwaco, WA

2011-PRESENT Vision Surgery & Laser Center Roseburg, OR 97470 — Medical Director & Chief Surgeon

Western University of Health Sciences/College of Osteopathic Medicine of the Pacific — Clinical Assistant professor of Surgery

PREVIOUS PRACTICE EXPERIENCE

1981-1986 Hahnemann Eye Associates, Hahnemann University Hospital Residency Training Coordinator, member private practice group.

1981-1988 Assistant Clinical Professor
Department of Ophthalmology
Hahnemann University
230 N. Broad St.
Philadelphia, PA 19102

PUBLICATIONS, PAPERS AND INSTRUCTION COURSES

APRIL 1979 "Ophthalmic Fixed-Ratio Drug Combinations", David B. Soll, M.D. and Jon-Marc Weston, M.D. American Family Physician, April 1979.

1980 "A New Computerized Ultrasound Technique for Evaluation of Ocular Blood Flow", Zarko M. Vucicevic, M.D., Robert Webb, Ph. D., Jon-Marc Weston, M.D.; Presented at the 1980 American Academy of Ophthalmology Scientific Session, Chicago, IL.

1980-1981 "Visual Toxicity of Digoxin", Jonathan S. Moulton, M.D., Jon-Marc Weston, M.D., David A. Major, M.D. Submitted to Annuals of Medicine.

1982 Evaluation of Ocular Blood Flow, Z. Vucicevic and J. Weston, 1980. Presented Innovation in Ophthalmology conference. Boca Raton, Florida, 1981.

1983 "Anatomic Variations in the Anophthalmic Orbit", Jon-Marc Weston, M.D., David B. Soll, M.D. Presented at the Annuals Ptosis Society Meeting, San Francisco, CA November, 1982.

1983 "Experience with Argon Laser Trabeculoplasty", Jon-Marc Weston, M.D., Zarko M. Vucicevic, M.D. Presented at the International Glaucoma Congress, Bal Harbor, FL March, 1983.

1984 "Experimental Evaluation of the Anophthalmic Socket", Jon-Marc Weston, M.D., and David B. Soll, M.D. Presented at the Annual American Society of Ophthalmic Plastic and Reconstructive Surgery Conference, Chicago, IL. November, 1983.

1984 Editorial: Issues in Glaucoma "Early Detection of Open Angle Glaucoma", Clinical Decisions in Ophthalmology, Vol. 7, No. 2, page 3, 1983.

1984 "Introduction to Clinical Medicine-Ophthalmology", Hahnemann University Television Network. 1984.

1988-1991 "Athletic Eye Injuries: Prevention, Diagnosis and Management" World Video Corp. January, 1984.

1992 "Introduction to the Ophthalmic Examination", Hahnemann Television Network. January, 1984.

1993 Instructor-American Academy of Ophthalmology "Regional Update-Practical Laser Course". Philadelphia, PA. June, 1984.

1993 Hahnemann University Visiting Professor Program. Good Samaratin Hospital, Pottsville, PA. September, 1984. Doylestown Hospital, Doylestown, PA. October, 1984.

1994

1995

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STATE LICENSURES	ORIGINAL DATE OF ISSUE
Oregon (17072)	04-12-1991
Washington (36609)	08-20-1998

HOSPITAL APPOINTMENTS

1981-1989	Hahnemann University & Hospital Ophthalmology Department of Ophthalmology Board & Vine Street Philadelphia, PA 19105	Attending in Asst. Clinical Professor
1981-1989	Rolling Hill Hospital & Diagnostic Center Ophthalmology Department of Ophthalmology Elkns Park, PA 19117	Attending in
1971-1987	Frankford Hospital Frankford & Wakling St. Philadelphia, PA 19125	Attending in Ophthalmology
1985-1986	Cooper Hospital University Medical Center Ophthalmology One Cooper Plaza Camden, NJ 08103	Attending in
1986-1989	St. Mary Hospital Ophthalmology Frankford & Palmer St. Department of Surgery Philadelphia, PA 19125	Attending in
1986-1989	The Osteopathic Medical Center Ophthalmology City Line Avenue Philadelphia, PA 19131	Attending in

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1988-1989	Suburban General Hospital Ophthalmology Norristown, PA 19401	Attending in
1988-1991	Marion Memorial Hospital Ophthalmology 917 West Main Street Marion, IL 62959	Attending in
1988-1991	American Eye Institute Surgery Center of S. Illinois Marion, IL 62959	Attending Surgeon
1991-2000	Douglas Community Hospital 738 W. Harvard Blvd. Roseburg, OR 97470	Active Medical Staff
1991-PRESENT	Mercy Medical Center 2700 Stewart Parkway Roseburg, OR 97470	Active Medical Staff
1991-1999	Coquille Valley Hospital 940 E. 5th Coquille, OR 97423	Consultant Staff
1992-PRESENT	Roseburg VA Hospital NW Garden Valley Blvd. Roseburg, OR 97470	Consultant Staff
1992-1999	Blue Mountain Hospital John Day, OR 97470	Consultant Staff
1991-2000	Roseburg SurgiCenter 631 W. Stanton Roseburg, OR 97470	Attending Surgeon
1993-1998	2003 re-opened as Oregon Surgery Center 2700 Stewart Parkway Roseburg, OR 97470	
2001-PRESENT	Ocean Beach Hospital	Consultant Staff

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1995 American Eye Institute Quarterly update course series, various anterior segment
1995 topics 1988-1991.

1996 Glaucoma Therapeutics Course given for Pacific University at Ashland, OR,
July, 1992.

1997 Hawaii Optometric Association, Medical Management of Glaucoma, Honolulu, Hawaii. January, 1993.

1999 Medical Management of Glaucoma; Victoria University, Victoria, B.C., July 1993.

2002

2003 Hawaii Optometric Association, Medical and Surgical Management of Glaucoma Honolulu, Hawaii. February 1994.

2002 Co-Director, Management of the Photorefractive Laser Patient, December 1, 1995, Pacific University, Forest Grove, OR.

2004 Refractive Laser Procedures, LASIK and Other Refractive Surgery, PLEC, Vancouver, B.C., October 14, 1995.

Photorefractive Keratectomy.

Co-Management of the Excimer Laser Patient, Co-Course Director, Pacific University, Forest Grove, OR. November 1996.

Update and Intensive Proctoring in Modern Phacoemulsification Cataract Extraction. Mednet Facilities; Shanghai, Wuxi and Kumming, China. April 1997

2005

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2005 Glaucoma -- Update on Detection and Treatment, Hawaii Optometric Association, Honolulu, Hawaii, April, 1999.

2006 Director, First Endoscopic Cyclophotocoagulation Certification Course, Minneapolis, MN, August 2002.

2011 Endoscopic Ciliary Ablation for treatment of concurrent Cataract and Glaucoma
2003 Annual Meeting American Society Cataract & Refractive Surgery, San Francisco, April 2003.

Medtronic Solan ECP Course - Endoscopic Photocoagulation Didactic Training and Wet-lab Worskhop, Minneapolis, MN, August 24, 2002.

"Form and Function in the Diagnosis and Management of Glaucoma"; presented at
the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Intacs and Keratoconus"; presented at the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Endoscopic Ciliary Process Ablation in the Management of Glaucoma"; presented at the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Knowing the Unknowable" World Religion Day, Roseburg Or.

"Final Results of the FDA Visco-Shield Clinical Trial"; presented at the ASCRS Annual Meeting. Washington, DC.

"Panelist, Session 2R: Cataract Complications and Results"; ASCRS Annual Meeting. Washington, DC.

PHP (Preferential Hyperacuity Perimetry) for Macular Degeneration Detection – Multiple locations

Macular Edema after Cataract Surgery in Diabetic vs. Non-Diabetic eyes, ASCRS, San Francisco, CA.

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Ilwaco, WA

2011-PRESENT Vision Surgery & Laser Center Roseburg, OR 97470 — Medical Director & Chief Surgeon

Western University of Health Sciences/College of Osteopathic Medicine of the Pacific — Clinical Assistant professor of Surgery

PREVIOUS PRACTICE EXPERIENCE

1981-1986 Hahnemann Eye Associates, Hahnemann University Hospital
Residency Training Coordinator, member private practice group.

1981-1988 Assistant Clinical Professor
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Philadelphia, PA 19102

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1980 "A New Computerized Ultrasound Technique for Evaluation of Ocular Blood Flow", Zarko M. Vucicevic, M.D., Robert Webb, Ph. D., Jon-Marc Weston, M.D.; Presented at the 1980 American Academy of Ophthalmology Scientific Session, Chicago, IL.

1980-1981 "Visual Toxicity of Digoxin", Jonathan S. Moulton, M.D., Jon-Marc Weston, M.D., David A. Major, M.D. Submitted to Annuals of Medicine.

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1983 "Experience with Argon Laser Trabeculoplasty", Jon-Marc Weston, M.D., Zarko M. Vucicevic, M.D. Presented at the International Glaucoma Congress, Bal Harbor, FL March, 1983.

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1993 Hahnemann University Visiting Professor Program. Good Samaratin Hospital, Pottsville, PA. September, 1984. Doylestown Hospital, Doylestown, PA. October, 1984.

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Multicenter Results of Endoscopic Ciliary Ablation for various types of Glaucoma, ASCRS, San Diego, CA.

Point/Counterpoint: Are Brand-Name Agents Required for Cataract Surgery?, Advanced Ocular Care, March 2011.

RESEARCH:

1971	Clinical Application of the serial CPK Serum Enzyme Analysis. P. Lavine, D. Shirley, J. Weston, Hahnemann Hospital. Unpublished.
1972	Biologic Preparation for Experimental Heart Lung Bypass Studies, J. Weston, R. Trubore. Unpublished research, Hahnemann Cardiovascular Institute.
1973	
APRIL 1979	The Histamine Wheel and Flare Response as a Biologic Assay for Antihistamine Effects of RM9981. J. Weston, I. Itkin. Unpublished research, Hahnemann Medical College.
1980-1981	"Ophthalmic Fixed-Ratio Drug Combinations", David B. Soll, M.D. and Jon-Marc Weston, M.D. American Family Physician.
1982-1984	
1983-1986	Evaluation of Ocular Blood Flow, Z. Vucicevic and J. Weston. Presented Innovation in Ophthalmology conference. Boca Raton, Florida.
DECEMBER 1995	Experimental Evaluation of the Anophthalmic Socket, J. Weston and D. Soll Presented at ASOPRS Annual Conference, 1984.
1995-1996	Laser Technology Applications in Glaucoma Therapy, J. Weston and Z. Vucicevic.
1996	

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1997	Post Market Evaluation of MK 507-MSD, (Merck).
2000	Indications and Incidence of Yag Laser Posterior Capsulotomy.
2003-2004	Phase IV evaluation Alphagan, (AMO).
2005-2007	
JUNE 2006	"Steroid vrs. No Steroid in the LVCI Lasik study group." Presented at the International Society Refractive Surgeons. San Francisco.
OCTOBER 2006 – MARCH 2007	Phakic Implantable Contact Lenses for high grade myopia and hyperopia evaluation and implant technique. Tijuana, Mexico.
MARCH 2006- SEPTEMBER 2007	Oasis Viscoshield™ for cataract surgery, Phase III FDA trial, Primary Investigator.
AUGUST 2006- DECEMBER 2009	
OCTOBER 2007 – APRIL 2008	Otsuka Protocol 37E-03-202, 53 week Phase III FDA trial, Primary Investigator.
SEPTEMBER 2006- MAY 2007	
2006 – DECEMBER 2008	PHP for early AMD Detection and New Technology Phakic and Pseudophakic Implants, presented at annual OPA convention, Welches Or.
JULY 2008 – NOVEMBER 2008	
OCTOBER 2008 – AUGUST 2009	
JANUARY 2009 – JULY 2009	Allergan MA-LUM01, FDA trial, Primary Investigator.
MARCH 2009 – OCTOBER 2009	Bausch & Lomb 0.6% ISV-403, 5-Day Phase III FDA trial, Primary Investigator.
MAY 2009- AUGUST	Allergan Prostamide/Prostaglandin for glaucoma, 3 year naturalistic

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2010	observational study, Primary Investigator.
AUGUST 2009 – OCTOBER 2010	Allergan Study # 191578-006: Primary Investigator.
DECEMBER 2009-JANUARY 2010	Pfizer XXX for glaucoma, 12-week Phase III FDA trial, Primary Investigator.
AUGUST 2010 – AUGUST 2011	Advanced Medical Optics, Inc. – Protocol BBLK-102-PRSM, FDA Device trial, Primary Investigator
JANUARY 2011 – JULY 2011	Ista Pharmaceuticals – Protocol CL-S&E-0415081-P
MARCH 2011 – NOVEMBER 2011	Alcon – Protocol C-08-047
FEBRUARY 2012-JUNE 2013	Ista Pharmaceuticals – Protocol CL-PKT-0415083-P
APRIL 1, 2013 – APRIL 2014	QLT Inc. – Protocol PPL GLAU 04
AUGUST 2014 – PRESENT	Alcon – Protocol C-07-53
AUGUST 2014 - PRESENT	Bausch & Lomb – Protocol 603
	Bausch & Lomb – Protocol 577
	ISTA Pharmaceuticals, Inc. – Protocol S00007
	Inspire Pharmaceuticals, Inc. – Protocol 044-103
	ISTA Pharmaceuticals, Inc – Protocol S00124
	Insite Vision, Inc – Protocol C-10-502-004
	Hi-Tech Pharmacal Co., - Protocol 13-150-0001 Bioequivalance
	Bausch & Lomb – Protocol 843
	Xigen, S.A. Protocol SDD-1002-064

EXECUTIVE POSITIONS & CONSULTANTSHIPS

NVISION EYE CENTERS

1992-1995	Eye Health Services of Oregon, Vice President, Board of Directors.
1992-1993	Independent Practice Association of Douglas County Steering Committee.
1994-1997	Pacific Eye Centers, Board of Directors and Executive Committee.
1997-1998	Pacific Eye Centers, Chairman.
1996-1998	NWMG, Board of Directors and Executive Committee.
1996	NWMG Chairman
1998	NWMG Medical Director.
1996-1999	Cobb Street Learning Center, Roseburg OR, Board of Directors.
1996-1997	Northwest Surgicenters, Executive Committee, Chairmen of the board.
1998-2000	Northwest Surgicenters, Board of Directors.
1996-1998	Oregon Laser Eye Center: Board of Directors and Medical Director.
1998-1999	Chairman, Credentials Committee, Douglas Community Medical Center.
1999-2000	Douglas Community Medical Center, Board of Trustees.
1998	Douglas County Medical Society, Vice President.
1999	Douglas County Medical Society, President.
2000	Chairman, Joint Mercy / Douglas Division of Surgery.
APRIL 2000	Douglas County Delegate to Oregon Medical Society annual meeting.
1999-2001	Roseburg Surgicenter: Board of Directors.
APRIL 27,2001-APRIL 27, 2006	Pacific University College of Optometry: Adjunct Assistant Clinical Professor, Forest Grove, Oregon.
2005-2006	President, Roseburg Lions Club.
2006-2009	Board of Directors, Oregon Lions Sight and Hearing Foundation and Member of Sight and hearing Committee
2006-2009	
2005-2009	

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
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NVISION EYE CENTERS

Board of Trustees, Oregon Lions Eye Bank.

Board of Directors, Outpatient Ophthalmic Surgery Society

PROFESSIONAL SOCIETIES:

FELLOW	American College of Surgeons
MEMBER	Oregon Medical Association Douglas County Medical Assoc. American Society of Cataract and Refractive Surgeons American Academy of Ophthalmology

COMMUNITY ACTIVITIES

2005-2008	UACT Betty Long Theatre Board of Directors
2005-2006	Roseburg Lions Club – President
1996-1999	Hospital Facility Authority of Douglas County
1993-1996	Assistant Instructor, Roseburg YMCA Judo Club
1993-PRESENT	Director, Douglas County Mission Cataract

HONORS:

1999	Helen Keller Benefactors Award
2001	Melvin Jones Fellowship of Lions International
2003	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2004	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2005	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2006	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2007	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2008	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County

FAMILY:

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NVISION EYE CENTERS

WIFE	Susan Walton-Weston BFA in Fine Arts, Moore College of Art, Philadelphia, PA Interests: Painting, Tapestry, Weaving, Horse Riding and Jumping
CHILDREN	Whitney, Christine, Alexandra

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MALONEY VISION INSTITUTE®

10921 WILSHIRE BOULEVARD, SUITE 900
LOS ANGELES, CALIFORNIA 90024

March 9, 2016

To the State Board of Optometry:

Our annual Symposium is open to all optometrists licensed in California.

The Maloney Vision Institute agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation.

I submitted the continuing education course application earlier since I didn't want to forget to submit it.

Gabriela Quezada
Comanagement Liaison
Maloney Vision Institute | a medical corporation
10921 Wilshire Blvd Suite 900 | Los Angeles, CA 90024
310.208.3937 x215 *p* 310.208.0169 *f*

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

OPTOMETRY

Request for Approval of Continuing Education Course(s)

Maloney Vision Institute
c/o Gabriela Quezada
10921 Wilshire Blvd.,Suite 900
Los Angeles, Ca 90024
(310)208-3937 ext 215

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-353	6024088	5345519	50-

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

Practice and Education Committee Member

scanned + placed in pending folder for Committee
2/26/16 KE

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Controversies in Modern Eye Care	5/22/16	Dr. Robert K. Maloney,	3.2			
		Dr. Alex A. Huang , Dr. Olivia L. Lee,				
		Dr. SriniVas R. Sadda, Steven Trafton				

COMMITTEE COMMENTS:

Dr. Robert K. Maloney: CV attached - Dr. Alex A. Huang: CV attached
Dr. Olivia L. Lee: CV attached - Dr. SriniVas R. Sadda, CV attached & Steven Trafton CV attached
Continuing Education Course check # 20773 $50

CONTROVERSIES IN MODERN EYE CARE

An education activity of the Maloney Family Foundation

SUNDAY | 05.22.16 | LOS ANGELES

COURSE DIRECTOR

Robert K. Maloney, MD, MA, (Oxon)
Director, Maloney Vision Institute
Clincal Professor of Ophthalmology, David Geffen School of Medicine at UCLA

GUEST LECTURERS

Alex A. Huang, MD, PhD
Assistant Professor of Ophthalmology, Doheny Eye Center of Pasadena
Dept. of Ophthalmology, Doheny & Stein Eye Institutes,
David Geffen School of Medicine at UCLA

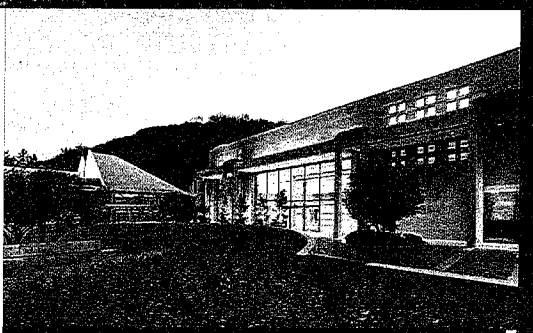
Olivia L. Lee, MD
Assistant Professor of Ophthalmology, Doheny Eye Institute
David Geffen School of Medicine at UCLA

SriniVas R. Sadda, MD
President & CSO, Stephen J. Ryan - Arnold and Mabel Beckman Endowed Chair
Professor of Ophthalmology, Doheny Eye Institute,
David Geffen School of Medicine at UCLA

Steve Trafton
World Land Speed Record Holder at the Bonneville Salt Flats
Arctic Explorer & Mountaineer with Over 200 First Ascents
Kayaked and Hiked Across North America & Europe

PROGRAM SCHEDULE

Registration		7:30
Breakfast & Sponsor Lectures (non-CE)		8:00
The Hot Eye: Evaluation of Anterior Uveitis	Dr. Lee	8:40
Size Matters: Clinical Pearls for Diagnosing Narrow Angle Glaucoma	Dr. Huang	8:50
Discussion		9:00
Break		9:15
Vision at 300 mph	Mr. Trafton	9:35
Case Presentations in Cataract & Refractive Surgery	Dr. Maloney	9:55
Dry Macular Degeneration: What We All Need to Know	Dr. Sadda	10:05
Refractive Cataract Surgery in 2016	Dr. Maloney	10:15
Discussion		10:25
Break		10:40
The Eye in Rheumatologic Disease	Dr. Lee	11:00
Is It Glaucoma or is It Inevitability?	Dr. Huang	11:10
Peripheral Retinopathy in Diabetes: Why It Matters	Dr. Sadda	11:20
Postoperative Care of the Cataract Patient	Dr. Maloney	11:30
Discussion		11:40
Adjourn		12:00



LOCATION

SKIRBALL CULTURAL CENTER
LOS ANGELES

REGISTRATION

EARLY BIRD - **FREE** - BEFORE 4/1
AFTER 4/1 - $95

ACCREDITATION

3.2 HOURS OF TPA CONTINUING OPTOMETRIC EDUCATION UNITS

An education activity of the Maloney Family Foundation

Steve Trafton is an intense advocate of the motto: "If you're not moving, you're standing still."

Steve is passionate about setting and achieving goals that test his theory that: "life is best lived close to the edge, to experience real danger. The quest is to capture, even if only for a moment the natural high that danger imparts." While he is quick to add that he does not suggest pursuing dangerous or foolish acts to test one's luck he does advocate approaching the "edge" once in a while if only to savor the walk back.

Steve was an experienced mountain and rock climber by the time he was 21 years old. In 1967 he was accepted into Seattle Mountain Rescue where he eventually served as Field Operations Chairman. Between 1967 and 1980 he participated in over 200 rescue missions. This experience led to his leadership of a series of High Arctic expeditions between 1977 and 1995 which saw the first ascents of dozens of peaks, some as far north as 82 degrees.

After his retirement from banking in 1998, Steve began a series of long distance adventures which included; walking and kayaking across North American from Washington DC to Whidbey Island Washington and taking a 20 foot open boat from Whidbey Island to Glacier Bay Alaska and back.

During 2005 to 2009 Steve completed a "High" mountaineering route across the Alps from Chamonix, France to Salzburg, Austria.

Turning his attention to auto racing in 2008, Steve established Black Horse Racing and in 2010 he set the World Land Speed Record for the AA Blown Fuel Modified Sport class at 275.401 MPH. The record still stands.

Currently, Steve and his wife Katherine are preparing for the 9000 mile Peking to Paris car rally in June 2016.

Steve has personally experienced refractive surgery and will speak to its benefits in an adventurous lifestyle.

For more information visit Steve's web site at: www.blackhorseracing.com

Alex Huang M.D., Ph.D.

EDUCATION

2012-2013	Shiley Eye Center Hamilton Glaucoma Institute Heed Foundation Ophthalmic Fellow Glaucoma Fellowship	San Diego, California
2009-2012	Doheny Eye Institute University of Southern California Ophthalmology Resident OKAP PGY2:92, PGY3:86, PGY4:82	Los Angeles, California
2008-2009	Franklin Square Hospital University of Maryland Department of Medicine Preliminary Internal Medicine Internship	Baltimore, Maryland
1999-2008	The Johns Hopkins University School of Medicine M.D./Ph.D. in Neuroscience Thesis Title: D-Aspartate: Formation, Function, and Degradation in Mammals USMLE STEP1 236/95; USMLE STEP2 CK 240/99 CS Pass; USMLE STEP3 226/96	Baltimore, Maryland
1995-1999	Pomona College B.A. Magna Cum Laude Double Major in Neuroscience and Molecular Biology Neuroscience Major Thesis title: "The Role of Semaphorins in Adult Synaptic Transmission and Plasticity" Molecular Biology Major Thesis title: "Analyses of *Drosophila* Semaphorin I through Combinatorial Analyses and Genetic Screen" MCAT V10 B11 P11 R; GPA 3.9	Claremont, California
1991-1995	Marina High School	Huntington Beach, California

APPOINTMENTS

7/2014-current	University of California, Los Angeles Doheny Eye Institute Assistant Professor of Ophthalmology	Los Angeles, California
8/2013-7/2014	University of Southern California Doheny Eye Institute Assistant Professor of Ophthalmology	Los Angeles, California

BOARD CERTIFICATION

2014 American Board of Ophthalmology

HONORS

2015	Fight For Sight Mentor for Undergraduate Research Award (Hanz Legaspi)
2015	ARVO Hot Topics Designation (Top 10% of Presentations)
2015	ARVO Travel Award (Informa Health)
2015	American Glaucoma Society Top 10 Presentation
2015	American Glaucoma Society Young Clinician Scientist Award
2014-2015	Pasadena Top Doctor
2014	American Glaucoma Society MAPS Award
2013	American Glaucoma Society MAPS Award
2012-2013	Heed Ophthalmic Foundation Fellow

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2012	Doheny Eye Institute ARVO Travel Award
2011	Heed Ophthalmic Foundation Resident Retreat
2011	Doheny Eye Institute ARVO Travel Award
2010	Doheny Eye Institute Medical Knowledge Achievement Award
1999	NIH/NIAID Introduction to Biomedical Research Conference
1999	Phi Beta Kappa
1999	Sigma Xi
1999	Pomona College Neuroscience Senior Prize
1999	Pomona College Walter Bertsch Senior Prize in Molecular Biology
1995-99	Pomona College Scholar
1998	Grass Foundation Undergraduate Summer Research Award
1994	National Merit Finalist
1994	President's Youth Service Award

Other Experience and Professional Memberships

2015-	American Glaucoma Society Patient Care Committee
2015-	UCLA/Doheny Continuing Medical Education Committee
2012-	American Glaucoma Society
2013-14	USC, Department of Ophthalmology Graduate Medical Education Committee
2012-2013	UCSD, Department of Ophthalmology Education Committee
2012-13	F1000 Associate Faculty Member
2010-	The Association for Research in Vision and Ophthalmology
2009-	American Academy of Ophthalmology
2000-08	Society For Neuroscience
1999	Sigma Xi
1999	Phi Beta Kappa

Journal Reviewer

2015-	Investigative Ophthalmology and Visual Science
2014-	Current Eye Research
2014-	Springer Plus Journal
2014-	Journal of Optometry and Vision Science
2013-	Journal of Cataract and Refractive Surgery
2012-	Saudi Journal of Ophthalmology

Mentored Individuals

Clinical

Alex Nugent, MD 8/2013-7/2014
Ramya Swamy, MD 7/2014-7/2015
Lilit Minasyan, MD 7/2015-current

Research

Sindhu Saraswathy, PhD
Akram Belghith, PhD
Hanz Legaspi, BA
Alan Begian, BS
Anna Dastiridou, MD
Hong-Yang Zhang MD
Chirayu Moohindru

Teaching/Education Presentations

- Aqueous Humor Dynamics (9/2013) University of Southern California; Residents/Fellows

- Glaucoma and OCT (10/2013) University of Southern California; Residents/Fellows

- Glaucoma Pathology (1/2014) University of Southern California; Residents/Fellows

- Minimally Invasive Glaucoma Surgery (5/2014) University of California, Los Angeles, Wednesday Glaucoma Series

- Glaucoma and Sclera: Towards Customized Surgical Care (8/2014) University of California, Los Angeles, Friday Basic Science Research Series

- Uveoscleral Outflow (1/2015) University of California, Los Angeles, Wednesday Glaucoma Series

- Minimally Invasive Glaucoma Surgery (6/2015) University of California, Los Angeles, Wednesday Glaucoma Series

- Ocular Anatomy and Development (9/2015) University of California, Los Angeles, Resident Basic Science Research Series

- Narrow, Narrower, and Narrowest (9/2015) University of California, Los Angeles, UCLA Grand Rounds (Faculty Moderator)

Research Training

Nov 2002-Dec 2006	The Johns Hopkins University Study on function of endogenous D-amino acids (serine and aspartate)	*Supervisor: Dr. Solomon H. Snyder*
Jun 1998–Aug 1998	The Johns Hopkins University Self-funded by Grass Foundation Study on *Drosophila* semaphorin based axon guidance	*Supervisor: Dr. Alex L. Kolodkin*
May 1997–May 1999	Pomona College Department of Neuroscience Research Education Program Study on adenylate cyclase mediated hippocampal long-term potentiation	*Supervisor: Dr. Karen D. Parfitt*
Sep 1995–Jan 1997	Pomona College Department of Psychology Study on Implicit vs. Explicit Memory	*Supervisor: Dr. William P. Banks*

CURRENT RESEARCH

IRB:

1) Histological comparison between normal and glaucomatous sclera (UCLA 14-001070): Principal Investigator

2) Scleral changes in glaucoma (UCLA 14-001122): Principal Investigator

3) Aqueous Angiography Visualization of Outflow (UCLA 15-00134)

ARC/IACUC:

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Los Angeles, CA 90033
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1) Visualization of aqueous humor outflow in the eye (UCLA 2014-088-01): Principal Investigator

Previous IACUC
1) Visualization of aqueous humor outflow in the eye (USC 20150): Principal Investigator

Previous IRBs
1) AqueSys Implant (USC HS-12-00309): Principal Invesigator

2) Histological comparison between normal and glaucomatous sclera (USC HS-13-00561): Principal Investigator

3) Scleral Changes in Glaucoma (USC HS-14-00222): Principal Investigator

4) Scleral Changes and Impact of Scleral Changes on Aqueous Humor Outflow in Glaucoma (UCSD 121327): Principal Investigator

5) Evaluation of Episcleral Venous Pressure in Humans as a Non-Invasive Proxy for Resistance in the Distal Aqueous Humor Outflow Pathway (UCSD 121585): Principal Investigator

6) Normative Data Collection Study of the Nidek Optical Coherence Tomography RS-3000 for the Measurements of Retinal and RNFL Thickness and Optic Disc Analysis (UCSD 120311): Co-Investigator

7) 24-hr Intraocular Pressure (IOP) Patterns of Glaucoma Patients before and after Cataract Surgery (UCSD 111496): Co-Investigator

8) 24-hr Intraocular Pressure (IOP) Patterns of Glaucoma Patients before and after Selective Laser Trabeculoplasty (SLT) (UCSD 11494): Co-Investigator

9)Study to Assess Rapid disease progression by clinical and genetic Factors In glaucoma PateintS that are High risk (STARFISH). (UCSD 111223): Co-Investigator

RESEARCH SUPPORT

1) National Eye Institute: Mentored Clinical Scientist Research Career Development Award (K08): 9/30/2014-
K08 EY024674 PI
Annual Direct Costs: $220,299
Discovery and Characterization of Anterior Sclera Pathology

2) Research To Prevent Blindness Career Development Award 1/1/2015-
Annual Direct Costs $75,000
Total length: 4 years

3) American Glaucoma Society Young Clinician Scientist Award 2/26/15-
PI
$40,000

4) American Glaucoma Society Mentoring for Advancement of Physician-Scientists (MAPS)
PI 3/2013-12/2014
$10,000 (COMPLETED)

5) American Glaucoma Society Mentoring for Advancement of Physician-Scientists (MAPS)
PI 12/2014-12/2015

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$10,000 (COMPLETED)

6) Grass Foundation Undergraduate Summer Research Grant 6/1998-9/1998
$3000 (COMPLETED)

LIST OF JOURNAL PUBLICATIONS

Saraswathy, S., Tan, J., Francis, B.A., Hinton, D.R., Weinreb, R.N., and **Huang, A.S.** (2016) Aqueous Angiography: A Real-Time and Physiologic Aqueous Humor Outflow Imaging Technique. *PLoS ONE* 11(1): e0147176.doi:10.1371/journal.pone.0147176.eCollection2016.

Marvasti, A.H., Berry, J., Sibug-Saber, M.E., Kim, J.W., and **Huang, A.S.** (2016) Anterior Segment Fluorescein Angiography in the Diagnosis of Ciliary Body Neoplasm. *Case Reports in Ophthalmology* 7:30-38.

Nguyen, P., **Huang, A.S.,** and Yiu, S.C.: Nanobiothechnology in the Management of Glaucoma. 2013. *Open J Ophthal* 3(4): 127-133.

Whipple, K.M., Lee, J.E., **Huang, A.S.,** Brown, S.I.: A Dehisced Cornea Button with no Evidence of Ruptured Globe. 2013. *JAMA Ophthal* **131**(11): 1434.

Huang, A.S., Gonzalez, J., Le, P.V., Heur, M., and Tan J.: Sources of Structural Autofluorescence in the Human Trabecular Meshwork. 2013. *IOVS* **54**: 4813-4820.

Huang, A.S., Kim, L.A., and Fawzi, A.A.: Clinical Characteristics of a Large Choroideremia Pedigree Carrying a Novel *CHM* Mutation. 2012 *Arch Ophthal.* 130 (9): 1184-1189.

Chakraborty, A., Kodobsky, M.A., Bello, N.T., Maxwell, M., Potter, J.J., Juluri, K.R., Maag, D., Kim, S., **Huang, A.S.,** Daily M.J., Saleh., M., Snoman, A.M., Moran, T.H., Mezey, E., and Snyder, S.H.: Inositol Pyrophosphates Inhibit Akt Signaling, Thereby Regulating Insulin Sensitivity and Weight Gain. 2010 *Cell* **143**(6):897-910.

Kim, P.M., Duan, X., **Huang, A.S.,** Liu, C.Y., Ming, G.L., Song, H., and Snyder, S.H.: Aspartate Racemase, Generating Neuronal D-Aspartate, Regulates Adult Neurogenesis. 2010. *Proc. Natl. Acad. Sci. USA* **107**(7):3175-3179.

Huang, A.S., Lee, D.A., Blackshaw, S.: D-Aspartate and D-Aspartate Oxidase Show Selective and Developmentally Dynamic Localization in Mouse. 2008. *Experimental Eye Research.* 86(4):704-709.

Kim, S.F., **Huang A.S.,** Snowman, A.M., Teuscher, C., and Snyder, S.H.: From the Cover: Antipsychotic Drug-Induced Weight Gain Mediated by Histamine H1 Receptor-Linked Activation of Hypothalamic AMP-Kinase. 2007. *Proc. Natl. Acad. Sci. USA* **104**(9): 3456-3459 **(Accompanying review in *JAMA*).**

Huang, A.S., Weil, Z.M., Beigneux, A., Kim, P.M., Molliver, M.E., Blackshaw, S., Young, S.G., Nelson R.J., and Snyder, S.H.: Behavioral Alterations in Male Mice Lacking the Gene for D-Aspartate Oxidase. 2006. *Behav. Brain Res.* **171**(2):295-302.

Huang, A.S., Beigneux A., Weil, Z.M., Kim, P.M., Molliver, M.E., Blackshaw, S., Nelson, R.J., Young, S.G., and Snyder S.H.: D-Aspartate Regulates Melanocortin Formation and Function: Behavioral Alterations in D-Aspartate Oxidase Deficient Mice. 2006. *J. of Neuroscience.* **26**(10):2814-2819.

Kim, P.M., Aizawa, H., Kim, P.S., **Huang, A.S.,** Wickramasinghe, S.R., Kashani, A.H., Barrow, R.K., Huganir, R.L., Ghosh, A., and Snyder S.H.: Serine Racemase: Activation by Glutamate Neurotransmission

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via Glutamate Receptor Interacting Protein and Mediation of Neuronal Migration. 2005. *Proc. Natl. Acad. Sci. USA* **102**(6): 2105-2110.

Reis, G.F., Lee, M.B., **Huang, A.S.,** and Parfitt K.D.: Adenylate Cyclase-Mediated Forms of Neuronal Plasticity in Hippocampal Area CA1 are Reduced with Aging. 2005. *J. Neurophysiol.* **93**: 3381-3389.

Aghdasi, B., Ye, K., Resnick, A., **Huang, A.S.,** Ha, H.C., Guo, X., Dawson, T.M., Dawson V.L., and Snyder, S.H.: FKBP12, the 12-kDA FK 506-Binding Protein, is a Physiologic Regulator of the Cell Cycle. 2001. *Proc. Natl. Acad. Sci. USA* **98**(5):2425-2430.

Yu, H.H., **Huang, A.S.,** and Kolodkin, A.L.: Semaphorin-1a Acts in Concert with the Cell Adhesion Molecules Fasciclin II and Connectin to Regulate Axon Fasciculation in Drosophila. 2000. *Genetics* **156**(2): 723-731.

BOOK PRESENTATIONS

Cheng, A., and Zaas A. The Johns Hopkins Hospital: The Osler Medical Handbook. Philadelphia: Mosbey, 2003. **(Medical Student Reviewer).**

Huang, A.S., Swamy, R.N., Chopra, V., Francis, B.A. Procedural Treatments: New Surgical Options. In Caprioli J, Coleman AL, Law SK, Nouri-Mahdavi K, and Giaconi JAA, Pearls of Glaucoma Management. New York: Springer (*In Press).*

Huang, A.S., Weinreb, R.N. Eye Anatomy and Physiology: Uveoscleral Outflow. In Tan JCH, Sarkisian S, Francis BA, Minimally Invasive Glaucoma Surgery: the Science and the Practice. New York, Thieme (*In Preparation*).

Huang, A.S. Segmental Outflow side bar in Eye Anatomy and Physiology: Trabecular Outflow. In Tan JCH, Sarkisian S, Francis BA, Minimally Invasive Glaucoma Surgery: the Science and the Practice. New York, Thieme (*In Preparation*).

Huang, A.S, Weinreb RN. Pharmacologic Therapy of Ocular Disease. In Whitecup SM, Azar D, Treatment of Ocular Disease. New York, Springer (*In Preparation*).

REVIEW PRESENTATIONS

Huang, A.S: Evaluation of "Torrejon et al.,: Recreating a human trabecular meshwork outflow system on microfabricated porous structures. 2013 *Biotech and Bioeng* 110: 3205-3218. 2013, *Int. Glaucoma Rev.* 15-2; 519.

Swamy, R., Berry, J., **Huang, A.S.,** Vazquez, L.: Los Angeles County-University of Southern California residents review: "Cataract surgery with trabecular micro-bypass stent implantation in patients with mild-to-moderate open-angle glaucoma and cataract: Two-year followup." 2012, *Eyeworld*, 17(8), 64-65.

Huang, A.S., and Tan, J: Evaluation of "Bozkurt et al.,: Prophylactic selective laser trabeculoplasty in the prevention of intraocular pressure elevation after intravitreal triamcinolone acetonide injection. 2011. *AJO* 152:976-981. Faculty of 1000. 5/15/12. F1000.com/715297832.

Huang, A.S., and Tan, J: Evaluation of "Molteno et al.,: Long-term results of primary trabeculectomies and Molteno implants for primary open-angle glaucoma. 2011 *Arch Ophthal* 129:1444-1450. Faculty of 1000. 5/15/12. F1000.com/11993962.

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Huang, A.S., and Tan, J: Evaluation of "Ohno-Matsui, K., Shimada, N., Hayashi, K., Yoshida T., Kojima, A., Moriyama, M., and Tokoro, T: Evaluation of "Long-term development of significant visual field defects in highly myopic eyes. 2011. *AJO* 152 (2) 256-265. Faculty of 1000. 11/25/2011. F1000.com/13376965.

Huang, A.S., and Tan, J: Evaluation of "Good, T.J., Kimura, A.E., Mandavai , N., Kahook, M.Y: Sustained elevation of intraocular pressure after intravitreal injections of anti-VEGF agents. 2011. *BJO* 95 (8):1111-1114. Faculty of 1000. 11/25/2011. F1000.com/13376966.

ABSTRACTS FOR *ORAL*/POSTER PRESENTATION

Huang, A.S: *Structure and Function of Aqueous Humor Outflow. 1st Annual UCLA Department of Ophthalmology Glaucoma Conference, Los Angeles, CA 2016*

Huang, A.S.: *Aqueous Angiography and Towards Customized Glaucoma Surgical Care. 7th Annual West Coast Glaucoma Optometric Symposium, Huntington Beach, CA 2015*

Huang, A.S.: *Narrow, Narrower, Narrowest. 7th Annual West Coast Glaucoma Optometric Symposium, Huntington Beach, CA 2015*

Huang, A.S.: *Aqueous Angiography: Real-Time Imaging of Physiologic Comprehensive Aqueous Humor Outflow. American Academy of Ophthalmology; Best of Anterior Segment Session SYM41; Las Vegas, NV 2015.*

Huang, A.S.: *Improving Minimally Invasive Glaucoma Surgeries. Managing Glaucoma: Beyond Intraocular Pressure, Las Vegas, NV 2015.*

Huang, A.S.: *Cyclodestruction: It's Not Barbaric. Doheny Eye Institute CME; Glaucoma Update, Pasadena, CA 2015*

Huang, A.S.: *Structure and Function of Outflow. Doheny Eye Institute CME; Doheny Days (Moderator), Los Angeles, CA 2015.*

Huang, A.S.: *Real-Time Outflow Imaging (Structure and Function). World Glaucoma Congress (Parallel Symposium: Structure and Function of Outflow* ***[CHAIRMAN]****), Hong Kong, China, 2015*

Huang, A.S.: *Aqueous Angiography: Real-Time Imaging of Physiologic Comprehensive Aqueous Humor Outflow. World Glaucoma Congress (American Glaucoma Society Symposium), Hong Kong, China, 2015* ***Reviewed in Eyeworld Magazine (7/2015)***

Huang, A.S.: *Aqueous Angiography and Towards Customized Glaucoma Care. Doheny Eye Institute CME; Advances in Ocular Imaging, Pasadena, CA 2015*

Huang, A.S., Saraswathy, S., Francis, B.A., Hinton D.R., Tan, J.C.H., and Weinreb, R.N: Aqueous Angiography: A Real-Time, Physiologic and Comprehensive Aqueous Humor Outflow Imaging Technique. ARVO, Denver, CO 2015. (HOT TOPICS DESIGNATION)

Saraswathy, S., Dastiridou, A., Francis B.A., Hinton, D.R., Tan, J.C.H., Weinreb, R.N., and **Huang, A.S.**: Aqueous Angiography: Visualization of Aqueous Humor Outflow in Bovine Eyes. ARVO, Denver, CO 2015

Dastiridou, A., Marion, K., Swamy, R., **Huang, A.S.**, Sadda, S.R., Francis B.A., and Chopra, V.:

Alex Ansun Huang
University of California, Los Angeles
Doheny Eye Institute
1355 San Pablo Street, # 402
Los Angeles, CA 90033
Tel: 410-736-9678, E-mail: Ahuang@doheny.org

Correlation of Optical Biometry, Gonioscopy, and Scheimpflug Imaging with Spectral Domain OCT Angle Metrics. ARVO, Denver, CO 2015.

***Huang, A.S.**: Towards Customized Glaucoma Care and Minimally Invasive Glaucoma Surgeries (MIGS). San Gabriel Valley CME, .Arcadia, CA 2015*

***Huang, A.S.**: Towards Customized Glaucoma Care and Minimally Invasive Glaucoma Surgeries (MIGS). San Fernando Valley Optometric Society CME, Valley Presbyterian Hospital. Burbank, CA 2015*

***Huang, A.S.**: Aqueous Angiography: Real-Time Imaging of Physiologic Comprehensive Aqueous Humor Outflow. American Glaucoma Society. San Diego, CA 2015. (TOP 10 Presentation AGS, 2015)*

***Huang, A.S.**: Towards Customized Glaucoma Care and Minimally Invasive Glaucoma Surgeries (MIGS). Marshall B. Ketchum University SCCO Advances in Eye Care Symposium, CA 2015.*

Saraswathy, S and **Huang, A.S.**: Real-Time Aqueous Humor Ourflow in Porcine Eyes. UCLA Ophthalmology Research Conference, Lake Arrowhead, CA 2014.

***Huang, A.S.** Towards Customized Glaucoma Care. Doheny Eye Institute CME; Doheny Days, Los Angeles, CA 2014*

*Yousefi, S., Marvasti, A., Weinreb, R.N., Bowd, C., and **Huang, A.S.**,: Automated identification of Schlemm's canal and collector channels from spectral domain optical coherence tomography images. ARVO/ISIE, Orlando, Fl 2014.*

Murakami Y., Yousefi, S., Marvasti, A., Bowd, C., Weinreb, R.N., and **Huang, A.S.**: Visualization of Aqueous Outflow Structures with Spectralis Spectral-Domain Optical Coherence Tomography in the Living Human Eye. ARVO, Orlando, Fl 2014.

Huang, A.S., Medeiros, F.A., and Weinreb, R.N.; Fibrosis in Glaucoma Sclera. Keystone Conference (C4: Fibrosis from Bench to Bedside), Keystone, CO 2014.

Huang, A.S., Duong-Polk, K., Heichel, C.W., Linsey, J.D., Medeiros, F.A., and Weinreb, R.N.: Characterization of Primary Open Angle Glaucomatous Sclera. ARVO, Seattle, WA 2013

Huang, A.S., Le, P.V., Gonzalez, J., and Tan J.: *In situ* Visualization of Extracellular Matrix Biomarkers in Human Trabecular Meshwork. ARVO, Fort Lauderdale, FL 2012.

Huang, A.S., Kim, L., and Fawzi, A.A.: Clinical Characteristics of a Large Choroideremia Pedigree Carrying a Novel *CHM* Mutation. ARVO, Fort Lauderdale, FL 2011.

Huang, A.S., Lee, D.A., Blackshaw, S., and Snyder S.H.: D-Aspartate and D-Aspartate Oxidase: Ontogeny in Mammalian Retina. Society for Neuroscience meeting, San Diego, CA November 3-7, 2007.

***Huang A.S.**, Beigneux, A., Kim, P.M., Kim, E., Young, S.G., and Snyder, S.H.: Targeted Inactivation of D-Aspartate Oxidase Gene as a Means of Studying D-Aspartate Metabolism in Mammals. Society for Neuroscience meeting, San Diego, CA November 8-12, 2003.*

***Huang, A.S.**, Yu, H.H., and Kolodkin, A.K. Complimentary and Combinatorial Function of Sema I and Fasciclin II in Drosophila Embryonic Motoneuron Axon Guidance. Southern California Conference on Undergraduate Research. Pomona, CA 1998.*

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Huang, A.S., Johnson, J., and Parfitt, K.D. Effects of Norepinephrine Analogues and Adenosine on Synaptic Potentiation and Depression in Fischer 344 Rat Hippocampi. Southern California Conference on Undergraduate Research. Los Angeles, CA 1997.

Wong E., **Huang A.S.**, Haward, D., and Banks, W.P. Affective Discrimination of Unattended Items. Western Attention Conference, Claremont, CA June 9-10, 1996.

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OLIVIA L. LEE, MD

Curriculum Vitae

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David Geffen School of Medicine at UCLA
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Pasadena, CA 91105-3158

Contacts: Phone: 626-817-4701
Fax: 626-817-4702
Email: OLee@jsei.ucla.edu

Citizenship: United States

ACADEMIC APPOINTMENTS

7/2014 – Health Sciences Assistant Clinical Professor
Faculty, Cornea and Uveitis Divisions
Department of Ophthalmology
David Geffen School of Medicine
Doheny Eye Center UCLA
Pasadena, CA

7/2015 – Director, Cornea Fellowship Program
Department of Ophthalmology
Doheny Eye Center UCLA
David Geffen School of Medicine
University of California, Los Angeles

2013 – Investigator
Doheny Image Reading Center
Doheny Eye Institute
Los Angeles, CA

2011 – 2014 Assistant Professor of Clinical Ophthalmology
Department of Ophthalmology
Keck School of Medicine
University of Southern California
Los Angeles, CA 90033

OLIVIA L. LEE, MD

2010 – 2011 Attending Ophthalmologist
Comprehensive, Cornea and Trauma Services
The New York Eye and Ear Infirmary
New York, NY

2009 – 2010 Clinical Instructor
Jules Stein Eye Institute
David Geffen School of Medicine at UCLA
Los Angeles, CA

MEDICAL LICENSURE

2009 California A108933

BOARD CERTIFICATION

2010 American Board of Ophthalmology

EDUCATION

UNDERGRADUATE/ GRADUATE/ DOCTORAL

1998 – 2001 B.A., Psychology, *Cum Laude*
Rice University
Rice/Baylor Medical Scholars Program
Houston, TX

2001 – 2005 M.D.
Baylor College of Medicine
Rice/Baylor Medical Scholars Program
Houston, TX

POSTDOCTORAL TRAINING

July 2005 – June 2006 Internship, Transitional Year
Departments of Internal Medicine and Surgery
New York Hospital Queens
Weill Cornell Medical School, Flushing, NY

July 2006 – June 2009 Residency, Ophthalmology
Department of Ophthalmology
New York Eye and Ear Infirmary
New York Medical College, New York, NY

OLIVIA L. LEE, MD

July 2009 – July 2010	Fellowship, Cornea, External Disease & Refractive Surgery Department of Ophthalmology Division of Cornea & Uveitis Jules Stein Eye Institute University of California at Los Angeles, Los Angeles, CA
July 2010 – June 2011	Fellowship, Uveitis and Ocular Immunology Department of Ophthalmology New York Eye and Ear Infirmary New York Medical College, New York, NY

PROFESSIONAL ACTIVITIES

2011-2013	USC/Doheny Eye Institute residency selection committee
2011-2013	USC/Doheny Eye Institute cornea fellowship selection committee
2011 –	Young Ophthalmology Committee, Chinese American Ophthalmologist Society
2011 –	Doheny Professional Association, Doheny Eye Institute, LA, CA
2012 – 2014	Pasadena Physician's Steering Committee, Keck Medical Center of USC
2014 –	Clinical committee, Doheny Eye Center UCLA
2014 –	UCLA/Stein Eye Institute residency selection committee
2014 –	UCLA/Stein Eye Institute uveitis fellowship selection committee
2014 –	Accreditation Committee, Eye Bank Association of America
January 11, 2015	Chair of session, 3rd Biennial Scientific Meeting of The Indonesian Society of Cataract and Refractive Surgery
January 2015 –	YO Info Sub-committee, Young Ophthalmologist Committee, American Academy of Ophthalmology
January 2015 –	Practicing Ophthalmologists Curriculum (POC) Cornea/External Disease Panel, American Academy of Ophthalmology
July 2015	Maintenance of Certification (MOC) Exam Review Course Faculty, American Academy of Ophthalmology

OLIVIA L. LEE, MD

2015 –	Young Ophthalmologist Sub-committee chair, Chinese American Ophthalmology Society

COMMUNITY SERVICE:

2005 – 2014	Interviewer, Rice Alumni Volunteers for Admission
June 2010	Volunteer Faculty, Orbis Flying Eye Hospital Jakarta, Indonesia
2011 – 2014	EyeSmart EyeCheck and mobile eye clinic Care Harbor, Los Angeles, CA
June 2013, November 2014 (Anticipated October 2015)	Visiting Consultant, Lifeline Express Eye Train
December 2013	Float Decorator, Donate Life Rose Parade Float
October 2014- present	Volunteer Surgeon Faculty, Sightlife Eye Bank
January 2015	Volunteer Faculty, Jakarta Eye Center, Jakarta, Indonesia

EDITORIAL SERVICE:

2015 – Editor for *YO Info*, AAO online publication for young ophthalmologists

PROFESSIONAL ASSOCIATIONS & SCHOLARLY SOCIETIES

American Academy of Ophthalmology

American Society of Cataract and Refractive Surgeons

Association for Research in Vision and Ophthalmology
Chinese American Ophthalmological Society

Doheny Professional Association

Laboratory of Immunology Alumni Association, National Eye Institute

Los Angeles Society of Ophthalmology

Max Fine Cornea Society

OLIVIA L. LEE, MD

Southern California Cornea Society

Orange County Cornea Society

Women in Ophthalmology

HONORS AND SPECIAL AWARDS

February 1996	Outstanding Scholastic Achievement in Biomedical Science, American Heart Association
February 1997	Outstanding Scholastic Achievement Award, Chinese Medical and Health Association,
April 1998	The White House Presidential Scholars Program
May 1998	The State of Maryland Governor's Citation
1998	Alumnus, Howard Hughes Medical Institute/NIH Internship Program, July 1997-May
1998	President's Honor Roll at Rice University
1998 – 2005	Rice/Baylor Medical Scholars Program
2001 –	Present Member, *Psi Chi*, National Honor Society in Psychology
May 2, 2004	Best Paper of Session 2-L Refractive: Pachymetry, Wavefront; ASCRS Symposium,
2005	Honorable Mention, Student Research Symposium, Baylor College of Medicine, April
2008	AMO Resident Writers Award Nominee
June 2009	Louise J. Girard Award for Ophthalmic Research
April 23, 2012	Winner, ASCRS 2012 Film Festival Winner, Category New Producer,
2013, 2014, 2015	Los Angeles Magazine Super Doctors Southern California Rising Stars
2012 – 2015	Pasadena Magazine Top Doctors

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April 29, 2014	Best Paper of Session 4-F: Cornea Pathology, Biomechanics; ASCRS Symposium,
April 19, 2015	Best Paper of Session 2-J: Cornea Imaging and Topography; ASCRS Symposium
April 17-21, 2015	Best Electronic Poster: Cornea; ASCRS Symposium

GRANTS & RESEARCH SUPPORT

FUNDED STUDIES:

1. "Ophthalmic investigational drug for the Treatment of Meibomian Gland Dysfunction"
   Sponsor: Doheny Image Reading Center
   Amount: *To be determined*
   Dates: October 2012 – April 2015
   Role: Co-Investigator

2. "Study-Specific Specular Microscopy Grading Protocol"
   Sponsor: Doheny Image Reading Center
   Amount: *To be determined*
   Dates: September 30, 2013 - Present
   Role: Co-Investigator

3. "Oculus Keratograph 5 Research study (for the Treatment of Meibomian Gland Dysfunction)"
   Sponsor: Doheny Image Reading Center
   Amount: *To be determined*
   Dates: October 2013 – February 2014
   Role: Co-Investigator

4. "Anterior Segment Analyses (angle, specular, ocular surface)"
   Sponsor: Doheny Image Reading Center
   Amount: *To be determined*
   Dates: January 2013 – December 2015
   Role: Co-Investigator

5. "Anterior segment ophthalmic imaging for sustained release CSA."
   Sponsor: Doheny Image Reading Center.
   Amount: *To be determined*
   Dates: January 2013 – December 2014
   Role: Co-Investigator

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6. "A Phase 2, Multicenter, Vehicle-and Sham-Controlled, Randomized Study in Patients with Moderate to Severe Dry Eye Disease"
   Sponsor: Doheny Image Reading Center
   Amount: *To be determined*
   Dates: January 2014 - Present
   Role: Co-Investigator

7. "The Efficacy and Safety of Bimatoprost SR in Patients With Open-angle Glaucoma or Ocular Hypertension"
   Sponsor: Doheny Image Reading Center
   Amount: *To be determined*
   Dates: September 2014 - Present
   Role: Co-Investigator

8. "Eyeguard C: Gevokizumab for treating controlled, non-infectious, intermediate uveitis."
   Sponsor: Xoma/Janix Biosciences
   Amount: $57,336
   Dates: December 12, 2014 – September 21, 2015
   Role: Primary Investigator

9. "Eyeguard A: Gevokizumab for treating active non-infectious, intermediate uveitis."
   Sponsor: Xoma/Janix Biosciences
   Amount: $84,395
   Dates: December 12, 2014 – September 21, 2015
   Role: Primary Investigator

10. "Multicenter Uveitis Steroid Treatment Trial"
    Sponsor: MUST Research Group, National Eye Institute, National Institutes of Health
    Amount: $6,966
    Dates: September 15, 2015 - present
    Role: Sub-contract Co-Investigator

NON-FUNDED STUDIES:

1. "Anti-VEGF therapy for pterygia and other anterior segment indications."
   Sponsor: None
   Dates: 2007-present
   Role: Principal Investigator

2. "Pterygium Pathogenesis."
   Sponsor: New York Medical College
   Dates: 2008-present
   Role: Collaborator
   Collaborator: Lars Bellner, Ph.D., New York Medical College.

3. "Validation of specular microscopy grading for eyebanking."
   Sponsor: Sightlife Eye Bank
   Dates: 2013- present
   Role: Principal Investigator
   Collaborator: Adam Fox, Sightlife Eye Bank

4. In vivo confocal microscopy imaging in limbal stem cell deficiency
   Sponsor: none
   Dates: 2014-present
   Role: Collaborator
   Collaborator: Sophie X. Deng, MD, PhD, Jules Stein Eye Institute, UCLA

5. "Anterior segment OCT imaging of anterior synechiae."
   Sponsor: None
   Dates: 2014-present
   Role: Principal Investigator
   Collaborators: Robert Chang, MD and Charles Lin, MD, Stanford University.

6. In vivo confocal microscopy imaging in infectious keratitis
   Sponsor: none
   Dates: 2014-present
   Role: Principal Investigator

7. Ophthalmic imaging with PROSE lens wear
   Sponsor: none
   Dates: 2014-present
   Role: Co-investigator
   Collaborator: Gloria Chiu, OD, USC Eye Institute

TEACHING ACTIVITIES

University of California (UCLA)
/Doheny Eye Institute (DEI)
/UCLA School of Medicine (School of Med)
/David Geffen School of Medicine at UCLA (UCLA-Geffen School of Med)

TEACHING ROLES

2009-2010; 2014-Present	Jules Stein Eye Institute, Ophthalmology Residents.
2010-2011	New York Eye & Ear Infirmary, Ophthalmology Residents.

OLIVIA L. LEE, MD

2011–2014	University of Southern California Medical Students, USC/Doheny Eye Institute, Ophthalmology Residents, Cornea Fellows, and edical Retina/Uveitis Fellow.
2012-Present	Doheny Image Reading Center and Doheny Image Reading & Research Lab, Research Fellows and Postdocs.
2013-Present	Doheny Image Reading Center, Ophthalmic Graders.
2014-Present.	University of California Los Angeles/David Geffen School of Medicine, Uveitis fellows
2014-Present.	University of California Los Angeles/David Geffen School of Medicine, Cornea & External Disease fellows

MENTORING

UNDERGRADUATE MEDICAL STUDENTS... AFFILIATION:

2012	Rachel Epstein	Chicago Medical School
2013	Mark Breazzano	SUNY Upstate Medical University
2015	Jennifer Danesh	David Geffen School of Medicine, UCLA

RESIDENT RESEARCH MENTORING:

2013	Lloyd Cuzzo, MD	USC Ophthalmology Resident

POSTDOCTORAL RESEARCH MENTORING:

2012-2014	Jyotsna Maram, OD, PhD
2013-	Tudor Tepelus, PhD
2013-	Jianyan Huang, MD, PhD
2014-2015	Anna I Dastiridou, MD
2014-	Ping Huang, MD, PhD
2015 -	Handan Akil, MD, FEBO

OLIVIA L. LEE, MD

2015 -	Elmira Bagdesaryan, MD	

CORNEA CLINICAL FELLOW MENTORING:

2011-2012	Veena Raiji, M.D.	Medical Retina/Uveitis Fellow Assistant Professor George Washington University
2011-2012	Mingwu Wang, M.D., Ph.D.	Cornea Fellow Associate Professor University of Arizona
2011-2012	Omar Chaudhary, M.D.	Cornea Fellow Private practice
2012-2013	Pho Nguyen, M.D.	Cornea Fellow Private practice
2012-2013	Benjamin Bert, M.D.	Cornea Fellow Private practice and Clinical Faculty California Pacific Medical Center & University of California San Francisco
2013-2014	Jennifer Lee, M.D.	Cornea Fellow Assistant Professor Dean McGee Eye Institute
2013-2014	Kristine Yin, M.D.	Cornea Fellow Private practice
2014-2015	Jonathan Heston, MD MSc, FRCSC DA DCH Ophth	Uveitis Fellow Private Practice and Volunteer Faculty University of Alberta
2014-2015	Neil Vyas, MD	Cornea Fellow Private Practice
2014-2015	Anjali Tannan, MD	Cornea Fellow Assistant Professor, Rush Medical Center
2015 –	Laura Vickers, MD	Cornea Fellow Current Fellow, Doheny Eye Center,UCLA

UVEITIS CLINICAL FELLOW MENTORING:

2015-	Meghan Berkenstock, MD	Uveitis Fellow Current Fellow, Stein Eye Institute UCLA

OLIVIA L. LEE, MD

CLINICAL INTERESTS:

1. High risk and complex keratoplasty.
2. Inflammatory ocular surface disease.
3. Complex cataract surgery, particularly in uveitic eyes.
4. Immunosuppression for the treatment of inflammatory eye disease.
5. Pterygia.
6. Ocular surface tumors.
7. Ocular Imaging

TEACHING & INVITED LECTURES — National

1. **Lee OL**. "Restrictive strabismus secondary to lost inferior rectus muscle." Pediatric Ophthalmology Grand Rounds, Cullen Eye Institute, Houston, TX. April 23, 2004.
2. **Lee OL**. "Cutaneous melanoma metastatic to extraocular muscle." Grand Rounds, National Eye Institute, Bethesda, MD. August 13, 2004.
3. **Lee OL**. "Klebsiella associated endogenous panophthalmitis." Uveitis Grand Rounds, New York Eye and Ear Infirmary. New York, NY. December 1, 2006.
4. **Lee OL**. "Dorsal midbrain syndrome." Neuro-ophthalmology Grand Rounds, New York Eye and Ear Infirmary. New York, NY. January 26, 2007.
5. **Lee OL**. "Juvenile X-linked retinoschisis." Retina Grand Rounds, New York Eye and Ear Infirmary. New York, NY. March31, 2007.
6. **Lee OL**. "AlphaCor keratoprosthesis." Cornea Grand Rounds, New York Eye and Ear Infirmary. New York, NY. April 20, 2007.
7. **Lee OL**. "Central retinal artery occlusion resolved with ocular massage." General Ophthalmology Grand Rounds, New York Eye and Ear Infirmary. New York, NY. September 6, 2007.
8. **Lee OL**. "Acquired esotropia and Arnold Chiari malformation." Pediatrics and Strabismus Grand Rounds, New York Eye and Ear Infirmary. New York, NY. November 2, 2007.
9. **Lee OL**. "Asymmetric progressive glaucomatous optic neuropathy in a patient with a rare developmental variant of the ophthalmic artery." Glaucoma Grand Rounds, New York Eye and Ear Infirmary. New York, NY. December 6, 2007.

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10. **Lee OL**. "White dot syndromes." Fluorescein Angiography Conference, New York Eye and Ear Infirmary. New York, NY. April 1, 2008.

11. **Lee OL**. "Non-proliferative diabetic retinopathy." Fluorescein Angiography Conference, New York Eye and Ear Infirmary. New York, NY. October 14, 2008.

12. **Lee OL**. "Retinal arterial occlusions." Fluorescein Angiography Conference, New York Eye and Ear Infirmary. New York, NY. November 18, 2008.

13. **Lee OL**. "Phakic intraocular lenses: Current and emerging technology." New York Keratorefractive Society. New York, NY. November 18, 2008.

14. **Lee OL**, Deng SX. "Limbal epithelial changes in patients with corneal edema using confocal microscopy." Cornea Conference, Jules Stein Eye Institute. Los Angeles, CA. September 9, 2009.

15. **Lee OL**. "Anterior segment dysgenesis disorders." Cornea Conference, Jules Stein Eye Institute. Los Angeles, CA. December 9, 2009.

16. **Lee OL**. "Peripheral ulcerative keratitis." Cornea Conference, Jules Stein Eye Institute. Los Angeles, CA. June 9, 2009.

17. **Lee OL**, Deng SX, Aldave AJ. "Fungal mycosis in DSAEK lenticle." 18th Annual VISTA Scientific Conference, Fort Lauderdale, FL. May 2, 2010.
18. **Lee OL**. "Advances in corneal transplantation: Options beyond penetrating keratoplasty." Department of Ophthalmology Grand Rounds, Stanford University. Palo Alto, CA. August 17, 2010.

19. **Lee OL**. "Peripheral ulcerative keratitis." Department of Ophthalmology Resident Conference, Yale University. New Haven, CT. January 7, 2011.

20. Hong BK and **Lee OL (discussant).** "Una cicatriz: ocular cicatricial pemphigoid." Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. September 30, 2011.

21. Chaudhary O and **Lee OL**. "Advances in corneal transplantation: Femtosecond laser assisted keratoplasty." Saturday CME Series "Innovations in Ophthalmic Surgery: Bubbles to Shunts." Doheny Eye Institute, Los Angeles, CA. October 8, 2011.

21. **Lee OL**. "Clinical approach to immune-related disorders of the external eye." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. December 23, 2011.

23. **Lee OL**. "Ocular immunology." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. December 23, 2011.

24. Sand D and **Lee OL (discussant).** "Herpes Zoster Ophthalmicus." Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. January 13, 2012.

25. **Lee OL**. "Refractive intraocular surgery." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. January 13, 2012.

26. **Lee OL**. "When steroids aren't enough: therapeutic options in the treatment of uveitis." 80th Midwinter Conference. Research Study Club of Los Angeles. Good Samaritan Hospital. Los Angeles, CA. February 11, 2012.

27. Datoo O'Keefe G and **Lee OL (discussant).** "Cogan's syndrome." Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. March 23, 2011.

28. **Lee OL**. "Anterior segment." Seventh Annual Doheny Eye Institute/Jules Stein Eye Institute Comprehensive Ophthalmology Review Course. Jules Stein Eye Institute. Los Angeles, CA. February 25, 2012.

29. **Lee OL**. "Anti-VEGF for the treatment of primary and recurrent pterygia." ARVO. Ft. Lauderdale, FL. May 8, 2012.

30. **Lee OL**. "Surgery in uveitic eyes: Cataract surgeon's perspective." Saturday CME Series "Uveitis: how it applies to your practice.." Doheny Eye Institute. Los Angeles, CA. May 12, 2012.

31. **Lee OL**. "Options in the treatment of noninfectious uveitis." Saturday CME Series "Uveitis: how it applies to your practice.." Doheny Eye Institute. Los Angeles, CA. May 12, 2012.

32. **Lee OL**. "Anterior segment." Resident mock oral exam, Doheny Eye Institute, Los Angeles, CA. June 12, 2012.

33. Yeter K and **Lee OL (discussant).** "Corneal melt." Division of Rheumatology Clinical Conference, University of Southern California, Los Angeles, CA. September 24, 2012.

34. **Lee OL**. "Immune-mediated corneal melting diseases." Division of Rheumatology Clinical Conference, University of Southern California, Los Angeles, CA. September 24, 2012.

35. **Lee OL**. "Clinical approach to immune-related disorders of the external eye." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. December 21, 2012.

36. **Lee OL**. "Ocular immunology." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. December 21, 2012.

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37. **Lee OL**. "Anterior segment." Resident mock oral exam, Doheny Eye Institute, Los Angeles, CA. January 18, 2013.

38. **Lee OL**. "Refractive intraocular surgery." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. January 25, 2013.

39. **Lee OL**. "Anterior segment." Eighth Annual Doheny Eye Institute/Jules Stein Eye Institute Comprehensive Ophthalmology Review Course. Jules Stein Eye Institute. Los Angeles, CA. March 9, 2013.

40. **Lee OL**. "Uveitis review." Residents OKAP Review Lecture Series. Los Angeles County Hospital. Los Angeles, CA. March 6, 2013.

41. **Lee OL**. "Cataract surgery in uveitic eyes." Saturday CME Series, "Complex cataracts." Doheny Eye Institute. Los Angeles, CA. March 16, 2013.

42. **Lee OL**. "Uveitis treatment principles." Basic and Clinical Science Course Residents Lecture Series. Jules Stein Eye Institute. Los Angeles, CA. April 3, 2013.

43. **Lee OL**. "Autoimmune corneal melt." Ocular Surface Disease Asia Pacific Preceptorship Program, Doheny Eye Institute, Los Angeles, CA. April 8, 2013.

44. **Lee OL**. "Pterygia: medical and surgical intervention." Ocular Surface Disease Asia Pacific Preceptorship Program, Doheny Eye Institute, Los Angeles, CA. April 8, 2013.

45. Cuzzo L and **Lee OL (discussant).** "Not your average corneal melt, Part I" Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. April 12, 2013.

46. **Lee OL**. "Autoimmune corneal melt." VISTA Cornea Society Meeting, Seattle, WA. May 5, 2013.

47. Cuzzo L and **Lee OL**. "Not your average scleral melt." VISTA Cornea Society meeting, Seattle, WA. May 5, 2013.

48. **Lee OL**. "Corneal transplantation: The gift of sight." Luminaires Founders Meeting, San Gabriel, CA. May 9, 2013.

49. **Lee OL**. "Scleral melt." Max Fine Cornea Society meeting, Los Angeles, CA. May 10, 2013.

50. **Lee OL**. "DALK: Is the big bubble worth the trouble?" Advances in Cornea Surgery Symposium, Santa Monica, CA. May 11, 2013.

51. Browne AW and **Lee OL (discussant).** "TEN syndrome." Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. May 17, 2013.

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52. Cuzzo L and **Lee OL (discussant).** "Not your average corneal melt, Part II." Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. May 31, 2013.

53. Cuzzo L and **Lee OL (discussant).** "Fuchs Heterochromic Iridocyclitis." Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. August 1, 2013.

54. **Lee OL (Visiting Professor).** "Approach to a new uveitis patient." Department of Ophthalmology Grand Rounds, Gavin Herbert Eye Institute, University of California Irvine, Irvine, CA. November 20, 20/13

55. **Lee OL (Visiting Professor).** "Anterior segment Imaging modalities applied to the cornea and ocular surface." Department of Ophthalmology Grand Rounds, Gavin Herbert Eye Institute, University of California Irvine, Irvine, CA. November 20, 2013.

56. **Lee OL (Visiting Professor).** "Therapeutic principles and advances in the treatment of non-infectious uveitis." Department of Ophthalmology Grand Rounds, Gavin Herbert Eye Institute, University of California Irvine, Irvine, CA. November 20, 2013.

57. **Lee OL**. "Ocular emergencies," Huntington Memorial Hospital, Pasadena, CA. December 11, 2013.

58. Tepelus T and **Lee OL**. "Experience with HRTIII confocal microscopy at Doheny Eye Institute" Allergan headquarters, Irvine, CA. December 2, 2013.

59. **Lee OL**. "New treatment options for non-infectious uveitis" Monterey Park, CA. December 13. 2013.

60. **Lee OL**. "Ocular immunology and immune related disorders." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. January 17, 2014.

61. **Lee OL**. "Refractive intraocular surgery." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. January 17, 2014.

62. **Lee OL**. "Corneal endothelial analysis." Cornea Conference, Jules Stein Eye Institute, UCLA. Los Angeles, CA. January 22, 2014.

63. **Lee OL**. "Uveitis review." Residents OKAP Review Lecture Series. Los Angeles County Hospital. Los Angeles, CA. January 28, 2014.

64. **Lee OL**. "Anterior segment." Ninth Annual Doheny Eye Institute/Jules Stein Eye Institute Comprehensive Ophthalmology Review Course. Jules Stein Eye Institute, UCLA. Los Angeles, CA. February 22, 2014.

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65. Lee SY and **Lee OL (discussant).** "Scleral patch grafting." Department of Ophthalmology Grand Rounds, Doheny Eye Institute, Los Angeles, CA. March 21, 2014

66. **Lee OL** and Saleh N. "Oculus keratograph research summary." Allergan headquarters, Irvine, CA. March 27, 2014.

67. **Lee, OL**. "Corneal involvement in eyes with mucous membrane pemphigoid." 45th Annual Doheny Days Conference, Doheny Eye Institute, Los Angeles, CA. June 20, 2014.

68. **Lee, OL**. "Dry eye disease." Continuing medical education program, Pacifica Hospital of the Valley, Sun Valley, CA. July 31, 2014.

69. **Lee, OL**. "Ocular immunology." Medical student basic science lecture series, David Geffen School of Medicine UCLA, Westwood, CA. September 8, 2014.

70. **Lee, OL**. "Ocular manifestations of rheumatologic disease." Internal medicine resident lecture series, Huntington Memorial Hospital, Pasadena, CA. September 30, 2014.

71. **Lee, OL**. "Scleritis: medical management strategies." Advanced treatment of ocular surface inflammatory diseases symposium, combined Cornea Society and American Academy of Ophthalmology annual meeting, Chicago, IL. October 21, 2014.

72. **Lee OL**. "Uveitis review." First year residents BCSC lecture series. David Geffen School of Medicine UCLA, Westwood, CA. October 22, 2014.

73. **Lee OL (guest speaker)**. "Immunosuppression for anterior segment disease." Southern California Cornea Society Journal Club, Beverly Hills, CA. October 28, 2014.

74. **Lee OL.** "Approach to a new uveitis patient." Advances in Eye Care Symposium. Southern California College of Optometry at Ketchum University. Fullerton, CA. January 18, 2015.

75. **Lee OL**. "Specular microscopy." Cornea Conference, Jules Stein Eye Institute, UCLA. Los Angeles, CA. February 11, 2015.

76. **Lee OL**. "My journey through teaching." Luminaires Founders General Meeting. Pasadena, CA. February 12, 2015.

77. **Lee OL**. "Cornea and anterior segment uveitis review." Tenth Annual Doheny Eye Institute/Stein Eye Institute Comprehensive Ophthalmology Review Course. Los Angeles, CA. February 21, 2015.

78. **Lee OL.** "Uveitis in Patients with Spondyloarthritis." Spondylitis Educational Seminar, Spondylitis Association of America. Altadena, CA. March 21, 2015.

OLIVIA L. LEE, MD

79. **Lee OL.** "Imaging of the Cornea: Specular and Confocal Microscopy." Doheny Faculty Research Forum. Pasadena, CA. April 6, 2015.

80. Abdelfattah NS, Dastiridou A, Sadda S, **Lee OL (invited abstract).** Non-invasive Imaging of Tear Film Dynamics in Eyes with Ocular Surface Disease. Highlights of the World Cornea Congress VII symposium. San Diego, CA. April 19, 2015.

81. **Lee OL.** "Basic and Advanced Corneal Imaging: Specular Microscopy" Doheny CME Conference: Advances in Ocular Imaging. Los Angeles, CA. May 16, 2015

82. **Lee OL.** "In Vivo Confocal Microscopy of Cornea in Dry Eye Associated with Sjögren's Syndrome." 46th Annual Doheny Days Conference, Doheny Eye Institute, Los Angeles, CA. June 19, 2015.

83. **Lee OL**, Tuli SS and Karp CL. "Cornea/External Disease Core." Maintenance of Certification Review Course. Chicago, IL. July 18, 2015.

84. **Lee OL**, Tuli SS and Karp CL. "Cornea/External Disease Practice Emphasis Areas." Maintenance of Certification Review Course. Chicago, IL. July 19, 2015.

85. **Lee OL.** "Specular microscopy." Cornea Conference, Jules Stein Eye Institute, UCLA. Los Angeles, CA. September 9, 2015.

86. **Lee OL.** Medical and Surgical Pearls for Cataract Surgery in Uveitis Patients. Kaiser Ophthalmology Symposium. Anaheim, CA. September 12, 2015.

87. **Lee OL** "Corneal Problems in Patients with Uveitis." Cornea Conference, Jules Stein Eye Institute, UCLA. Los Angeles, CA. December 23, 2015 (anticipated).

88. **Lee OL.** New and emerging techniques in dry eye evaluation. Maloney Vision Symposium. Los Angeles, CA. May 22, 2016 (anticipated).

89. **Lee OL.** The Hot Eye: evaluation of anterior uveitis. Maloney Vision Symposium. Los Angeles, CA. May 22, 2016 (anticipated).

104. **Lee OL.** The eye in rheumatologic disease. Maloney Vision Symposium. Los Angeles, CA. May 22, 2016 (anticipated).

TEACHING & INVITED LECTURES — International

1. **Lee OL.** "Peripheral ulcerative keratitis and Mooren's ulcer." ORBIS Flying Eye Hospital Jakarta Program, Jakarta, Indonesia. June 18, 2010.

OLIVIA L. LEE, MD

2. **Lee OL**. "Pterygium." ORBIS Flying Eye Hospital Jakarta Program, Jakarta, Indonesia. June 18, 2010.

3. **Lee OL**. "Deep anterior lamellar keratoplasty." ORBIS Flying Eye Hospital Jakarta Program, Jakarta, Indonesia. June 18, 2010.

4. **Lee OL**. "Therapeutic approach to the treatment of non-infectious uveitis." Lifeline Express Visiting Consultants Program, 吉林中西醫結合醫院. Jilin, China. June 15, 2013.

5. **Lee OL**. "Endothelial keratoplasty." Lifeline Express Visiting Consultants Program, 吉林中西醫結合醫院. Jilin, China. June 15, 2013.

6. **Lee OL**. "Corneal transplantation." Lifeline Express Visiting Consultants Program, 吉林中西醫結合醫院. Jilin, China. November 3, 2013.

7. **Lee OL**. "Herpetic eye disease." Lifeline Express Visiting Consultants Program, 吉林中西醫結合醫院. Jilin, China. November 3, 2013.

8. **Lee OL**. "Corneal ulcers." Lifeline Express Visiting Consultants Program, 吉林中西醫結合醫院. Jilin, China. November 3, 2013.

9. **Lee OL (invited speaker).** "Graft versus host disease." Indonesian Society of Cataract and Refractive Surgery 3rd Biennial Scientific Meeting. Jakarta, Indonesia. January 10, 2015.

10. **Lee OL (invited speaker).** "Mucous membrane pemphigoid." Indonesian Society of Cataract and Refractive Surgery 3rd Biennial Scientific Meeting. Jakarta, Indonesia. January 10, 2015.

11. **Lee OL (invited speaker).** "Cataract surgery in uveitic eyes." Indonesian Society of Cataract and Refractive Surgery 3rd Biennial Scientific Meeting. Jakarta, Indonesia. January 10, 2015.

12. **Lee OL (invited speaker).** "Dry eye and ocular surface disease." Indonesian Society of Cataract and Refractive Surgery 3rd Biennial Scientific Meeting. Jakarta, Indonesia. January 11, 2015.

13. **Lee OL (invited speaker).** "Specular microscopy." Indonesian Society of Cataract and Refractive Surgery 3rd Biennial Scientific Meeting. Jakarta, Indonesia. January 11, 2015.

14. **Lee OL.** "OCP- Management and Outcomes." OSKON2015 2nd meeting of Ocular Surface and Keratoprosthesis. Chennai, India. July 11, 2015.

OLIVIA L. LEE, MD

PUBLICATIONS & Related Activities

A. RESEARCH PAPERS (PEER-REVIEWED)

1. Ro T, Shelton D, **Lee OL**, and Chang E. Extrageniculate mediation of unconscious vision in TMS induced blind sight. *PNAS*. 2004; 101(26):9933-5.

2. Koplin RS, Ritterband DC, **Lee OL**, Seedor JA. Flap lift and repair of postoperative laser in situ keratomileusis complications at the slit lamp. *J Cataract Refract Surg.* 2010 Jul;36(7):1069-72.

3. Wiaux C, Baghdasaryan E, **Lee OL**, Deng SX, Aldave AJ. Outcomes following Descemet stripping endothelial keratoplasty in glaucoma patients with previous trabeculectomy and tube shunt implantation. *Cornea*. 2011 Dec;30(12):1304-11.

4. Deng SX, Sejpal K, Tang Q, Aldave AJ, **Lee OL**, Yu F. Evaluation of cellular and structural changes in the cornea in limbal stem cell deficiency using in-vivo confocal microscopy. *Arch Ophthalmol.* 2012 Apr; 130(4):440-5.

5. Fox T, Gotlinger KH, Dunn MW, **Lee OL**, Milman T, Zaidman G, Schwartzman ML, Bellner L. Dysregulated Heme Oxygenase-Ferritin System in Pterygium Pathogenesis. *Cornea*. Jun 20, 2013.

6. Abdelfattah NS, Dastiridou A, Sadda S, **Lee OL**. Noninvasive Imaging of Tear Film Dynamics in Eyes with Ocular Surface Disease. *Cornea*. Jul 29, 2015.

B. RESEARCH PAPERS PEER-REVIEWED (In Press):

None.

C. RESEARCH PAPERS (Submitted/In Revision):

1. Nguyen AH, Chiu GB, Francis BA, **Lee OL**, Chopra V. Glaucoma surgical technique modifications for patients wearing scleral lenses. Submitted to *American Journal of Ophthalmology*.

D. RESEARCH PAPERS (Non-Peer Reviewed):

None.

E. RESEARCH PAPERS – NON-PEER REVIEWED (IN PRESS):

None.

F. RESEARCH PAPERS – NON-PEER REVIEWED (SUBMITTED):

None.

LETTERS TO THE EDITOR:

None.

REVIEWS:

None.

EDITORIALS:

1. Chan- Kai BT, Herz NT, **Lee OL**. "Which type of practice works best for you: solo, multisubspecialty, or academic?" Eyenet Extra, August 2015. http://nxtbook.com/aao/eyenet/yo2015/index.php#/4

PAPERS IN PREPARATION (RESEARCH COMPLETED):

1. **Lee OL**. Efficacy of single and multiple subconjunctival bevacizumab injections in recurrent pterygia.

2. **Lee OL**. Conjunctival sparing technique with use of fibrin adhesive in pterygium surgery.

3. Cuzzo L and **Lee OL**. Intraocular granulocytic sarcoma manifested by scleral melt.

4. Huang J, Maram J, Modak C, Sadda SR, Chopra V, **Lee OL**. Comparison of non-contact specular and confocal microscopy for the evaluation of the corneal endothelium.

5. Modak C, Huang J, Maram J, Marion K, Niemeyer M, Obregon L, Sadda SR, Chopra V, **Lee OL.** Comparison of manual and automated grading methods for corneal endothelial cell density measurements by specular microscopy.

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6. Obregon LF, Modak C, Huang J, Sadda SR, Chopra V, **Lee OL.** Consistency in endothelial cell density values from different central locations as graded by specular microscopy.

7. Breazzano MP, Huang J, Modak C, Sadda SR, Chopra V, **Lee OL**. Characterization of corneal endothelium in glaucomatous eyes managed medically or surgically.

8. Tepelus T, Sadda SR, **Lee OL**. Characterization of corneal involvement in eyes with mucous membrane pemphigoid by in vivo confocal microscopy.

9. Tepelus TC, Chiu G, Maram J, Chopra V, Sadda SR, **Lee OL**. Characterization of corneal features in ocular graft versus host disease by in vivo confocal microscopy.

10. Nguyen AH, Chiu GB, Francis BA, **Lee OL**, Chopra V. Glaucoma surgical technique modifications for patients wearing scleral lenses.

PAPERS PRESENTATIONS:

1. **Lee OL**. Characterization of the T-cell receptor Vγ genes in the rat. HHMI/MCPS/NIH Internship Program Dinner Symposium. Howard Hughes Medical Institute, Bethesda, MD. May 6, 1998.

2. Basti S, **Lee OL**, Li W and Koch DD. Wavefront-guided photorefractive keratectomy for myopia and myopic astigmatism. ASCRS Symposium, San Diego, CA. May 2, 2004. (Won Best Paper of Session 2-L Refractive: Pachymetry, Wavefront)

3. **Lee OL**. Efficacy of subconjunctival bevacizumab injection in primary and recurrent pterygia. Seventh Annual National Eye Institute, Laboratory of Immunology Alumni Association Event. Bethesda, MD. June 13, 2008.

4. **Lee OL** and Ritterband DC. Efficacy of subconjunctival bevacizumab injections in recurrent pterygia. ASCRS Symposium. San Francisco, CA. April 5, 2009.

5. De la Cruz J, Ritterband DC, **Lee OL**, Elderkin S. Aphakic versus pseudophakic Boston Kpro implantation: IOLs anterior segment imaging analysis. ASCRS Symposium. San Francisco, CA. April 6, 2009.

6. Berenbom A, Yin D, **Lee OL**. The optimal treatment for primary pterygia. Annual Resident & Fellow Research Day. New York Eye & Ear Infirmary, June 5, 2009.

7. Deng SX, Sejpal K, **Lee OL**, Aldave AJ, Yu F. Analysis of cellular changes in limbal stem cell deficiency by in vivo confocal microscopy. World Cornea Congress VI, Boston, MA. April 9, 2010.

8. **Lee OL**, Baghdasaryan E, Deng SX, Aldave AJ. Outcomes following Descemet stripping endothelial keratoplasty in glaucoma patients with previous trabeculectomy and tube shunt implantation. World Cornea Congress VI, Boston, MA. April 9, 2010.

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9. **Lee OL**, Patel A, Diaz V, Kedhar SR, Samson CM. Serum estrogen and progesterone levels and intraocular inflammation. Annual Resident & Fellow Research Day. New York Eye & Ear Infirmary. May 20, 2011.

10. Patel AP, **Lee OL**. Conjunctival sparing technique with use of fibrin adhesive in pterygium surgery. ASCRS Symposium, Chicago, IL, April 23, 2012.

11. Bert B and **Lee OL**. Characterization of zig zag femtosecond laser assisted keratoplasty wound configuration using anterior segment OCT. Annual Doheny Days Conference, Los Angeles, CA, June 13, 2013.

12. **Lee OL**, Modak C, Huang J, Maram J, Chopra V. Determination of endothelial cell density by specular microscopy by manual and automated methods in normal and pathologic corneas. ASCRS Symposium. Boston, MA. April 29, 2014.

13. Tepelus T, Chiu G, Maram J, Chopra V, Sadda SR, **Lee OL**. Characterization of corneal features in ocular graft versus host disease by in vivo confocal microscopy. ASCRS Symposium. Boston, MA. April 29, 2014. (Won Best Paper of Session 4-F: Cornea Pathology, Biomechanics)

14. Abdelfattah NS, Dastiridou A, Sadda S, **Lee OL** Non-invasive Imaging of Tear Film Dynamics in Eyes with Ocular Surface Disease. Highlights of the World Cornea Congress VII. San Diego, CA. April 16, 2015.

15. Tepelus T, Huang J, Chopra C, Sadda SR, **Lee OL**. Characterization of Corneal Involvement in Eyes with Mucous Membrane Pemphigoid by in Vivo Confocal Microscopy. ASCRS Symposium. San Diego. April 18, 2015.

16. Abdelfattah NS, Dastiridou A, Sadda S, **Lee OL**. Use of corneal topography to assess tear film and meibography in ocular surface disease. ASCRS Symposium. San Diego. April 19, 2015. (Won Best Paper of Session 2J: Cornea Imaging and Topography)

17. Tepelus T, Chiu GB, Huang J, Irvine CJ, Irvine ASG, Chopra V, Sadda SR, **Lee OL**. In Vivo Confocal Microscopy of Cornea in Dry Eye Associated With Sjögren Syndrome. ASCRS Symposium. San Diego, CA. April 20, 2015.

18. **Lee OL**, Huang H, Modal C, Dastiridou A, Sadda SR, Chopra V. Characterization of corneal endothelium in glaucomatous eyes managed medically vs. surgically. AAO Annual Meeting. Las Vegas, NV. November 17, 2015 (anticipated).

19. Vickers LA, Irvine JA, Hsu HY, **Lee OL**. The role of scleral debridement in infectious scleritis. Ocular Microbiology and Immunology Meeting. Las Vegas, NV. November 13, 2015 (anticipated).

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BOOKS – Chapters

CHAPTERS:

1. **Lee OL**, Samson CM. How should one properly employ topical corticosteroid therapy? In: C.S. Foster, Editor, Curbside Consultation in Uveitis: 49 Clinical Questions.

2. **Lee OL**, Samson CM, Foster CS. Tuberculosis. In: CS Foster and AT Vitale, Editors, Diagnosis and Treatment of Uveitis.

3. **Lee OL**. Idiopathic and Other Anterior Uveitis Syndromes. In: Myron Yanoff & Jay Duker, Editor, Ophthalmology, 4th edition.

BOOKS

None.

BOOKS (In Preparation):

None.

INTERNET PUBLICATIONS:

1. **Lee OL**. "10 Pearls for Successful Cataract Surgery in Uveitic Eyes." *Yo Info*, American Academy of Ophthalmology. Web. December 1, 2014. <http://www.aao.org/young-ophthalmologists/yo-info>

2. **Lee OL**. "Retinoscopy 101." *Yo Info*, American Academy of Ophthalmology. Web. May 16, 2015. http://www.aao.org/young-ophthalmologists/yo-info

ABSTRACTS PRESENTATION

None.

POSTER PRESENTATIONS:

1. **Lee OL**. T-cell receptor gamma delta gene usage in autoimmune uveitis. Annual Poster Session for Biosciences Students, Rice University, Houston, TX. April 18, 2000.

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2. **Lee OL**, Reed GF, Caruso RC and Chew EY. Correlation of multi-focal electroretinograms with parameters of diabetic macular edema. NIH Poster Day. National Institutes of Health, Bethesda, MD. August 5, 2004.

3. **Lee OL**, Tari SR, Samson CM. Cost-analysis of uveitis patient visits at the New York Eye and Ear Infirmary. ARVO Annual Meeting. Fort Lauderdale, FL. May 8, 2007.

4. **Lee OL**, Panarelli AJ, Shah MK, Ritterband DC, Seedor JA. The microbiologic spectrum of corneal foreign bodies. ASCRS Symposium. Chicago, IL. April 9, 2008.

5. **Lee OL**, Banitt MR, Anderson JE, Shih CY, Ritterband DC. Efficacy of subconjunctival bevacizumab injection in primary and recurrent pterygia. ARVO Annual Meeting. Fort Lauderdale, FL. May 1, 2008.

6. **Lee OL**, Koplin RS, Patel J, Ritterband DC, Seedor JA. Slit lamp repair of LASIK flap complications. ARVO Annual Meeting. Fort Lauderdale, FL. May 3, 2009.

7. **Lee OL**, Aldave AJ, Hamilton DR. Histologic evaluation of zig-zag femtosecond laser trephination for penetrating keratoplasty. ARVO Annual Meeting, Fort Lauderdale, FL. May 2, 2010.

8. Yin D and **Lee OL**. Risk factors for pterygium recurrence after primary excision. ARVO Annual Meeting. Fort Lauderdale, FL. May 9, 2011.

9. **Lee OL**, Modak C, Huang J, Maram J, Marion K, Niemeyer M, Chopra V. Comparison of flex center and center methods for corneal endothelial cell density measurements by specular microscopy in eyes with Fuchs endothelial dystrophy. 28th Biennial Cornea Conference, Boston, MA, October 18-19, 2013.

10. Modak C, Huang J, Maram J, Marion K, Niemeyer M, Chopra V, **Lee OL**. Comparison of autotrace vs. center method for corneal endothelial cell density measurements by specular microscopy. 28th Biennial Cornea Conference, Boston, MA, October 18-19, 2013.

11. Huang J, Maram J, Modak C, Chopra V, **Lee OL**. Comparison of confocal and specular microscopy for evaluation of corneal endothelium. 28th Biennial Cornea Conference, Boston, MA, October 18-19, 2013.

12. Nguyen AH, Chiu GB, Francis BA, **Lee OL**, Chopra V. Glaucoma surgical technique modifications for patients wearing scleral lenses. ASCRS Symposium, Boston, MA, April 25-29, 2012.

13. Bert B, **Lee OL**. Characterization of Zig-Zag femtosecond laser-assisted keratoplasty wound configuration using anterior segment OCT. ASCRS Symposium, Boston, MA, April 25-29, 2012.

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14. Huang J, Maram J, Modak C, Sadda SR, Chopra V, **Lee OL**. Comparison of non-contact specular and confocal microscopy for the evaluation of the corneal endothelium. ARVO Annual Meeting. Orlando, FL. May 4, 2014.

15. Modak C, Huang J, Maram J, Marion K, Niemeyer M, Obregon L, Sadda SR, Chopra V, **Lee OL.** Comparison of manual and automated grading methods for corneal endothelial cell density measurements by specular microscopy. ARVO Annual Meeting. Orlando, FL. May 5, 2014.

16. Obregon LF, Modak C, Huang J, Sadda SR, Chopra V, **Lee OL.** Consistency in endothelial cell density values from different central locations as graded by specular microscopy. ARVO Annual Meeting. Orlando, FL. May 5, 2014.

17. Breazzano MP, Huang J, Modak C, Sadda SR, Chopra V, **Lee OL**. Characterization of corneal endothelium in glaucomatous eyes managed medically or surgically. ARVO Annual Meeting. Orlando, FL. May 5, 2014.

18. **Lee OL**, Tepelus T, Sadda SR. Characterization of corneal involvement in eyes with mucous membrane pemphigoid by in vivo confocal microscopy. ARVO Annual Meeting. Orlando, FL. May 8, 2014.

19. Tepelus TC, Chiu G, Maram J, Chopra V, Sadda SR, **Lee OL**. Characterization of corneal features in ocular graft versus host disease by in vivo confocal microscopy. ARVO Annual Meeting. Orlando, FL. May 8, 2014.

20. **Lee OL**, Huang H, Modak C, Sadda SR, Chopra V. Characterization of corneal endothelium in glaucomatous eyes managed medically or surgically. American Glaucoma Society Meeting. Coronado, CA. February 26- March 1, 2015.

21. Huang J, Tepelus T, Modak C, Chopra V, Sadda SR, **Lee OL**. Noncontact Specular Microscopy for Evaluation of Corneal Endothelium in Early Fuchs' Endothelial Corneal Dystrophy. World Cornea Congress VII. San Diego, CA. April 15-17, 2015.

22. Abdelfattah NS, Sadda SR, **Lee OL**. Noninvasive Keratograph Tear Break-up Time Versus Invasive Fluorescein-Associated Tear Stability Test: Experimental Validation Study. World Cornea Congress VII. San Diego, CA. April 15-17, 2015.

23. Abdelfattah NS, Sadda S, **Lee OL**. Independent validation and verification of keratography for measuring the tear meniscus height in ocular surface disease patients. ASCRS Symposium. San Diego, CA. April 17-21, 2015.

24. Huang J, Maram J, Modak C, Sadda S, Chopra V, **Lee OL**. Comparison of Noncontact Specular and Confocal Microscopy for Evaluation of Corneal Endothelium. ASCRS Symposium. San Diego, CA. April 17-21, 2015.

25. Irvine ASG, Irvine CJ, Tepelus TC, Chiu GB, Chopra V, Sadda SR, **Lee OL**. Characterization of Corneal Epithelia in Sjögren's Syndrome Associated Dry Eye

Disease By In Vivo Confocal Microscopy. ARVO Annual Meeting. Denver, CO. May 4, 2015.

26. **Lee OL**, Huang P, Tepelus TC, Huang J, Chopra V, Sadda SR. Vascular and morphologic analysis of pterygia evaluated by in vivo confocal microscopy. ARVO Annual Meeting. Denver, CO. May 4, 2015.

27. Huang J, Liu X, Tepelus T, Modak C, Chopra C, Sadda SR, **Lee OL**. Noncontact Specular Microscopy for Evaluation of Corneal Endothelium in Early Fuchs' Endothelial Corneal Dystrophy. ARVO Annual Meeting. Denver, CO. May 5, 2015.

28. Tepelus TC, Chiu GB, Huang J, Irvine CJ, Irvine ASG, Chopra V, Sadda SR, **Lee OL**. In Vivo Confocal Microscopy of the Corneal Sub-basal Nerve Plexus and Stroma in Sjögren's Syndrome Associated with Dry Eye Disease. ARVO Annual Meeting. Denver, CO. May 7, 2015.

FILM PRESENTATIONS:

1. **Lee OL** and Chaudhary O. Femtosecond laser assisted keratoplasty: Step-by-step. ASCRS Symposium, Chicago, IL, April 20-24, 2012. (Won ASCRS 2012 Film Festival Winner category New Producer)

2. Dorairaj S and **Lee OL**. Deep anterior lamellar keratoplasty. ASCRS Symposium, Chicago, IL, April 20-24, 2012.

3. Patel AP and **Lee OL**. Conjunctival Sparing Technique for Pterygium Surgery. ASCRS Symposium, Chicago, IL, April 20-24, 2012.

4. **Lee OL**. Cataract surgery in uveitic eyes. ASCRS Symposium, Boston, MA, April 25-29, 2014.

5. **Lee OL**. From eyebank to OR: the journey of a cornea to transplantation. ASCRS Symposium, San Diego, CA, April 2015.

CURRICULUM VITAE

Robert Keller Maloney, M.D., M.A. (Oxon)

Personal

Birthplace:	Los Angeles, California
Present Position:	Director, Maloney Vision Institute
Address:	Maloney Vision Institute 10921 Wilshire Boulevard, Suite 900 Los Angeles, CA 90024
Telephone: Facsimile:	(310) 208-3937 (310) 208-8058
Medical Licensure:	California G071227 New York 229012-1 (Inactive)

Positions Held:

1998-Present	Director, Maloney Vision Institute
2005-Present	Clinical Professor of Ophthalmology, UCLA-David Geffen School of Medicine
1998-2004	Associate Clinical Professor of Ophthalmology, UCLA-David Geffen School of Medicine
1996 – 1998	Associate Professor of Ophthalmology, UCLA-David Geffen School of Medicine
1991 – 1996	Assistant Professor of Ophthalmology, UCLA-David Geffen School of Medicine
1999-Present	Calhoun Vision, Inc. Chief Medical Officer, 1999-present Interim Chief Executive Officer, December 2007 – April 2008

Community and Institutional Service:

1991-1998	Jules Stein Eye Institute & UCLA Dept. of Ophthalmology Committees Clinical Committee, 1991-1998 Research Committee, 1991-1998 Ophthalmology Committee, 1991-1998 Academic Appointment, Advancement & Promotion Committee, 1991-1998 Jules Stein Eye Institute Committee, 1991-1998 Resident Selection Committee, 1991-1994 Quality Assurance Committee, 1991-1998 Practice Committee, 1991-1998 Library Committee, 1994-1998
1994-1998	UCLA Committees Medical Center Infection Control Committee, 1994-1998 Office for the Protection of Research Subjects Task Force, 1995-1996
1998-2000	Lasik Institute Board of Directors
2001-Present	Good Samaritan Hospital Board of Trustees

Executive Committee, 2002-Present

2009-2011	Board of Trustees, Children Mending Hearts
2010-Present	Board of Trustees, Van Nuys Charities

Education:

Undergraduate:	A.B., Summa Cum Laude in Mathematics Harvard College Honors thesis: "Linear Representations of Finite Groups in Non-Algebraically Closed Fields." September 1976 to June 1979
Graduate Studies:	Master of Arts in Philosophy, Politics, and Economics Rhodes Scholar Magdalen College Oxford University October 1979 to June 1981
Medical School:	Doctor of Medicine University of California, San Francisco September 1981 to June 1985

Postgraduate Training

Research Fellow:	Kenneth Craik Laboratory Department of Physiology Cambridge University Cambridge, England Spring, 1985
Internship:	Department of Medicine University of California, Los Angeles June 1985 to June 1986
Residency	Wilmer Ophthalmological Institute The Johns Hopkins Hospital July 1986 to June 1989
Heed Fellow:	Cornea and Refractive Surgery Emory University Department of Ophthalmology July 1989 to June 1991

Honors and Awards

Best 34 Ophthalmologists in America. Becker's ASC Review. 2010

Top 50 World Opinion Leaders in Cataract and Refractive Surgery, 2005-2007. Nationwide readership poll of Cataract & Refractive Surgery Today
Secretariat Award, American Academy of Ophthalmology, 2003, for outstanding and valuable contributions to the American Academy of Ophthalmology and to its scientific and educational programs
Senior Achievement Award, American Academy of Ophthalmology, 2002
Lans Distinguished Refractive Surgery Award, International Society of Refractive Surgery, 2001, given annually to one surgeon worldwide for innovative contributions to the field of refractive surgery.
Pioneer in Refractive Surgery Award, Lasik Institute, 1999
Mericos Whittier Prize, Scripps Institute, 1997, awarded for outstanding achievements and contributions to the field of ophthalmology
Best Ophthalmologist in America Award, 1996. Voted one of America's top 10 refractive surgeons in a nationwide survey of eye surgeons conducted by Ophthalmology Times
The Best Doctors in America Award, Best Doctors, Inc., 1994-2015
America's Top Doctors Award, Castle Connolly Medical, Inc., 2001-2015
Honor Award, American Academy of Ophthalmology, 1993
Heed/Knapp Fellow, 1990-91
Heed Foundation Fellow, 1989-90
Rhodes Scholarship, 1979
Phi Beta Kappa Society, Harvard College (early election)
John Harvard Scholarship, for Academic Distinction, 1978
Rotary Foundation Fellowship for International Study, 1978 (declined)
Detur Prize, Harvard College, for Academic Distinction, 1977
National Merit Scholarship, 1976
Edward Whitaker Prize, Harvard College; for Academic Distinction, 1976
Sophomore Standing on admission to Harvard College (finished college in three years)
Daniel Webster Scholarship, Dartmouth College, 1976(declined)
Regents' Scholarship, University of California, 1976 (declined)

Directorships

Calhoun Vision, Inc	1999-2004
VisionRx, Inc.	1994-2004

Consultancies

Premier Laser Systems, for the development of an Erbium-YAG system for corneal refractive surgery, 1994-1998
VisionRx, Inc. for the development of ophthalmic diagnostic instruments, 1994-2004
Calhoun Vision for the development of a light adjustable intraocular lens, 1998-present
Refractec, Inc., 2001-2002
VISX, Inc. 2002-2005
Advanced Medical Optics, Inc., 2005-present
Bausch & Lomb, Inc., 2005-2007
IntraLase Corp., 2007
Presbia Corp., Medical Monitor for the FDA clinical trial of the Flexivue Microlens, 2012-present
Better Vision Network, Medical Advisory Board, 2012

Research Grants

Research to Prevent Blindness Career Development Award, 1992-1996, $140,000
Principal Investigator, Weingart Foundation grant, for purchase of excimer laser, 1991, $250,000

Professional Societies

Diplomate, American Board of Ophthalmology, 1991
American Academy of Ophthalmology
- Spokesperson, 2000-2004
- Young Ophthalmologists' Committee, 1992-1994
- Advisory Group to the Ad Hoc Committee on Organizational Design, 1991
- Chairman, Annual Meeting Program Committee for Young Ophthalmologists, 1990-1992
- Long Range Planning Committee, 1989-1992
- Quality of Care Committee, 1987-1991
- Retina Preferred Practice Pattern Subcommittee
- Refractive Errors Preferred Practice Pattern Subcommittee

American Society of Cataract and Refractive Surgery
International Society of Refractive Surgery
California Association of Ophthalmology
Max Fine Corneal Society
American-European Congress of Ophthalmic Surgery
- Board of Directors 2011-present

Peer Review Activities

Associate Editor for North America, Journal of Refractive and Corneal Surgery, 1991-1995
Editorial Board, Journal of Refractive Surgery, 1991-2011
Editorial Board, Ophthalmology Times, 1995-present
Editorial Board, Video Journal of Ophthalmology, 1999-present
Editorial Board, Eye Care Tomorrow, 2000-2002
Editorial Board, Review of Refractive Surgery, 2000-2011
Editorial Board, Eyenet, 2002-2009
Editorial Board, Cataract & Refractive Surgery Today, 2006-present
Editorial Board, Advanced Ocular Care, 2010-present
Reviewer:
- American Journal of Ophthalmology
- Ophthalmology
- Archives of Ophthalmology
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- Ophthalmic Surgery and Lasers
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Patents

1. Maloney RK, Stewart JL. Method and apparatus for measuring properties of the eye using a virtual image. US Patent 5,873,832, issued 2/23/99.

2. Stewart JL, Maloney RK. Multi-functional visual testing instrument. US Patent 6,045,227, issued 4/4/00.

3. Maloney RK, Stewart JL, Truax BE. Method and apparatus for measuring properties of the eye using a virtual object. US Patent 6,059,773, issued 5/9/00.

4. Maloney RK, Stewart JL. Apparatus for evaluating the visual field of a patient. US Patent 6,206,522, issued 3/27/01.

5. Stewart JL, Maloney RK, Truax BE. Apparatus for visualizing the eye's tear film. US Patent 6,447,119, issued 9/10/2002.

6. Sandstedt CA, Jethmalani JM, Grubbs RH, Kornfeld JA, Schwartz DM, Maloney RK. Application of wavefront sensor to lenses capable of post-fabrication power modification. US Patent 6,749,632 B2, issued 6/15/04.

7. Maloney RK. Piggyback lenses. US Patent applied for.

8. Mattson MS, Kornfled JA, Schwartz DM, Maloney RK, Grubbs RH. Photochemical therapy to affect mechanical and/or chemical properties of body tissue. US Patent 8,414911 B2, issued 04/09/13.

Books

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Peer-Reviewed Research Papers

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Scientific Presentations

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37. Maloney RK, Judge A. Astigmatic keratotomy combined with keratomileusis in situ for compound myopic astigmatism (paper). International Society of Refractive Keratoplasty annual meeting, San Francisco, CA, October, 1994.

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64. Lin RT, Maloney RK. Flap complications of lamellar refractive surgery (paper). International Society of Refractive Surgery Annual Meeting, San Francisco, CA, October, 1997.

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50. Maloney RK. Nomogram Development for Refractive Surgery. Video Journal of Ophthalmology 2009; Second Quarter.

51. Maloney RK. Future IOLs. Cataract & Refractive Surgery Today 2009; 9(9):80-82.

52. Maloney RK. Optimizing Cataract Surgery: Lessons from LASIK. Cataract & Refractive Surgery Today 2009; 9(10):65-66.

53. Maloney RK. Incorporating Environmental Factors Into Your Nomogram. Cataract & Refractive Surgery Today Supplement 2009; 9(10):9.

54. Maloney RK. Clinical Outcomes with the iLASIK Technology Suite. Refractive Eyecare 2009; 13(10):27.

55. Maloney RK. Response to Guell JL, Consultation Section. J Cataract Refractive Surg 2009; 35(11):2029-2030.

56. Maloney RK. Off-Label Drug Use. Letter to the Editor. Am J Ophthalmol 2010; 149(1):170.

57. Coleman SC, Dell SJ, Kontos MA, Maloney RK, Probst LE, Updegraff SA. How Do You Approach Unexpected Results From PRK Over Prior LASIK? Cataract & Refractive Surgery Today 2010; 10(4):17-20.

58. Maloney RK, Geis T. Defining Wavefront-Guided Procedures. Advanced Ocular Care Supplement 2010; 1(3):3-4.

59. Geis T, Maloney RK. Carefully Perform Slit Lamp Exam 1 Day After Cataract Surgery. Primary Care Optometry News 2010; 16(3):1,18.

60. Maloney RK. Fewer Enhancements with Femtosecond Technology. EyeWorld Supplement 2010; 13(5):10.

61. Maloney RK. Postop Day-1 Results with the iLASIK Technology Suite. Refractive Eyecare 2010; 14(2):27.

62. Maloney RK. OR Temperature Found to be Key Driver in LASIK Outcomes. Ophthalmology Times 2010; 35(10):1, 11.

63. Maloney RK. The Role of Aberrometry in LASIK. Cataract and Refractive Surgery Today 2010; 10(6):41-42.

64. Bohórquez V, Daya SM, Maloney RK, Masket S, Packer M, Rau M, Shah S. Survey of Accomodating IOL Technologies 2010; Cataract and Refractive Surgery Today Europe 2010; 5(9):1-17.

65. Geis T, Maloney RK. Refractive Lens Exchange an Option for Moderate to High Hyperopia Patients. Primary Care Optometry News 2011; 16(1):12.

66. The Best of 2010. Cataract and Refractive Surgery Today 2011; 11(1): 44-50.

67. Maloney RK. Outcomes Better Than 20/20: The New Norm. Refractive Eyecare 2011; 15(3):26.

68. Maloney RK. Light-Adjustable IOL for Correction of Spherical Refractive Errors After Cataract Surgery. EyeTube Video. BMC Today, March 2011.

Named Lectureships

1. Mericos Whittier Lecture. Scripps Institute. La Jolla, CA, March 1997.

2. Distinguished Lans Refractive Surgery Award lecture. An IOL whose power is laser-adjustable in-vivo. World Refractive Surgery annual meeting, Orlando, FL, July 2001.

3. Harold A. Stein lecture. Hollywood eyes: an ophthalmic look at tinseltown. American Academy of Ophthalmology annual meeting, New Orleans, LA, October 2004.

4. The Thomas H. Pettit Lecture: A Light Adjustable Intraocular Lens. UCLA Stein Eye Institute Clinical and Research Seminar. Los Angeles, CA, June 2015

Courses, Invited Lectures, and Symposia

1. Chairman, Section on "Brightness, adaptation, and contrast." International Conference on Vision: Coding and Efficiency. Cambridge, England, October 1987.

2. Subspecialty Certification for the Cataract Surgeon: Resident's perspective. Opening Symposium, American Academy of Ophthalmology meeting, Dallas, TX, November 1987.

3. Invited Speaker. Current concepts in ophthalmology, Vail, CO, March 1990.

4. Invited Speaker. Hellenic Ophthalmological Society meeting, Iraklion, Crete, Greece, October 1990.

5. Invited Speaker. Fundacion Oftalmologia Nacional annual meeting, Bogota, Colombia, February 1992.

6. Invited Speaker. Ophthalmology Grand Rounds, Pacific Medical Center, San Francisco, CA, April 1992.

7. Invited Speaker. American Society of Cataract and Refractive Surgery annual meeting, San Diego, CA, May 1992.

8. Invited Speaker. Operiesenden Augenarzte Deutschlands annual meeting, Nurnburg, Germany, June 1992.

9. Invited Speaker. Excimer laser course, Cedars-Sinai Medical Center, Los Angeles, CA, July 1992.

10. Invited Speaker. Excimer laser course, Cedars-Sinai Medical Center, Los Angeles, CA, January 1993.

11. Invited Speaker. Sociedad Mexicana De Lentes Intraoculares y Queratorefractiva, Tijuana, Mexico, December 1992.

12. Invited Speaker. Jules Stein Eye Institute Annual Postgraduate Seminar, UCLA, Los Angeles, CA, April 1993.

13. Invited Speaker. Visions '93 course, Ft. Lauderdale, FL, April 1993.

14. Invited Speaker. Annual Contact Lens Symposium, California Association of Optometry, Irvine, CA, May 1993.

15. Invited Speaker. Corneal Topography Special Interest Group, Association for Research and Vision in Ophthalmology meeting, Sarasota, FL, May 1993.

16. Invited Speaker. Visions '93 course, La Jolla, CA, May 1993.

17. Invited Speaker. Georgia Society of Ophthalmology annual meeting, Sea Island, GA, May 1993.
18. Invited Speaker. Egresados del Hospital General de Mexico annual meeting, Queretaro, Mexico, July 1993.

19. Invited Speaker. ASCRS Summer Symposium on Refractive Surgery. Los Angeles, CA, August 1993.

20. Course director, Summit excimer laser update (course 301). American Society of Cataract and Refractive Surgery Summer Symposium on Refractive Surgery. Los Angeles, CA, August 1993.

21. Invited Speaker. Corneal topography for the general ophthalmologist. Cedars-Sinai Medical Center, Los Angeles, CA, August 1993.

22. Invited Speaker. Excimer y otros laser en cirugia refractiva corneal. Barcelona, Spain, September 1993.

23. Invited Speaker. Visions '93 Course, Chicago, IL, September 1993.

24. Chairperson. Young Ophthalmologists Symposium. American Academy of Ophthalmology annual meeting. Chicago, IL, November 1993.

25. Invited Speaker. American Academy of Ophthalmology annual meeting. Chicago, IL, November 1993.

26. Invited Speaker. Midway Hospital Grand Rounds. Los Angeles, CA, February 1994.

27. Invited Speaker. Oregon Academy of Ophthalmology annual meeting, Portland, OR, March 1994.

28. Invited Speaker. Symposium on Laser Corneal Surgery, Research Institute of Ophthalmology, Cairo, Egypt, March 1994.

29. Visiting Professor. El-Maghraby Eye Institute, Jeddah, Saudi Arabia, March 1994.

30. Invited Speaker. Contact Lens & Anterior Segment Symposium, California Association of Optometry meeting, Monterey, CA, April 1994.

31. Invited Speaker. Ocular Symposium, Universal City, CA, April 1994.

32. Co-chairman & Moderator. Corneal Topography Special Interest Group meeting. Association for Research in Vision and Ophthalmology, Sarasota, FL, May 1994.

33. Moderator. Paper session on Photorefractive and phototherapeutic keratectomy. Association for Research in Vision and Ophthalmology meeting, Sarasota, FL, May 1994.

34. Invited Speaker. Ninth Annual Meredith Morgan Symposium, Berkeley, CA, May 1994.

35. Invited Speaker. Desert Hospital Educational Conference, Palm Springs, CA, May 1994.

36. Invited Speaker. Visions '94 course. Santa Monica, CA, June 1994.

37. Invited Speaker. Tarzana Hospital Grand Rounds, Tarzana, CA, June 1994.

38. Invited Speaker. Refractive and cataract surgery: issues and updates, Mercy General Hospital, Sacramento, CA, July 1994.

39. Visiting Professor. University of Medicine and Dentistry of New Jersey, Newark, NJ, July 1994.

40. Invited Speaker. Current concepts in cornea and refractive surgery. Cedars-Sinai Medical Center, Los Angeles, CA, August 1994.

41. Invited Speaker. California Association of Ophthalmology annual meeting, Pasadena, CA, September 1994.

42. Moderator. Refractive Surgery Symposium, California Association of Ophthalmology annual meeting, Pasadena, CA, September 1994.

43. Invited Speaker. American Academy of Ophthalmology annual meeting. San Francisco, CA, November 1994.

44. Invited Speaker. American Academy of Ophthalmology annual meeting. San Francisco, CA, November 1994.

45. Invited Speaker. Symposium on Photorefractive Keratectomy. American Academy of Optometry annual meeting. San Diego, CA, December 1994.

46. Invited Speaker. Topography Symposium, Contact Lens Association of Ophthalmologist annual meeting, Las Vegas, NV, January 1995.

47. Invited Speaker. U.C. Berkeley School of Optometry Symposium, Pomona, CA, February 1995.

48. Invited Speaker. California Optometric Association annual meeting, Sacramento, CA, March 1995.

49. Invited Speaker. Salzburger Ophthalmologisches Symposium. Salzburg, Austria, April 1995.

50. Invited Speaker. Ocular Symposium. Universal City, CA, April 1995.

51. Invited Speaker. Instituto de Molestias Oculares, Associacao Brasileira de Bancos de Olhos e Transplante de Cornea, Sao Paulo, Brazil, May 1995.

52. Co-Chairman and Moderator. Corneal Topography Special Interest Group meeting. Association for Research in Vision and Ophthalmology. Fort Lauderdale, FL, May 1995.

53. Moderator. Paper Session on Refractive Surgery. Association for Research in Vision and Ophthalmology meeting. Sarasota, FL, May 1995.

54. Invited Speaker. Orange County Society of Ophthalmology. Orange, CA, May 1995.

55. Invited Speaker. Ventura County Ophthalmology Society. Camarillo, CA, June 1995.

56. Invited Speaker. Current Ophthalmic Practice Program, Cottage Hospital. Santa Barbara, CA, June 1995.

57. Invited Speaker. San Fernando Valley Optimetric Association meeting. San Fernando Valley, CA, July 1995.

58. Invited Speaker. Daniel Freeman Marina Hospital. Marina Del Rey, CA, July 1995.

59. Invited Speaker. XXVIII Congresso Brasileiro de Oftalmologia. Salvador de Bahia, Brazil, September 1995.

60. Course Director. Excimer laser photorefractive keratectomy (certification course). Jules Stein Eye Institute, UCLA, Los Angeles, CA, November 1995.

61. Invited Speaker. Photorefractive keratectomy (certification course). Washington, DC, November 1995.

62. Invited Speaker. The Seventh Annual Berkeley Practicum. Berkeley, CA, December 1995.

63. Course Director. Excimer laser photorefractive keratectomy (certification course). Jules Stein Eye Institute, UCLA, Los Angeles, CA, December 1995.

64. Instructor. Corneal topography workshop. Summit International Laser User Congress. Palm Beach, FL, December 1995.

65. Course Director. Excimer laser photorefractive keratectomy (certification course). Jules Stein Eye Institute, UCLA, Los Angeles, CA, January 1996.

66. Invited Lecturer. Morton D. Sarver Lecture Series. University of California, Berkeley School of Optometry. Berkeley, CA, January 1996.

67. Invited Lecturer. JSEI Current Ophthalmic Practice symposium. Las Vegas, NV, February 1996.

68. Invited Speaker. Third Annual Continuing Education in Southern California Lectureship and Symposium. Pomona, CA, February 1996.

69. Course Director. Photorefractive keratectomy (optometric didactic course). Los Angeles, CA, February 1996.

70. Invited Lecturer. Excimer Laser PRK Track. California Optometric Association meeting. Anaheim, CA, March 1996.

71. Course Director. Photorefractive keratectomy (optometric didactic course). Los Angeles, CA, March 1996.

72. Lecturer. Max Fine Cornea Society meeting. San Diego, CA, March 1996.

73. Visiting Professor. Stanford University. Stanford, CA, April 1996.

74. Moderator. Association for Research in Vision Ophthalmology meeting. Sarasota, FL, April 1996.

75. Visiting Professor. University of California San Francisco, San Francisco, CA, May 1996.

76. Invited Speaker. University of Michigan, Department of Ophthalmology annual meeting. Ann Arbor, MI, May 1996.

77. Visiting Professor. Sinai Hospital of Baltimore, MD, May 1996.

78. Invited Speaker. Internationales Symposium und Ausetellung, 9th annual meeting of German Ophthalmic Surgeons. Nürnberg, Germany, June 1996.

79. Invited Speaker. Myopia for the Year 2000 course. Jules Stein Eye Institute, University of California Los Angeles, Los Angeles, CA, July 1996.

80. Course Director. Photorefractive keratectomy (certification course). Jules Stein Eye Institute, University of California, Los Angeles, CA, September 1996.

81. Invited Speaker. Ocular Surgery International course. Facultad de Medicina, Universidad del Salvador. Buenos Aires, Argentina, September 1996.

82. Special Invited Speaker. 62nd Annual Meeting of the Mid-Japan Ophthalmological Society. Osaka, Japan, October 1996.

83. Invited Speaker. American Academy of Ophthalmology: Subspeciality Day. Chicago, IL, October 1996.

84. Instructor. Laser in situ keratomileusis (skills transfer course). American Academy of Ophthalmology. Chicago, IL, October 1996.

85. Invited Speaker. Research Study Club of Los Angeles annual meeting. Los Angeles, CA, February 1997.

86. Invited Speaker. Advances in refractive surgery. Cleveland Clinic Foundation, Cleveland, OH, February 1997.

87. Visiting Professor. Manhattan Eye and Ear Hospital. New York, NY, April 1997.

88. Course Director. Photorefractive keratectomy and lasik (optometric education course). Jules Stein Eye Institute, University of California, Los Angeles, CA, May 1997.

89. Visiting Professor. Naval Regional Medical Center, San Diego, CA, June 1997.

90. Invited Speaker. San Diego County Ophthalmological Society, San Diego, CA, June 1997.

91. Featured Speaker. University of Colorado Department of Ophthalmology annual research day, Denver, CO, June 1997.

92. Invited Speaker. Santa Monica Rotary Club, Santa Monica, CA, August 1997.

93. Invited Speaker. Sally Letson Symposium, Ottawa, Ontario, Canada, September 1997.

94. Invited Speaker. Optical Society of America annual meeting, Long Beach, CA, October 1997.

95. Invited Speaker. Reshaping the future: Refractive Surgery '97. American Academy of Ophthalmology annual meeting, San Francisco, CA, October 1997.

96. Course Director. Summit excimer laser clinical technology update. American Academy of Ophthalmology annual meeting, San Francisco, CA, October 1997.

97. Course Faculty. Lamellar refractive surgery (skills transfer course). American Academy of Ophthalmology annual meeting, San Francisco, CA, October 1997.

98. Symposium Speaker. The pupil in keratorefractive surgery. American Academy of Ophthalmology annual meeting, San Francisco, CA, October 1997.

99. Discussant. Posterior corneal surface topographic changes after lasik are related to residual corneal bed Thickness. American Academy of Ophthalmology annual meeting, San Francisco, CA, October 1997.

100. Invited Speaker. University of Utah Grand Rounds. Salt Lake City, UT, November 1997.

101. Invited Lecturer. Vision Sciences meeting. Santa Fe, NM, February 1998.

102. Moderator. Ninth Annual Research and Alumni Day, Jules Stein Eye Institute, UCLA. Los Angeles, CA, March 1998.

103. Plenary Speaker. Asia Pacific Society of Cornea and Refractive Surgery annual meeting. Singapore, March 1998.

104. Invited Lecturer. Jules Stein Eye Institute annual meeting, Los Angeles, CA, April 1998.

105. Invited Speaker. Southern California Permanente Medical Group annual symposium. Anaheim, CA, May 1998.

106. Invited Speaker. Virginia Society of Ophthalmology annual meeting. Williamsburg, VA, May 1998.

107. Invited Speaker. Chicago Ophthalmological Society annual meeting, Chicago, IL, May 1998.

108. Invited Speaker. Ocular Drug and Surgical Therapy Update, Laguna Niguel, CA, June 1998.

109. Invited Speaker. Current concept in refractive and cataract surgery. Stanford University, Stanford, CA, September 1998.

110. Invited Speaker. Refractive surgery risk management. The New England Ophthalmological Society annual meeting. Boston, MA, October 1998.

111. Invited Panelist. Refractive Surgery 1998: Reshaping the future. American Academy of Ophthalmology annual meeting, New Orleans, LA, November 1998.

112. Moderator. 1998 Pre-Academy Conference. International Society of Refractive Surgery, New Orleans, LA, November 1998.

113. Discussant. Refractive Surgery Free Papers. American Academy of Ophthalmology annual meeting, New Orleans, LA, November 1998.

114. Instructor. Lamellar refractive surgery with a microkeratome (skills transfer course HL-214). American Academy of Ophthalmology annual meeting, New Orleans, LA, November 1998.

115. Instructor. New and emerging technologies in cataract and refractive surgery (course 624). American Academy of Ophthalmology annual meeting, New Orleans, LA, November 1998.

116. Symposium Speaker. Topography, refraction and vision after refractive surgery. A Corneal and Contact Lens Symposium in Honor of Robert B. Mandell. Berkeley, CA, November 1998.

117. Invited Speaker. Hawaii Optometric Society meeting. Honolulu, HI, February 1999.

118. Course Faculty. New and emerging technologies in cataract and refractive surgery. American Society of Cataract and Refractive Surgery annual meeting, Seattle, WA, April 1999.

119. Moderator. Session on: Refractive lasers. American Society of Cataract and Refractive Surgery annual meeting, Seattle, WA, April 1999.

120. Invited Speaker. Southern California Chapter Meeting American Society Ophthalmic Registered Nurses, Los Angeles. CA, May 1999.

121. Keynote Speaker. VISX University symposium. Irvine, CA, June 1999

122. Invited Speaker. Mexican Society of Cataract and Refractive Surgery Annual Meeting. Puerto Vallarta, Mexico, July 1999.

123. Invited Speaker. Los Angeles Times Festival of Health. Los Angeles, CA, October 1999.

124. Invited Speaker. Phakic intraocular lenses: Anterior chamber is the way to go for myopia and hyperopia. American Academy of Ophthalmology annual meeting, Orlando, FL, October 1999.

125. Instructor. Lamellar refractive surgery with a microkeratome (skills transfer course). American Academy of Ophthalmology annual meeting, Orlando, FL, October 1999.

126. Instructor. New and emerging technologies in refractive surgery (course 317). American Academy of Ophthalmology annual meeting, Orlando, FL, October 1999.

127. Invited Speaker. Refractive surgery special interest group, American Academy of Ophthalmology annual meeting, Orlando, FL, October 1999.

128. Discussant. Langenbucher A et al. Implications of the difference between intended and achieved corneal thickness after myopic lasik in-situ keratomileusis. American Academy of Ophthalmology annual meeting, Orlando, FL, October 1999.

129. Discussant. Gimbel HV et al. Postoperative corneal thinning masquerading as undercorrection or regression in LASIK surgery. American Academy of Ophthalmology annual meeting, Orlando, FL, October 1999.

130. Invited Speaker. Association of Major League Baseball Team Physicians annual meeting, Anaheim, CA, December 1999.

131. Invited Speaker. Fourteenth Annual Morton D. Sarver Lecture Series, University of California, Berkeley, CA, January 2000.

132. Invited Speaker. Research Study Club of Los Angeles Midwinter Clinical Conference, Universal City, CA, January 2000.

133. Invited Speaker. Los Angeles County Optometric Society annual meeting, Los Angeles, CA, February 2000.

134. Invited Speaker. New Orleans Academy of Ophthalmology Annual Symposium, New Orleans, LA, February 2000.

135. Guest Surgeon. Forum Internazionale Chirurgia refrattiva Approfondimenti Nuove frontiere e Complicanze, Rome, Italy, March 2000.

136. Guest Surgeon and invited speaker. Saudi Ophthalmological Society 13th Annual Scientific Meeting. Riyadh, Saudi Arabia, April 2000.

137. Invited Speaker. American Osteopathic Colleges of Ophthalmology and Otolaryngology 84th annual clinical assembly meeting. Rancho Mirage, CA, May 2000.

138. Moderator. LASIK Session. American Society of Cataract and Refractive Surgery annual meeting. Boston, MA, May 2000.

139. Course Faculty. Course 3307: New and emerging technologies in cataract and refractive surgery. American Society of Cataract and Refractive Surgery annual meeting. Boston, MA, May 2000.

140. Invited Speaker. VisionQuest annual meeting. Chicago, IL, August 2000.

141. Invited Speaker. Vision Expo 2000. Las Vegas, NV, September 2000.

142. Invited Speaker. Vision Surgery and Laser Center Continuing Education Program. San Diego, CA, October 2000.

143. Instructor. Lamellar Refractive Surgery with a Microkeratome (skills transfer course HL-158). American Academy of Ophthalmology annual meeting. Dallas, TX, October 2000.

144. Invited Speaker. Prevention and management of flap micro and macro striae. American Academy of Ophthalmology annual meeting: Subspecialty Day. Dallas, TX, October 2000.

145. Invited Speaker. Scleral relaxation. American Academy of Ophthalmology annual meeting: Subspecialty Day. Dallas, TX, October 2000.

146. Invited Speaker. Los Angeles Rotary Club. Los Angeles, CA, February 2001.

147. Invited Speaker. Hoag Memorial Hospital 552 Club. Newport Beach, CA, February 2001.
148. Invited Speaker. University of Washington Resident/Alumni Day. Seattle, WA, June 2001.

149. Invited Speaker. VisionQuest annual meeting. Chicago, IL, August 2001.

150. Invited Speaker. Diffuse lamellar keratitis. Refractive Surgery Interest Group annual meeting. New Orleans, LA, November 2001.

151. Instructor. New and emerging technologies in cataract and refractive surgery (course 168). American Academy of Ophthalmology annual meeting. New Orleans, LA, November 2001.

152. Instructor. Lasik (skills transfer course HL-370). American Academy of Ophthalmology annual meeting. New Orleans, LA, November 2001.

153. Invited Speaker. Weird complications of lasik. International Society of Refractive Surgery annual meeting. New Orleans, LA, November 2001.

154. Invited Speaker. Dallas Academy of Ophthalmology meeting. Dallas, TX, January 2002.

155. Visiting Professor. University of Texas Southwestern. Dallas, TX, January 2002.

156. Invited Speaker. The Cleveland Clinic annual meeting. Cleveland, OH, May 2002.

157. Course Faculty. Course 2206: Lasik pearls and pitfalls: a panel discussion of lasik techniques by experienced surgeons. American Society of Cataract and Refractive Surgery annual meeting, Pennsylvania, PA, June 2002.

158. Course Faculty. Course 2302: New and emerging technologies in refractive surgery. American Society of Cataract and Refractive Surgery annual meeting, Pennsylvania, PA, June 2002.

159. Invited Speaker. Los Angeles County Optometric Society annual meeting, Los Angeles, CA, February 2003.

160. Invited Speaker. Refractive surgery complications. American Society of Cataract and Refractive Surgery annual meeting, San Francisco, CA, April 2003.

161. Invited Speaker. Customvue education course. VISX, Inc., Los Angeles, CA, July 2003.

162. Invited Speaker. Customvue education course. VISX, Inc., Denver, CO, August 2003.

163. Invited Speaker. A multicenter trial of wavefront guided lasik. XXI Congress of the European Society of Cataract and Refractive Surgeons, Munich, Germany, September 2003.

164. Invited Speaker. Results of U.S. FDA reduced acuity wavefront ablation study. XXI Congress of the European Society of Cataract and Refractive Surgeons, Munich, Germany, September 2003.

165. Course Faculty. Course 36: Wavefront-guided lasik: a practical approach to diagnostic methodology and technique. XXI Congress of the European Society of Cataract and Refractive Surgeons, Munich, Germany, September 2003.

166. Invited Speaker. How to best position wavefront into a refractive practice. ASCRS Eyeworld Educational Symposium, American Academy of Ophthalmology annual meeting, Anaheim, CA, November 2003.

167. Moderator. Session II: Correction of Presbyopia. American Academy of Ophthalmology annual meeting: Subspecialty Day. Anaheim, CA, November 2003.

168. Instructor. Medical and surgical management of complications of refractive surgery (course 244). American Academy of Ophthalmology annual meeting, Anaheim, CA, November 2003.

169. Invited Speaker. Therapeutic wavefront-guided lasik. The Research Study Club of Los Angeles annual mid-winter meeting. Los Angeles, CA, January 2004.

170. Invited Lecturer. Seeing & optimized refractive corrections. 5th International Congress of Wavefront. Whistler, Canada, February, 2004.

171. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series. Los Angeles, CA, April 2004.

172. Course Faculty. Course 3106: Lasik pearls and pitfalls: a panel discussion of lasik techniques by experienced surgeons. American Society of Cataract and Refractive Surgery annual meeting, San Diego, May 2004.

173. Invited Speaker. Point-counterpoint: wavefront-guided ablation is the key to superior visual outcomes. Academy of Ophthalmology annual meeting: Subspecialty Day. New Orleans, LA, October 2004.

174. Discussant. Refractive Surgery Free Papers. American Academy of Ophthalmology annual meeting, New Orleans, LA, October 2004.

175. Course Faculty. Course 198: Lasik pearls and pitfalls: a panel discussion of lasik techniques by experienced surgeons. American Academy of Ophthalmology annual meeting, New Orleans, LA, October 2004.

176. Course Faculty. Course 235: Presbyopia surgery techniques: pearls and pitfalls: a panel discussion of presbyopia strategies and preferred techniques by experienced surgeons. American Academy of Ophthalmology annual meeting, New Orleans, LA, October 2004.

177. Invited Speaker. "Hollywood eyes: Can we learn anything from tinseltown?" Cataract, Cornea and Refractive Surgery Symposim annual meeting, San Francisco, CA, February 2005.

178. Invited Speaker. Refractive Surgery Complications Symposium. American Society of Cataract and Refractive Surgery annual meeting, Washington, D.C., April 2005.

179. Chair. EyeWorld Educational Symposium: Building a wavefront-driven refractive practice: optimizing results, expanding indications & apply the latest technology. American Society of Cataract and Refractive Surgery annual meeting, Washington, D.C., April 2005.

180. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series. Los Angeles, CA, April 2005.

181. Invited Speaker. Do we fully understand the outcomes of presbyopia surgery? American Academy of Ophthalmology annual meeting. Subspecialty Day, Chicago, IL, October 2005.

182. Discussant. Phakic IOLS: Taken to Court: Panel discussion. American Academy of Ophthalmology annual meeting. Subspecialty Day, Chicago, IL, October 2005.

183. Moderator. Redefining Visual Quality Expectations for High Myopia w/Wavefront Driven Ablations: Panel discussion. AMO, Inc. American Academy of Ophthalmology annual meeting, Chicago, IL, October 2005.

184. Moderator, Invited Speaker, and Invited Panelist. Redefining Lenticular Refractive Surgery. EyeWorld Educational Symposium, American Academy of Ophthalmology annual meeting, Chicago, IL, October 2005.

185. Invited Speaker. CustomVue educational course: Optimizing Outcomes in a CustomVue-Driven Practice. Beverly Hills, CA, December 2005.

186. Course Director. Bausch & Lomb Zyoptix XP Microkeratome Certification Course. American Academy of Ophthalmology annual meeting, Chicago, IL, October 2005.

187. Moderator. Debating Today's Refractive Controversies: Panel discussion. Whistler Advanced Refractive Surgery Congress, Whistler, BC, Canada, February 2006.

188. Invited Speaker. High Myopia – Corneal vs. Lenticular Correction. Whistler Advanced Refractive Surgery Congress, Whistler, BC, Canada, February 2006.

189. Invited Panelist. "In the Clinic with the Experts" Symposium. American Society of Cataract and Refractive Surgery annual meeting, San Francisco, CA, March 2006.

190. Invited Speaker. Cornea, Cataract and Refractive Surgery Symposium, San Francisco, CA, March 2006.

191. Invited Speaker. Phakic IOL/High Myopia Correction. Cataract and Surgery Today Meeting. American Society of Cataract and Refractive Surgery annual meeting, San Francisco, CA, March 2006.

192. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series, Los Angeles, CA, April 2006.

193. Invited Panelist. Laser Vision Correction. AMO Analyst Discussion Meeting, Huntington Beach, CA, June 2006.

194. Invited Speaker. Treatment of Erroneous Off-Axis Ablations. American Academy of Ophthalmology annual meeting, Las Vegas, NV, November 2006.

195. Instructor. Bausch & Lomb Certification Course: Advanced Laser Eye Surgery. American Academy of Ophthalmology annual meeting, Las Vegas, NV, November 2006.

196. Moderator and Invited Speaker. Evolution of the Microkeratome. Bausch & Lomb Booth Lecture. American Academy of Ophthalmology annual meeting, Las Vegas, NV, November 2006.

197. Invited Speaker. Avoiding & Managing Medical Malpractice in Refractive Surgery. Hawaiian Eye 2007, Kauai, HI, January 2007. Awarded Speaker of the Day.

198. Invited Speaker. Achieving Optimal Flaps with a Mechanical Microkeratome. Hawaiian Eye 2007, Kauai, HI, January 2007.

199. Invited Speaker. High Myopia – Corneal vs. Lenticular Correction. Whistler Advanced Refractive Surgery Congress, Whistler, BC, Canada, February 2007.

200. Invited Speaker. Nomograms: Borrow with Care. Whistler Advanced Refractive Surgery Congress, Whistler, BC, Canada, February 2007.

201. Moderator. Pursuing Refractive Success in Pseudophakic Patients. Whistler Advanced Refractive Surgery Congress, Whistler, BC, Canada, February 2007.

202. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series, Los Angeles, CA, April 2007.

203. Invited Speaker. Pearls for Performing Wavefront-Guided Enhancements. EyeWorld Educational Symposium, American Society of Cataract and Refractive Surgery annual meeting, San Diego, CA, April 2007.

204. Invited Speaker. The Refractive Patient Who Has Never Had Surgery. "In the Clinic with the Experts" Symposium. American Society of Cataract and Refractive Surgery annual meeting, San Diego, CA, April 2007.

205. Invited Speaker. A Nomogram to Improve Flap Centration. IntraLase User Group Meeting. American Academy of Ophthalmology annual meeting, New Orleans, LA, November 2007.

206. Invited Speaker and Panelist. Break With The Experts: Nomograms. Subspecialty Day Refractive Surgery. American Academy of Ophthalmology annual meeting, New Orleans, LA, November 2007.

207. Instructor. New and Emerging Techniques in Cataract and Refractive Surgery Course. American Academy of Ophthalmology annual meeting, New Orleans, LA, November 2007.

208. Invited Speaker. Optimizing Centration of an IntraLase Flap with a Centration Nomogram. Hawaiian Eye 2008, Waikoloa, Hi, January 2008.

209. Invited Speaker. Improving Flap Biomechanics: Stability and Healing. Winter Corneal Refractive Invitational Summit 2008, Telluride, CO, February 2008.

210. Moderator. Updating the Laser Vision Correction Business Model. Winter Corneal Refractive Invitational Summit 2008, Telluride, CO, February 2008.

211. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series, Los Angeles, CA, March 2008.

212. Instructor. Central Toxic Keratopathy: New Clinical Entity. American Society of Cataract and Refractive Surgery annual meeting, Chicago, IL, April 2008.

213. Invited Speaker. Light Adjustable Lens Practical Seminar. 21st International Congress of German Ophthalmic Surgeons, Nürnberg, Germany, June 2008.

214. Invited Speaker. Is Monovision a True Alternative to Multifocal IOL Implantation? 21st International Congress of German Ophthalmic Surgeons, Nürnberg, Germany, June 2008.

215. Invited Panelist. Cataract Surgery and Correction of Presbyopia - Advantages of Current Surgical Techniques. 21st International Congress of German Ophthalmic Surgeons, Nürnberg, Germany, June 2008.

216. Invited Speaker. JRS Video Complications. Subspecialty Day Refractive Surgery. American Academy of Ophthalmology annual meeting, Atlanta, GA, November 2008.

217. Invited Speaker. JRS Hottest Late Breaking News. Subspecialty Day Refractive Surgery. American Academy of Ophthalmology annual meeting, Atlanta, GA, November 2008.

218. Program Committee. Jules Stein Eye Institute & ASCRS Joint Symposium on Cataract and Refractive Surgery, Los Angeles, CA, February 2009.

219. Invited Panelist. Ask the Experts. Jules Stein Eye Institute & ASCRS Joint Symposium on Cataract and Refractive Surgery, Los Angeles, CA, February 2009.

220. Invited Speaker. Developing a Personal Nomogram for Refractive Surgery. Jules Stein Eye Institute & ASCRS Joint Symposium on Cataract and Refractive Surgery, Los Angeles, CA, February 2009.

221. Lead Instructor. Mechanical v. Laser Flap Creation: Point/Counterpoint. Jules Stein Eye Institute & ASCRS Joint Symposium on Cataract and Refractive Surgery, Los Angeles, CA, February 2009.

222. Moderator. Excimer Lasers, Microkeratomes, and Wavefront Analyzers. Jules Stein Eye Institute & ASCRS Joint Symposium on Cataract and Refractive Surgery, Los Angeles, CA, February 2009.

223. Invited Speaker. The Light Adjustable Lens: Correction of Myopia, Hyperopia, and Astigmatism or Adjustable Monovision with the Light Adjustable Lens. Jules Stein Eye Institute & ASCRS Joint Symposium on Cataract and Refractive Surgery, Los Angeles, CA, February 2009.

224. Moderator. Debating Today's Refractive Controversies. Choosing Between Multifocal and Accommodating Lenses: What Is Your Thinking Today? Advanced Refractive Invitational Meeting, Deer Valley, CO, February 2009.

225. Invited Speaker. Nomogram Tweaks to Improve Your Results. Advanced Refractive Invitational Meeting, Deer Valley, CO, February 2009.

226. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series, Los Angeles, CA, April 2009.

227. Invited Speaker. A Case of Advanced Diffuse Lamellar Keratitis vs Central Toxic Keratopathy. American Academy of Ophthalmology annual meeting, San Francisco, CA, October 2009.

228. Invited Panelist. Financing Ophthalmic Device Companies. Ophthalmology Innovation Summit, San Francisco, CA, October 2009.

229. Moderator and Invited Speaker. Factors Affecting Consistent High Quality Results. AMO Users Group meeting, San Francisco, CA, October 2009.

230. Invited Speaker. What's Next in Custom Ablations? AMO Users Group meeting, San Francisco, CA, October 2009.

231. Invited Speaker. Improving LASIK Screening and Evaluation Diagnostics. Review of Ophthalmology meeting, San Francisco, CA, October 2009.

232. Invited Keynote Speaker. Next Generation Wavefront Sensing. Aspen Invitational Refractive Symposium, Aspen, CO, March 2010.

233. Course Instructor. New Emerging Technologies in Cataract & Refractive Surgery. American Society of Cataract and Refractive Surgery annual meeting, Boston, MA, April 2010.

234. Lead Instructor. Niche IOLs. American Society of Cataract and Refractive Surgery annual meeting, Boston, MA, April 2010.

235. Invited Speaker. The Light Adjustable Lens. Jules Stein Eye Institute Grand Rounds, Los Angeles, CA, April 2010.

236. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series, Los Angeles, CA, May 2010.

237. Moderator. Hot, Hotter, Hottest Late-Breaking News. Refractive Surgery 2010: Seeing is Believing. American Academy of Ophthalmology annual meeting, Chicago, IL, November 2010.

238. Invited Speaker. JRS QwikFacts. Refractive Surgery 2010: Seeing is Believing. American Academy of Ophthalmology annual meeting, Chicago, IL, November 2010.

239. Panelist. Intraocular Surgery Power Calculations. American Society of Cataract and Refractive Surgery annual meeting, San Diego, CA, March 2011.

240. Course Instructor. Current Hot Topics, Controversies, Debates, and Technologies in LASIK, PRK, and Refractive IOL Technology. American Society of Cataract and Refractive Surgery annual meeting, San Diego, CA, March 2011.

241. Program Co-Chairman. American-European Congress of Ophthalmic Surgery meeting, Orlando, FL, October 2011.

242. Moderator. The Happy Patient: New Tools to Optimize Outcomes. Refractive Surgery 2011: Precision in Vision. American Academy of Ophthalmology annual meeting, Orlando, FL, October 2011.

243. Invited Speaker. JRS QwikFacts. Refractive Surgery 2011: Precision in Vision. American Academy of Ophthalmology annual meeting, Orlando, FL, October 2011.

244. Moderator. New Technologies Session. American-European Congress of Ophthalmic Surgery Invitational Meeting, Aspen, CO, March 2012.

245. Invited Speaker. Adjustable IOL. American-European Congress of Ophthalmic Surgery Invitational Meeting, Aspen, CO, March 2012.

246. Moderator. LASIK for Pros. American-European Congress of Ophthalmic Surgery Summer Symposium, Deer Valley, UT, July 2012.

247. Invited Speaker. State of the Art LASIK: Snapshot of the Last 5 Years and Where We Are in 2012. American-European Congress of Ophthalmic Surgery Summer Symposium, Deer Valley, UT, July 2012.

248. Program Co-Chairman. American-European Congress of Ophthalmic Surgery meeting, Chicago, IL, November 2012.

249. Invited Speaker. Treating Astigmatism with Toric IOLs and Intraoperative Refractions. American-European Congress of Ophthalmic Surgery meeting, Chicago, IL, November 2012.

250. Moderator. Lens Point-Counterpoint. Refractive Surgery 2012: The Era of Lasers and Lenses. American Academy of Ophthalmology annual meeting, Chicago, IL, November 2012.

251. Moderator. New Technologies Symposium. American-European Congress of Ophthalmic Surgery Invitational Meeting, Aspen, CO, February 2013.

252. Invited Speaker. Light Adjustable IOL: A Lesson in the FDA. American-European Congress of Ophthalmic Surgery Invitational Meeting, Aspen, CO, February 2013.

253. Invited Speaker. Point-Counterpoint. Femto Won Me Over to Cataract. American-European Congress of Ophthalmic Surgery Summer Symposium, Deer Valley, UT, July 2014

254. Moderator. Corneal Video Complications Session. International Society of Refractive Surgery annual meeting, Chicago, IL, October 2014.

255. Moderator. New Technologies Symposium. American-European Congress of Ophthalmic Surgery Winter Meeting, Aspen, CO, February 2015

256. Moderator. "Pick a Lens" Symposium. American-European Congress of Ophthalmic Surgery Winter Meeting, Aspen, CO, February 2015

257. Moderator. Light Adjustable Lens Symposium. American Society of Cataract and Refractive Surgery meeting. San Diego, CA, April 2015

258. Invited Speaker. Cataract Surgery following PRK or LASIK. Bausch & Lomb Advanced Cataract Surgery Course, Orange, CA, May 2015

259. Invited Speaker. Corneal Zoology. Jules Stein Eye Institute Cornea Lecture Series. Los Angeles, CA, April 2015

260. Invited Speaker. The Light Adjustable IOL: A New Paradigm in Refractive Cataract Surgery. USC Department of Ophthalmology 40th Anniversary Symposium. Los Angeles, CA, June 2015.

261. Invited Speaker. Suturing a Capsular Tension Ring. International Society of Refractive Surgery/American Academy of Ophthalmology annual meeting, Las Vegas, NV, November 2015.

SriniVas Sadda, M.D.
CURRICULUM VITAE

PERSONAL HISTORY:

President and Chief Scientific Officer
Stephen J. Ryan – Arnold and Mabel
Beckman Endowed Chair
Doheny Eye Institute
Professor of Ophthalmology
David Geffen School of Medicine
University of California – Los Angeles (UCLA)
1355 San Pablo Street, DVRC 100
Doheny Eye Institute, Los Angeles, CA 90033
Business telephone: (323) 342-6503

Doheny Eye Center UCLA – Pasadena
625 Fair Oaks Avenue. Suite 280
Pasadena, CA 91105
Business telephone: (323) 442-7100

Doheny Eye Center UCLA – Arcadia
627 W. Duarte Road, Suite 101
Arcadia, CA 91007
Business telephone: (323) 254-9010

EDUCATION:

B.S., Cellular and Molecular Biology (Honors and
Highest Distinction)
University of Michigan, Ann Arbor, MI
1990

M.D., Johns Hopkins University School of Medicine
Baltimore, MD
1994

Transitional Internship
William Beaumont Hospital, Royal Oak, MI
June 1994-June 1995

Residency, Ophthalmology
The Wilmer Ophthalmological Institute
Johns Hopkins University School of Medicine
Baltimore, MD
July 1995-June 1998

Fellowship, Neuro-Ophthalmology
The Wilmer Ophthalmological Institute

Johns Hopkins University School of Medicine
Baltimore, MD
July 1998-June 1999

Fellowship, Medical Retina
The Wilmer Ophthalmological Institute
Johns Hopkins University School of Medicine
Baltimore, MD
July 1999-July 2000

LICENSURE:

Maryland, 1998
California, Certificate Number A78754, 2002

BOARD CERTIFICATION:

National Board of Medical Examiners
(United Stated Medical Licensure Examination,
Step 1, 2, 99%ile)
1995

American Board of Ophthalmology
(Written Exam 99%ile, 1999)
2009

PROFESSIONAL EXPERIENCE:

Present Position:

President and Chief Scientific Officer
Stephen J. Ryan – Arnold and Mabel
Beckman Endowed Chair
Doheny Eye Institute
Professor of Ophthalmology
Department of Ophthalmology
David Geffen School of Medicine
University of California – Los Angeles (UCLA)

Previous Positions:

Staff Physician
Johns Hopkins Hospital
Baltimore, MD
July 1, 1998-June 30, 2002
Johns Hopkins Bay View Medical Center
Baltimore, MD
July1, 2000-June 30, 2002

Assistant Professor of Ophthalmology (tenure track)

Johns Hopkins University School of Medicine,
Baltimore, MD
2000-2002

Staff Physician
Keck Hospital of USC
Los Angeles, CA
July 1, 2002–June 30 2014

Voluntary Staff Physician LAC+USC Medical Center
Los Angeles, CA
October 1, 2003–June 30 30214

Assistant Professor of Ophthalmology (tenure track)
University of Southern California, Los Angeles, CA,
2002-2006

Associate Professor of Ophthalmology (with tenure)
University of Southern California, Los Angeles, CA,
2006-April 10, 2013

Professor of Ophthalmology (with tenure)
Keck School of Medicine of USC
Los Angeles, CA
April 11, 2013 – June 30 2014

PROFESSIONAL ACTIVITIES:

University of Southern California KSOM/Dept. of Ophthalmology:

Committee Service:
Member, Retina Clinical Operations Committee
2003-2005

Chairman, Electronic Medical Records Committee
2003 –

Member, Retina Research Administration Committee
2003 –

Member, KSOM Clinical Research Retreat, Working Group #3
February 2009

Member, Department of Ophthalmology, DEMG Executive Committee
2010 –

National/International:

Research and Development Committee, American Society of Retina Specialists, 2004 –

Scientific Program Committee for Engineering the Eye, 2005

Exhibits Committee, Association for Research in Vision and Ophthalmology, 2005 –

Diabetic Retinopathy Clinical Research Network (NIH) Data Collection Committee, 2005 –

Retina/Vitreous Subcommittee of 2008 Annual Meeting Program Committee, American Academy of Ophthalmology, 2008

Annual Meeting Program Committee, Retina/Vitreous, Reviewer for AMPC, American Academy of Ophthalmology, 2010 -

Young Member Representative, The Macula Society, 2010-2012

Digital Media Committee, American Academy of Ophthalmology, July 2010 –

Ophthalmic News & Education Network (ONE) Network Editorial Board, American Academy of Ophthalmology, 2011 –

By-Laws Committee The Retina Society, 2012

By-Laws Committee, The Macula Society, 2012-2015

8th Editorial Board of the Chinese Journal of Experimental Ophthalmology

American Academy of Ophthalmology Program Subcommittee for Retina, Vitreous and Intraocular Inflammation, Uveitis, American Academy of Ophthalmology, 2014

International Advisory Board of the Scientific Program Committee of the 31st APAO Congress 2016, Chinese Taipei

Journal of Current Ophthalmology Advisory Board, 2016

Professional Associations:

Local:

Wilmer Residents' Association
Wilmer/Johns Hopkins, Baltimore, MD
1995 –

Johns Hopkins Medical and Surgical Association
Johns Hopkins University, Baltimore, MD
2000 –

Doheny Professional Association
Doheny Eye Institute, Los Angeles, CA
2002 –

Los Angeles Society of Ophthalmology
2005 –

National/International:

American Medical Association, 1990-1994

American Medical Association, 2015 -

Association for Research in Vision and Ophthalmology, 1996 –

American Academy of Ophthalmology, 1997 –

Society for Neuroscience, 2001 –

American Society of Retina Specialists, 2002 –

Center for Adaptive Optics, 2002 –

The Macula Society 2006 –

The Retina Society 2006 –

Pan American Association of Ophthalmology 2007 –

Scholarly Societies:

Editorial Services:
Editor, **RETINA** textbook (4th ed.) and electronic edition, 2005 –

Scientific Referee (ad hoc)
Investigative Ophthalmology and Visual Science
2000 –

Scientific Referee (ad hoc)
Ophthalmology
2000 –

Scientific Referee (ad hoc)
Archives of Ophthalmology
2000 –

Scientific Referee (ad hoc)
American Journal of Ophthalmology
2000 –

Scientific Referee (ad hoc)
Experimental Eye Research
2003 –

Editorial Board Member
Ophthalmic Surgery, Lasers & Imaging
2009 –

Editorial Board Member
Ophthalmology
2012

Editorial Board Member
Retina
2012

ASRS Section Editor
Retina Times
2012

Consulting Activities:
Scientific Referee (Study Section / ad hoc)
Center for Scientific Review
National Institutes of Health
2004 –

Administrative Responsibilities:

1. Director, Ophthalmic Imaging Unit, USC Department of Ophthalmology, 2002 –
2. Director, Retinal Cell Replacement Laboratory, USC Department of Ophthalmology, 2002 –
3. Director, Image Reading Center, USC Department of Ophthalmology, 2002 –
4. Director, Medical Retina Unit, USC Department of Ophthalmology, 2002 –
5. Interviewer, Retina Fellowship Selection Committee, USC Department of Ophthalmology, 2002 –
6. Interviewer, Residency Selection Committee, USC Department of Ophthalmology, 2003 –
7. Chairman, Electronic Medical Records Committee, USC Department of Ophthalmology, 2003 –

Teaching Responsibilities:

1. Ophthalmology Lecture Series, 2nd year Johns Hopkins University School of Medicine Students, 7/2000-6/2002.
2. Ophthalmology Clerkship, 3rd and 4th year Johns Hopkins University School of Medicine Students, provided specific practical instruction in slit-lamp biomicroscopy and direct ophthalmoscopy, 7/2000-6/2002.
3. Advanced Ophthalmology Course for 4th year Keck School of Medicine of USC Students, research instruction and mentorship, 2/2004 –
4. Ophthalmology Clerkship 3rd and 4th year Keck School of Medicine of USC Students, provide lectures (recurrent), 9/2004 –
5. Student Surgical Interest Group (SSIG) Mentor program for 1st and 2nd year Keck School of Medicine of USC Students, 2005 –
6. SSIG Medical Student Travel Award for Research (MedStar) program for Keck School of Medicine of USC Students, 2005 –

Graduate Students:

1. USC National Science Foundation Biomimetic Systems Engineering Research Center, **2002-2007**
   a. Lectures
   b. Supervision/ Mentorship

2. USC Department of Computer Science / Institute for Robotics and Intelligent Systems, **2002-2007**
   a. Committee member for Ph.D. candidate (Tae Eun Choe)

Residents:

1. Ophthalmology Resident Lecture Series, Johns Hopkins University, Department of Ophthalmology, July 2000-June 2002.

2. Ophthalmology Resident Lecture Series, University of Southern California, Department of Ophthalmology, July 2002 –

3. Other didactic lectures **(2002 -)**:
   a. Fluorescein Angiogram Conference
   b. Retina Journal Club

4. Patient side teaching **(2002 -)**
   a. LAC+USC Medical Center
   b. Doheny Eye Institute

5. Special supervised training **, 2002 -**
   a. Ophthalmic Lasers (certifiy resident laser experiences Friday afternoon at LA County Medical Cener every 2 weeks). 2002 -

6. Research Elective Supervision **2002 -**

Clinical Fellows (2002 –

1. Fluorescein Angiogram Conference (weekly)

2. Surgical Morbidity Conference (every 2 months)

3. Retina Journal Club (every 2 months)

4. Patient Side Teaching:
   a. LAC-USC Medical Center (Supervise Friday Medical Retina Clinics 1–5 pm weekly)
   b. Doheny Eye Institute (Retina clinical rounds - weekly every Wednesday 4:30 – 6:30 PM)

5. Special Retinal Diagnostics Training:
   a. Image Reading Center Certification Testing

Medical Student Lectures (Sample List):

1. Presenter: The Johns Hopkins University School of Medicine Medical Student Clerkship, "Sudden Vision Loss", Quarters 1-4 and Summer, 2000/2001.

2. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, September 15, 2004.

3. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, November 3, 2004 and November 24, 2004.

4. Presenter: LAC+USC Medical Center Medical Student Years III& IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, December 15, 2004.

5. Presenter: LAC+USC Medical Center Medical Student Years III& IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, January 12, 2005.

6. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, March 16, 2005.

7. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, April 6, 2005.

8. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, August 31, 2005.

9. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, September 14, 2005.

10. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, October 26, 2005.

11. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, November 23, 2005.

12. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, December 12, 2005.

13. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, January 19, 2006.

14. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, February 1, 2006.

15. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, March 1, 2006.

16. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, April 12, 2006.

17. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, April 26, 2006.

18. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, May 17, 2006.

19. Presenter: LAC+USC Medical Center Medical Student Years I & II "Retina: Part I Basic Science Concepts" USC Keith Administration Building, Los Angeles, CA, February 15, 2007.

20. Presenter: LAC+USC Medical Center Medical Student Years III & IV, "Retina: Part II Clinical Concepts" USC Keith Administration Building, Los Angeles, CA, February 22, 2007.

Resident Lectures (Sample Selected List):

1. Presenter: Johns Hopkins Resident Lecture Series, "Idiopathic Parafoveal Telangiectasis." Wilmer Eye Institute, Baltimore, MD, Winter, 2000.

2. Presenter: Johns Hopkins Resident Lecture Series, "Macular Holes." Wilmer Eye Institute, Baltimore, MD, Spring, 2001.

3. Presenter: Johns Hopkins Resident Lecture Series, "Epidemiology of Age-Related Macular Degeneration." Wilmer Eye Institute, Baltimore, MD, Summer, 2001.

4. Presenter: Johns Hopkins Resident Lecture Series, "Idiopathic Parafoveal Telangiectasis." Wilmer Eye Institute, Baltimore, MD, Winter, 2001.

5. Presenter: Johns Hopkins Resident Lecture Series, "Macular Holes." Wilmer Eye Institute, Baltimore, MD, Spring, 2002.

6. Presenter: Johns Hopkins Resident Lecture Series, "Epidemiology of Age-Related Macular Degeneration." Wilmer Eye Institute, Baltimore, MD, Summer, 2002.

7. Presenter: USC Resident Lecture Series, "Retinal Transplantation." Doheny Eye Institute, Los Angeles, CA, Fall, 2002.

8. Presenter: USC Resident Lecture Series, "Management of Diabetic Retinopathy – Case Examples." Doheny Eye Institute, Los Angeles, CA, Winter, 2003.

9. Presenter: USC Resident Lecture Series, "Retinal Transplantation." Doheny Eye Institute, Los Angeles, CA, January 16, 2004.

10. Presenter: USC Resident Lecture Series, "Management of Diabetic Retinopathy – Case Examples." Doheny Eye Institute, Los Angeles, CA, February 20, 2004.

11. Presenter: USC Resident Lecture Series. "Management of Diabetic Retinopathy – Case Examples." Doheny Eye Institute, Los Angeles, CA, October 29, 2004.

12. Presenter: USC Resident Lecture Series, "Practical Guidelines for Retinal Laser Treatment." Doheny Eye Institute, Los Angeles, CA, February 2, 2005.

13. Presenter: USC Resident Lecture Series, "Basics of Retinal OCT Interpretation." Doheny Eye Institute, Los Angeles, CA, February 25, 2005.

14. Presenter: USC Resident Lecture Series, "Practical Guidelines for Retinal Laser Treatment." Doheny Eye Institute, Los Angeles, CA, September 16, 2005.

15. Presenter: USC Resident Lecture Series, "Basics of OCT Interpretation." Doheny Eye Institute, Los Angeles, CA, December 9, 2005.

16. Presenter: USC Resident Lecture Series, "Management of diabetic retinopathy – Case Examples." Doheny Eye Institute, Los Angeles, CA, April 21, 2006.

17. Presenter: USC Resident Lecture Series, "Practical Laser Guidelines." Doheny Eye Institute, Los Angeles, CA, September 22, 2006.

18. Presenter: USC Resident Lecture Series, "Arterial Occlusive Disease." LAC+USC General Hospital, Los Angeles, CA, September 28, 2006.

19. Presenter: USC Resident Lecture Series, "Miscellaneous Retinal Vascular Diseases." LAC+USC General Hospital, Los Angeles, CA, March 1, 2007.

20. Presenter: USC Resident Lecture Series, "Diabetic Retinopathy – Case Examples." Doheny Eye Institute, Los Angeles, CA, May 11, 2007.

21. Presenter: "Diabetic Retinopathy," Diabetes Conference. LAC+USC General Hospital, Los Angeles, CA, June 21, 2007.

22. Presenter: USC Resident Lecture Series, "Practice Laser Guidelines." Doheny Eye Institute, Los Angeles, CA, September 21, 2007.

23. Presenter: USC Resident Lecture Series, "Arterial Occlusive Disease." Doheny Eye Institute, Los Angeles, CA, October 12, 2007.

24. Presenter: USC Resident Lecture Series, "AMD III." Doheny Eye Institute, Los Angeles, CA, March 14, 2008.

25. Presenter: USC Resident Lecture Series, "Diabetic Retinopathy Case." Doheny Eye Institute, Los Angeles, CA, May 9, 2008.

26. Presenter: USC Resident Lecture Series, "Retinal Vascular Diseases." Doheny Eye Institute, Los Angeles, CA, May 16, 2008.

27. Presenter: USC Resident Lecture Series, "Diabetic Retinopathy: Diabetes Case Examples." Doheny Eye Institute, Los Angeles, CA, October 10, 2008.

28. Presenter: USC Resident Lecture Series, "AMD 1 and AMD 2." Doheny Eye Institute, Los Angeles, CA, January 9, 2009.

29. Presenter: USC Resident Lecture Series, "Arterial Occlusive Disease., Doheny Eye Institute, Los Angeles, CA, January 30, 2009.

30. Presenter: USC Resident Lecture Series (OKAP review), "Review of Retinal Disease." Doheny Eye Institute, Los Angeles, CA, April 10, 2009.

31. Presenter: USC Resident Lecture Series, "Diabetic Retinopathy." Doheny Eye Institute, Los Angeles, CA, July 10, 2009.

32. Presenter: USC Resident Lecture Series, "Laser Technique." Doheny Eye Institute, Los Angeles, CA, September 11, 2009.

33. Presenter: USC Resident Lecture Series, "AMD I & II." Doheny Eye Institute, Los Angeles, CA, December 4, 2009.

34. Presenter: USC Resident Lecture Series, "Autofluorescence Lecture." Doheny Eye Institute, Los Angeles, CA, December 10, 2009.

35. Presenter: USC Resident Lecture Series, "Diabetic Retinopathy & AMD3 – Treatment of Wet AMD." Doheny Eye Institute, Los Angeles, CA, January 8 2010.

36. Presenter: USC Resident Lecture Series, "Arterial Occlusive Diseases." Doheny Eye Institute, Los Angeles, CA, February 12 2010.

37. Presenter: USC Resident Lecture Series (OKAP Review), "High Yield Retina." Doheny Eye Institute, Los Angeles, CA, March 29 2010.

38. Presenter: USC Resident Lecture Series, "Diabetic Retinopathy." Doheny Eye Institute, Los Angeles, CA, July 9 2010.

39. Presenter: USC Resident Lecture Series, "Practical Laser Guidelines." Doheny Eye Institute, Los Angeles, CA, October 1 2010

40. Presenter: USC Resident Lecture Series, "AMD I & II." Doheny Eye Institute, Los Angeles, CA, December 3 2010.

41. Presenter, USC Resident Lecture Series, "Retina OKAP Review." Doheny Eye Institute, Los Angeles, CA, March 4 2011.

42. Presenter: USC Resident Lecture Series, "FA OCT" Doheny Eye Institute, Los Angeles, CA, August 30 2013.

43. Presenter: USC Resident Lecture Series, "Diabetic Retinopathy." Doheny Eye Institute, Los Angeles, CA, September 13 2013.

44. Presenter: USC Resident Lecture Series, "Practical Laser Guidelines." Doheny Eye Institute, Los Angeles, CA,, September 20 2013.

45. Presenter: USC Resident Lecture Series, "Arterial Occlusive Diseases." Doheny Eye Institute, Los Angeles, CA, January 31 2014.

46. Presenter, USC Resident Lecture Series, "Retina OKAP Review." Doheny Eye Institute, Los Angeles, CA, February 28 2014.

Special Educational Courses:

1. Current Concepts in Ophthalmology Course, Wilmer Ophthalmological Institute, Johns Hopkins, Baltimore, MD, May, 2001.
   a. Presenter: "Current Concepts in Diabetic Retinopathy"

2. 3rd Leber's Congenital Amourosis Educational Conference, Braille Institute, Los Angeles, CA, April 3, 2004.
   a. Course Director/ Scientific Program Organizer
   b. Presenter: "Introduction to Eye Anatomy and Retinal Degenerations"

c. Presenter "Retinal Transplantation and Stem Cells"

3. 2nd Leber's Congenital Amourosis Educational Conference, Maryland School for the Blind, Baltimore, MD, November, 2001.
   a. Course Co-Director / Scientific Program Organizer
   b. Presenter: "Retinal Transplantation"

4. 1st Leber's Congenital Amourosis Educational Conference, Maryland School for the Blind, Baltimore, MD, September, 1999.
   a. Course Co-Director

5. Age-Related Macular Degeneration Course, Wilmer Ophthalmological Institute, Johns Hopkins, Baltimore, MD:
   a. Presenter: "Status of Transplantation and Genetic Therapy," May 31, 2002
   b. Panelist: Faculty Panel for Case Presentations, May 31, 2002
   c. Moderator: "Proven Treatments for Non-Neovascular AMD," May 31, 2002
   d. Instructor: "Fluorescein Angiography for Photodynamic Therapy and Laser Photocoagulation," June 1, 2002

6. Photodynamic Therapy: Current Treatment Guidelines for Choroidal Neovascularization [Bressler NM, Bressler SB, Blinder KJ, **Sadda SR**, Soubrane G, Singerman LJ, Lim JI.], American Academy of Ophthalmology, Orlando, FL, October 21, 2002.
   a. Course Instructor

7. Photodynamic Therapy: Current Treatment Guidelines for Choroidal Neovascularization. [Bressler NM, Bressler SB, Blinder KJ, **Sadda SR**, Soubrane G, Pearlman JA], American Academy of Ophthalmology, Anaheim, CA, November 18, 2003.
   a. Course Instructor

8. Current Concepts in Diabetic Eye Disease, CME Saturday Series, Doheny Eye Institute, Los Angeles, CA, March 12, 2005.
   a. Course Director
   b. Moderator
   c. Presenter: "Accurate Grading of Diabetic Retinopathy – Does It Really Matter?"
   d. Presenter: "Optical Coherence Tomography – Do We Need FA?"

9. Current Concepts in Age-Related Macular Degeneration, CME Saturday Series, Doheny Eye Institute, Los Angeles, CA, February 11, 2006.
   a. Course Director
   b. Moderator
   c. Presenter: "Diagnosis and Classification of AMD – The Present"
   d. Presenter: "New Imaging Technologies (AOSLO; FDOCT)"
   Presenter: "Visual Rehabilitation for Advanced AMD"

10. Second Annual Comprehensive Ophthalmology Review Course, Doheny Eye Institute/UCLA Jules Stein Eye Institute, Los Angeles, CA, March 2-4, 2007.
    a. Presenter: Retina Review – Part I

11. Third Annual Comprehensive Ophthalmology Review Course, Doheny Eye Institute/UCLA Jules Stein Eye Institute, Los Angeles, CA, February 28-March 2, 2008.
    a. Presenter: Posterior Segment

12. Fifth Annual Comprehensive Ophthalmology Review Course, Doheny Eye Institute/UCLA Jules Stein Eye Institute, Los Angeles, CA, March 11-14, 2010.
    a. Presenter: Posterior Segment

13. Classification and Measurement of Choroidal Neovascular Lesions from OCT: Standardizing Methodology for Clinical Trials? Special Interest Group (SIG), ARVO, Ft. Lauderdale, FL, May 3, 2009.
    a. Moderator
    b. Presenter: "Issues with Exports of OCT Data to Reading Centers"

14. Imaging 1 Session at ARVO Ft. Lauderdale, May 3, 2009.
    a. Moderator

15. Symposium 3: Imaging/Hereditary Diseases/Pediatric Retina, Retina Congress, New York, NY, October 1, 2009.
    a. Moderator
    b. Presenter: "Optimal Spectral Domain Optical Coherence Tomography Scanning Density for Clinical Use"

16. Heidelberg Engineering's "Multi-Modality Imaging of the Retina." Retina Congress, New York, NY, October 2, 2009.
    a. Case presenter

17. "State-of-the-Art Technologies in Ophthalmology" Luncheon Symposium, Retina Physicians. Retina Congress, New York, NY, October 3, 2009.
    a. Presenter: "Spectral Domain Practical and Networking Consultations for 3-D OCT"

18. Imaging II Paper Session at ARVO, Ft. Lauderdale, FL, May 4, 2010.
    a. Moderator

19. Sixth Annual Comprehensive Ophthalmology Review Course, Doheny Eye Institute/UCLA Jules Stein Eye Institute, Los Angeles, CA, February 24-27, 2011.
    a. Presenter: "Posterior Segment: Medical Retina"

20. Seventh Annual Comprehensive Ophthalmology Review Course, Doheny Eye Institute/UCLA Jules Stein Eye Institute, Los Angeles, CA, February 23-24, 2012.
    a. Presenter: "Posterior Segment: Medical Retina"

21. Retinal Disease Summit 2012: Bringing Retinal Disease into Focus, (American Academy of CME, Inc.), Newport Beach, CA, March 10, 2012.
    a. Presenter: "Anti-VEGF Therapy: Emerging Options for Treatment of Diabetic Macular Edema"
    b. Presenter: "Combination Therapy for Diabetic Macular Edema"

22. Imaging II Paper Session at ARVO, Ft. Lauderdale, FL, May 7, 2012.
    a. Moderator

23. Imaging of Structure and Function Paper Session, ARVO, Ft. Lauderdale, FL, May 9, 2012.
    a. Moderator

24. "Spectral Domain OCT Interpretation for the General Ophthalmologist," Instruction Course, American Academy of Ophthalmology, **Chicago,** Illinois, November 13, 2012.

25. The Retinal Imaging Session at ARVO 2014, Orlando, FL, May 4 2014
    a. Presenter: "Correlation of Precise Area of Peripheral Non-Perfusion with the Ischemic Index in Retinal Vein Occlusion"

26. Contemporary Management of Diseases of the Vitreomacular Interface: 2014 Update: CME Series, Hyatt Regency Centry Plaza, Los Angeles, CA, May 31, 2014
    a. Optical Coherence Tomography in Classifying Disorders of the Vitreomacular Interface: A Contemporary View"

27. "Rapid Response: Real World Use of Anti-VEGF Therapy: Clinical Experience beyond Pivotal Trials." CME Course, American Academy of Ophthalmology, October 19 2014
    a. Course Chair
    b. Panelist

28. "Current Insights into Retinal Disease Management: Focus on DME and Intravitreal Corticosteroids" Roundtable discussion, Dulaney Foundation CME Activity, American Academy of Ophthalmology, American Academy of Ophthalmology, October 18 2014
    a. Case Presentation

29. "Rapid Response: Real World Use of Anti-VEGF Therapy: Clinical Experience beyond Pivotal Trials." American Academy of Ophthalmology, October 19 2014
    a. Course Chair
    b. Panelist

30. eOphthalmology Review – John Hopkins CME Review Program: Round table discussion on the topic of Age-related Macular Degeneration and Vitreomacular Adhesion, American Academy of Ophthalmology, October 20 2014

31. 2014 Spectral Domain OCT Interpretation for the General Ophthalmologist (Instruction Course), American Academy of Ophthalmology, October 20 2014

a. Talk: "Subretinal Space and Beyond"

32. Advanced OCT Imaging Technology (OC) Applications for the Retina: CME Webinar Series, November 6, 2014, Los Angeles, CA
    a. Presenter: Advanced OCT Imaging Technology

33. Roundtable discussion & CME Supplement Multidisciplinary Case Reviews: Expert Discussions in Diabetic Retinopathy", Wills Eye Hospital, Boston, January 11 2015

34. Annual Comprehensive Ophthalmology Review Course, Doheny Eye Institute/UCLA Jules Stein Eye Institute, Los Angeles, CA, February 19-22 2015
    a. Presenter: Medical Retina, February 22 2015

35. Advanced retinal imaging Poster Session at ARVO, Denver, Co, May 5, 2015.
    a. Moderator

36. Retina Specialist Faculty, CME Dinner Meeting, "Steroid Delivery in Patients with Diabetic Macular Edema in the Presence of Cataract", San Francisco, June 18 2015
    a. Talk: "Treatment of Diabetic Macular Edema"
    b. Moderator

37. Lunch/Learn Lecture Series, Ophthotech, New Jersey, August 17, 2015
    a. "OCT Angiography: The Next Evolution of OCT"
    b. "Anti-VEGF Therapy and Atrophy: Should We Be Worried?"

HONORS AND SPECIAL AWARDS:

Speaker of the Day, Hawaiian Eye/Retina 2016, Big Island, Hawaii, 2016

Regents of Alumni Scholarship, Carman-Ainsworth Senior High School, Flint, MI, 1987

William J. Branstrom Award (for outstanding freshman), University of Michigan, Ann Arbor, MI, 1988

Chemistry Departmental Award, University of Michigan, Ann Arbor, MI, 1988

Sophomore Honors Award, University of Michigan, Ann Arbor, MI, 1989

James B. Angell Scholar (for superior academic achievement), University of Michigan, Ann Arbor, MI, 1989-1990

Phi Beta Kappa, University of Michigan, 1990

Summer Research Scholarship, **John Hopkins University**, 1991, 1992

Franklin Paine Mall Prize in Anatomy, John Hopkins University, 1993

Alpha Omega Alpha, John Hopkins University, 1994

Intern of the Month Award, William Beaumont Hospital, Royal Oak, MI, 1994

Ronald G. Michels Research Award, 1997

Heed Foundation Fellow, 1998-1999

NIH ARVO Travel Fellowship, 1999

John H. Zumberge Research and Innovation Award, University of Southern California, Los Angeles, CA, 2004

Estelle Doheny Living Tribute Award, Doheny Eye Institute, Los Angeles, CA, 2005

American Academy of Ophthalmology Secretariat Award, 2006

Top 100 Health Professionals, International Biographical Centre, Cambridge, England, 2006

Cambridge Who's Who Among Executives and Professionals, 2007/2008

Honor Award, American Society of Retina Specialists, 2007

Achievement Award, American Academy of Ophthalmology, 2009

Best Doctors in Southern California, Los Angeles Times, 2009

Second Year Teaching Award, USC Ophthalmology Residency, 2010

Senior Honor Award, American Society of Retina Specialists, 2010

Physician-Scientist Award, Research to Prevent Blindness, 2010

Faculty Teaching Incentive Award, USC Department of Ophthalmology, 2011

Southern California Super Doctors®, Los Angeles Magazine, 2012

Top Doctors, Pasadena Magazine, 2012

Young Investigator Award and Lecture, Macula Society, 2012

Senior Resident Teaching Award, Graduating Senior Residents, USC Department of Ophthalmology, 2010-2013

ARVO Silver Fellow in the Class of 2015

RESEARCH GRANTS AND FELLOWSHIPS RECEIVED:

Active Clinical Trials as Principal Investigator:

1. Multimodal Image Analysis in Age-Related Macular Degeneration
   Source: Macular Vision Research Foundation (MVRF)
   Purpose: Development of Automated Quantitative Analysis Tools for AMD.
   Amount: $300,000
   Date: Januar 15 2015 – January 14 2018 ($100,000/year for 3 years)
   Role: PI

2. Topcon 3D OCT-1 Maestro and 3D OCT-2000 Optical Coherence Tomography Systems: Reference Database Study
   Source: Topcon
   Purpose: To obtain normal values of measurements of different parts in the back of the eye for OCT device reference database.
   Amount: $299,649
   Date: October 29 2013-present
   Role: PI

3. Normative Data Collection Study of the Nidek Optical Coherence Tomography RS-3000 for the Measurements of Retinal and RNFL Thickness and Optic Disc Analysis
   Source: Nidek
   Purpose: To obtain normal values of measurements of different parts in the back of the eye for OCT device reference database.
   Amount: $166,781.76
   Date: June 26 2012-present
   Role: PI

4. National Ophthalmic Genotyping and Phenotyping Network, Stage 1— Creation of DNA Repository for Inherited Ophthalmic Diseases
   Source: NEI/NIH
   Purpose: To collect blood and DNA samples from patients with inherited eye diseases to be used in research to identify genetic factors responsible for these conditions.
   Amount: No funding
   Date: March 17 2008-present
   Role: PI

5. BAM- A phase 2, multi-center, randomized, double –masked, placebo-controlled, parallel-group study to investigate the safety, tolerability, efficacy, pharmacokinetics and pharmacodynamics of gsk93376 in adult patients with geographic atrophy (GA secondary to age-related macular degeneration (AMD)

6. A 3 Year, Phase 3, Multicenter, Masked, Randomized, Sham-Controlled Trial to Assess the Safety and Efficacy of 700ug and 350ug Dexamethasone Posterior Segment Drug Delivery System (DEX PS DDS Applicator System) in the Treatment of Patients with Diabetic Macular Edema.
   Source: Allergan
   Purpose: Assess safety and efficacy of Ozurdex for DME.
   Amount: $1,219,870
   Dates: April 16, 2006-May 20, 2013
   Role: Principal Investigator, 1% effort

7. A Phase III, Double Masked, Multicenter, Randomized, Sham-Controlled Study of the Efficacy and Safety of Ranibizumab Injection in Subjects with Clinically Significant Macular Edema with Center Involvement Secondary to Diabetes Mellitus (RISE).
   Source: Genentech
   Amount: $549,620
   Dates: June 6, 2007 –
   Role: Principal Investigator, 2% effort

8. DNA Repository Sub study in Association with Ranibizumab Study FVF4170g (A Phase III, Double Masked, Multicenter, Randomized, Sham-Controlled Study of the

Efficacy and Safety of Ranibizumab Injection in Subjects with Clinically Significant Macular Edema with Center Involvement Secondary to Diabetes Mellitus) (RISE).
Source: Genentech
Amount: $180,310
Dates: October 9, 2008 –
Role: Principal Investigator, 1% effort

Past Clinical Trials as Principal Investigator:

1. Multiple-Ascending Dose, Safety, Tolerability, Pharmacokinetic, and Pharmacodynamic Study of LY2886721 in Healthy Subjects.
   Source: Eli Lilly
   Amount: $281,005
   Dates: October 11, 2011-October 11, 2012
   Role: Principal Investigator, 2% effort

2. A Phase III, Double-Masked, Multicenter, Randomized, Active Treatment-Controlled Study of the Efficacy and Safety of 0.5 mg and 2.0 mg Ranibizumab Administered Monthly or an As-needed Basis (PRN) in Patients with Subfoveal Neovascular Age-related Macular Degeneration (HARBOR).
   Source: Genentech
   Amount: $895,820
   Dates: August 3, 2009-August 25, 2012
   Role: Principal Investigator, 2% effort

3. The Safety and Efficacy of AL-8309B Ophthalmic Solution for the Treatment of Geographic Atrophy (GA) Secondary to Age-Related Macular Degeneration (AMD).
   Source: Alcon
   Amount: $314,482.50
   Dates: March 9, 2009-October 11, 2012
   Role: Principal Investigator, 2% effort

4. Long-Term Follow-up Protocol for Genvec, Inc. Gene Transfer Product Candidates in Clinical Development.
   Source: Genvec, Inc.
   Amount: Contract value not available
   Dates: March 1, 2005 - October 1, 2007
   Role: Principal Investigator, 1% effort

5. VIM Study – Verteporfin Therapy in Minimally Classic Subfoveal Choroidal Neovascularization Secondary to Age-Related Macular Degeneration – Phase II/III.
   Source: Neovista QLT
   Amount: Contract value not available
   Dates: 2001-2002
   Role: Principal Investigator, 10% effort

6. VER Study, Reading Center – Verteporfin Early Retreatment Study – Phase III Study.
   Source: Neovista QLT
   Amount: Contract value not available
   Dates: 2001-2002
   Role: Principal Investigator, 10% effort

7. Protocol FVF2598g: A Phase III, Multicenter, Randomized, Double-Masked, Sham Injection-Controlled Study of the Safety and Efficacy of Rhufab V2 (Ranibizumab) in Subjects with Minimally Classic or Occult Subfoveal Neovascular Age-Related Macular Degeneration (Marina Study).
   Source: Genentech
   Amount: Contract value not available
   Dates: 2003-2005
   Role: Principal Investigator, 5% effort

8. A Phase III, Multicenter, Randomized, Double-Masked, Active Treatment-Controlled Study of the Efficacy and Safety of Rhufab V2 (Ranibizumab) Compared with Verteporfin (Visudyne®) Photodynamic Therapy in Subjects With Predominantly Classic Neovascular Age-Related Macular Degeneration (ANCHOR Study).
   Source: Genentech
   Amount: Contract value not available
   Dates: 2003-2005
   Role: Principal Investigator, 5% effort

9. A Prospective, Multicenter Clinical Trial of the Visioncare Ophthalmic Technologies Implantable Miniature Telescope (IMT™) in Patients with Central Vision Impairment Associated with Age-Related Macular Degeneration.
   Source: VisionCare
   Amount: Contract value not available
   Dates: 2008-2010
   Role: Principal Investigator, 2% effort

10. Protocol FVF342g: Open Label Multicenter Extension Study to Evaluate the Safety and Tolerability of Ranibizumab in Subjects with Choroidal Neovascularization (CNV) Secondarily to Age-Related Macular Degeneration (AMD) Who have Completed the Treatment Phase of the Genentech-Sponsored Ranibizumab Study (HORIZON Study).
    Source: Genentech
    Amount: Contract value not available
    Dates: 2005-2007
    Role: Principal Investigator, 5% effort

11. LSOCA: The Longitudinal Study for the Complication of AIDS: Longitudinal Study of Patients with AIDS with or without Major Ocular Complications, to Identify Findings that are Predictive of Visual Outcomes.

Source: National Institutes of Health, National Eye Institute, NEI-171 (NCT00000168)
Amount: Contract value not available
Role: Principal Investigator, 2% effort

12. MSI-1265-301 Genaera: A Phase 3 Multicenter Randomized Double Masked Controlled Study of Squalamine Lactate for Injection for the Treatment of Subfoveal Choroidal Neovascularization Associated with Age-Related Macular Degeneration.
Source: Genaera
Amount: Contract value not available
Role: Principal Investigator, 1% effort

13. CBPD925AUS01 InSite CNV Registry Program: Longitudinal Database to Capture Patient Demographics and Treatment Outcomes in Patients with CNV due to AMD.
Source: Novartis
Amount: Contract value not available
Role: Principal Investigator, 1% effort

14. A2-3787 Validation of the Visual Function Questionnaire-25 (VFQ-25) in People with Age-Related Macular Degeneration.
Source: Genentech
Amount: Contract value not available
Role: Principal Investigator, 1% effort

15. Protocol # NV1006: A Feasibility Study to Evaluate the Safety and Tolerance of Subretinal Delivery for the Treatment of Subfoveal Choroidal Neovascularization (CNV) in Patients with Age-Related Macular Degeneration.
Source: Neovista
Amount: Contract value not available
Role: Principal Investigator, 1% effort

16. Multi-Center Phase II/III Clinical Trial to Study the Effects of Preservative-Free Triamcinolone Acetonide (1mg-4mg-Sham) as an Adjunct to Current PDT Treatment for Patients with Neovascular AMD (VERTACL Study).
Source: National Institutes of Health, National Eye Institute, NEI 05-EI-0064 (NCT00464347)
Amount: Contract value not available
Role: Principal Investigator, 1% effort

17. Acuity CARE: A Phase II Randomized, Double Masked, Controlled, Dose Comparison Study of CAND5 for Intravitreal Injection for the Treatment of Subfoveal Choroidal Neovascularization Associated with Wet Age-Related Macular Degeneration.
Source: OPKO Health, Inc.
Amount: Contract value not available
Role: Principal Investigator, 1% effort

18. A Six-Month Phase 3, Multicenter, Masked, Randomized, Sham-Controlled Trial (w/Six-Month Open Label Extension) to Assess the Safety and Efficacy of 700 ug and 350 ug Dexamethasone Posterior Segment Drug Delivery System (DEX PS DDS) Applicator System in the Treatment of Patients with Macular Edema Following Central Retinal Vein Occlusion or Branch Retinal Vein Occlusion.
    Source: Allergan
    Amount: Contract value not available
    Role: Principal Investigator, 1% effort

Research Grant Awards in Past Five Years as Principal Investigator:

1. Advanced Image Analysis Tools for Diabetic Retinopathy Telemedicine Applications
   Source: Eyenuk (Subaward on NIH Prime/DEI PI), R43-EB013585
   Purpose: Development of automated image tools to detect DR lesions
   Amount: $19,508
   Dates: May 8, 2012-April 30, 2014
   Role: Doheny Eye Institute – Principal Investigator (Solanki, PI)

2. Genetic Epidemiology of Age-Related Macular Degeneration in the Older Order Amish
   Source: U Penn (Subaward on NIH Prime/DEI PI), R01-EY023164
   Purpose: To identify new genetic risk factors for AMD
   Amount: $69,851
   Dates: February 20 2013 -January 31, 2018
   Role: Doheny Eye Institute – Principal Investigator (Stambolian, contact PI)

3. Automated Image-Based Biomarker Computation Tools for Diabetic Retinopathy
   Source: Eyenuk (Subaward on NIH Prime/DEI PI), R41 TR000377
   Purpose: Development of automated image tools to detect DR lesions
   Amount: $58,047
   Dates: September 1, 2012-August 31, 2013 (1.2 calendar months)
   Role: Doheny Eye Institute – Principal Investigator (Solanki, PI)

4. Research to Prevent Blindness Physician Scientist Award
   Source: Research to Prevent Blindness (USC Grant)
   Purpose: Assess pathogenesis of AMD through the use of imaging studies
   Amount: $60,000
   Dates: January 1, 2011-December 31, 2012
   Role: Principal Investigator, 20% effort

5. Genetic Susceptibility for Development of Proliferative Diabetic Retinopathy
   Source: National Institutes of Health National Eye Institute (ARRA), RO1-EY019270-01A1
   Purpose: Identify genetic risk factors for PDR
   Amount: $808,662
   Dates: September 1, 2009-August 31, 2012*

Role: Principal Investigator, 33% effort
Renewal pending

6. Advanced Imaging for Glaucoma: Doppler OCT Reading Center
Source: OHSU (Subaward on NIH Prime – USC PI), R01 EY013516
Purpose: Evaluate changes in blood flow in early glaucoma
Amount: $21,877
Dates: July 1, 2012-August 31, 2014
Role: Principal Investigator

7. Advanced Imaging for Glaucoma
Source: National Institutes of Health, National Eye Institute (OHSU) Subaward, EY013516
Purpose: Evaluate changes in blood flow in early glaucoma
Amount: $149,047
Dates: August 1, 2009-December 31, 2011
Role: Principal Investigator, 5% effort

8. Cross-Institutional Diagnostic Image Sharing Grid and its Impact on Diabetic Patients
Source: USC Subaward on Kesselman Pilot Study
Purpose: Development of telescreening system for diabetic retinopathy
Amount: $5,508
Dates: September 1, 2009-December 31, 2009
Role: Principal Investigator, 2% effort

9. Adaptive Optics Instrumentation for Advanced Ophthalmic Imaging
Source: National Institutes of Health/University of Rochester (subcontract), `R01 EY014375-01
Purpose: Development of AOSLO systems for retinal cellular imaging
Amount: $1,217,380 (total grant: $10 million)
Dates: March 1, 2003-June 30, 2008
Role: Principal Investigator, 40% effort

10. Objective Diagnosis & Quantification of Retinal Disease
Source: National Institutes of Health, National Eye Institute, EY015914-01
Purpose: Development of automated algorithms for image registration and segmentation
Amount: $1,055,321 (R33 Grant – Principal Investigator for the whole amount)
Dates: September 1, 2004-August 31, 2009
Role: Principal Investigator, 15% effort

11. Molecular Photovoltaic and Artificial Sight
Source: ORNL/Department of Energy (subcontract), # 4000011732
Purpose: Development of artificial phototransduction systems.
Amount: $460,111

Dates: September 26, 2001-March 31, 2006
Role: Principal Investigator, 5% effort

12. Neural Retinal Transplantation
Source: Foundation for Retinal Research
Purpose: Assessment of retinal sheet allografts
Amount: $65,000
Dates: July 1, 2002-June 30, 2003
Role: Principal Investigator, 15% effort

13. Neural Retinal Transplantation
Source: Foundation for Retinal Research
Purpose: Assessment of retinal sheet allografts
Amount: $70,000
Dates: July 1, 2003-June 30, 2004
Role: Principal Investigator, 25% effort

14. Quantitative Retinal Image Analysis
Source: John H. Zumberge Research Award, University of Southern California
Purpose: Development of automated algorithms for image registration and segmentation
Amount: $49,844 (no PI salary support)
Dates: July 1, 2004-June 30, 2005
Role: Principal Investigator, 15% effort

15. Neural Retinal Transplantation
Source: Foundation for Retinal Research
Purpose: Assessment of retinal sheet allografts
Amount: $65,000
Dates: July 1, 2004-June 30, 2005
Role: Principal Investigator, 25% effort

16. Functional Integration after Neural Retinal Transplantation
Source: Foundation Fighting Blindness, # T-TR-0505-0233
Purpose: Assessment of synapse formation after retinal sheet allografting
Amount: $185,454 (no PI salary support)
Dates: May 1, 2005-April 30, 2008
Role: Principal Investigator, 10% effort

17. University of Wisconsin: The Walsh Stem Cell Research Fund
Source: University of Wisconsin School of Medicine Subaward, # 05-8531
Purpose: Development of retinal progenitor cells for use in retinal transplantion
Amount: $166,000 (no PI salary support)
Dates: January 1, 2005-December 31, 2008
Role: Principal Investigator, 5% effort

Pending Research Grants:

1. Multimodal Image Registration and Analysis in Atrophic AMD
   Source: NIH
   Purpose: Development of automated algorithms for alignment of different imaging modalities and generating quantitative descriptors of disease.
   Amount: $3,815,820.00
   Date: September 1 2014 ~ August 31 2019
   Role: S. Sadda (lead PI), G. G. Medioni (PI), Zhihong Hu (PI)

2. Automated Image-based Biomarker Computation Tools for Diabetic Retinopathy
   Purpose: Development of microaneurysm turnover as a biomarker for disease progression
   Source: EyeNUK
   Amount: $495,000
   Dates: July 1 2014 0 – June 30 2017
   Role: Principal Investigator

3. Advanced Image Analysis Tools for Diabetic Retinopathy Telemedicine Applications
   Purpose: Development of automated image tools to detect DR lesions
   Source: EyeNUK
   Amount: $240,000
   Dates: July 1 2014 - June 30 2017
   Role: Principal Investigator

4. Diabetic retinopathy diagnostic tool using advanced automated vessel analysis
   Purpose: Development of automated image tools to detect DR lesions
   Source: EyeNUK
   Amount: $75,000
   Dates: April 1 2014 – March 31 2015
   Role: Principal Investigator

5. Automated image-based biomarker computation tools for diabetic retinopathy
   Purpose: Development of automated image tools to detect DR lesions
   Source: EyeNUK
   Amount: $400,000
   Dates: April 1 2014 – March 30 2017
   Role: Principal Investigator

Research Grant Awards in Past Five Years as Co-Principal Investigator:

1. Collaboration for Disease Team Grant: Stem Cell Based Treatment Strategy for Age-Related Macular Degeneration AMD
   Source: CIRM USC Subaward

Purpose: Development of RPE cell monolayers from hESC cells
Amount: $195,157
Dates: April 1, 2010-March 31, 2012
Role: Co-Principal Investigator, 10% effort

2. Functional Integration after Neural Retinal Transplantation
Source: Foundation Fighting Blindness
Purpose: Assessment of retinal sheet allografts
Amount: $221,152 (no PI salary support)
Dates: July 1, 2000-June 30, 2004
Role: Co-Principal Investigator, 10% effort

3. Imaging via the Adaptive Optics Imaging System
Source: Department of Energy/Lawrence Livermore National Laboratory
Purpose: Development of AOSLO systems for cellular imaging in vivo
Amount: $252,658
Dates: September 24, 2001-September 30, 2003
Role: Co-Principal Investigator, 10% effort

Major Areas of Research Interest:

- Quantitative, automated retinal image analysis
- Retinal substructure assessments
- Advanced retinal imaging technologies
- Genotype-phenotype Correlative Studies
- Vision Restoration Technologies (stem cells, prosthetic vision)

Major Areas of Clinical Interest:

- Age-related macular degeneration
- Hereditary retinal degenerations
- Diabetic Retinopathy
- Venous Occlusive disease
- Telemedicine screening and consultation programs
- Electronic Medical Records
- Retinal disease diagnosis and classification
- Image Reading Center

LECTURES AND PRESENTATIONS:

Visiting Professorships and Other Invited Lectures (National/International):

1. "Photoreceptor Transplantation: Historical Overview and Future Directions," Cleveland Clinic Foundation Invited Lecture, Cleveland, OH, December 15, 1999.

2. "Photoreceptor Transplantation," Foundation for Retinal Research Scientific Advisory Board Special Guest Lecture, Wye River, MD, July 1, 2000.

3. "Solving the Problem of Neural Retinal Transplantation," Foundation Fighting Blindness Scientific Advisory Board Special Guest Lecture, Fort Lauderdale, FL, April, 2001.

4. "Retinal Cell Transplantation as a Means of Visual Restoration," Department of Energy Biomedical Engineering Contractors Meeting, Albuquerque, NM, May 16-18, 2000.

5. "Retinal Grafts in Rodents," Clinical Approaches to Transplantation and Stem Cell Therapies for Inherited Retinal Degenerative Diseases, Salt Lake City, UT, June 19-21, 2002.

6. "Quantitative Fluorescein Angiography," American Academy of Ophthalmology, 2003 Subspecialty Day, The Retina Debates 2003, Late Breaking Developments, Anaheim, CA, November 15, 2003.

7. "Future of Retinal Imaging," Alta Ophthalmology Meeting, Davis, CA, February 26, 2004.

8. Chilean Vitreo-Retinal Society Meeting, Santiago, Chile, South America, March 19, 2004:
   a. "Update on Age Related Macular Degeneration"
   b. "New Developments in Retinal Transplantation"
   c. "Quantitative Retinal Imaging"

9. "Diabetic Eye Diseases and the Importance of Good Control", American Diabetes Association Lecture, San Gabriel Valley Medical Center, San Gabriel, CA, December 13, 2005.

10. "New High-Resolution Imaging Devices for Retinal Disease", Vision Science Meeting, Doheny Eye Instiutte, Doheny Vision Research Center, Los Angeles, CA, January 19, 2006.

11. "Optical Coherence Tomography for Retinal Disease Diagnosis", World Ophthalmology Congress 2006, Sao Paulo, Brazil, South America, February 19-24, 2006.

12. "Imaging the Retinal Vasculature in the Anti-VEGF Therapy Era", Fluorescein Angiography (FA) Imaging Panel Meeting, Barcelona, Spain, March 25, 2006.

13. "Insights from theRanibizumab Trials", The Roll of Anti-VEGF Medications in the Treatment of AMD Symposium, Hyatt Regency Pier Sixty-Six, Ft. Lauderdale, FL, April 29, 2006.

14. "Managing Errors in Optical Coherence Tomography", International Society for Imaging of the Eye, Ft. Lauderdale, FL, April 29, 2006.

15. "Advances in Retinal Imaging," Special Visiting Professorship Lecture, L.V. Prasad Eye Institute, Hyderabad, India, November 25, 2006.

16. "Retinal Artery Occlusions," Distinguished Guest Lecture, Nellore Ophthalmic Association and Modern Eye Hospital and Research Center, Nellore, India, November 28, 2006.

17. "Advantages of High Resolution Retinal Imaging", Recent Advances in Ophthalmic Imaging Seminar (Review of Ophthalmology), American Academy of Ophthalmology Breakfast Seminar, Venetian Hotel, Las Vegas, NV, November 12, 2006.

18. Organizer and Chairman/Moderator of the American Society of Retina Specialists Symposium, :Anti-Angiogenic Therapies for Retinal Disease," Hyderabad, India, February 1-4, 2007:
    a. "Anti-Angiogenic Therapies for AMD," American Society of Retina Specialists Symposium at the AIOS, Hyderabad, India, February 1, 2007.

19. "Imaging Techniques for Intraocular Tumors," The National Oncology Symposium at the AIOS, Hyderabad, India, February 3, 2007.

20. "Neovascular AMD," Updating the Treatment Paradigm Symposium, Hyatt Regency Pier Sixty-Six, Ft. Lauderdale, FL, May 5, 2007.

21. "Quantitative Comparison of Short-Term Anatomic Response Following Intravitreal Bevacizumab versus Ranibizumab Treatment for Neovascular Age-Related Macular Degeneration," Macula Society, London, England, May 31, 2007.

22. XXVII Pan-American Congress of Ophthalmology, Cancun, Mexico, June 3, 2007:
    a. Coordinator and Moderator, "New Trends in Vitreoretinal Imaging"
    b. "Retinal Imaging"

23. "New Modalities for Fundus Imaging: Advantages and Limitations," American Academy of Ophthalmology, "Conversations with the Experts," NBC Studios, New York, NY, August 30, 2007.

24. "High Speed and High Resolution OCT," Heidelberg Ophthalmology Meeting, 40th Annual Meeting of The Retina Society, Boston, MA, September 27, 2007.

25. "3-D OCT: Substance or Hype?," The Latest in Ophthalmic Digital Imaging, 40th Annual Meeting of The Retina Society, Boston, MA, September 27, 2007.

26. Imaging Scientific Session, 40th Annual Meeting of The Retina Society, Boston, MA, September 28, 2007:
    a. Moderator
    b. "Quantitative Comparison of OCT Data Following Various Intravitreal Anti-VEGF Therapies for Neovascular Age-related Macular Degeneration."

27. "Introduction to Adaptive Optics in Ophthalmic Imagining," Ophthalmic Photographers Society Educational Program, American Academy of Ophthalmology, New Orleans, LA, November 10, 2007.

28. "Pier Year 1 Safety," American Academy of Ophthalmology, New Orleans, :A, November 12, 2007.

29. "New OCT Technology," Center of Ophthalmology, University of Cologne, Cologne, Germany, November 19, 2007.

30. Breakfast with the Masters: "Fourier Domain OCT," The American Society of Retina Specialists, Indian Wells, CA, December 3, 2007.

31. "A New Era of Retinal Imaging," Special Guest Seminar at Johan A Moran Eye Center, University of Utah, Salt Lake City, UT, January 11, 2008.

32. "A New Era in Retinal Imaging," Special Retina Key Note Session, 66th All India Ophthalmological Conference, Bangalore, India, February 2, 2008.

33. Representative of the Retina Society at the American Academy of Ophthalmology Congressional Advocacy Day, Washington, DC, April 9-10 2008.

34. Invited Participants, Heidelberg Engineering's Retina Advisory Meeting at ARVO, Ft. Lauderdale, FL, April 27, 2008.

35. NetwORC UK Meeting, Ophthalmic Research Centre, Queens University of Belfast, Belfast, Ireland, June 16-17, 2008:
    a. "Spectral Domain OCT – A New Era of Retinal Imaging"
    b. Demonstration of OCTOR Software and OCTOR Training Session

36. "Photoreceptor Imaging with the Adaptive Optics Scanning Laser Ophthalmoscopy," Retina Imaging Symposium, World Ophthalmology Congress, Hong Kong, July 1 2008.

37. "Automated Detection of Diabetic Retinopathy from Color Fundus Images," Retina Imaging Symposium, World Ophthalmology Congress, Hong Kong, July 2 2008.

38. Shanghai International Ophthalmology Symposium, Shanghai, China, July 4, 2008:
    a. "Spectral Domain OCT: A New Era in Retinal Imaging"
    b. "Dry AMD: Improving Diagnosis and Treatment"

39. "Spectral Domain OCT: Clinical Applications," Sankara Nethralaya, Chennai, India, August 16, 2008.

40. "Addressing the Challenge of Motion Artifact in OCT Imaging, " Heidelberg Ophthalmology Meeting, 41st Annual Meeting of The Retina Society, Scottsdale, AZ, September 27, 2008.

41. "Horizon Extension Trial of Ranibizumab (Lucentis) for Neovascular Age-Related Macular Degeneration (AMD): First Year Safety and Efficacy Results," Scientific Session, 41st Annual Meeting of The Retina Society, Scottsdale, AZ, September 28, 2008.

42. Invited Participant, Heidelberg Engineering's Retina Advisory Meeting at ASRS, Maui, Hawaii, October 12, 2008.

43. "Breakfast with the Masters: SD-OCT and Fundus Autofluorescence," The American Society of Retina Specialists, Maui, HI, October 13, 2008.

44. "Spectral Domain OCT: A New Era in Retinal Imaging," King Khaled Eye Specialist Hospital, Riyadh, Kingdom of Saudi Arabia, October 20, 2008.

45. King Khaled Eye Specialist Hospital, Riyadh, Kingdom of Saudi Arabia, October 22, 2008:
    a. "Applications of Fundus Autofluorescence"
    b. "Future Treatments for Diabetic Retinopathy"
    c. "Applications of Fundus Autofluorescence"
    d. "Future Treatments for Diabetic Retinopathy"

46. "3D OCT and the Role of EyeRoute in Data Review and Management," Topcon Medical Systems Symposium at American Academy of Ophthalmology, Atlanta, GA, November 8, 2008.

47. "Cryptococcal Retinitis and Choroidits," 4th Annual Ocular Imaging Conference 2008 at American Academy of Ophthalmology, Atlanta, GA, November 9, 2008.

48. "Addressing the Challenge of Motion Artifact in OCT Imaging," Heidelberg Engineering In-Booth Speaker at American Academy of Ophthalmology, Atlanta, GA, November 9, 2008.

49. "Adaptive Optics in Ophthalmic Imaging," Ophthalmic Photographers Society Educational Program, American Academy of Ophthalmology, Atlanta, GA, November 9, 2008.

50. "Applications for Diabetic Retinopathy and Macular Edema," Fourier-Domain OCT in Glaucoma Diagnosis Course at 2008 Joint Meeting American Academy of Ophthalmology, Atlanta, GA, November 10, 2008.

51. Hawaiian Eye 2009, Maui, HI, January 19, 2009:
    a. "Optical Coherence Tomography in the Management of Age Related Macular Degeneration"
    b. "Applications and Utility of OCT Sub-Analysis"
    c. "Applications of Fundus Autofluorescence"

52. Hawaiian Eye 2009, Maui, HI, January 21, 2009:
    a. "Adaptive Optics for Retinal Imaging"
    b. "Future Treatments for Diabetic Retinopathy"
    c. "Comparison of SD-OCT instruments: Spectral Domain OCT Workshop"

53. "Imaging Technologies for Quantifying Age-Related Macular Degeneration," IBC's 5th Ocular Angiogenesis and Retinal Degeneration, Las Vegas, NV, March 30, 2009.

54. Imaging-OCT 2009, Savioa Hotel Regency, Bologna, Italy, April 18 2009:
    a. "Applications of FD-OCT for Management of AMD"
    b. "Applications of FD-OCT for Management of Diabetic Retinopathy"
    c. "Applications and Utility of Quantitative OCT Subanalysis in AMD"

55. Innovations in Optical Coherence Tomography: Spectral Domain and Beyond Course, Cole Eye Institute, Cleveland, OH, July 24-25, 2009:
    a. "Topcon 3D OCT"
    b. "Wet AMD Imaging with SD-OCT"
    c. "Adaptive Optics and OCT"
    d. "OCT Subanalysis in AMD"
    e. "Case Studies in Spectral OCT"

56. "Imaging Chorioretinal Vascular Disease," 39th Ophthalmology Cambridge Symposium, St. John's College, Cambridge, England, September 2-3 2009.

57. "OCT in the Management of Age-Related Macular Degeneration," Visiting Professor, Medical College of Wisconsin Lake Geneva Vitreoretinal Symposium, September 18-19 2009.

58. University of Virginia Department of Ophthalmology Visiting Professor Series, Charlottesville, VA, October 9-10 2009:
    a. Case Presentations to Residents
    b. "Applications of Funds Autofluorescence"
    c. "Management of Retinal Venous Occlusive Disease"
    d. "Spectral Domain OCT and its Role in Age-Related Macular Degeneration"

59. Moderator: "Retina 2009 The Cutting Edge – Section VI: Imaging," American Academy of Ophthalmology, San Francisco, CA, October 24-27, 2009.

60. "Adaptive Optics in Ophthalmic Imaging," Ophthalmic Photographers Society Educational Program, American Academy of Ophthalmology Meeting, October 25, 2009.

61. "Evaluation of Macular Edema: What is My Machine Telling Me?," Retina Society's Symposium Advances In Diagnostic And Surgical Technology For Retinal Diseases: A Symposium For The General Ophthalmologist, San Francisco, CA, October 25 2009.

62. Course Instructor: "SD OCT in AMD," Fourier-Domain OCT in Retinal Diseases Course at 2009 Joint Meeting American Academy of Ophthalmology, San Francisco, CA, October 27, 2009.

63. Retinal and Glaucoma Imaging 2010: Optical Coherence Tomography (OCT) Applications and Future Technology, Palm, Beach, FL, December 5, 2009:
    a. "A Comparison of Current SD-OCT Imaging Systems"
    b. "The Use of SD-OCT in Retinal Disease Clinical Trials"
    c. Panel, "Retinal Case Presentations and Audience Response"

64. John Hopkins University School of Medicine, Baltimore, MD, January 22-23, 2010:
    a. Co-Moderator & Presenter, "Atlantic Coast Retina Club," January 22, 2010
    b. "What Does a SD-OCT have that a TD-OCT Doesn't have?," Macula 2010 CME Course, January 23, 2010

65. Pre-Congress and International Congress on Imaging in Retinal Diseases, Italy, March 5-9 2010:
    a. "OCT's – Instrument Comparison"
    b. "Relationship Between Angiographic and OCT Parameters for Quantifying Choroidal Neovascular Lesion"

66. Doppler Optical Coherence Tomography of Retinal Circulation (DOCTORC) Meeting, ARVO, Ft. Lauderdale, FL, May 4, 2010:
    a. "DOCTORC Reading Center Procedures"
    b. Demo of DOCTORC

67. Diabetic Retinopathy: From Bench to Population/2010 ARVO/ Summer Eye Research Conference (SERC), Chennai, India, September 9-10, 2010:
    a. Co-chair: :Session 2: How to Quantify the Treatment Outcome?"
    b. "Automated, Quantitative Approaches to Imaging for Diabetic Retinopathy"
    c. "Correlation of SD-OCT Findings and Functional Outcome in Retinopathy"

68. "Vascular Changes in Patients Treated with Dexamethasone Intravitreal Implant for Macular Edema Due to BRVO or CRVO Over 12 Months," 43rd Annual Retina Society Meeting, San Francisco, CA, September 23-26, 2010.

69. Lead Discussion on "Breakfast With the Experts: Topic V07: Ocular Imaging," American Academy of Ophthalmology Subspecialty Day, Chicago, IL, October 15, 2010.

70. Instruction Course, "Fourier-Domain OCT in Retinal Diseases," American Academy of Ophthalmology, Chicago, IL, October 17, 2010.

71. Instruction Course, "Diabetic Macular Edema: 2010 Update on Management," American Academy of Ophthalmology, Chicago, IL, October 18, 2010.

72. Optical Coherence Tomography and Retinal Imaging Symposium, Retina 2011, (Panelists:), Maui, HI, January 17, 2011:
    a. Panel Member: E. Reichel, MD; PJ Rosenfeld, MD, PhD; **SR Sadda, MD**
    b. "What's New in Fundus Autoflourescence?"
    c. "Long Wavelength OCT Imaging?
    d. "OCT in the Management of Neovascular AMD"

73. "Adaptive Optics for Retinal Imaging," Hawaiian Eye 2011, Maui, HI, January 18, 2011.

74. "Color and Autofluorescence Imaging in Dry AMD," Angiogenesis, Exudation, and Degeneration 2011 Meeting, February 12 2011.

75. Association for the Prevention of Blindness Meeting, Mexico City, Mexico, February 17-19, 2011:
    a. "OCT in the Management of Dry Macular Degeneration"
    b. "Advances in Fundus Autofluorescence"
    c. "Management of Retinal Venous Occlusive Disease"

76. "Conventional and Novel Methods of Diagnosis," Uveitic Macular Edema: From Bench to Bedside, 15th Annual American Uveitis Society Winter Symposium, Bascom Palmer Eye Institute of the Palm Beaches, Miami, FL, February 19, 2011.

77. Saudi Ophthalmology 2011 – 28th Annual Symposium of the King Khaled Eye Specialist Hospital and the 24th Annual Scientific Meeting of the Saudi Ophthalmologic Society Combined Meeting, King Fahd Cultural Center, Riyadh, Saudi Arabia, February 27-March 2, 2011:
    a. "Management of Retinal Venous Occlusive Disease"
    b. "Fundus Autofluorescence Imaging"
    c. "Adaptive Optics – What The Ophthalmologist Needs To Know"
    d. "Long Wavelength OCT Imaging"
    e. "Predicting Visual Outcomes with OCT"
    f. "Future OCT Technologies"
    g. "OCT In the Management of Wet AMD"
    h. "OCT In the Management of Dry AMD"

78. 34th Annual Macula Society Meeting, Boca Raton Resort and Club, Boca Raton, FL, March 9-11, 2011:
    a. Chair: Session III: Vein Occlusions/Macular Structure and Function
    b. "Choroidal Thickness Variation in the Posterior Pole of Normal Eyes as Assessed by Optical Coherence Tomography"

79. Fundus Autofluorescence in the AREDS2 Meeting, Ft. Lauderdale, FL, May 4 2011:
    a. "Autofluorescence using the OPTOS System"
    b. "Autofluorescence Cameras – SLO versus Fundus"

80. "Retinal Vascular Changes Following Treatment with Dexamethasone Intravitreal Implant (DEX Implant) in Patients with Macular Edema (ME) Secondary to Branch or Central Retinal Vein Occlusion (RVO)," 2011 Joint Congress of SOE/AAO, Geneva, Switzerland, June 4, 2011.

81. "OCT and Automated Software for Retinal Diseases," John Hopkins 41st Anniversary,The Wilmer Retina Division: New Horizons In Retina, Victor, ID, June 29-July 2, 2011.

82. "Improving the Precision of Diabetic Retinopathy Phenotyping," Lasker/IRRF Initiative for Innovation in Vision Science, The J. Erik Jonsson Center at Woods Hole, MA, July 11-12, 2011.

83. "Wide Field Auto Fluorescence Imaging," Wide Field Imaging Conference, Istanbul, Turkey, July 13-15, 2011.

84. 23rd Annual Midwest Ocular Angiography Conference, Costa Rica, August 3-6, 2011:
    a. Moderator and Case Presentation, Session 3
    b. "Viral Retinitis"

85. "Imaging Age-Related Macular Degenerations: New Insights and Approaches," Arnold and Mabel Beckman Foundation, Young Scholars and Young investigators, Irvine, CA, August 13, 2011.

86. 29th Annual Meeting of the American Society of Retina Specialists, Boston, MA, August 20-23, 2011:
    a. Lead: ASRS "Special Interest Group: Retinal Imaging"
    b. "Effect of Anti-VEGF Therapy on Choroidal Thickness in Patients with Neovascular Age-Related Macular Degeneration"

87. V. International DOG Symposium: Age-Related Macular Degeneration, Baden-Baden, Germany, September 8-10, 2011:
    a. Moderator: :Imaging in AMD:
    b. "Quantitative Measures of Early AMD on SD-OCT Imaging"

88. "Peripheral Autofluorescence Findings in Age-Related Macular Degeneration," The 44th Retina Society Meeting and the Societa Italiana della Retina, Rome, Italy, September 21-25, 2011.

89. "Adaptive Optics in Ophthalmic Imaging," Ophthalmic Photographers Society 42nd Educational Program, American Academy of Ophthalmology, Orlando, FL, October 21, 2011.

90. American Academy of Ophthalmology, Orlando, FL, October 21-25, 2011:
    a. Expert Discussant: "Ocular Imaging" at Breakfast With the Experts
    b. "Widefield Autofluorescence: A New Tool for Studying Macular Disease"

c. "Following the Progression of GA with SD-OCT and Comparison to FAF Cirrus (HD-OCT Practical Application for Advanced Visualization)"
d. "Adaptive Optics in Ophthalmic Imaging" at OIC Meeting
e. "Imaging of the Choroid with OCT" at the Imaging of Macular and Retinal Diseases (ASRS) Symposium

91. International Workshop of VKH Disease & Sympathetic Ophthalmia, Goa, India, November 13-16, 2011:
    a. "Widefield Fundus Imaging in Ocular Inflammatory Diseases"
    b. "Diagnosis of Uveitic Macular Edema, Part I," Uveitic Macular Edema: From Bench to Bedside, AUS Session

92. International Symposium on Retinal Diseases, Madurai, India, January 6-8, 2012:
    a. "Current Place of Various Imaging Modalities in Retinal Vascular Diseases"
    b. "Update on Optical Coherence Tomography Imaging Systems"

93. "Integration of Structural, Molecular, and Functional Imaging," 6th International Macula of Paris Meeting, Paris, France, January 13, 2012.

94. Retina 2012, Maui, HI, January 15-20, 2012:
    a. "Predicting Visual Outcomes with Optical Coherence Tomography"
    b. "Doppler OCT: Principles and Applications"
    c. "What's New in Fundus Autofluorescence"
    d. "Case Studies in Widefield Imaging" at Mai Tai with the Masters
    e. Panel Discussion: How are we Treating Wet Macular Degeneration in 2012?
    f. "OCT in the Management of Wet AMD"

95. "Future OCT Technology," Macula 2012, New York, NY, January 2012.

96. World Ophthalmology Congress 2012, Abu Dhabi, UAE, February 16-20, 2012:
    a. Co-Chair & Presenter: "Advances in Funds Autofluorescence," Retinal Imaging Session, February17, 2012
    b. Presenter: "How OCT Can Best be Used to Evaluate New Treatments," The Macula Society's Symposium on Age Related Macular Degeneration: New Non-Surgical Treatments, February 18, 2012
    c. Presenter: "Widefield Autoflourescence Imaging: A Potential New Tool for Understanding Retinal Disease," Optos WOC Industrial Symposium, Expanding Horizons in Ultra-Widefield Retinal Imaging: Extending Our Focus in Retinal Disease, February 17 & 18, 2012

97. "Diabetic Retinopathy in Latinos in Los Angeles County, Los Angeles, CA," Lasker/IRRF Initiative for Innovation in Vision Science/Lasker/IRRF Initiative on Diabetic Retinopathy Plenary Meeting, Janelia Farm Research Campus, Howard Hughes Medical Institute, Ashburn, VA, March 25, 2012.

98. University of Kentucky Translational Minisymposium Lecture Series, Lexington, KY, April 20, 2012:
    a. "Integrating Anatomy and Function: Correlation Between OCT and Vision"
    b. "OCT in the Management of Neovascular AMD"

99. "Predictive Value of the Area of Peripheral Retinal Non-Perfusion in Treatment Response in Patents with Branch and Centeral Retinal Vein Occulsion" Macula Society, Jersualem, Israel, June 14, 2012.

100. OIC Wave Meeting, Vail, CO, June 23-26, 2012:
    a. "Choroidal Imaging with OCT"
    b. Case Presentation

101. "Retinal Bloodflow Alterations in Diabetic Retinopathy," Association for Ocular Circulation Meeting, Oregon Health & Science University, Casey Eye Institute, Portland, OR, July 14-15, 2012.

102. 11th Annual Chicago Advanced Vitreoretinal Techniques & Technology (ACTT) Symposium, Chicago, IL, August 10-12, 2012:
    a. Co-Moderator: Case Presentations
    b. "Evidence-Based Management of Venous Occlusive Disease"
    c. "Wide-Field Imaging: Is it an Essential Part of Your Practice?"
    d. "State-of-the-Art Fundus Autofluorescence and What's New in Choroidal Imaging"
    e. "Future OCT Technology"
    f. Moderator: "Pediatric Ophthalmology"

103. "Strategy for Aligning and Analyzing Images Across Modalities OCT/FAF/Psychophysics," Arnold and Mabel Beckman Foundation, Young Scholars and Young investigators, Irvine, CA, August 16-18, 2012.

104. "Imagining in Nonexudative AMD," Optical Coherence Tomography and Imaging Panel Experts (OCTIPER), ASRS, Las Vegas, NV, August 24, 2012.

105. Co-Chair, Allergan 2012 Fellows/New-to-Practice Meeting, ASRS, Las Vegas, NV, August 25, 2012.

106. "Early OCT Responses at Day 7 and Month 1 Post Ranibizumab that Predict Visual Acuity Outcomes and Injection Frequency at Month 12 in the HARBOR Study", Retina CME, ASRS, Las Vegas, NV, August 26, 2012.

107. Co-Moderator, American Society of Retina Specialists Imaging Symposium, ASRS, Las Vegas, NV, August 26, 2012.

108. Editorial Planning and Section Editors Meeting, Retina Times, ASRS, Las Vegas, NV, August 26, 2012.

109. Panel Member: :Classification of Diseases of the Vitreoretinal Interface," The Consesus Panel for Vitreoretinal Diseases Roundtable Meeting, ASRS, Las Vegas, NV, August 26, 2012.

110. Panelist: FORMULA RETINA - Wet AMD Session, ASRS, Las Vegas, NV, August 27, 2012.

111. Faculty Expert & Presenter: "A Treatment Algorithm for Neovascular AMD," Neovascular AMD: Navigating Advancing Science in Anti-VEGF, CME Symposium, ASRS, Las Vegas, NV, August 27, 2012.

112. Pre Euretina Meeting, Venice, Italy, September 3-5, 2012:
    a. Co-President: Standardizing OCT Platforms for Viewing and Analysis for Use in Clinical Trials and Practice
    b. "An Open Soure OCT Format"
    c. "Retinal Substucture Analysis"

113. 12th Euretina Congress, Milan, Italy, September 6-9, 2012"
    a. "OCT in AMD" at EURETINA Course, "Update in OCT Imaging: Indications, Features, and Consequences"
    b. I-Optics EasyScan Advisory Board Meeting
    c. "New Directions in Screening for Diabetic Retinopathy"

114. "Imaging the Choroid with OCT: The Next Frontier," Second Biennial Symposium on Age-Related Macular Degeneration, Boston, MA, September 21-22, 2012.

115. 45th Retina Society Meeting, Washington, DC, October 4-7, 2012:
    a. Poster Session: Diabetes and Retinal Vascular Disease
    b. "Early OCT Responses at Day 7 and Month 1 Post Ranibizumab that Predict Visual Acuity Outcomes and Injection Frequency at Month 1 in the Harbor Study"

116. "FastTrac™ing your Retina Care," Energize Your Practice with New Diagnostics that Streamline Patient Care: Carl Zeiss Evening Symposium, American Academy of Ophthalmology, Chicago, IL, November 10, 2012.

117. "New Directions in OCT Imaging," Indian Ophthalmology Association Annual meeting, American Academy of Ophthalmology, Chicago, IL, November 11, 2012.

118. Moderator, Breakfast with Experts: "Integrating Spectral Domain OCT Into a Busy Clinical Practice: Pearls and Pitfalls. American Academy of Ophthalmology, Nov. 11, 2012.

119. Chair and Moderator, Retina/Vitreous Paper Session, American Academy of Ophthalmology Annual Meeting, Chicago, IL, November 12, 2012.

120. "Takayasu's retinapathy," iFAN Meeting, Munich, Germany, November 17 2012.

121. "Imaging the Dhoroid: The New Frontier," Joseph Smiddy Memorial Lecture, 25th Annual Current Concepts in Ophthalmology, Wilmer Eye Institute, Baltimore, MD, December 6, 2012.

122. The 28th Asia-Pacific Academy of Ophthalmology Congress APAO-AIOS 2013, Hyderabad, India, January 17-20, 2013

123. "Predictive Value of the Area of Peripheral Retinal Non-perfusion on Treatment Response in Branch and Central Retinal Vein OcclusionFastTrac™ing your Retina Care" at the AIOC Meeting"Ultrahigh Resolution Imaging of the Retina" Retina 2013 CME: RVO: Assessing New Evidence on Anti-VEGF Treatment, Big Island, Hawaii, January 22 2013
    a. "VEGF and the Pathophysiology of RVO"

124. Hawaiian Eye/Retina 2013, Zeiss OCT Workshop, Big Island, Hawaii, January 22 2013
    a. "Next Generation OCT"

125. Arnold and Mabel Beckman Initiative for Macular Research BIMR 2013 Conference: Beckman Center, Irvine, January 23-26 2013: AMD Phenotype Genotype Steering Committee

126. Foundation Fighting Blindness TUDCA Study Design Meeting in Columbia, MD, January 31 2013
    a. "Using OCT to Monitor Retinal Degenerative Diseases"

127. Alimera Sciences Steering Committee Meeting., Conrad Hotel, Miami, , Feb. 8 2013

128. IMS GA Advisory Board Meeting, San Francisco, CA, Feb. 22 2013

129. Angiogenesis, Exudation, and Degeneration 2013, Mandarin Oriental, Miami. Fl. Feb. 9 2013
    a. "Local Risk Factors for Progression of Drusenoid Lesions to Geographic Atrophy"

130. University of Alabama at Birmingham, February 20-21, 2013
    a. "Imaging the Choroid: The Next Frontier"
    b. "Evidence-Based Management of Retinal Venous Occlusive Disease"

131. International Retinal Imaging Symposium (IRIS), Jules Stein Eye Institute, Los Angeles, CA, Feb. 26 2013
    a. Course Director
    b. Presenter: EDI of the choroid in AMD and other macular diseases

132. 36th Annual Macula Society Meeting, Dana Point, CA, Feb. 27-March 2 2013
    a. "Lesion Reflectivity as a Parameter for Assessment of Disease Activity in Eyes With Neovascular AMD"

133. Canadian Retina Society meeting Banff, Alberta, Canada, March 8-10 2013
    134. Roche study BP28935 Investigator meeting, October, 17 2013, Chicago Reading Center
    a. Panelist: "Genetics of Retinal Disease, Pediatric Retina:

135. Progstar Investigator Kick-off meeting at FFB Headquarters, Columbia, MD, March 14 2013
    a. Presentation: "Imaging for Stragardt's disease

136. New Developments in Retinal Pharmacology 2013 CME Meeting, Hyatt Regency Century Plaza, Los Angeles, CA, March 23 2013
    a. "Management of Diabetic Macular Edema: The Therapeutic Paradigm Shift Continues"

137. Carl Zeiss meeting in Dublin, CA, March 25 2013 –
    a. "Imaging: The Next 10 Years"

138. The 117th Annual Meeting of Japan Ophthalmology Society (JOS) Seminar, Tokyo, Japan, April 4-5 2013
    a. "Swept Source OCT"

139. Pacific Retina Club 1st Annual Meeting, Biltmore, Los Angeles, April 19-20 2013 Moderator & Course Co-Director

140. EZ width Workshop, Retina Foundation of the SouthWest, Dallas, April 22 2013
    a. Presenter: "EZ Width Review – the Reading Center Prospective"

141. Age-Related Eye Disease Study 2 (AREDS2) Meeting, Chicago, April 28 2013

142. GAP / GATE Advisory Board Meeting, Seattle, May 4 2013

143. ARVO, Seattle, WA, May 5-9 2013
    a. "Imaging the Choroid in Aging and AMD"
    b. Moderator: "Vitreoretinal Imaging Session"
    c. Presenter: "Relationship Between Retinal Sensitivity and Retinal Thickness in Retinal Diseases using Optos SLO Microperimetry"

144. Belfast Reading Center Meeting, May 23-26 2013, Belfast, United Kingdom
    a. "Non-invasive Digital Imaging of the Eye"

145. Vision Health Care Summit, University of Kentucky College of Pharmacy, Lexington, KY, May 31 2013

a. Moderator: Predicting the Future: The Academic Ophthalmology Department of 2020 – Structure and Function?

146. SOE European Society of Ophthalmology 2013, Copenhagen, June 8 – 11 2013
   a. "Predictive Value of the Area of Peripheral Retinal Non-Perfusion on Macular Edema and Treatment Response in Patients with Branch and Central Retinal Vein Occlusion"
   b. "Relationship between Retinal Sensitivity and Retinal Thickness in Retinal Diseases Using OPTOS OCT/SLO Microperimetry"

147. Virginia Society of Eye Physicians & Surgeons (VSEPS) 30th Annual Scientific Meeting: Future Ophthalmology: The Cutting Edge, Virginia, June 14-15 2013.
   a. Panelist
   b. "Future OCT Technology"

148. University of Chicago Alumni meeting, Friday, June 21 2013
   a. "Advances in OCT: Where Are We Going?"

149. RetNetIndia, Chennai, India, June 29-30 2013
   a. Case presentations

150. Dry AMD Reading Center collaboration in Bonn, Germany, July 11-15 2013
   a. "New Techniques to Image Dry AMD"

151. Weinreb R&D Bimatoprost SR Meeting, 5th World Glaucoma Congress, July 17-18 2013, Vancouver, Canada
   a. "Advances in Anterior Segment OCT

152. Ophthalmology Scientific Meeting in Memory of Dr .Steve Ryan, Doheny Eye Institute, Los Angeles, CA, July 19 2013
   a. "Advances in Retinal Images"

153. 25th Annual Midwest Ocular Angiography (MOAC) Conference, Scotland, July 31-August 3 2013:
   a. Case presentations

154. Beckman AMD Genotype Phenotype Committee Meeting, Beckman Center, Irvine, Aug. 15-17 2013

155. OCT Panel Experts Review (OCTIPER) CME symposium, Toronto, August 23 2013
   a. "Imaging in Dry AMD"
   b. Ultra-Widefield Imaging: When and How to Use It"

156. American Society of Retina Specialists (ASRS) 2013 Annual Meeting , Toronto, Canada, August 24-28 2013

a. "Evaluation of the Presence and Extent of Geographic Atrophy Over 2 Years in the HARBOR Trial"

157. Transitions into Clinical Practice, CME course, Chicago, Sept. 6-7 2013
   a. "Retinal Vein Occlusion"
   b. How to Get Involved in Clinical Research"

158. EZ Width/Area- Project update meeting, Portland, OR, September 23 2013
   a. "EZ Width as an End Point for Retinal Degeneration"

159. 13th Euretina Congress, Hamburg, Sept. 26 –29 2013
   a. "Correlation of Precise Area of Peripheral Non-Perfusion with the Ischemic Index in Retinal Vein Occlusion" (Free Paper Session)
   b. "Peripheral Retinal Non-Perfusion in Retinal Vein Occlusion: Clinical Implications, Euretina Symposium: New Advances In Retinal Imaging"
   c. "Results of the AREDS 2 Study"
   d. "Dry AMD"
   e. "Advances In Retinal And Choroidal Imaging @ Retinal Imaging: Revolutionizing Retinal Therapeutics "
   f. "Wide Field Angiography, World Retina Day"
   g. "Value of Choroidal Imaging - Instructional Course On 'Update In OCT Imaging'

160. National Health Care Group (NHG) Eye Institute 6th International Ophthalmology Symposium, Singapore, October 9-12 2013
   a. Panelist: Medical Retina Symposium V – Imaging
   b. "Advances in Retinal Imaging – What The Future Holds"
   c. "A Review of OCT Technology Thus Far"
   d. "Fundamentals of Reading Spectral Domain OCT"

161. Roche study BP28935 Investigator meeting, October, 17 2013, Chicago Reading Center

162. 23rd Annual Congress of the Iranian Society of Ophthalmology, October 28-31 2013, Tehran.
   a. Panel Discussion on Retinal Imaging: Case Review
   b. "What is Next in Imaging?"
   c. "Wide Field FA and Wide Field FAF for Diagnosis of Macular Diseases"
   d. "How to Treat Refractory DME?"
   e. "Updates on Management of Retinal Vascular Disease"
   f. "Interpreting Spectral Domain OCT: Pearls and Pitfalls"
   g. Case Presentations: Retinal imaging for general ophthalmologists Symposium
   h. Panel Discussion "Macular Edema in RVO: Symposium: Approach to Common Macular Disorders"
   i. Moderator: "Breakfast meeting: Retinovascular Diseases"

163. International Forum for Vitreoretinal Diseases•2013, Guangzhou, China, Nov. 9-11 2013
    a. "Next generation OCT technology"

164. American Academy of Ophthalmolog (AAO) Specialty Day & Annual Meeting, New Orleans, Nov. 15-19 2013
    a. "Future of Imaging"
    b. "Wet AMD cases, Formula Retina: Wet AMD/Naive CNV"
    c. "Bilateral Acute Vison Loss" OIC AAO 2013 meeting
    d. "Spectral Domain OCT Imaging", Breakfast with Experts
    e. "Integrating Spectral Domain OCT Into a Busy Clinical Practice: Pearls and Pitfalls" Breakfast with Experts, Macula Society
    f. "In Vivo Analysis of Choroidal Changes in Multifocal Choroiditis"
    g. "RetCam Fluorescein Angiography Findings in Eyes With Advanced Retinoblastoma" (Scientific poster)
    h. Instruction course: "Spectral Domain OCT Interpretation for the General Ophthalmologist"
    i. Moderator: OP08 Retina, Vitreous Original Paper Session
    j. "In Vivo Visualization, Measurement, and Comparison of Novel Anterior Chamber Angle Metrics Using Heidelberg Spectralis Spectral Domain OCT vs. Zeiss Cirrus Spectral Domain OCT" (Scientific Poster)
    k. OCT and Vision Results at 6 Months After Transition to Aflibercept for Patients on Prior Ranibizumab or Bevacizumab Therapy for Exudative AMD" (Scientific poster)

165. University of Iowa, Department of Ophthalmology, Nov. 22 2013
    a. Talks: ??

166. Israeli Association of Retina Specialists, Jerusalem, Nov. 28-29 2013
    a. "OCT in the Management of AMD"
    b. "Applications of Widefield Imaging"
    c. Panelist: "Treatment Algorithm for Vascular Retinal Diseases and AMD"
    d. Panelist: "AREDS II Implications"
    e. Panelist: "Practical Aspects of Anti-VEGF Therapy"

167. The 8th Asia Pacific Vitreo-Retinal Society (APVRS) Congress, Nagoya, Japan, December 8 2013
    a. "Swept Source OCT: The next evolution in OCT", Morning Symposia

168. First International Congress of "en face" OCT and update on OCT clinical applications and technology, Rome, Italy, December 12 – 16 2013

169. Macula of Paris 2014, January 10 2014
    a. "Retinal reflectivity analysis: extracting more from OCT Data"

170. Washington Univ. St. Luis, Jan. 16 2014

a. "Future OCT Technology", New Advances in OCT CME presentation
b. "Applications of Widefield Imaging"
c. "Imaging for Neovascular AMD: When, What, and How"
d. "Swept Source OCT: The Next Generation of OCT"
e. "OCT Angiography"
f. "Wet Macular Degeneration Treatment "Unplugged": What The Future Holds". CME Roundtable, Retina 2014, Kauai, Hawaii

171. BIMR Annual meeting in Irvine,:January 22 -25, 2014

172. Angiogenesis, Exudation, and Degeneration 2014 CME Meeting, Mandarin Oriental Hotel, Miami, February 8, 2014
    a. Dry Retinal Volume: Predicting Outcomes after Pharmacotherapy"

173. Harvard Medical School, Department of Ophthalmology, , Boston, Feb. 12-13 2014
    a. "OCT Insights into Age-related Macular Degeneration", 9th Annual Ephraim Friedman Lecture
    b. "Future OCT Technology" (Grand Rounds)

174. Functional Imaging in Glaucoma Planning Meeting, Langham Hotel, Pasadena, CA, Fri Feb 14 2014

175. Frontiers of Optical Coherence Tomography, February 15, 2014, Los Angeles, CA
    a. "Swept Source OCT: Initial Experience"
    b. "The Use of SDOCT to Measure the Progression of GA in Wet AMD after Anti-VEGF Therapy"

176. Macula Society 37th Annual Meeting, Ocean Reef Club, Key Largo, FL, February 19-22 2014
    a. Presentation: "Safety and Efficacy of Dexamethasone Intravitreal Implant in Patients with Diabetic Macular Edema: Phase III, 3-Year, Randomized, Sham-Controlled Study"

177. 6th Annual FFB-GHEI Ophthalmic Innovation Symposium, UC Irvine, February 27 2014
    a. "SD-Oct, Hill Of Vision and Development of New Clinical Endpoints in The Field of Retinitis Pigmentosa: EZ Area"

178. 42nd Annual Meeting of Aspen Retinal Detachment Society (ARDS), Snowmass, Colorado Snowmass, Colorado, March 1-4 2014.
    a. "Future Optical Coherence Tomography (OCT) Imaging"
    b. "Local Risk Factors for Development of Geographic Atrophy: New Insights into AMD Pathogenesis"
    c. Panelist: "Advances in Retinal Imaging and Ultrasound"
    d. Panelist: "Controversial Aspects of AMD Management"

179. The Retina Symposium, Sarasota, Florida, March 13-15 2014

a. "The Choroid: Why Should I Care About It?"
b. "OCT in the management of AMD: Practical Considerations"
c. "Case Studies in Widefield Imaging"

180. 12th Macular Vision Research Foundation, Atlanta, March 21-23 2014
   a. "Insights into the pathogenesis of age-related macular degeneration revealed by optical coherence tomography"

181. Pacific Retina Club 2nd Annual Meeting, Grand Hyat San Francisco, March 28-29 2014
   a. Moderator & Course Co- Director

182. World Ophthlamology Congress 2014, Tokyo, Japan April 2-6 2014
   a. Presenter: "Correlation of Precise Area of Peripheral Non-Perfusion with the Ischemic Inded in Retinal Vein Occlusion"
   b. Presenter:" Ultra-Widefield Retinal Imaging is the New Standard of Care: Clinical Applications & Case Studies"
   c. Seminar: "Peripheral Autofluorescence and Clinical findings in Retinal Degeneration"

183. ARVO 2014, Orlando, Fl
   a. "Innovation in Imagery", Novartis French Experts Breakfast Meeting, May 4 2014

184. The Royal College of Ophthalmologists Annual Congress 2014, The International Convention Center, Birmingham, May 19-22 2014
   a. "Developments in Wide-Field Imaging", Keynote speaker, The Retina Day May 19 2014
   b. "How Should We Image Vitreoretinal Disease in 2014?" Talk at Retinal Imaging Course, May 20 2014
   c. Participation in case discussions at Retinal Imaging Course, May 20 2014
   d. Panelist: Grand Rounds: FFA Conference, May 21 2014

185. Canadian Ophthlamology Society Meeting, Halifax, Nova Scotia, Canada, June 6-7 2014
   a. "Dislocated IOL Repair"
   b. "What's next in OCT"
   c. "Predictive Value of Peripheral Non-Perfusion in Retinal Venous Occlusive Disease"

186. 86th Annual Spring Postgraduate Conference and 30th Annual Research Day: Posterior Segment Update for the Comprehensive Ophthalmologist, Kellogg Eye Center, University of Michgan, Ann Arbor, June 13-14 2014
   a. "Practical Management of Retinal Vein Occlusions"
   b. "What's new in posterior segment imaging?"
   c. "Interpreting SD-OCT: Pearls and Pitfalls"

187. 11th International Symposium on Ocular Pharmacology and Therapeutics (ISOPT) 2014 Symposium, Grand Hotel Reykjavik, Ieland June 19-22 2014
    a. "OCT Measurements: Are they reliable?"

188. The second annual International Retinal Imaging Symposium (IRIS II) , Lighthouse International on East 59th Street in New York City, June 21 2014
    a. Course Co-Director
    b. "Drusen to atrophy: What have we learned from OCT?"
    c. Moderator: Neovascular AMD

189. Turkish Ophthalmology Society Vitreoretinal Surgery Live Surgery and Mediterranean Retina VI Meeting, Izmir, Turkey, June 26-29 2014
    a. "OCT: Past, Present, and Future"
    b. "Optimizing the Use of OCT in the Management of Neovascular AMD"
    c. Panelist: Medical Retina Case Presentations

190. GRADE Reading Center, University of Bonn, Germany.
    a. "Future of OCT Retinal Imaging", July 1 2014

191. Viereoretina Up To Date Congress, Nicolaus Hotel, Bari, Italy, July 4-5 2014
    a. "OCT Angiography"

192. 14th annual Advanced Vitreoretinal Techniques & Technology (AVTT) Symposium, The Swissotel, Chicago, IL July 25-27 2014
    a. "Incorporating Clinical Research into Your Practice"
    b. "OCT and the Next Generation of OCT (Swept Source)"
    c. "Image Management Solutions for a Busy Practice"
    d. "Evidence Based Treatment for DME: What is Truly Cost Effective?"
    e. "The Role of Imaging in the Management of AMD"
    f. "OCT"
    g. Discussoin of OCT, Medical and Surgical cases

193. Imaging Summit 2014, Hard Rock Hotel, San Diego, CA August 8 2014
    a. "Wide –field Imaging"
    b. "Imaging in Dry AMD"

194. 32nd Annual Meeting of ASRS, Hilton Bayfront, San Diego
    a. Participant: Iconic Therapeutics Advisory Board meeting
    b. Moderator: "Imaging: Current and future uses of ever-expanding imaging modalities".
    c. "Anatomic Effects of Dexamethasone Intravitreal Implant in Diabetic Macular Edema: Pooled Analysis of Findings From 2 Randomized Phase 3 Studies"
    d. Panelist: Wet AMD @ Formula Retina session

195. AAO Sessions at Nordic Ophthalmology Congress, Stockholm, Sweden, 20 – 23 August 2014

a. "OCT Angiography", New Development in Retina symposium
b. Participant: Interesting and Challenging Case Conference

196. Retina in 3D: Future Trends in Diagnostics, Drugs and Devices, CME conference, Wills Eye Hospital, Philadelphia, PA

~~197.~~ Ultra-High Resolution and Swept Source OCT - What Will We Be Able to See in Five Years?

a.

~~198.~~ Future of OCT: OCT Angiography

b.

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~~199.~~197. 14th Euretina Congress, London, September 12-14 2014

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a. Next Generation OCT Imaging
b. Misuse and misinterpretation of autofluorescence, Instructional course, "Pearls and Pitfalls in the Imaging of the Posterior Fundus"
c. Peripheral retinal nonperfusion and treatment response in retinal vein occlusion
d. Microperimetry: An Emerging Critical Endpoint for Clinical Trials
e. Morphological Effects of Long-Term Treatment with Dexamethasone Intravitreal Implant in Diabetic Macular Edema – a Pooled Analysis of Findings from 2 Randomized Multicenter Phase 3 Trials
f. Co-moderator "New Advances in Retinal Imaging: Rapidly Improving Diagnosis & Treatment Outcomes" Lunchtime Symposia
g. Co-Chairperson: Imaging III Free Paper Session

~~200.~~198. American Academy of Ophthalmolog (AAO) Specialty Day & Annual Meeting, Chicago, October 16-20 2014

a. "Uveal Effusion Syndrome Secondary to SLE". AAO Gass Club, October 16 2014
b. "Ocular Imaging" - Break with Experts, Retina 2014: Reaching New Heights, October 17 2014
c. "Development of Atrophy in Neovascular AMD Treated with Anti-VEGF Therapy: Results of the HARBOR Study", Retina 2014: Reaching New Heights, October 17 2014
d. "Future of CIRRUS OCT Imaging", Zeiss Dinner Symposium, October 17 2014
e. "Treatment of DME", Formula Retina, October 18 2014
f. Discussion: "Development of Atrophy in Neovascular AMD Treated with Anti-VEGF Therapy: Results of the HARBOR Study." Retina Today Journal Club, October 18 2014
g. "The Future is Here: New OCT Technology You Will Be Using in Clinic Soon", Ophthalmic Photographers' Society Annual Education Program, Chicago, October 20 2014
h. Ultrawide-Field Fundus Abnormalities in Various Uveitic Disorders (Scientific Poster), October 19 2014
i. Analysis of the Effect of Lighting Variation on Anterior Chamber Angle Measurements using Spectral Domain OCT (Scientific Poster), October 19 2014
j. Spectral Domain OCT Interpretation for the General Ophthalmologist (Instruction Course), October 20 2014
    i. "Interpretation of Subretinal and Sub-RPE Space"

~~201.~~199. Developing Treatments for Dry Age-Related Macular Degeneration (AMD) A Workshop, Washington DC, November 15 2014

a. Rapporteur: Anatomical and Functional Endpoints: Challenges and Opportunities

~~202.~~200. The Royal Australian and New Zealand College of Ophthalmologists (RANZCO) 46h Annual Scientific Congress 2014, Brisbane, Australia, Nov. 22-26 2014

a. "Developments in Wide-Field Imaging", Nov. 23 2014
b. "Developments in Wide-Field Imaging", Nov. 24 2014
c. "Developments in Wide-Field Imaging", Nov. 25 2014

~~203.~~201. The Second international meeting on "en face" OCT" in Rome December 12 and 13 2014
a. "En Face OCT in Atrophic AMD", December 12 2014

~~204.~~202. "OCT" Symposium , Sankara Nethralaya Eye Hospital, Chennai, India, December 22-23 2014
a. Talk: "Spectral Domain, Spectralis, Swept Source and OCT Angiogram", December 22 2014
b. Talk on Widefield Imaging, December 23 2014

~~205.~~203. Talk: "Developments in Widefield Imaging", LV Prasad Eye Hospital, Hyderabad, India, December 24 2014

~~206.~~204. Talk: "Management of Diabetic Macular Edema", Reticon 2014, Nellore, India, December 28 2014

~~207.~~205. Macula of Paris, Paris, January 9 2015
a. Talk: "Choroidal reflectivity analysis", Imaging Session

~~208.~~206. Atlantic Coast Retina Conference/Macula 2015, Boston
a. Talk: "OCT Angiography", January 10 2015
b. Talk: "OCTA: Clinical Utility", January 10 2015

~~209.~~207. Arnold and Mabel Beckman Initiative for Macular Research BIMR 2015 Conference: Beckman Center, Irvine, January 15-17 2015
a. AMD Phenotype Genotype Steering Committee
b. The Role of Imaging in Atrophic AMD (Tutorial)

~~210.~~208. Retina 2015, Grand Wailea, Maui, Hawaii, January 18-20 2015
a. Case presentation, Ozurdex and the Treatment of DME: An Ocular Surgery News Symposium and Two-Part Supplement, January 19 2015
b. CME expert panel OCT Angiography: The Next "Big Thing" in Retina Imaging, CME Roundtable Discussion, January 19 2015
c. Talk: "Swept Source OCT", January 19 2015
d. Talk: "OCT Angiography", January 19 2015
e. Talk: "Anti-VEGF Therapy and Geographic Atrophy", January 20 2015
f. Panelist: How Are We Treating Wet AMD in 2015: A Roundtable Discussion, January 20 2015

~~211.~~209. Annual Vitreo-Retinal Surgery Retina Update Course, Minneapolis, MN, January 30-31 2015
a. Talk: "Applications of Widefield Imaging"

b. Talk: "Future OCT Technology"

~~212.~~210. The 34th Annual Squaw Valley-Northstar Vietreoretinal Symposium, February 5-6 2015
a. Talk: "Role of Imaging in the Management of Neovascular AMD", February 5 2015
b. Talk: "Advanced OCT Imaging Technology", February 5 2015
c. Talk: "Applications of Widefield Imaging: Case Studies", February 6 2015

~~213.~~211. Angiogenesis, Exudation, and Degeneration 2015 meeting, Mandarin Oriental Hotel, Miami, February 7 2015
a. Talk: "Macular Atrophy in the Harbor Study"
b. Panelist: Neovascular AMD I: Does Anti-VEGF Therapy Induce Macular Atrophy?

~~214.~~212. Vitreomacular Traction and Macular Hole: Treatment Selection and Injection Technique to Optimize Outcomes CME workshop: Albert Einstein College of Medicine of Yeshiva University, The Westin Galleria, Dallas, Texas, February 12 2015, Dallas.
a. Presentation: Current Approaches to Vitreoretinal Interface Disease

~~215.~~213. "2nd Annual Frontiers of Optical Coherence Tomography (OCT) & First International Symposium on OCT Angiography, Langham Huntington Hotel, Pasadena, on Saturday, February 14, 2015
a. Talk: "Advanced Retinal OCT Applications: Quantitative Reflectivity Analysis"

~~216.~~214. 38th Annual Macula Society Meeting, Montelucia Resort and Spa, Scottsdale, Az, Februuary 25-28 2015
a. Talk: "Morphology and Extent of the Peripheral Retinal Circulation in Normal Subjects Define", February 26 2015

~~217.~~215. Pacific Retina Club 3rd Annual Meeting, Ronald Reagan Medical Center at UCLA, Los Angeles, CA, March 27 2015
a. Moderator & Course Co-Director

~~218.~~216. International Retinal Imaging Symposium (IRIS III), Ronald Reagan Medical Center, Los Angeles, CA, February 28 2015
a. Course Co-Director
b. Moderator: Autofluorescence session
c. Presenter: New Parameters for Monitoring Progression of Geographic Atrophy

~~219.~~217. Transitions into Clinical Practice, CME course, Santa Monica, CA, March 29 2015
a. Session 3: Retinal Vein Occlusion - Case presentations and clinical data update

~~220.~~218. The 30th APAO Congress, Guanzhou, China, April 1-4 2015

a. Talk: "Retinal Blood Flow changes in DR", ARVO Symposium: Diabetic Retinopathy: Basic Science to Clinical Applications, April 1 2015
b. Talk: "New Developments in Retinal Imaging", AAO Symposium: New Developments in Retina, April 1 2015

~~221.~~219. 1st San Raffaele Forum OCT, Milan, Italy, April 11 2015
a. Talk: "Dry Retinal Volume: A Potential Tool for Predicting Outcomes in Retinal Vascular Disease"
b. Talk: "Significance of Outer Retinal Tubulation in AMD"
c. Talk: "Risk Factors for Atrophy In Neovascular AMD"

~~222.~~220. Department of Ophthalmology of Qingdao Municipal Hospital (affiliated hospital of Qingdao University, Qingdao, China
a. Management of Diabetic Macular Edema in 2015

~~223.~~221. Classification of Atrophy meeting, June 6-9 2015, Rome, Italy
a. Co-organizer: Incorporation of OCT Angiography into Clinical Practice, Drug Development and Clinical Trials: Opportunities and Pitfalls Symposium

~~224.~~222. First Maculart Meeting, June, 28-30, 2015, Paris
a. Talk: "Analysis of GA Occurrence in Harbor Study"
b. Co-Moderator

~~225.~~223. Crossfire: Controversies in Retinal Imaging Conference, LV Prasad Eye Institute, Hyderabad, India, August 2 2015
a. Talk: "OCT Angiography"
b. Talk: "Wide Angle Imaging"

~~226.~~224. Pan American Association of Ophthalmology, Bogota, Columbia, August 7 2015
a. "Swept Source OCT and OCTA for Evaluation of the Retina", OCT Symposium

~~227.~~225. AVTT Symposium, Chicago, August 28-30, 2015
a. Talk: "Incorporating Clinical Research and Clinical Trials into your Clinical Practice"
b. Talk: "Swept Source and En Face OCT"
c. Talk" "Pearls and Pitfalls in Interpreting OCT's"
d. Talk: "New Developments in Wide-Field Imaging"
e. Moderator: Diabetic Retinopathy and DME
f. Talk: "Corticosteroids"
g. Talk: "Anti-VEGF Therapy and Atrophy-Should we be Worried?"

~~228.~~226. The 15th Euretina Congress, September 17-20 2015, Nice, France
a. Talk: "Morphological biomarkers of interest in the era of wide field imaging and high resolution tomography"
b. Talk: "MP-3 Microperimetry in AMD" at Next generation retinal diagnostics: advanced microperimetry and OCT angiography symposium

c. Talk: "SD-OCT imaging in dry AMD" & co-chair with Dr. Holz New Insights into Dry AMD session

~~229.~~227. The Retina Society 48th Annual Scientific Meeting, October 7-11 2015, Paris, France

a. Presenter: "Geographic Atrophy and Visual Acuity Following Anti-VEGF Therapy in the Comparison of Age-related Macular Degeneration Treatments", October 11 2015

b. Presiding Officer: Age-Related Macular Degeneration II, October 11 2015

~~230.~~228.

Special Guest Lectures (Local):

1. Doheny Luminaires Series, "Vision Restoration Program at the Doheny Retina Institute," Doheny Eye Institute, Los Angeles, CA, November 12, 2002.

2. Doheny Board Series, "Digital Image Reading Center," Doheny Eye Institute, Los Angeles, CA, October 30, 2002.

3. Ask the Doctor Series, "The Aging Eye," Ontario, CA, Spring 2003.

4. Doheny Academe Series, "Retinal Transplantation and the Vision Restoration Research Program at the Doheny Retina Institute, Doheny Eye Institute, Los Angeles, CA, April 9, 2003.

5. The Retina Forum, "Update on Retinal Transplantation," Doheny Eye Institute, Los Angeles, CA, October 18, 2003.

6. The Retina Forum, "Quantitative Fluorescein Angiography and Stereoscopic Fundus Topography," Doheny Eye Institute, Los Angeles, CA, October 18, 2003.

7. Ask the Doctor Series, "The Aging Eye," Ontario, CA, Spring 2004.

8. Ask the Doctor Series, "The Aging Eye," Ontario, CA, Spring 2005.

9. USC Engineering Research Center Post-Graduate Lecture Series, "Basics of Retinal Fluorescein Angiography," USC, Los Angeles, CA, July 29, 2005.

10. USC Community Hospital Continuing Medical Education Program. "Age-Related Macular Degeneration," Olympia Medical Center, Los Angeles, CA, July, 2005.

11. USC Community Hospital Continuing Medical Education Program, "Diabetic Retinopathy," Olympia Medical Center, Los Angeles, CA, September 21, 2005.

12. USC Community Hospital Continuing Medical Education Program, "Diabetic Retinopathy," Verdugo Hills Hospital, Glendale, CA, January 5, 2006.

13. USC Community Hospital Continuing Medical Education Program, "Diabetic Retinopathy," Promise Hospital, Paramount, CA, January 12, 2006.

14. Ask the Doctor Series, "The Aging Eye," Ontario, CA, Spring 2006.

15. USC Community Hospital Continuing Medical Education Program, "Age-Related Macular Degeneration," Verdugo Hills Hospital, Glendale, CA, March 2, 2006.

16. USC Community Hospital Continuing Medical Education Program, "Age-Related Macular Degeneration," Suburban Medical Center, Paramount, CA, March 9, 2006.

17. Doheny Luminaires Series, "Advance Imaging for Retinal Diseases at the Doheny Retina Institute," Doheny Eye Institute, Los Angeles, CA, June 2, 2006.

18. Doheny Luminaires Founder Chapter, "Problems that Affect the Aging Eye," Doheny Eye Institute, Los Angeles, CA, February 8, 2007.

19. USC Community Hospital Continuing Medical Education Program, "Age-Related Macular Degeneration," Verdugo Hills Hospital, Glendale, CA, June 14, 2007.

20. USC Community Hospital Continuing Medical Education Program, "Diabetic Retinopathy," Suburban Medical Center, Paramount, CA, July 12, 2007.

21. Sickle Cell Support Group, "Sickle Cell and the Eye," United Community Church, Glendale, CA, June 4, 2009.

22. Invited Speaker, "Insights into the Pathogenesis of Age-related Macular Degeneration Revealed by Imaging", Huntington Memorial Hospital, Pasadena, June 16 2015

Other Presentations (Non-Peer Reviewed):

1. Presenter: Quantitative Fluorescein Angiography. Doheny Days, Doheny Eye Institute, Los Angeles, CA, June 14, 2003.

2. Presenter: Quantitative Retinal Imaging. Doheny Vision Science Meeting, Doheny Eye Institute, December 10, 2003.

3. Presenter: Automated Image Quality Assessment. Doheny Days, Doheny Eye Institute, Los Angeles, CA, June 12, 2004.

4. Presenter: Pfizer Preceptorship, "Age-Related Macular Degeneration: A New Era of Diagnosis and Management," Doheny Eye Institute, Los Angeles, CA, September 30, 2004.

5. Presenter: Pfizer Preceptorship, "Age-Related Macular Degeneration: A New Era of Diagnosis and Management." Doheny Eye Institute, Los Angeles, CA, April 20, 2005.

6. Presenter: Managing Errors of OCT Retinal Thickness Quantification. 36th Annual Doheny Days and Alumni/Residents Conference. Doheny Eye Institute, Los Angeles, CA, June 17-18, 2005.

7. Presenter: Pfizer Preceptorship, "Age-Related Macular Degeneration: A New Era of Diagnosis and Management." Doheny Eye Institute, Los Angeles, CA, August 24, 2005.

8. Presenter: Johnson and Johnson Presentation Series, "Photoreceptor Cell Replacement." Doheny Eye Institute, Los Angeles, CA, August 17, 2005.

9. Presenter: Pfizer Preceptorship, "Age-Related Macular Degeneration: A New Era of Diagnosis and Management." Doheny Eye Institute, Los Angeles, CA, April 27, 2006.

10. Presenter: "Error Correction and Quantitative Sub-analysis of OCT Data in Neovascular AMD. Doheny Days, Doheny Eye Institute, Los Angeles, CA, June 17, 2006.

11. Presenter: Pfizer Preceptorship, "Age-Related Macular Degeneration: A New Era of Diagnosis and Management." Doheny Eye Institute, Los Angeles, CA, August 24, 2006.

12. Presenter: Pfizer Preceptorship, "Age-Related Macular Degeneration: A New Era of Diagnosis and Management." Doheny Eye Institute, Los Angeles, CA, September 28, 2006.

13. Presenter: Pfizer Preceptorship, "Age-Related Macular Degeneration: A new era of diagnosis and management," Doheny Eye Institute, Los Angeles, CA, October 19, 2006.

14. Presenter: Pfizer Preceptorship, "Age-related Macular Degeneration: A New Era of Diagnosis and Management." Doheny Eye Institute, Los Angeles, CA, March 15, 2007.

15. Presenter: Western Retina Study Club, "Pulsating Dots." Pasadena, CA March 2-4, 2007.

16. Presenter: "OCT-Based Quantitative Comparison of the Effects of Anti-VEGF Therapy." Doheny Days, Doheny Eye Institute, Los Angeles, CA, June 17, 2007.

17. Presenter: "Applications of OCT and Other Imaging Modalities in Retina Clinical Trials." Alcon Campus, Ft. Worth, TX, March 25, 2011.

18. Presenter: "OCT Angiography: The Next Evolution of OCT", Doheny Days Conference, DVRC, LA June 19-20 2015

PUBLICATION/BIBLIOGRAPHY

RESEARCH PAPERS (PEER REVIEWED):

A. RESEARCH PAPERS – PEER REVIEWED:

1. Ganduri YL, **Sadda SR**, Datta MW, Jambukeswaran RK, and Datta P. TdcA, a transcriptional activator of the tdcABC operon of Escherichia coli, is a member of the LysR family of proteins. *Mol Gen Genet.* 1993 Sep; 240(3):395-402. PMID: 8413189 [PubMed - indexed for MEDLINE].

2. Bynoe LA, Gottsch JD, **Sadda SR**, Panton B, Haller E, Gleason CA. An elevated hematogenous photo sensitizer in the preterm neonates. *Invest Ophthalmol Vis Sci.* 1993 Sep; 34(10): 2878-80. PMID: 8360020 [PubMed - indexed for MEDLINE].

3. **Sadda SR**, Yu YS, de Juan Jr. E, Rencs EV, Green WR, Gottsch JD. Photosensitization-induced retinopathy in the newborn beagle. *Invest Ophthalmol Vis Sci.* 1994 Mar; 35(3): 1202-11. PMID: 8125731 [PubMed - indexed for MEDLINE].

4. Ozaki H, Okamoto N, Ortega S, Ozaki K, Chang M, **Sadda SR**, Vinores MA, Derevjanik N, Zack DJ, Basilico C, Campochiaro PA. Basic fibroblast growth factor is neither necessary nor sufficient for the development of retinal neovascularization. *Am J Pathol.* 1998 Sep; 153(3): 757-65. PMID: 9736026 [PubMed - indexed for MEDLINE] PMCID: PMC1853023.

5. **Sadda SR**, Campochiaro PA, de Juan Jr. E, Haller JA, Green WR. Histopathological features of vitreous removed at macular hole surgery. *Arch Ophthalmol.* 1999 Apr; 117(4): 478-84. PMID:10206575 [PubMed - indexed for MEDLINE].

6. Humayun MS, de Juan Jr. E, del Cerro M, Dagnelie G, Radner, W, **Sadda SR**, del Cerro C. Human Neural Retinal Transplantation. *Invest Ophthal Vis Sci.* 2000 Sep; 41(10): 3100-6. PMID: 10967070 [PubMed - indexed for MEDLINE].

7. del Cerro M, Humayun MS, **Sadda SR**, Cao JT, Hayashi N, Green WR, del Cerro C, de Juan Jr. E. Histologic correlation of human neural retinal transplantation. *Invest Ophthal Vis Sci.* 2000 Sep; 41(10): 3142-48.

8. **Sadda SR**, Miller NR, Tamargo R, Wityk R. Bilateral optic neuropathy associated with diffuse cerebral angiomatosis in Sturge-Weber syndrome. *J Neuro-Ophthalmol.* 2000 Mar; 20(1): 28-31. PMID: 10770504 [PubMed - indexed for MEDLINE].

9. **Sadda SR**, DiBernardo C, Miller NR. Anomalous optic disc elevation associated with ultrasonographic evidence of increased subarachnoid fluid. *J Neuro-Ophthalmol.* 2000 Mar; 20(1): 25-27. PMID: 10770503n [PubMed - indexed for MEDLINE].

10. Radner W, **Sadda SR**, Suzuki S, Humayun MS, Weiland J, de Juan Jr. E. Light-driven ganglion cell responses in blind rd-mice after neural retinal transplantation. *Invest Ophthal Vis Sci.* 2001 Apr; 42(5):1057-65.

11. **Sadda SR**, Nee M, Miller NR, Biousse V, Newman NJ, Kouzis A. Clinical spectrum of posterior ischemic optic neuropathy. *Am J Ophthalmol.* 2001 Nov; 132(5): 743-50.

12. Kim SY, **Sadda SR**, Pearlman J, Humayun MS, de Juan Jr. E, Melia BM, Green WR. Morphometric analysis of the macula in eyes with disciform age-related macular degeneration. *Retina.* 2002 Aug; 22(4):471-7.

13. Kim SY, **Sadda SR**, Humayun MS, de Juan Jr. E, Melia BM, Green WR. Morphometric analysis of the macula in eyes with geographic atrophy due to age-related macular degeneration. *Retina.* 2002 Aug.; 22(4):464-70.

14. An GJ, Asayama N, **Sadda SR**, Humayun MS, Weiland J, Cao J, Grebe RR, de Juan Jr. E. Ganglion cell responses to retinal light stimulation in the absence of photoreceptor outer segments from retinal degeneration rodents. *Curr Eye Res.* 2002 Jan; 24(1):26-32.

15. Radner W, **Sadda SR**, Humayun MS, Suzuki S, de Juan Jr. E. Increased spontaneous retinal ganglion cell activity in rd mice after neural retinal transplantation. *Invest Ophthal Vis Sci.* 2002 Sep; 43(9):3053-8.

16. Margalit E, Apte R, **Sadda SR**. Idiopathic parafoveal telangiectasis associated with a foveal pseudovitelliform lesion. *Br J Ophthalmol.* 2002 Dec; 86(12):1455-6. PMID:12446400. [PubMed - indexed for MEDLINE] PMCID: PMC1771389.

17. Phillips SJ, **Sadda SR**, Tso MO, Humayun MS, de Juan Jr. E, Binder S. Autologous transplantation of retinal pigment epithelium after mechanical debridement of Bruch's membrane. *Current Eye Research.* 2003 Feb; 26(2): 81-8.

18. DiLoreto D, **Sadda SR**. Idiopathic retinal vasculitis, aneurysms, and neuroretinitis (IRVAN) with preserved perfusion. *Retina.* 2003 Aug; 23(4):554-7.

19. Margalit E, **Sadda SR**. Retinal and optic nerve diseases. *Artificial Organs.* 2003 Nov; 27(11): 963-74.

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21. Qui G, Seiler MJ, Arai S, Aramant RB, **Sadda SR**. Alternative culture conditions for isolation and expansion of retinal progenitor cells. *Curr Eye Res.* 2004 May; 28(5):327-336.

22. Arai S. Thomas BB, Seiler MJ, Aramant RB, Qiu G, Mui C, de Juan Jr. E, **Sadda SR**. Restoration of visual responses following transplantation of intact retinal sheets in *rd* mice. *Exp. Eye Res.* 2004 Sep; 79(3):331-41.

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25. **Sadda SR**, Pieramici DJ, Marsh MJ, Bressler NM, Bressler SB. Changes in lesion size after submacular surgery for subfoveal choroidal neovascularization in the submacular surgery trials pilot study. *Retina.* 2004 Dec; 24(6):888-899.

26. Qui G, Seiler MJ, Mui C, Arai S, Aramant RB, de Juan Jr. E., **Sadda SR**. Photoreceptor differentiation and integration of retinal progenitor cells transplanted into transgenic rats. *Exp Eye Res.* 2005 Apr; 80(4):515-25.

27. Khurana RN, Fujii GY, Walsh AC, Humayun MS, de Juan Jr. E, **Sadda SR**. Rapid Recurrence of Geographic Atrophy Following Full Macular Translocation for Nonexudative Age-Related Macular Degeneration. *Ophthalmology.* 2005 Sep; 112(9):1586-91.

28. Thomas BB, Aramant RB, **Sadda SR**, Seiler MJ. Light response differences in the superior colliculus of albino and pigmented rats. *Neuroscience Letters.* 2005 Sep 9; 385(2):143-7.

29. **Sadda SR**, Wu Z, Dougall J, Walsh AC, Richine L, Dougall J, Cortez R, Labree LD. Errors in retinal thickness measurements obtained by optical coherence tomography. *Ophthalmology.* 2006 Feb; 113(2):285-293.

30. Lim JI, Walonker F, Levin L, Mahmoud M, **Sadda SR**, Flaxel CJ, Humayun K, de Juan Jr. E, LaBree, L. One year results of a pilot trial using oral 13-cis retinoic acid as a treatment for subfoveal occult age-related macular degeneration. *Retina.* 2006 Mar; 26(3):314-321.

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B. RESEARCH PAPERS – PEER REVIEWED (IN PRESS):

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C. RESEARCH PAPERS – PEER REVIEWED (SUBMITTED):

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13. Srinivas S, Tan O, Wu S, Nittala MG, Huang D, Varma R, **Sadda SR**. Measurement of Retinal Blood Flow in Normal Chinese American Subjects by Doppler Fourier-Domain Optical Coherence Tomography. Ophthalmology 2013.

14. Staurenghi G, **Sadda S**, Chakravarthy U, Spaide RF. Development of a Lexicon of Normal Anatomical Landmarks in Posterior Ocular Spectral Domain Tomography. The IN.OCT 2013 Consensus. Ophthalmology 2013.

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20. Hariri A, Nittala MG, **Sadda SR**. Quantitative Characteristics of Spectral-domain Optical Coherence Tomography in the Corresponding Areas of Increased Autofluorescence at

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RESEARCH PAPERS (NON-PEER REVIEWED):

D. RESEARCH PAPERS – NON-PEER REVIEWED:
None.

E. RESEARCH PAPERS – NON-PEER REVIEWED (IN PRESS):
None.

F. RESEARCH PAPERS – NON-PEER REVIEWED (SUBMITTED):
None.

CHAPTERS:

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None.

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None.

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ABSTRACTS, POSTERS, AND SHORT COMMUNICATIONS (PEER REVIEWED):
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Sacramento, CA 95834

Dear Kristina Eklund,

Thanks for your reply to our one hour CE proposal by speaker Dr. Joseph Chang for our Mojave Desert Optometric Society's 31st Annual Mammoth Ski Seminar. According to your reply dated Mar. 2, 2016, pursuant to CCR § 1536 (g), we needed to provide some missing information/documentation. The following is our reply:

First, the proposed course is open to all optometrists licensed in this State. We sent out invitations to members of our MDOS, Mojave Desert Optometric Society, and in addition, we sent invitations to those that were not members of the MDOS. We further sent additional invitations to the surrounding communities' Optometric Societies, since these were the closest to the venue, which is Mammoth Lakes. Due to its location, attendees need to stay overnight since our event spans two days.

Second, we will maintain and furnish to the Board the attending licensee records of course content and attendance as the Board requires.

Furthermore, this course titled "Modern Oculoplastics Technique Finesse and Artistry" is appropriate in bringing aesthetics of the extra-ocular structures, and review the overall improved beauty and function of the general eyelid. The talk will go into what "celebrity" eyes were successful, and what were mistakes. These include the following, but not restricted to: ptosis repair, Asian eyelids, blepharoplasty, injectables, and many other oculoplastic considerations in treating the patients with finesse and skill.

Lastly, we were able to submit prior to 45 days our original submission of five CEs. However, a last minute cancellation of an initial confirmed speaker (Dr. Clifford Silverman) required us to seek an additional speaker to replace the original speaker. Therefore, we were left with providing fewer CE for an event than what we originally published as having. In order to keep the event, and in consideration of all those that already paid their registration fee, we managed to add a speaker willing to come to the venue in such a short notice. So in summary, our intention was to submit prior to 45 days, but circumstances occurred that were unforeseen, which required us to make last minute decisions in order to make our event work. We appreciate your consideration. Thus, we are applying for this one CE hour within the 45 days.

Thank you for your consideration for helping us make our Mojave Desert Optometric Society's 31st Annual Mammoth Ski Seminar a success.

Sincerely,

Paul Lin, O.D.

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

OPTOMETRY

2016 FEB 17 PM 2:23

Request for Approval of Continuing Education Course(s)

Mojave Desert Optometric Society
Paul C. Lin, O.D.
2720 E Palmdale Blvd, Suite 133
Palmdale, CA 93550

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-415	6208087	3720074	$200.00

Please type or print name and mailing address in the space provided to the left

one course Replaced with another
other 3 were previously approved

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- Course title(s)
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- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

Kristina Eklund

Kristina Eklund, CE Technician
for: Practice and Education Committee Member

Course Description CE Request

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Modern Oculoplastics Techniques: Finesse and Artistry	3/5/16	Joseph H Chang, M.D.	1			

COMMITTEE COMMENTS:

for: Practice and Education Committee Member

Paul Lin, O.D.
Mojave Desert Optometric Society
2720 E. Palmdale Blvd. Ste. 133
Palmdale, CA 93550

Mar. 3, 2016

State Board of Optometry
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

Dear Kristina Eklund,

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Thank you for your consideration for helping us make our Mojave Desert Optometric Society's 31st Annual Mammoth Ski Seminar a success.

Sincerely,

OD

Paul Lin, O.D.

Mojave Desert Optometric Society 2016
Joseph H Chang MD theeyeliddoc.com

Modern Oculoplastics Techniques: Finesse and Artistry

I. Top Ten Most Beautiful Celebrity Eyes

II. Aesthetic Taste

III. Core Eyelid Surgeries
- A. Upper Blepharoplasty
- B. Lower Blepharoplasty
- C. 4 Lid Blepharoplasty
- D. Periorbital Laser Skin Resurfacing
- E. Ptosis Repair

IV. Specialty Eyelid Surgeries
- A. Asian Eyelids
- B. Ectropion Repair
- C. Entropion Repair

V. Celebrity Case Study "What was the Mistake?"

VI. Advanced Eyelid Surgeries (Multifactorial Ptosis)
- A. Dermatochalasis / Lash Ptosis
- B. True Ptosis
- C. Brow Ptosis
- D. "Pseudo Ptosis"
- E. Pathologic Ptosis

VI. Finesse
- A. Symmetry
- B. Injectables
  1. Botox
  2. Fillers

Empire Management Group
3434 Truxtun Avenue, Suite 270
Bakersfield, CA 93301
(661) 496-4005 (Executive Assistant, Asta Fowler)

Montecito Aesthetic Institute
1150 Coast Village Road, Suite H
Santa Barbara, CA 93108
(805) 565-5700

jhchangmd@yahoo.com
cc:
afowler@empireeyeandlaser.com

Education

FARRAGUT HIGH SCHOOL, Knoxville, Tennessee, 1984-1988, Valedictorian
EMORY UNIVERSITY, Atlanta, Georgia
BA, Biology, (2nd Major: Economics/Mathematics, Minor: Literature), 1988-1992
Honors: Emory Scholar (full academic scholarship), Phi Beta Kappa (academic honor society)
MD, 1992-1996

Training

GEORGIA BAPTIST MEDICAL CENTER, Atlanta, Georgia
Internship, Transitional Program, 1996-1997
JULES STEIN EYE INSTITUTE / UCLA MEDICAL CENTER, Los Angeles, California
Residency, Ophthalmology / Ophthalmic and Oculoplastic Surgery, 1997-2000
Chief Residency, Ophthalmology / Ophthalmic and Oculoplastic Surgery, 1999-2000

Professional Entities

EMPIRE EYE AND LASER CENTER, Bakersfield, California
Owner, Private Practice, Ophthalmology / Ophthalmic and Oculoplastic Surgery, 2000-2009
Practice limited to Oculoplastic Surgery and Facial Aesthetics, 2009-present
EMPIRE SURGERY CENTER, Bakersfield, California
Owner/Medical Director, 2008-present
EMPIRE MANAGEMENT GROUP, Bakersfield, California
Owner/CEO, 2010-present
ADVANCED CENTER FOR EYE CARE, Bakersfield, California
Founder/Chairman, Non-profit 501(c)3 Eye Treatment Center, 2010-present
MONTECITO AESTHETIC INSTITUTE, Montecito, California
Owner/Medical Director, 2010-present
JULES STEIN EYE INSTITUTE / UCLA MEDICAL CENTER, Los Angeles, California
Clinical Instructor, Ophthalmology / Ophthalmic and Oculoplastic Surgery, 2004-present
THEEYELIDDOC.COM

Publications

JH Chang, CW Spraul, ML Lynn, A Drack, HE Grossniklaus. The two-stage mutation model in retinal hemangioblastoma. Ophthalmic Genetics 1998; 19(3): 123-130.
BS Boxer Wachler, JH Chang. Practice management in refractive surgery: The relationship of pupil size and ablation zones to glare, halos, and contrast sensitivity. Ophthalmic Practice 1999.

Professional Organizations

Diplomate, American Board of Ophthalmology (Board Certification with Oculoplastic Subspecialty), American Academy of Ophthalmology, American Medical Association, California Medical Association (Kern County Delegate-Young Physicians Section), Outpatient Ophthalmic Surgery Society, California Association of Eye Physicians and Surgeons, Santa Barbara Eye Society, American Academy of Aesthetic Medicine, American College of Physician Executives

Board Experience

Center for the Blind and Visually Impaired, Governing Board, 2012-present
Arts Council of Kern, Governing Board, Treasurer, 2012-2015
Santa Barbara Museum of Contemporary Art, Founders Circle, Governing Board (pending), 2013-2016
Cal State University-Bakersfield, School of Arts & Humanities, Executive Advisory Council, 2011-2015
Ronald Reagan Elementary School Site Council, Vice-Chairman, 2009-present
Sullenger Financial Group, Advisory Board, 2008-2012
Alcon Laboratories Inc, Advisory Board, 2007-2008; Ista Pharmaceuticals Inc, Advisory Board, 2007-2008

Other Experience

JHC Properties LLC, CPX Properties LLC, President, 2003-present (management, multi-unit residential properties)
The Mesh Collection LLC, Co-Founder, 2009 (hospitality and networking enterprises)

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA STATE BOARD OF OPTOMETRY

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

Request for Approval of Continuing Education Course(s)

Harvard Eye Associates
Attn: Khristine Mays
25231 Paseo de Alicia, Suite 240
Laguna Hills, CA 92653

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-417	5414234	5393577	80

Please type or print name and mailing address in the space provided to the left

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_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
"Improving Cataract Surgery Outcomes in a	03/15/16		2.0 total			
Diverse Patient Population and More"						
Cataract Surgery Update for 2016		Diana Kersten, MD				
Update in MIGS		Savak Teymoorian, MD				
Post-operative Cystoid Macular Edema		Brian Kim, MD				
Corneal Ulcers		Duna Raoof, MD				
Contraindications for Premium Lenses						
in Cataract Surgery		Charles Keller, MD				

COMMITTEE COMMENTS:

CURRICULUM VITAE

CHARLES E. KELLER, M.D.
1010 West La Veta, Suite 175
Orange, CA 92868
Phone: 714-633-5696
Fax: 714-633-5490
kellereyeassociates@gmail.com
kellereye.net

PRESENT POSITION

September 1995 – Present

Keller Eye Associates Inc., A Medical Group
General Ophthalmology, Corneal and Refractive Surgery
Orange, CA

My practice involves general ophthalmology as well as consultation and surgery for corneal diseases. Specifically, the practice provides cataract and glaucoma surgery, premium lenses in cataract surgery, diabetic eye care, corneal transplantation, contact lenses, LASIK surgery, and an optical dispensary. In addition, I provide industrial and legal consultations.

July 1994 – 2003

Consultant, Corneal and External Diseases
South Coast Eye Care Centers
Laguna Beach and Laguna Hills, CA

I performed corneal consultation for this general ophthalmology practice. My special interests include corneal transplantation and refractive surgery.

CORNEA FELLOWSHIP

July 1993 – July 1994

University Ophthalmic Consultants of Washington
Washington, DC
Michael A. Lemp, M.D., Preceptor

This fellowship involved all types of corneal and anterior segment procedures, as well as radial keratotomy and other refractive surgical procedures. There was

extensive exposure to all types of corneal disease.

OPHTHALMOLOGY RESIDENCY

July 1990 – July 1993

Rhode Island Hospital, Brown University
Providence, Rhode Island

This residency experience was well rounded, with excellent subspecialty exposure and didactic information. I performed a significant number of all types of ophthalmic surgery, instructed medical students and residents, and performed several research projects.

OPHTHALMOLOGY FELLOW

July 5, 1989 – July 4, 1990

Beth Israel Hospital,
Harvard Medical School
Boston, Massachusetts

This was a pre-residency fellowship involving all types of clinical ophthalmology while working in the general eye clinic, assisting with weekly eye surgery, and performing inpatient consultations. Research projects were performed in conjunction with Dr. David Miller.

PREVIOUS EMERGENCY MEDICINE PRACTICES

August 1988 – July 1989

Eden Hospital and Medical Center
Castro Valley, California

Physician in Level II Trauma Center in a busy and varied Emergency Department. Responsibilities included caring for 50-60 patients per eight-hour shift and directing six nurses and five emergency medical technicians. The patient load included a range of trauma, medical, pediatric, and ophthalmic problems.

September 1985 – July 1989

Sutter Davis Hospital
Davis, California

Independently managed an Emergency Department with both trauma and general emergency problems in a growing branch of a major hospital system in the Sacramento area. Involved in the development of a new and expanded physical plant and the evaluation of new billing procedures.

PREVIOUS INTERNAL MEDICINE PRACTICE	**Mobile Medical** Oakland, California
September 1985 – January 1989	Independently evaluated homebound and seriously ill internal medicine patients. Provided on-site laboratory and minor surgical facilities.
BOARD CERTIFICATION	**American Board of Ophthalmology** 2004
INTERNSHIP June 1984 – June 1985	**Mount Zion Medical Center** Categorical Medical Internship San Francisco, California
MEDICAL EDUCATION September 1980 – June 1984	**Boston University School of Medicine** M.D. Degree
UNDERGRADUATE EDUCATION September 1976 – June 1980	**Brown University** A.B. Biology
AWARDS	**Radiology Award 1984** Boston University School of Medicine, 1984
PROFESSIONAL POSITIONS	**President 2007** Orange County Society of Ophthalmology 1999 – present
	Chairman 2007 Ophthalmology/ENT Department, St Joseph Hospital, Orange, CA
	Physician of Excellence 2005 and 2011 Orange Coast Magazine
ACADEMIC POSITIONS	**Clinical Instructor** University of Southern California Department of Ophthalmology Doheny Eye Institute April 1995 - 2003
	Clinical Associate Georgetown University Medical Center Washington, DC July 1993 – July 1994

MEMBERSHIPS

American Academy of Ophthalmology
American Society of Cataract and Refractive Surgery
California Medical Association
Orange County Society of Ophthalmology

PRESENTATIONS

Keller C, Keenan P, Lemp M. "Topographic Corneal Changes after Debridement for Anterior Membrane Dystrophy" presented to Castroviejo Society meeting, American Academy of Ophthalmology, Chicago, IL November 1993.

PREVIOUS CLINICAL RESEARCH

BacKers/Ofloxacin – Clinical Trial
Co-Investigator
Allergan Pharmaceutical

Galardin Adjunctive Therapy – Clinical Trial
Glycomed Pharmaceutical

OcuNex – Clinical Trial
Co-Investigator
Telios Pharmaceutical

Lactoferrin Assay
Co-Investigator
Touch Scientific

Brimonidine Clinical Trial
Co-Investigator
Allergan Pharmaceutical

Forest Labs: Psychiatry clinical trial
2010-present

PERSONAL ACHIEVEMENTS

Professional tennis player in Europe, 1978
Varsity tennis at Brown University, 3 years
Avid skier, runner

6150 Buckingham Parkway #205
Culver City, CA 90230
March 19, 2016

State Board of Optometry
2450 Del Paso Road
Suite 106
Sacramento, CA 95834

To whom it may concern:

The Mammoth Ocular Symposium is open to all optometrists licensed in California. This is its 23rd year of providing continuing education courses. All necessary information, such as course content and attendance, will be provided for and available to the State Board of Optometry and the attendees for at least 3 years after March 15, 2106.

The course approval application was mailed to the State Board of Optometry on February 17, 2016. Although the request for the outlines was given in mid-January 2016, the completed outlines were received around February 14, 2016 and then mailed on February 17, 2016.

If you need to contact me, please email me at jenniferkim100@hotmail.com or call me at 323-574-8957.

Thank you so much for your attention.

Sincerely,

Jeong-Ah Jennifer Kim, OD
CA License 11674TLG

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY

EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA STATE BOARD OF OPTOMETRY

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

Request for Approval of Continuing Education Course(s)

JEONG-AH KIM
6150 BUCKINGHAM PKWY #205
CULVER CITY, CA 90230

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-450	3815685	3815685	250

Please type or print name and mailing address in the space provided to the left

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Jeong-Ah Jennifer Kim, OD (jenniferkim100@hotmail.com)
Practice and Education Committee Member 323-574-8957

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE: Approved	Disapproved	ID #
MULTIFOCAL/MONOVISION CONTACTS	3/13-3/15/16	MARISA CHUNG, OD	1			
PATIENT CARE	3/13-3/15/16	HOWARD COHEN, MD	2			
CURRENT STATUS OF ANTI-VEGF THERAPY; IMPLANTABLE TELESCOPE	3/13-3/15/16	PETER CUSTIS, MD	2			
GLAUCOMA MANAGEMENT 2016, WHEN TO TREAT, HOW TO FOLLOW	3/13-3/15/16	GARY GROESBECK, MD	1			
BILATERAL SAME DAY CATARACT SURGERY	3/13-3/15/16	AMIR ISFAHANI	2			

COMMITTEE COMMENTS:

Marisa Chung, OD, FAAO

5401 Baltimore Drive #18, La Mesa, CA 91942
626-673-2968 mychung@gmail.com

Education

University of California, Berkeley, School of Optometry
Berkeley, CA
Doctor of Optometry, May 2007

University of California, Berkeley
Berkeley, CA
Bachelor of Arts in Integrative Biology, August 2002
Graduated with Highest Distinction in General Scholarship

Postgraduate Training

Contact Lens Fellow: Jules Stein Eye Institute, University of California, Los Angeles
Los Angeles, CA (2007-2008)
Conducted comprehensive optometry examinations in a multidisciplinary setting. Performed specialty contact lens fittings for aphakia, presbyopia, post surgical corneas, irregular corneas secondary to trauma, and diseased corneas. Instructed ophthalmology residents on contact lens examinations. Initiated research activities in contact lens fitting. Trained with contact lens specialist Dr. Barry Weissman and worked with doctors in the Doris Stein Cornea, Laser Refractive Surgery, and Retina departments.

Career Highlights

Contact Lens Lead Optometrist for Kaiser Permanente, San Diego Medical Center.
Experience in a variety of settings: health maintenance organization, school, hospital, private practice.
Fellowship trained in specialty contact lens care.
National champion of the Varilux Optometry Superbowl held at AOA/AOSA Optometry's Meeting.
Publications in peer-reviewed journals.
Volunteer for local and international optometry projects.

Work Experience

Contact Lens Lead Optometrist: Kaiser Permanente, San Diego Medical Center
La Mesa, CA (2009-present)
Fit cosmetic and medically necessary contact lenses, perform general eye examinations and test new contact lens products for Kaiser Permanente. Manage vacation requests and troubleshoot clinic concerns with staff and management. Have updated fitting sets for all the San Diego contact lens clinics and acquired 11 new contact lens fitting sets in the La Mesa Clinic. Involved in Labor Management Partnership committees to improve work environment.

Optometrist: Kaiser Permanente, Panorama City Medical Center
Panorama City, CA and Baldwin Park, CA (2008-2009)
Conducted optometric examinations and determine treatment plans in a health maintenance organization.

Optometrist: Optometric Center of Los Angeles, Southern California College of Optometry
Los Angeles, CA (2009)
Supervised student clinical examinations in an educational setting.

Optometry Intern: Berkeley Optometry, Travis Air Force Base, VA Puget Sound Health Care System
Berkeley, CA (2004-2007), Travis AFB, CA (2007); Tacoma, WA (2006)
Diagnosed and determined treatment plans with doctor's supervision in primary care, low vision, binocular vision, ocular disease, geriatric and contact lens clinics in school and hospital-based settings.

Vision Therapist: Rising Star Optometry
San Rafael, CA (2005-2006)
Trained and evaluated patients on vision therapy exercises at a private practice.

Leadership Experience

Berkeley Representative: American Optometric Student Association
Las Vegas, CA (2006)
Won first place in the Varilux Optometry Super Bowl XV competition. Competed against representatives from schools across the country at the 2006 AOA/AOSA Optometry's Meeting.

Student Liaison: American Academy of Optometry, Student Chapter
Berkeley, CA (2005-2006)
Coordinated board meetings and chapter events. Increased membership levels and student participation in the Academy. Organized publicity, fundraising and chapter events with the student board.

Volunteer Experience

International:
Optometrist: VOSH-California
Jerez, Mexico (2007)
Performed eye exams, assisted with trip planning and mentored optometry students on a VOSH mission.

Optometric Assistant: Lions in Sight, VOSH International
Monterrey, Mexico (2006); San Juan del Sur, Nicaragua (2005); Chiang Mai, Thailand (2004)
Performed eye exams and dispensed glasses in Mexico, Nicaragua and Thailand.

Local:
Optometrist: Non Profit Organizations:
Tzu Chi Buddhist Relief Foundation, Fountain Project, Remote Area Medical
Fallbrook, CA (2010), Fremont and Ukiah, CA (2007, 2009, 2010), Los Angeles CA (2009)
Provided free eye care services to underprivileged and low income patients through nonprofit organizations.

Optometry presenter/Vision Screener: UCLA, UC Berkeley School of Optometry
Los Angeles, CA (2008, 2009), Bay Area, CA (2003-2006)
Presented optometry as a career to undergraduate students at the UCLA Preoptometry Society and at UCLA Career Center's "Optometry Jumpstart" program. Performed vision screenings at various bay area community events, such as: Special Olympics Opening Eyes, Suitcase clinic for the homeless, Children's Health and Safety Fair, Tang Center Student Athlete Screening and YMCA Active Older Adults Day.

Publications

Chung MY, Miller KM, Weissman BA. Morcher Iris Reconstruction Lens and Rigid Contact Lens for Traumatic Aniridia. *Eye & Contact Lens* 2009;35(2):108-110

Forister JF, Forister EF, Yeung KK, Ye P, Chung MY, Tsai A, Weissman BA. Prevalence of Contact Lens Related Complications: UCLA Contact Lens Study. *Eye & Contact Lens* 2009;35(4):176-180

Yeung KK, Forister JF, Forister EF, Chung MY, Han S, Weissman BA. Compliance with Soft Contact Lens Replacement Schedules and Associated Contact Lens-Related Ocular Complications: the UCLA Contact Lens Study. *Optometry 2010;*81:598-607

Honors and Awards

Fellow of the American Academy of Optometry (2009-present)
American Academy of Optometry Cornea and Contact Lens Travel Grant Recipient (2007)
Berkeley Optometry Leadership/Service Award Recipient (2005 and 2006)
Vistakon AOSA Travel Grant Recipient (2005)
Beta Sigma Kappa Honor Society (2004-present)
Phi Beta Kappa Honor Society (2001-present)
Tau Beta Pi National Engineering Honor Society (1999-present)
USA Funds Access to Education Scholarship (2003-2007)
Regents Scholar (1997-2002)

Languages

Mandarin Chinese (fluent), Taiwanese (basic competence), Spanish (basic competence)

Certifications

TPA, CPR, Paragon CRT, ClearKone by SynergEyes

Contacts Lens for Presbyopia

Marisa Chung, OD, FAAO

Kaiser Permanente

San Diego Medical Center

Disclosure

No financial ties to any of the contact lens products that will be mentioned today

Will be covering lens brands offered as formulary (or in consideration as formulary) at Kaiser Permanente (KP)

Many options are available

Objectives

Review contact lens options for presbyopia

Cover fitting guidelines

Presbyopia

Presbyopia is a condition associated with aging in which the eye exhibits a progressively diminished ability to focus on near.

vision condition in which the crystalline lens of your eye loses its flexibility, which makes it difficult for you to focus on close objects (American Optometric Association)

an age-related eye condition that makes it more difficult to see very close (American Academy of Optometry)

from Greek *presbys* (πρέσβυς) = old man + *ops* (ὤψ) = see like, sight)

Presbyopia in Chinese

老花眼=old, blurry/cloudy vision

On a side note:

黃班 (macular degeneration) = yellow dots

糖尿病 (diabetes) = sugar pee disease

Fact of life

Happens as we age

Generally helps w/ glasses

Correction

Glasses

Multifocal/bi or trifocal

Single vision/Reading glasses

Refractive surgery

Contacts

Contact Lens Expectations: need to discuss

https://www.youtube.com/watch?v=v8GMFkc3iSA

Likely will see better in glasses—better binocular vision

Backup glasses important

70% of time no need for glasses: Success

Underpromise and overdeliver

Demographics (from Bennett, AAO lecture 2015)

1/3 US population 40-59yo in 2010

120 million over age 45

28% of all CL wearers will be >50 yo in the next decade

90% of all CL wearers between 35-55 have worn CLs majority of their life

Ideal vs less ideal candidates

Ideal

Low hyperopes

Type B personality

Not so ideal (discuss expectaions)

Low myopes

Sharpeners

Options

Monovision

Multifocals

Monovision

One eye far, one eye near (or intermediate)

Figure out dominance

Test binocularly in phoropter or free space

"which one still seems clear" instead of "which one gives you more blurry vision"

Set dominant eye as distance

safety

Monovision issues

Depth perception

Possible suppression

Contrast Sensitivity/Vision Loss

Night driving

Anisometropia/Headaches/Fatigue

Monovision

Using one eye to do two eye's job

Overcorrection w/ spectacles recommended

Generally do work better though for people moderate and higher astigmatism

Multifocal Contacts

In various studies, 68-76% preferred multifocals over monovision

Kirschen et al: 68% Acuvue BF vs monovision

Richdale et al: 76% Soflens MF vs monovision

Johnson et al: 75% GP multifiocal vs monovision

CL multifocals do not work...until you fit them

Jones 1996: reactive and proactive groups

Practitioner preference: 2014 annual report (Nichols J, CLS)

Multifocal CLs: 70% (59% in 2008)

Monovision: 22% (27% in 2008)

Over spectacles: 8% (14% in 2008)

"new technologies in multifocal lens designs would lead to the slight rise in fitting multifocal contact lenses compared to monovision..."

Multifocals: Soft versus RGP

Soft

Trials available generally

Disposable schedule

RGP

Bifocal option

Astigmatism correction

Multifocals: simultanous vision

Your brain figures out what to look at

Address most important vision need

Computer, newspaper, needlepoint

Aspheric

Gradual change in curvature of lens surface to create change toward lens periphery

Can be center distance or center near

Annular/Concentric

Defined area in ceneer of lens with a single power surrounded by one or more rings of alternating powers

SCL multifocal types at KP

Biofinity MF

Breathability

Monovision like w/ increased presbyopia

Suggested removal technique: move to bottom of eye, then pinch

Proclear MF

Hema material good for dry eyes

Design same as Biofinity MF

Proclear MF Toric

Proclear MF XR (-20D to +20D, add to +4.00)

Clariti 1 Day MF

Air Optix MF

Better for people w/ less definitive dominance

Higher modulus (stiffer material)

Acuvue Oasys for Presbyopia

Fitting: the fit guide is your friend

Knowing designs

Knowing patient's needs (binocular vision important, intermediate important etc)

Trial and adapt

Biofinity MF: Balanced Progressive Technology

Two different optical designs (D and N) utilize the processing power of the visual cortex to enhance vision

Lens zones optimized for each sphere and ADD power

Biofinity MF

Biofinity MF: 3 step process fitting

Determine refraction, add and eye domanancy

Fitting guide

Lower adds, +1.00 and +1.50 adds (D lens OU)

Higher adds, D lens on dominant eye, N lens on non-dominant eye

Similar to monovision but has advantage of the intermediate zone

Adaptation time (15min recommended by manufacturer)

Check binocular distance and near (and at mobile phone)

SOR

Air Optix Aqua MF: Precision Profile Design

Air Optix Aqua MF: Precision Profile Design

Air Optix Aqua MF: Precision Profile Design: push plus

Air Optix Aqua MF

Binocular vision fitting

-low, med, high

Air Optix Aqua MF: Troubleshooting

Distance problem

Near Problem: first add +0.50 to non dominant eye

Acuvue Oasys for Presbyopia:
currently testing

Test in Real world

Phone

Hallway

Binocular VA: 20/happy...I like 20/25 OU

Possible ghosting of vision (due to simultaneous vision)...does it go away

Lighting concerns

Return visit: 1-3 wks

Return visit

Comfort

Not comfortable, switch brands

Health

No compromise

Vision

Troubleshoot if neded

Contact Lens

Plastic/foreign body in eye

Take care of it

Thank you!

Comfort

Not comfortable, switch brands

Health

No compromise

Vision

Troubleshoot if neded

Contact Lens

Plastic/foreign body in eye

Take care of it

Thank you!

CURRICULUM VITAE

NAME: Howard B. Cohen
MARITAL STATUS: Married
DOB: 7/16/39
CHILDREN: 5

HIGH SCHOOL:	Stuyvesant High School, New York City, N.Y. Diploma - Academic	1954-1961
COLLEGE:	New York University, Heights, N.Y. Degree: B.A.	1957-1961
MEDICAL SCHOOL:	New York Medical College Degree: M.D.	1961-1965
INTERSHIP:	Jersey Shore Medical Center Type: Rotating	1965-1966
ASSIGNMENTS:	General Medical Officer, 7th Special Forces Group, Fort Bragg, North Carolina	1966-1967
	General Medical and Surgical Officer, 5th Special Forces Group, Vietnam	1967-1968
	Chief, EENT, Fort Carson, Colorado	Mar 1972 - Sep 1974
	Staff Ophthalmologist, Fitzsimons Army Medical Center, Denver, Colorado	Sep 1974 - Jul 1975
	Asst Chief, Ophthalmology Service, Letterman Army Medical Center, Presidio of San Francisco, California	Feb 1977 - Feb 1983
	Director, Vitreo-Retinal Service	Feb 1977 - Present
	Chief, Ophthalmology Service, Letterman Army Medical Center, Presidio of San Francisco, California	Feb 1983 - [redacted] 1987
RESIDENCY:	Ophthalmology - Fitzsimons Army Medical Center, Denver, Colorado	Mar 1969 - Mar 1972
FELLOWSHIPS:	Vitreo-Retinal Surgery - Dr. Charles Schepen Retina Associates, Fellow Retina Service, Massachusetts Eye and Ear Infirmary and Harvard Medical School	Aug 1975 - Feb 1977

Treating the Patient

Successful treatment is measured by a series of metrics. Improved visual acuity, decreased fluid on OCT and lowered IOP are all measures of improvement. These are metrics that tell us about the how the disease we are treating is doing but nothing about the quality of life or functionality of the patient.

Visual impairment has a major effect on the patients quality of life and psychosocial functioning. The relationship between vision, quality of life, depression and suicide will be reviewed. Diagnostic methods and referral patterns will be discussed.

Emphasis will be on how to treat the patient as well as the disease. Methods of incorporating this into everyday practice will be stressed.

CURRICULUM VITAE

PETER HODSON CUSTIS
Vitreoretinal Surgery
Department of Ophthalmology
Southern California Kaiser Permanente Medical Group
4405 Vandever Ave.
San Diego, CA 92120

(619) 516-7163
e-mail: PHCustis@scal.kp.org

EDUCATION

Fellowships	**Vitreoretinal Surgery** **The Wilmer Ophthalmological Institute** **The Johns Hopkins University, Baltimore MD** **July 1992 - July 1993**
	Medical Retina **The Wilmer Ophthalmological Institute** **The Johns Hopkins University, Baltimore MD** **July 1991 - July 1992**
Residency	**Ophthalmology** **Naval Medical Center, San Diego CA** **June 1987 - June 1990**
Aerospace Medicine	**Naval Flight Surgery Training Program** **Naval Aerospace Medical Institute** **Pensacola FL, October 1984 - April 1985**
Internship	**Transitional Medicine** **Naval Medical Center, San Diego CA** **June 1983 - June 1984**
Medical School	**Duke University School of Medicine** **Durham NC** **August 1979 - May 1983 (Doctor of Medicine)**
Undergraduate	**Northwestern University** **Evanston, IL** **September 1975 - June 1979 (Bachelor of Arts)**

BOARD CERTIFICATIONS

Diplomat, National Board of Medical Examiners	(1984)
Diplomat, American Board of Ophthalmology	(1991)

MEDICAL LICENSURE

California Physician and Surgeons License G57044	(1985 - present)
Maryland Physician and Surgeons License	(1991 - 1993)

PROFESSIONAL ORGANIZATIONS

Fellow, American Academy of Ophthalmology
Member, Vitreous Society
Member, Society of Military Ophthalmologists
Member, Association of Military Surgeons of the United States
Member, San Diego Eye Bank
Member, San Diego Ophthalmological Society
Member, Western Retina Study Club

PROFESSIONAL APPOINTMENTS AND POSITIONS

Staff Physician
Vitreoretinal Surgery
Department of Ophthalmology
Southern California Kaiser Permanente Medical Group
September 2003 - present

Specialty Leader for Navy Ophthalmology to the Surgeon General
February 1997 – March 2002

Director, Vitreoretinal Service
Department of Ophthalmology
Naval Medical Center San Diego
August 1993 – August 2003

Clinical Assistant Professor in the Department of Surgery
Uniformed Services University of Health Sciences
Bethesda MD
July 1990 – August 2003

Clinical Assistant in Ophthalmology, The Johns Hopkins School of Medicine
The Johns Hopkins University, Baltimore MD
July 1991- July 1993

Co-director, Vitreoretinal Service
Wyman Park Medical Center, Baltimore MD
September 1992 - July 1993

Comprehensive Ophthalmologist
Naval Medical Center San Diego
July 1990 - June 1991

Clinical Instructor in Ophthalmology
University of California San Diego
July 1990 - August 1993

Senior Medical Officer and Flight Surgeon
Fleet Aviation Specialized Training Command
San Diego, CA
May 1985 - June 1987

General Medical Officer
Marines Corps Recruit Depot
San Diego, CA
July 1984 - August 1984

PUBLICATIONS

Custis P, Pakalnis A, Klintworth G, Machemer R. Posterior Internal Ophthalmomyiasis. Ophthalmology, December 1983

Custis P, Bressler S, Bressler N, Laser Management of Subfoveal Choroidal Neovascularization in Age-Related Macular Degeneration. Current Opinions in Ophthalmology, June 1993

Goldberg, M, Custis, P. Retinal and Other Manifestations of Incontinentia Pigmenti. Ophthalmology, November 1993

Funata M, Custis P, de Juan E, Green R. Gnathostomiasis. Retina, November 1993

Custis P., Haller J, Knox D, de Juan E, Green R. An Unusual Case of Cryptococcus Endophthalmitis. Retina, August 1994

Stanley P, Custis P, Edwards R. Central Retinal Artery Occlusion associated with Medroxyprogesterone Acetate Contraception Injection. Naval Medical Center San Diego Abstracts Annual Bulletin, 1994

Neely K, Custis P, Bressler N. Geographic Atrophy of the Retinal Pigment Epithelium in Central Serous Retinopathy. Naval Medical Center San Diego Abstracts Annual Bulletin, 1994

Fung W, Custis P. Aphakic and Pseudophakic Cystoid Macular Edema. Chapter in 2nd edition of Ryan's RETINA textbook, Mosby publishers, 1994

Custis P, Gagliano D, Zwick H, Schuscereba S, Regillo C. Macular Hole Surgery in Military Laser Induced Retinal Injuries. SPIE Proceedings, Jan 1996

Power M, Regillo C, Custis P. Purtscher's - like Retinopathy as the Presenting Manifestation of Thrombocytopenia Purpura. Archives of Ophthalmology, January 1997

Regillo C, Custis P. Surgical Management of Retinoschisis. Current Opinion in Ophthalmology. June 1997

Custis P. Subfoveal Choroidal Neovascularization: Who to Treat and Who Not to Treat. Review of Ophthalmology, April 1997

Custis P. Cystoid Macular Edema. Chapter 11 in "Essentials of Vitreoretinal Surgery" textbook. Thieme publishers, 1998

Stanley P, Custis P, Edwards R, Keefe, K. Clinical Pathologic Correlation of Central retinal Artery Occlusion in a Young Patient. Ophthalmic practice, December 1998

Regillo C, Blade K, Custis P, O'Connell S. Evaluating persistent and recurrent choroidal neovascularization: The role of indocyanine green angiography. Ophthalmology, October 1998

Custis P. Ocular Emergencies and Ocular Trauma. Chapter in the "General Medical Officer Manual", Navy Bureau of Medicine and Surgery publisher, 1999

Custis P, Hopkins T. Metallosis Bulbi. Chapter in "The Textbook of Military Medicine". 2003

PRESENTATIONS

Posterior Ophthalmomyiasis. Duke University Eye Center Annual Meeting 1982

Digital Imaging Systems Update. Second Annual Meeting on Laser and Imaging Technology in retinal diseases, The Johns Hopkins University, 1992

Cryptococcus Endophthalmitis. American Uveitis Annual Meeting, 1992

Incontinentia Pigmenti : Retinal and other manifestations. American Academy of

Ophthalmology annual meeting 1992, ARVO 1992, Wilmer Residents Association 1992.

Clinical, Angiographic and Histopathologic correlates of surgically excised subfoveal choroidal neovascular membranes. ARVO 1993, Wilmer Residents Association 1993 meeting

Nonfoveal geographic atrophy as a clue for atypical central serous retinopathy. ARVO 1993, Wilmer Residents Association 1993 meeting

The blinding mechanisms of Incontinentia Pigmenti. Wilmer Residents Association 1993 meeting

Metallosis bulbi. Tri-service C4 Ocular Trauma Course 1994 - 2003
Central retinal artery occlusion associated with Depoprovera contraceptive injection. The Johns Hopkins 25th anniversary meeting of the Retinal Vascular Center, 1995. Annual Naval Medical Center San Diego Research symposium, 1995

Macular hole surgical considerations following laser injury in the military environment. The Johns Hopkins 25th anniversary meeting of the Retinal Vascular Center, 1995. Annual Naval Medical Center San Diego Research symposium, 1996. SPIE Laser Technology annual meeting 1996

The role of Fluorescein and Indocyanine green angiography in the management of retinal diseases. Course co-instructor at the American Academy of Ophthalmology annual meeting 1995 - 2001.

Role of Indocyanine green angiography in evaluating recurrent choroidal neovascularization. ARVO 1997

A small incision technique for transcleral fixation of posterior chamber intraocular lenses. ARVO 1997

Indocyanine green angiography: a clinical comparison of scanning laser ophthalmoscope to fundus camera-based videodigital technology. ARVO 1997

Ocular trauma in active duty military Navy and Marine Corps personnel in peace time: a review of the types and severity of injuries seen at one medical institution. Tri-service C4 Ocular Trauma Course, 1997

Current treatment options in age-related macular degeneration (ARMD). Current management of retinal disease symposium, 1997

Identification and treatment of laser eye injuries, and the use of lasers in Ophthalmology. Lasers in Surgery Symposium, Naval Medical Center San Diego, 1997.

Surgically managed ocular trauma in active duty Navy and Marine Corps personnel during peacetime conditions. 1997 annual meeting of the Vitreous Society, New Orleans, September 1997

Medical Assessment of Operational Laser Eye Injuries. 2001 International Laser Safety Conference, San Diego CA, March 2001

Diabetic Screening Clinic at Naval Medical Center San Diego: A proven and cost-efficient model. National TRICARE Conference, Reno NV August 2002.

Laser Eye Injuries on the Modern Battlefield. Joint Special Operations University Medical Planners Course, Hurlburt Air Force Base, FL, March 2003

Surgical Management of Retinal Detachments. Trends in Eye Care Health. San Diego, April 2003

RESEARCH

Principal investigator in scanning electron microscopy in the evaluation and identification of a fly larva surgically removed from posterior segment, 1982

Principal investigator in the evaluation of Apraclonidine in the prevention of post-op intraocular pressure spikes after uncomplicated cataract surgery 1989 - 1990

Associate investigator in the evaluation of retinoic acids in the prevention of proliferative vitreoretinopathy following vitrectomy and surgical retinotomy 1992-1993

Associate investigator in the evaluation and efficacy of silicone oil use in complex retinal detachments 1992 - 1993

Associate investigator in the evaluation and efficacy of liquid perfluorocarbons (Vitreon) in complex retinal detachments 1992 - 1993

Principal investigator in the Pneumatic Retinopexy II, multicenter clinical trial, 1993 - 1995

Associate investigator in the Indocyanine Green guided treatment of choroidal neovascularization, multicenter trial, 1994 - 1996

Principal investigator in the safety and efficacy of ISIS 2922 for treatment of CMV retinitis, 1995-1997

Associate investigator in the evaluation of topical Pred Forte vs. Voltaren for treatment of pseudophakic cystoid macular edema, multicenter trial, 1995 -1997

Assisted BUPERS with medical staff assignments
Advisor on tri-service panels that deal with medical readiness issues, technology acquisition, and refractive surgery programs

Chairman, Military Recognition Team, Naval Medical Center San Diego (1995-1997)
Program director for Ophthalmology, Physician Assistant Training Program (1993-present)
Department laser safety officer and member of Command Laser Safety Committee (1993- present)
Departmental Clinical Care Guidelines Coordinator (1995-1998)
Faculty Advisor for transitional interns (1993 – present)
Scientific reviewer for Archives of Ophthalmology (1991 – present)

AWARDS and RECOGNITION

Navy Legion of Merit Medal (2003)
Navy Commendation Medal (1987)
Meyer Weiner Award for excellence in teaching, Dept of Ophthalmology, 1994
American Academy of Ophthalmology Distinguished Achievement Award 2002

Outline for "Retina Update 2016" talk by Peter Custis MD at the Mammoth Eye Symposium

- **Current status of anti-VEGF drug use in treating retinal vascular diseases and my decision making**
  - **2015 data will be presented for SCAL and NCAL KP regions**
  - **1st vs 2nd line therapy: Is Avastin is still the first line drug of choice**
  - **When do I change therapy between Avastin and Eylea or Lucentis**
  - **Once stabilized, when do I recommend observation vs treat / extend maintenance rx**
- **Looking ahead at R+D pipelines**
  - **Dry AMD:**
    - **Methods to monitor dry ARMD for conversion from Dry to Wet ARMD**
    - **Lampalizumab for geographic atrophy**
  - **Wet AMD**
    - **Anti PDGFs (platelet derived growth factor) in combination with Anti VEGFs**
    - **Darpins**
  - **DME**
    - **New guidance on when to change therapy**
  - **RVO**
    - **Score 2 trial: Monthly Avastin vs Eylea**
- **Implantable Telescopic lens (IMT)**
  - **Changes in eligibility: age criteria, need for AntiVEGF injections, explant existing IOL and implant IMT**
  - **Case presentation of first IMT patient in San Diego**

CURRICULUM VITAE

Personal data: Gary Groesbeck, M.D.
Address: 780 Shadowridge Dr.
Vista, CA 92083
Phone: 760-599-6466
Spouse: Diane Groesbeck
Children: Melissa (18), Breanne (16), Leandra (13), Jeff (9)

Professional Activities:

Full-time clinical practice, Southern California Permanente Medical Group:
- Lead ophthalmologist, Vista Eye Center, 1992-present
- Kaiser-San Diego Medical Center, 1988-1992
- Kaiser-Bellflower Medical Center, 1986-1988

Clinical Instructor, UCSD Dept. of Ophthalmology, 1992-present
Annual speaker, Kaiser Ophthalmic Symposium I-V, 1993-present
Fellow, American Academy of Ophthalmology
Board-certified, American Board of Ophthalmology, 1988

Education:

University of California, San Diego, Dept. of Ophthalmology
- Ophthalmology residency, 1983-1986
- Basic Science Course, University of Texas, Houston, 1985
- OKAP Scores: 1984: 83% 1985: 79% 1986: 85%Pasadena High School, Pasadena, California

University of California, San Diego, School of Medicine
- M.D., 1982
- National Board overall score: 85.3
- Research:
  "Review of Methods of Isolation of Human T-lymphocyte Subpopulations" (research paper)
  "Current concepts on Endophthalmitis" (senior thesis)
- Instructor, Organ Physiology and Pharmacology course
- Ranking: No rankings, honors, or honor societies were permitted at UCSD School of Medicine during the years of my attendance

Brigham Young University, Provo, Utah
- B. S., Zoology, 1978
- Phi Kappa Phi
- Varsity Water Polo team

Pasadena High School, Pasadena, California

Community Activities:

Church youth leader
Merit Badge counsellor, past Troop 233 Committee chairman

References:

Dan Terhorst, M.D.	Chief of Ophthalmology, San Diego	619-516-7100
Timothy Peterson, M.D.	Asst.Chief of Ophthalmology, San Diego	619-516-7100
Stuart Brown, M.D.	Chairman, UCSD Ophthalmology Dept.	619-534-8823

Gary Groesbeck, MD
Kaiser Ocular symposium March 13-15, 2016

Current Approaches to Glaucoma Suspect patients in 2016
(50 minutes lecture, 10 min question answer)

1. Factors influencing who and when to treat
    A. Age
    B. IOP
    C. VF, RNFL, C/D results
    D. Race
    E. CCT

2. Frequency of follow-up
    Age
    Rate of progression

3. Pre-perimetric glaucoma
    Worsening cupping
    Worsening RNFL

4. Review of Ocular Hypertension Treatment Study findings "OHTS 1 & 2"

5. Goals of OHTS 3

6. Integration of RNFL into management of glaucoma suspects
    7 case studies illustrating
        confounding effect from scleral crescents
        confounding effect from geographic atrophy
        confounding effect of vitreo-retinal traction
        confounding effect of loss of media clarity
        confounding effect of poor centration of reference image
        confounding effect of incorrect automated RNFL delineation
        How to correct improperly drawn RNFL boundaries

7. Tools for evidence based management of glaucoma suspects over time.
    Risk calculators
    Software under development
    Improvements in RNFL acquisition.

8. Discussion/questions

CURRICULUM VITAE

AMIR H. KOLAHDOUZ-ISFAHANI, M.D.

175 South Main
Canton, IL 61520
(309) 647-0201

SS#: 564-91-9677
DOB: 01-02-66
Illinois State License#: 036-095746
California State License#: G078449
DEA Controlled Substance#: BK 3988702

Marital Status: Married, two sons

EDUCATION:

1996-1997	Refractive Surgery Fellowship, Doheny Eye Institute, Los Angeles, CA
1993-1996	Ophthalmology Residency, Doheny Eye Institute, LAC/USC Medical Center, Dept. of Ophthalmology, Los Angeles, CA
1992-1993	Internal Medicine Internship, Huntington Memorial Hospital, Dept. of Internal Medicine, Pasadena, CA
1988-1992	University of Southern California (USC), School of Medicine, Los Angeles, CA
1986-1988	University of Southern California, Los Angeles, CA (B.S., Biological Sciences)
1984-1986	University of London, Imperial College of Science and Technology, London, United Kingdom

BOARD CERTIFICATION: American Board of Ophthalmology

PROFESSIONAL EXPERIENCE:

1997-Present:	Coleman Clinic, Ltd., Canton, IL
2003-2005	President, Coleman Medical Associates Chief of Department of Surgery- Graham Hospital
2000-2004	Graham Hospital Board of Trustees
2000	Illinois Association of Ophthalmology Board of Directors.

PROFESSIONAL AFFILIATIONS:
American Academy of Ophthalmology, American Society of Cataract and Refractive Surgery, Alpha Omega Alpha National Medical Honor Society.

HOSPITAL AFFILIATIONS:
Graham Hospital, Canton, IL, Active Staff since 1997
Mason District Hospital, Havana, IL

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PROFESSIONAL RECRUITMENT

HONORS AND AWARDS:

MEDICAL SCHOOL:	Valedictorian of USC School of Medicine, Class of 1992
	Graduated M.D. with Highest Distinction
	Alpha Omega Alpha Honor Medical Society
	Dean's Scholar years I, II, II and IV
	Merck Manual Award
	Upjohn Achievement Award
UNDERGRADUATE:	Magna Cum Laude Honors Degree
	Dean's List 1986-1987

BIOGRAPHY:

BOOK CHAPTER

1. Kolahdouz-Isfahani A.H., Salz J. Clear Lens Extraction and Intraocular Lens Implantation for the Correction of Hyperopia. Surgery for Hyperopia and Presbyopia. Williams & Wilkins, 1997. Baltimore, MD 175-181.

2. Kolahdouz-Isfahani A.H., PangilinanR., Shah S., Jackson B., Salz J., McDonnell P.J. Surgical Correction of Hyperopia. Ophthalmology Clinic of North America, December 1997. W. B. Saunders Co., Philadelphia, PA. 599-617.

PEER-REVIEW JOURNAL

1. Englanoff J, Kolahdouz-Isfahani A, Moriera H, Cheuong DT, Mimni ME, Trokel S, McDonnel PF. In Situ Collagen Gel Mold as an Aid in Excimer Laser Superficial Keratectomy, Ophthalmology 1992; 8:1202-1208

2. Moriera H, Kolahdouz-Isfahani A, Englanoff J, Fasano A, Ziogas A, Villasenor R, McDonnell PJ. Retrospective Comparison of Simultaneous and Non-Simultaneous Bilateral Radial Keratotomy. Journal of Refractive and Corneal Surgery. 1994; 10: 545-549.

3. McCleod S, Kolahdouz-Isfahani A, Rostamian K, Flowers C, Lee P, McDonnell PF. The Role of Smears, Cultures and Antibiotic Sensitivity Testing in the Management of Suspected Infectious Keratitis. Ophthalmology, 1996; 103: 23-28.

4. Rostamian K, Thach AR, Kolahdouz-Isfahani A, Pakkar A, Pakkar R, Borchert M. Open Globe Injuries in Children. Journal of AAPOS, Vol. 2, No. 4, August 1998, 234-238.

5. Tanzer D, Kolahdouz-Isfahani A, Schallhorn S, LaBree L, McDonnell PJ. Photorefractive Keratectomy in African Americans Including Those with Known Dermatologic Keloid Formation. AM Jour of Ophth, Vol. 26, No. 5, Nov. 1998, 625-629.

6. Kolahdouz-Isfahani A, Wu FM, Salz JJ. Refractive Keratotomy After Photorefractive Keratectomy. Jour of Refractive Surgery, Vol. 15. Jan/Feb. 53-57.

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PROFESSIONAL RECRUITMENT

7. Kolahdouz-Isfahani A, Rostamian K, Wallace D, Salz JJ. Clear Lens Extraction with Intraocular Lens Implantation for Hyperopia. Jour of Refractive Surgery, Vol. 15, May/June 1999, 316-323.

8. Pakar A, Rofougaran R, Lu K, Wee WR, Kolahdouz-Isfahani A, McDonnell PJ. Effects of Gamma Interferon on Keratocyte Proliferation and Keratocyte Induced Collagen Gel Contaction. Jour of Refractive Surgery, Vol. 14, 1998, 152-155.

PUBLISHED ABSTRACTS

1. Kolahdouz-Isfahani A, Rostamian K, Valencia M, Labree L, Mangione CM, Garcia A, Lee P. The Relationship Between the Activities of Daily Vision Scale (ADVS) and Visual Field Defects in Glaucoma. Invest Ophth Vis Sci 35 (ARVO supplement) April 1994.

2. Rostamian K, Kolahdouz-Isfahani A, Valencia M, Labree L, Mangione CM, Lee P. Functional Assessment of Daily Visual Scale in Diabetic Patients. Invest Ophth Vis Sci 35 (ARVO supplement) April 1994.

3. Kolahdouz-Isfahani A, Varm R, Minckler DS, Green R, Schoonewolf G, Heuer DK. Natural History of Delayed Suprachoroidal Hemmorrhage with Central Retinal Apposition. Ophthalmology 101 (September supplement) 131, 1994.

4. Pakar A, Rofougaran R, Lu K, Wee WR, Kolahdouz-Isfahani A, McDonnell PF. Effects of Gamma Interferon on Keratocyte Proliferation and Keratocyte Induced Collagen Gel Contaction. Invest Ophth Vis Sci 36 (ARVO supplement) May 1995.

5. Kolahdouz-Isfahani A, McCleod S, Rostamian K, Flowers C, McDonnell PF. Efficacy of Fortified Antibiotics in the Initial Treatment of Community Acquired Corneal Ulcers. Invest Ophth Vis Sci 36 (ARVO supplement) May 1995.

6. Rostamian K, Kolahdouz-Isfahani A, Pakar A, Rofougaran R, Borchert M. Penetrating Injuries in Children. Invest Ophth Vis Sci 36 (ARVO supplement) May 1995.

7. Kolahdouz-Isfahani A, McCleod S. Rostamian R. Flowers C, Lee P, McDonnell PJ. Revised Strategy for the Care of Community Acquired Corneal Ulcers. Ophthalmology 102 (September supplement) 1995.

8. Rostamian K, Kolahdouz-Isfahani A, Borchert M. Etiologic and Prognostic Features of Acquired Isolated Unilateral Sixth Nerve Paresis in Children. Ophthalmology 102 (September supplement) 1995.

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PROFESSIONAL RECRUITMENT

Cataract surgery complication in San Diego

Anterior vitrectomy rate In Kaiser San Diego

- 2014 : 0.49% (N= 6402)
- 2015: 0.63% (N= 6893)

Anterior vitrectomy rate at Mass Eye and Ear (Harvard)

- 2012 : 1.7% (N= 1464)
- 2013 : 1.6% (N= 1719)

Same Day Bilateral Cataract surgery

Amir H Kolahdouz-Isfahani MD

Cataract surgery complication in San Diego

Dropped / Retained Nuclear Fragments in Kaiser San Diego

- 2014 : 0.125% (N= 6402)
- 2015 : 0.23% (N= 6893)

Dropped / Retained Nuclear Fragments At Mass Eye and Ear (Harvard)

- 2012 : 0.3% (N=1464)
- 2013 : 0.2 % (N= 1719)

Cataract surgery complication in San Diego

Post-operative endophthalmitis rate in Kaiser San Diego (with intra-cameral vigamox)

- 2014 : 0% (N= 6402)
- 2015 : 0% (N= 6893)

Post-operative endophthalmitis rate at Cole Eye Institute (Cleveland Clinic)

- 2014 : 0.41 % (N= 1215)
- 2015 : No published data

Bilateral same day Cataract surgery

- Advantages
- 1. Less office visit
- Five visits for bilateral cases vs 7 visits for unilateral cases
- 2. Less co-pay for surgery and office visits
- 3. Less travel time for patients and family members
- 4. Less anesthesia especially for patients requiring general anesthesia
- 5. faster recovery , less pain and faster visual rehabilitation
- 6. cost saving for Kaiser (medicines and surgical supplies)

Endophthalmitis rate after cataract surgery in southern California kaiser

Cataract surgery with intra-cameral vigamox

- 3 cases / 21070 cases = 0.014%

Cataract surgery without intra-cameral vigamox

- 16 cases / 16724 cases = 0.095%

Bilateral Same Day Cataract Surgery

- Disdavantages
- 1. Post-Operative Complication such as Endophthalmitis or Cystoid macular edema or retinal vasculitis
- 2. Blurry vision
- 3. dissatisfaction with cataract surgery such as IOL visual disturbances

Bilateral Same Day Cataract surgery

- 1. Second eye performed only if the surgery in the first eye is uncomplicated.
- 2. Second eye performed after the room is broken down while patient stays in the room
- 3. The cataract surgery tray and vigamox comes from different batches

Bilateral Same Day Cataract surgery

- Candidates
- 1. No premium IOL
- 2. Patient willing to wear bifocal glasses
- 3. No history of Refractive surgery
- 4. Exclude patients with small eyes with shallow anterior chamber
- 5. Exclude patients with Fuchs Dystrophy

Bilateral Same Day Cataract surgery

- 24 eyes of 12 patiens
- 4 patients with general vs 8 patients with topical anesthesia
- 10/24 eyes with vision less than 20/40 uncorrected on post-op day 1
- 4/24 eyes with High IOP on Post-op day 1
- No cases of Endophthalmitis
- No cases of CME or steroid responder
- All eyes had best corrected vision of 20/30 or better at their 4 weeks optometry visit. One patient was no-show at optometry visit.

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY

EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA STATE BOARD OF OPTOMETRY

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
(916) 575-7725 (916) 575-7292 www.optometry.ca.gov

2016 FEB P

Request for Approval of Continuing Education Course(s)

Riverside-San Bernardino County Indian Health
ATTN: Dr. Joseph Pruitt
11980 Mount Vernon Ave
Grand Terrace, CA 92313

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1480	4395914	6210196	550

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Episcleritis, Scleritis, and Iritis	4/1/16	Joseph Pruitt, OD	2			
Ethical Concerns w/Short-term Mission Trips	4/22/16	Joseph Pruitt, OD	1			
Visual Fields	4/29/16	Joseph Pruitt, OD	2			
Systemic Urgencies and Emergencies	5/13/16	Joseph Pruitt, OD	1			
Vitreo-Retinal Disorders	5/20/16	Joseph Pruitt, OD	2			
The Pharmacological Management of Glaucoma	6/3/16	Joseph Pruitt, OD	2			
Neuro-Optometry	6/17/16	Joseph Pruitt, OD	1			
Myasthenia Gravis: Ptosis Crutch	6/24/16	Joseph Pruitt, OD	1			
Age-Related Macular Degeneration	7/1/16	Joseph Pruitt, OD	2			
Diabetic Retinopathy	7/15/16	Joseph Pruitt, OD	2			
Mental Barriers in Visual Rehabilitation	7/29/16	Joseph Pruitt, OD	1			

COMMITTEE COMMENTS:

(909) 721-7751
pruitt.joseph@gmail.com

Joseph A. Pruitt, O.D., M.B.A., FAAO

Objective:

Education:

Salus University, Elkins Park, Pennsylvania — 2014-present
Master of Public Health *(in progress)*

Nova Southeastern University, Fort Lauderdale-Davie, Florida — 2008-2011
Master of Business Administration, 2011

West Los Angeles Veteran Affairs Healthcare Center, Los Angeles, California — 2007-2008
Residency Certificate, Geriatric/Primary Care, 2008

Illinois College of Optometry, Chicago, Illinois — 2003-2007
Doctor of Optometry, 2007

California State Polytechnic University, Pomona, California — 2000-2003
Bachelor of Science, Biology, 2003

University of Memphis, Memphis, Tennessee — 1999-2000
Major in Biology

Licenses:

Tennessee #2753 — Date of Issue: July 10, 2007
- Active
- Injectible Certification
- Therapeutic Certification

California #13429T — Date of Issue: Sept. 28, 2007
- Active
- Therapeutic and Pharmaceutical Agent + Lacrimal Irrigation and Dilation + Glaucoma (TLG) Certified

Georgia #OPT002454 — Date of Issue: June 12, 2008
- Active
- Diagnostic and Therapeutic Pharmaceutical Agent Certified

Minnesota #3130 — Date of Issue: June 17, 2008
- Active
- Diagnostic Pharmaceutical Agent (DPA) Certified
- Therapeutic Pharmaceutical Agent (TPA) Certified

Board Certification:

American Board of Certification in Medical Optometry — Date of recertification: Feb 2018
- Board certified

Certifications:

Drug Enforcement Agency (DEA) Certified — Date of Expiration: Mar 2017

Cardiopulmonary Resuscitation (CPR) & Automated External Defibrillator (AED) — Recommended Renewal: Mar 2017

Bausch & Lomb Overnight Orthokeratology — Date of Issue/Completion: April 6, 2006

- Certification Number: 20060406002

Paragon Corneal Refractive Therapy (CRT) — Date of Issue/Completion: Dec. 28, 2007
- Certification Number: 161000

Advance Competence in Medical Optometry (ACMO) — Date Taken: June 13, 2008
- Administered by the National Board of Examiners in Optometry (NBEO)
- Examination only made available to candidates meeting specific clinical experience requirements/pre-requisites
- Passed examination

Employment:

Riverside San Bernardino County Indian Health, Inc — Oct. 2014 – present
- Director of Eye Care
- Staff Optometrist

Riverside San Bernardino County Indian Health, Inc — July 2014- Oct. 2014
- Staff Optometrist

Minneapolis Veteran Affairs Health Care System — Nov 2008- June 2014
- Low Vision/Staff Optometrist
- Optometric Residency Coordinator
  - Spearheaded and implemented program
- Student Externship Coordinator
  - Spearheaded and implemented program

Wal-Mart Vision Center (Red Wing & Rochester, MN) — Jul 2008- Nov 2008
- Associate Optometrist

EyExam of California — Oct 2007- June 2008
- On-call/Fill-in Optometrist

Faculty Appointments:

Western University of Health Sciences College of Optometry, Pomona, California — July 2014- present

University of the Incarnate Word-Rosenberg School of Optometry, San Antonio, Texas — May 2012- June 2014
- Clinical Assistant Professor
- Minneapolis VA HCS Externship Site Program Director

Midwestern University-Arizona College of Optometry, Glendale, Arizona — May 2012- June 2014
Adjunct Clinical Assistant Professor
Minneapolis VA HCS Externship Site Program Director

Southern College of Optometry, Memphis, Tennessee — May 2012- June 2014
Adjunct Faculty
- Minneapolis VA HCS Externship Site Program Director

University of Missouri, St. Louis College of Optometry, St. Louis, Missouri — May 2012- June 2014
Adjunct Assistant Professor
- Minneapolis VA HCS Externship Site Program Director

Experience:

Riverside-San Bernardino Indian Health, Inc — Oct 2014 - present
- Director of Eye Care

Riverside-San Bernardino Indian Health, Inc — July 2014 – Oct 2014
- Staff Optometrist

Minneapolis Veteran Affairs Medical Center — Nov 2008- June 2014

- Staff Optometrist
  - Primary Eye Care
  - Low Vision
    - Sole low vision eye care provider
  - Polytrauma/Traumatic Brain Injury (TBI) Ocular Health & Vision Assessments

- VISN 23 Low Vision Continuum of Care Conference (May 2009)
  - Faculty
  - Planning committee

- Established Associated Health Education Affiliation Agreement with University of Missouri, St. Louis College of Optometry, Ferris State University Michigan College of Optometry, & Southern College of Optometry for the optometric externship program
  - Externship program director

- Established Associated Health Education Affiliation Agreement with the Illinois College of Optometry for the optometry residency program
  - Residency in Primary Care/Brain Injury and Vision Rehabilitation
  - Residency program director
    - Designed the program's curriculum
    - Secured all necessary approvals and funding
    - After the initial site visit, program received full ACOE accreditation

Wal-Mart Vision Center (Red Wing & Rochester, MN) — Jul 2008- Nov 2008

- Associate Optometrist

Residency:

West Los Angeles Veteran Affairs Healthcare Center — Jul 2007- June 2008

- Geriatrics/Primary Care
  - Primary Care including Diabetic exams
  - Low Vision evaluations/exams
  - Nursing home/in-patient exams
  - Medically justified specialty contact lenses exams/fittings
  - Lecture Internal Medicine's and Endocrinology's Residents & Interns on Diabetic Retinopathy
    - Given during Chief Resident rotation
  - Precept Southern California College of Optometry's interns

Optometric Externships:

Atlantic Eye Institute, Jacksonville Beach, FL — Feb-May 2007

- OD/MD private practice with an emphasis on Contact Lenses and Primary Care
- Observed multiple surgical procedures:
  - Cataract Extraction
  - Blepharoplasty
  - Strabismus recession and resection

Memphis Veterans Affairs Medical Center (VAMC), Memphis, TN — Nov 2006-Feb 2007

- Emphasis on Primary Care
- Assisted in direct care in a high patient volume medical optometric eye clinic
- Assisted in optometric injections and fluorescence angiographies procedures

Illinois Eye Institute (IEI), Chicago, IL — Aug-Nov 2006

- Emphasis on Pediatrics/Binocular Vision, Advance Care, and Low Vision
- Performed comprehensive eye exams on pediatric patients (infants-11yrs of age)
- Performed comprehensive eye exams on "at risk/2nd chance" children one day a week at Maryville Academy
- Constructed, tailored and performed successful binocular vision/vision therapy treatments to 4 children over a 10 week period
- Assisted in the treatment of advance glaucoma with attending University of Chicago ophthalmologist
- Performed problem specific examinations one day per week in IEI's Emergency/Urgent Care/Walk-in clinic
- Performed full Low Vision examinations including Low Vision device selection and training

Body of Christ Optometry Clinic, Tegucigalpa, Honduras — May-Aug 2006

- Emphasis on Primary and Advance Care
- Performed full-scope optometric care in a high patient volume medical clinic geared towards the underprivileged
- Also worked closely with a local ophthalmologist
  - Observed and assisted in Cataract Extraction and Incision and Curettage procedures
  - Provided pre and post-surgical care

Primary Care Clinical Education
Illinois Eye Institute, Chicago, IL — Aug 2005-May 2006

Volunteer Optometric Assistant
Body of Christ Optometry Clinic, Tegucigalpa, Honduras — Jun-Aug 2004

- Assisted staff optometrist in direct patient care in the clinic and multiple remote satellite outreach locations

Professional Affiliations/Memberships:

- Accreditation Council on Optometric Education
  - Consultant, 2014-present
- American Academy of Optometry (AAO)
  - Fellow; Class of 2009
- American Optometric Association (AOA)
- Armed Forces Optometric Society (AFOS)
- European Academy of Optometry and Optics (EAOO)
  - Candidate for Fellowship
- Fellowship of Christian Optometrists (FCO)
- Minneapolis VAMC Medical Staff Association
  - Steering Committee, member 2010-2014
- National Association of Veteran Affairs Optometrists (NAVAO)
  - Newsletter Committee, member 2010-present
- National Optometric Association (NOA)
  - Minnesota's NOA State Representative 2010-2012
  - National Optometric Student Association (NOSA)
    - NOSA National Vice-President: 2006-2007
    - NOSA-ICO President: 2005-2006
    - NOSA-ICO Vice-President: 2004-2005
- Volunteer Optometric Service to Humanity (VOSH)
- Journal of Rehabilitation Research and Development
  - Peer Reviewer, 2013-present

Activities:

- AFOS Delegate: AOA 118th Congress House of Delegates (June 2015)
- VOSH Medical Mission Trip, Bamenda, Cameroon (May 2010)
- Mayo Medical School/Brighter Tomorrow's Winter Warmth Festival (Jan 2009 & Jan 2010)
  - Fun day of activities for children battling cancer and their families
  - Volunteer
- Veteran Affairs Disaster Emergency Medical Personnel System (DEMPS)
  - Volunteer (Aug 2009-present)
- FCO Optometry Mission Trip, Port Au Prince, Haiti (Feb 2007)
- SVOSH Medical Mission Trip, Addis Addaba, Ethiopia (Mar-Apr 2006)
- FCO Optometry Mission Trip, Tegucigalpa, Honduras (Apr 2003 & Nov 2004)

Honors/Rewards:

- Nomination for Medical Staff Clinical Excellence Award (2012 & 2013)
- Recognition for Outstanding Dedication and Service as Adjunct Assistant Professor, University of Missouri – St. Louis (2010-2011 Academic Year)
- Journal of the American Optometric Association: Optometry's Eagle Award (Nov 2010)
- Certificate of Appreciation (July 2009)
  - Department of Veterans Affairs – VISN 23
    - Awarded for participation in VISN 23 Blind and Low Vision Continuum of Care Conference
- Recognition for Clinical Excellence (May 2007)
- Derald Taylor Low Vision Award (May 2007)
- Clinical Dean's List (summer 2005; summer & fall 2006, winter & spring 2007)
- Academic Dean's List (fall 2004)
- Wildermuth Leadership Award/Scholarship (Aug 2006)
- Vistakon Acuvue Eye Health Advisor Citizenship Scholarship (Jan 2006)
- NOSA Service Award/Scholarship (Aug 2004)

Publications:

Pruitt JA. The Management of Homonymous Hemianopsia Secondary to Hemispheric Ischemic Cerebral Vascular Accident. Accepted for publication by Review Optometry (July 2010)

Rittenbach TL, Pruitt JA. A Roundup of Recently Approved Ophthalmic Drugs (and their Use in Practice.) Rev Optom. 2014. 151(2):22-28.

Pruitt JA. Management strategies for patients with AION. Rev Optom. 2011. 148(6):57-65.

Pruitt JA. Neuro-Optometric Rehabilitation Association Program Summary. Optimum VA: The Official Newsletter of the National Association of VA Optometrists Summer 2010.

Pruitt JA, Ilsen P. On the frontline: What an optometrist needs to know about myasthenia gravis. Optometry 81(9): 454-460.

Pruitt JA, Sokol T, Maino D. Fragile X Syndrome and the Fragile X-associated Tremor/Ataxia Syndrome. Eye Care Review: Ophthalmology, Optometry, Opticianry 4(2): 17-23

Posters/Presentations

Pruitt JA. The Curious Case of the Functionally Legally Blind Patient with 20/25 (6/7.5) Visual Acuity. *Accepted into American Optometric Association Annual Meeting: Optometry's Meeting (2012) Poster Session.*

Pruitt JA, Prussing N. Successfully Treated Horizontal Diplopia Returns with Subsequent Traumatic Brain Injury. *Accepted into American Optometric Association Annual Meeting: Optometry's Meeting (2012) Poster Session.*

Pruitt JA, Prussing N. The Curious Case of the Functionally Legally Blind Patient with

20/25 (6/7.5) Visual Acuity. European Academy of Optometry and Optics Annual Meeting (2012) Poster Session.

Pruitt JA, Prussing N. Successfully Treated Horizontal Diplopia Returns with Subsequent Traumatic Brain Injury. European Academy of Optometry and Optics Annual Meeting (2012) Case Presentation Session.

Pruitt JA, Prussing N. Traumatic Brain Injury Resulting in Horizontal Diplopia Resolved 5 Years Later with 12 Weeks of Vision Therapy. Minnesota Optometric Association Annual Meeting (2012) Poster Session.

Pruitt JA, Wiley LM. Overcoming Mental Barriers in Visual Rehabilitation. American Optometric Association Annual Meeting: Optometry's Meeting (2011) Poster Session.

Pruitt JA, Prussing N. Traumatic Brain Injury Resulting in Horizontal Diplopia Resolved 5 Years Later with 12 Weeks of Vision Therapy. European Academy of Optometry and Optics Annual Meeting (2011) Poster Session.

Pruitt JA. Overcoming Mental Barriers in Visual Rehabilitation. European Academy of Optometry and Optics Annual Meeting (2011) Case Presentation Session.

Pruitt JA, Wiley LM. Overcoming Mental Barriers in Visual Rehabilitation. Minnesota Optometric Association Annual Meeting's (2011) Poster Session

Pruitt JA, Ilsen P, Yeung C. Ptosis Crutch: Success Treating Myogenic Ptosis Secondary to Myasthenia Gravis. American Optometric Association (AOA) 2008 Optometry Meeting Poster Session

Pruitt JA, Ilsen P. Ptosis Crutch: Success Treating Myogenic Ptosis Secondary To Myasthenia Gravis. Southeastern Congress of Optometry (SECO) 2008 Multimedia Poster Session

Lectures and Other:

Illinois College of Optometry: Practice Opportunities Symposium (Mar 2011)

- Represented and presented on VA Optometry
- Participated in panel discussion on "Residency-trained Optometrists"

University of Minnesota: Pre-Optometry Club (Oct. 2010)

- Presentation on the profession of Optometry
- Presented and represented VA Optometry and NOA

Illinois College of Optometry: Capstone Ceremony (May 2010)

- Represented and presented on VA Optometry

Illinois College of Optometry: Practice Opportunities Symposium (Mar 2010)

- Participant in Residency-trained Speaker's Panel
- Represented and presented on VA Optometry

Illinois College of Optometry: White Coat Ceremony/Smart Business Program (Sept 2009)

- Participant on Recent Graduate Speaker's Panel

1 **Episcleritis, Scleritis, and Iritis**

Joseph A. Pruitt, O.D., M.B.A., FAAO
Riverside-San Bernardino County Indian Health, Inc.

2 **Episcleritis**

- Inflammation of the episclera
  - The connective tissue sheath between the sclera and conjunctiva
  -
- Generally benign condition occurring in young adults
  - Marked tendency to reoccur

3 **Episcleritis**

- Two different forms:
-
  - Simple: accounts for ~80% of episcleritis
  -
  - Nodular: accounts for ~20%

4 **Simple Episcleritis**

- Acute onset of signs and symptoms
  - Sometimes within ½ hour
  -
  -
- More common in women than men
  - Women: 20-50 years old
  - Men: 30-60

5 **Simple Episcleritis**

- Patient complains of mild to moderate discomfort
  - Hotness, pricking, etc
  - Tenderness may be present on direct palpitation to the irritated area
-
- *Note: pain should be localized to solely the eye. Pain radiating to the forehead think scleritis*

6 **Simple Episcleritis**

- Lids may be involved in severe cases
-
- Photophobia may be present
  - Should be mild, if severe think corneal disease
  -
- No discharge; but may experience epiphora
-
- Vision should not be affected significantly
  - ...if at all
  -
- History often reveals recurrence of similar problem
-

7 **Simple Episcleritis**

- Appears as wedge or sector of deep injection and inflammation
  - Redness varies from firey→brick-red→mild red flush
  -
  - Should not appear bluish as in scleritis

- Typically apex of wedge towards the limbus, base away
- Usually in interpapebral area (temporal > nasal)
- Mild elevation of overlying conjunctiva possible

8 **Simple Episcleritis**

- Usually unilateral
  - Although can be bilateral
- May involve entire anterior segment in rare cases
- Anterior chamber reaction absent
- Palpebral conjunctiva and cornea remain clear

9 **Simple Episcleritis**

- Must rule out any other causes of red eyes
  - Rule out common forms of conjunctivitis
  - Rule out pingueculae and phlyctenulosis
  - Rule out scleritis
  - Rule out trauma
    - Typically by history
  - Mechanical injury
  - Chemical injury
  - Radiation exposure

10 **Simple Episcleritis**

- Treatment
  - Mild cases: optional
    - Self-limiting (~1-2 weeks)
    - Cold pack q 3-5 hrs for ~5 days
    - If symptomatic and concerned about cosmesis
      - Mild steroid (FML , Pred Mild, *Alrex*) QID
      - Topical NSAID (Acular, Nevanac, Voltaren) QID
      - Oral NSAID PRN

11 **Simple Episcleritis**

- Treatment
  - Moderate to severe cases:
    - Prednisilone 1% (PredForte) or Lotemax QID→Q4H
    - Oral NSAID*
      - Ibuprofen (1200-1600 mg/day)
      - Naproxen (220-660 mg/day)

**Always want to use the lowest effective dose*

12 **Simple Episcleritis**

- Follow-up

- Weekly until resolved
- Normal course (with or without) treatment 10-21 days
- Once resolved, see on annual basis
-
- Education
  - Advise patient of possible recurrences for next 3 months → 3 year period

13 **Simple Episcleritis**

- ≥ 3 recurrences warrants systemic work-up
-
- However keep in mind:
  - Only 30% of patients have associated clinical findings
    - Of those, only 5% showed association with collagen disease
    - 7% associated with Herpes Zoster
    - 3% associated with gout or syphillis
    - The balance, various other conditions

14 **Simple Episcleritis**

- Reported associated systemic diseases
  - Rheumatoid arthritis
  - Systemic lupus erythematosus (SLE)
  - Giant cell arteritis
  - Polyarteritis nodosa
  - Sarcoidosis
  - Herpes zoster
  - Tuberculosis
  - Syphilis
  - Gout
  - Thyrotoxicosis

15 **Simple Episcleritis**

16 **Nodular Episcleritis**

- Far less common
  - Only ~20% of all cases
  -
- Symptoms similar to simple form, but more severe:
  - Pain often present w/o palpitation
  - Tenderness greater than simple with palpitation
  - Photophobic responses may be moderate to severe
  - Vision still normal despite presentation

17 **Nodular Episcleritis**

- Recurrent history not as frequent with nodular as simple
-
- Recurrence of the two are NOT mutually exclusive
  - Simple episcleritis can recur as nodular and vice versa
  -
- Systemic associations continue to be rare

18 **Nodular Episcleritis**

- Signs
  - Similar to simple, but more intense with development of a nodule
    - Nodule is an organized area of cellular infiltrate in the center of sectoral inflamed wedge

- Increases in size rapidly initially, often reaching the size of pea
- Usually a single site, but can be multiple
- Increased edema and infiltration as compared to simple form
  - Especially in area of nodule

19 **Nodular Episcleritis**

- Anterior chamber may show mild reaction
  - Trace cells + flare
  -
- Cornea still remain completely uninvolved
-
- After multiple occurrences in the same area, the superficial lamellae of the sclera can appear transparent
  - Not to be confused with scleral thinning or necrosis

20 **Nodular Episcleritis**

- Differentiation:
  - Nodular = increased objective & subjective intensity
  - Nodular = presence of a nodule
  -

21 **Nodular Episcleritis**

- Treatment
  - Same as moderate to severe episcleritis
    - Prednisilone 1%
      - Increase to q2-4 h based on severity
    - Oral ibuprofen
      - 1200-1600 mg/day
    - Rarely in severe cases, oral steroids are needed for prolonged non-responsive cases, which is called...?
    -
      - Periodosis fugax
      -
  - Patient to be followed weekly until resolved

22 **Nodular Episcleritis**

- Normal course for nodule regression can extend months with or without treatment
  - Usually no more than 2 to 3 months
  -
- What is a quick and easy test to differentiate between episcleritis and scleritis...?
  - Instill phenylephrine 2.5% and or 10% if necessary
- Why does this work?
  - 2.5% drop does not penetrate into sclera, but 10% does

23 **Nodular Episcleritis**

24 **Scleritis**

- Severe destructive disease
  - Potentially leading to loss of an eye

- Most common in 4th to 6th decades of life

- Women > men (8:5)

- Bilateral in 52% of patients

- Of which, 50% are bilateral at onset
  - Remaining will develop in other eye within 5 years

25 **Scleritis**

- Very severe pain
  - Almost intolerable
  - Often prevents sleep
  - Often is accompanied by general malaise
  - Mildly relieved by analgesics

- Gradual onset
  - Generally building up over several days

- Pain can radiate to the brow and jaw area

26 **Scleritis**

- Often a history of recurrences
- Vision is typically reduced
- Severe photophobia
- Profuse tearing
- Angry red eye
  - Usually diffuse with 360^0 involvement
  - Deep scleral vessels may produce a bluish to purplish color (which cannot be blanched with 2.5% phenyl)

27 **Scleritis**

- Sclera may appear edematous as well as thinned
-
- Often associated with corneal involvement
  - Peripheral corneal thinning or guttering (keratolysis)
  -
- Anterior uveitis almost always present as well
-
- Inflammatory nodules may be present on anterior sclera

28 **Scleritis**

- Often associated with other ocular findings
  - Posterior involvement
  - Glaucoma
  - Cataracts
  - Hyperopic refractive shift
  -
- High likelihood of systemic disease
  - >50%

29 **Scleritis**

- Associated systemic diseases:
  - Rheumatoid disease
    - Most common
  - Herpes Zoster Ophthalmicus
  - Syphilis
  - Gout
  - TB

- Others
  - Reactive Arthritis –or- Subacute Infectious Polyarthritis with Mucositis (formerly known as...?)
  -
    - Reiter's Syndrome
  - Granulomatosis with polyangitis (formerly known as...?)
  -
    - Wegener's Granulomatosis

30 **Scleritis**
- Can be divided into different types
  - Which may not indicate etiology
  - Although may help with treatment and prognosis
  -
- Different types of scleritis:
  - Anterior
    - Diffuse
    - Nodular
    - Necrotizing (with or without inflammation)
  - Posterior

31 **Scleritis**
- Diffuse Anterior Scleritis
  - Most common
  - Least severe scleritis
  - Inflammation is widespread
  - Normal radial pattern of vessels is lost
    - Due to anastamosis, beading and tortuosity of vessels

32 **Diffuse Anterior Scleritis**

33 **Scleritis**
- Nodular Anterior Scleritis
  - Appears similar to nodular episcleritis on cursory exam
  - Nodules consist of scleral tissue
    - Immovable
  - Nodules are tender to the touch
  - Sclera may appear transparent below the nodule
    - But is not necrotic

34 **Nodular Anterior Scleritis**

35 **Scleritis**
- Necrotizing Anterior Scleritis with Inflammation
  - Associated with severe inflammation and extreme discomfort
    - Often wakes up patient during night
  - Extreme danger of losing eye
    - Thus, early detection is crucial
  - Sclera itself will appear swollen with overlying areas of inflammation
  -

36 **Scleritis**
- Necrotizing Anterior Scleritis with Inflammation (continued)
-
  - Following the acute inflammation, the sclera becomes transparent

- Underlying choroidal pigment becomes visable
-
- If inflammation continues the entire anterior segment can become involved
-

37 **Necrotizing Anterior Scleritis with Inflammation**

38 **Scleritis**

- Necrotizing Anterior Scleritis without Inflammation
  - Also called...?
    - Scleromalacia perforans
    -
  - Characterized by an almost total lack of symptoms
  - Occurs almost exclusively in individuals with longstanding polyarticular rheumatism
  -
    - Majority of which are women

39 **Scleritis**

- Necrotizing Anterior Scleritis without Inflammation (continued)
-
  - The anterior sclera loses its covering of episclera
    - An area of yellow-white tissue develops as a result
    - Eventually separates or absorbs leaving behind just conjunctiva or nothing at all

40 **Necrotizing Anterior Scleritis without Inflammation**

41 **Scleritis**

- Posterior Scleritis
-
  - Thought to be more common than recognized due to not being able to view posterior sclera
  -
  - Usually only discovered if anterior scleritis is involved or if other signs in orbit lead towards it being present
  -

42 **Scleritis**

- Posterior Scleritis
-
  - If inflammation remains posterior
    - exudative retinal detachment is possible
    - Retinal swelling
    - Swelling of the disc
    -
  - If inflammation extends outward EOMs become involved leading to:
    - Proptosis
    - Lower lid retraction
    - Ophthalmoplegia

43 **Posterior Scleritis**

44 **Scleritis**

- Due to severity, condition requires prompt diagnosis and urgent care
- Complete physical examination by internist and lab work is crucial
- Referral to a specialist is advisable:
  - Uveitic specialist if anterior

- Retinal specialist if posterior
- Topical therapies (i.e. steroids) are of questionable value
  - May increase patient comfort
  - BUT...?
    - Beware of long-term use

45 **Scleritis**

- Narcotics may provide temporary relief of symptoms
-
- Intensive inflammatory control is mainstay of treatment
-
- Mild to moderate presentations
  - 600 mg oral ibuprofen qid x 1-2 weeks
  - 25 mg oral indomethacin tid x 1-2 weeks

46 **Scleritis**

- Severe or posterior uveitis
  - 60 to 100 mg oral prednisone for 3-5 days, then taper
  - Or more intensive immunosuppressive agents (e.g. methotrexate)

47 **Scleritis**

- Complications from oral treatment
-
  - Indomethacin
    - GI upset
    - Can be treated with H2 blocker
-
  - Prednisone
    - Hyperglycemia
    -
  - Immunosupressive agents
    - Leukopenia
    - Bladder toxicity
    - Opportunistic infection

48 **Scleritis**

- Treatment with subconjunctival or subtenons injections is contraindicated
  - Could lead to perforation
- Surgical treatment for defects in sclera is rarely needed
  - Underlying disease is treated

49 **Scleritis**

- Follow-up
  - Underlying medical condition should be managed by appropriate specialist
  -
  - Essentially must be followed closely, but base f/u schedule on severity of presentation and opinion of specialist
  -

50 **Scleritis**

- "Brawny" scleritis
  - Disambiguation...sort of
  -
    - In literature it has been described as:
      - Gelatinous-appearing swelling surrounding the cornea with a tendency to involve the periphery of the cornea (a.k.a. gelatinous scleritis)
      -
      - Necrotizing Anterior Scleritis with Inflammation
      -

51 **Uveitis**

- Inflammation of one or more of the 3 parts of the uveal tract:
  - Anterior...?
    - Iritis, iridocyclitis
  - Intermediate...?
    - Pars planitis
  - Posterior...?
    - Choroditis
  - All 3...?
    - Panuveitis
  -

52 **Anterior Uveitis**

- Typically involves photophobia, pain and excessive tearing
-
- Visual acuity may be mildly reduced
  - Most often 20/40 or better
  -
- Deep peri-limbal injection of the conjunctiva + episclera
  - Normal palpebral conjunctiva
  -

53 **Anterior Uveitis**

- Cornea may have mild edema or grayish-brown endothelial deposits (i.e. keratic precipitates)
-
  - Granulomatous
    - Large; yellow-white; some call "greasy"
  - Non-granulomatous
    - Smaller; white; fine

54 **Anterior Uveitis**

- Hallmark sign...?
  - Cells and Flare
    - Cells =
      - WBCs floating in the aqueous
        - An accumulation of WBCs in the anterior chamber is...?
          - Hypopyon
    - Flare =
      - Liberated protein from the inflamed iris or ciliary body, which causes a "smokey" appearance

55 **Anterior Uveitis**

56 **Anterior Uveitis**

57 **Anterior Uveitis**
- Posterior synechia may be present
  - Less frequently, anterior synechia

- IOP initially reduced due to hypotony of ciliary body
  - But eventually may rise due to accumulation of inflammatory by-products in trabecular meshwork

58 **Anterior Uveitis**
- May be chronic or acute
  - Chronic is very often due to underlying systemic disorder
  -
  - Acute is most often the result of trauma
    - Can also just be idiopathic or may be the 1st sign of underlying systemic disease
      - Thus, your call if you adhere to "1 non-granulomatous" rule

59 **Anterior Uveitis**
- Treatment is aimed at stopping inflammatory response
  - Pred Forte 1%/Lotemax 0.5% qid to q1h based on severity of presentation
  -
  - Cycloplege if great discomfort or posterior synechia
    - Homoatropine 5%
    -
  - Occasionally injectable and oral steroids are needed
    - Oral prednisone 60 to 80 mg
    - Kenalog 40

60 **Anterior Uveitis**
- When should lab tests be done...?
-
  - Recurrent or chronic
  - Bilateral
  - Recalcitrant
  - Granulomatous
  - If history suggest

61 **Anterior Uveitis**
- What do you want to order and why?
  - CBC
    - Assesses general health
  - ESR/CRP
    - Non-specific for inflammatory conditions
  - ANA/RF
    - For rheumatologic disorders, RA, SLE etc.
  - RPR/FTA-ABS
    - Syphillis
  - ACE/Serum calcium
    - Sarcoid; (x-ray)
  - ELISA
    - Lyme disease, toxo
  - HLA Typing
    - B-27: Ankylosing Spondylitis; (x-ray)

- B-5: Behcet's
- A-20: Birdshot Choriopathy
- PPD
- TB; (x-ray)
- MRI
- MS

62 **Anterior Uveitis**

- Causes
  - Idiopathic (40%)
  - HLA-B27 Arthropathies (21%)
  - JRA (11%)
  - Herpetic (10%)
  - Sarcoid (6%)
  - FHI aka FUS (5%)
  - SLE (3%)
  - IOL related (1%)
  - Miscellaneous

63 **Anterior Uveitis**

- Most often, if properly treated, resolves without consequence/complications
  - However, possible complications include:
    - Band keratopathy
    - Bullous keratopathy
    - Cataracts
    - CME, ERM, or macular hole
    - Glaucoma (rare)
    - Death (very rare...but possible)

1 **Helping or Hurting?**

Ethical Concerns with Short-term Mission Trips
Joseph A. Pruitt, O.D., M.B.A., FAAO
Riverside-San Bernardino County Indian Health, Inc

2 **Where it all began...**
- My trips
- High School & Undergrad
  - Mexico
  - Navajo Indian Reservation
  -

3 **Trips (continued)**
- Optometry School and on...
  - Honduras x 3
  - Nicaragua
  - Costa Rica
  - Panama
  - Haiti
  - Ethiopia
  - Cameroon
  -
  -

4 **Motivation**
- Places things into perspective
  - Grateful for the things I have
  - Content for the things I do not have
  - Understanding the world is bigger than me and my problems
  - I am capable of making significant and positive impacts in individual lives by simply being willing

5 **Eye Care Mission Trips**

Typically trips to identified area of need spanning from ~1 to 2 weeks where the medical emphasis or service provided is eye care.

The perfect outlet to facilitate the union of my motivations and lifelong career goal.

6 **Ethiopia**

Still the trip to have the biggest effect on me:

March 29th – April 10th , 2006
-

7 **STATISTICS**
- Team of 20
  - 3 Doctors
  - 3 Students
  - 1 Optician
  - 13 Volunteers
- 5 Days of Clinic

- 2,638 patients seen!
-

8 **Arriving in Ethiopia**

9 **The Royal Treatment**

10 **The Royal Treatment**

11 **The Royal Treatment**

12 **...can only go so far!**

13

14 **Who we treated...**

15

16

17

- "I always expected Ethiopia was going to be a country inhabited by a significant amount of "have-nots." That is one of the staple definitions when one tries to define a third world country. Unfortunately, even with that being said, I could never have been prepared to deal with what I encountered. I expected to see the "have-nots" and I saw the "have-nothings." I expected to help the visually impaired and ended up just hoping I comforted the blind. I went on the trip expecting a little break from my monotonous life and returned with exceeding joy for every mundane aspect now knowing first hand what my life could be like."

18 **Turning Point**

- Patient Safety and Quality Care Conference
  -
  - Held at Mayo Medical School (March 2010)
  -
  - Organized by my wife
  -
  - Jennifer Staple-Clark, Founder of an organization by the name of Unite for Sight presented

19 **Unite for Sight**

- Founded in 2000
-
- "...supports eye clinics worldwide by investing human and financial resources in their social ventures to eliminate patient barriers to eye care."

20 **"Supports Eye Clinics..."**

- The focal point to the presentation:
-
  - Eye clinic support

21 **Problems with Short-term Mission Trips**

- Unmonitored qualifications or standards of participants
- Participants involved for <u>all</u> the wrong reasons
- Re-conditioning of the area + surrounding areas served
- Unwarranted paternalism

22 **Food for Thought....**

- Number of Optometry programs in the U.S.?
  - 21
- Number of Optometry programs in Mexico?
  - 7

- Approximate U.S. population?
  - 320 million
- Approximate population in Mexico?
  - 120 million

23 **Soooooo**

- United States:
  - 320,000,000/21 =
    - ~ 1 optometry program for approximately every 15 million people
    -
- Mexico:
  - 120,000,000/7=
    - ~ 1 optometry program for approximately every 17 million people

24 **Problems with Short-term Mission Trips**

- Lack of support for local providers
- Lack of knowledge of local culture
-

25

26 **Ethiopia**

-
-
- Now, some of the things we saw in clinic...

27 **Trachoma**

- Caused by infection with the bacteria Chlamydia trachomatis
-
- Primarily occurs in poor/developing countries w/poor sanitation and cramped living conditions
  - Transmitted by way of close personal contact with infected person and or items (ie hands & clothing) and even flies
- Estimated to threaten the sight of 10% of the world's population
  - 8 million people are visually impaired or irreversibly blind
  - 84 million people with the active disease

28 **Trachoma**

- Two Classification Systems
  -
  - MacCallen
  -
  - World Health Organization (WHO)

29 **Trachoma**

- MacCallan Classification
-
  - Stage 1: Superior tarsal immature follicles, mild superior SPK and pannus, purulent discharge, and tender PA nodes
  -

30 **Trachoma**

- MacCallen Classification
  -

- Stage 2
  - Superior tarsal follicular reaction and/or papillary hypertrophy, superior K SEI's, pannus, and limbal follicles
-

31 **Trachoma**
- MacCallen Classification
-
  - Stage 3
    - Stage 3: Follicles and scarring of superior tarsal conjunctiva (a.k.a. Arlt's line)

32 **Trachoma**
- MacCallen Classification
-
  - Stage 4
    - Stage 4: No follicles, extensive conjunctival scarring
    -

33 **Trachoma**
- MacCallen
-
  - Late Complications
    - Late complications: Severe DES, trichiasis, entropion, keratitis, K scarring, superficial fibrovascular pannus, Herbert pits (scarred limbal follicles)
    -

34 **Trachoma**
- World Health Organization (WHO) Classification
-
  - TF (Trachomatous inflammation: follicular):
    - More than five follicles on the upper tarsus
    -
    -
  - TI (Trachomatous inflammation: intense):
    - Inflammation w/thickening obscuring more the 50% of the tarsal vessels

35 **Trachoma**
- World Health Organization (WHO) Classification:
-
  - TS (Trachomatous scarring):
    - Cicatrization of tarsal conjunctiva with fibrous white bands
    -
  - TT (Trachomatous trichiasis):
    - Trichiasis of at least one eyelash
    -
  - CO (Corneal opacity):
    - Involving at least part of the pupillary margin
  -

36
37
38 **Trachoma**
-
- Treatment
  - Antibiotics (p.o. and ung)

–

- Azithromycin 20 mg/kg p.o. single dose (preferred/first-line)
-

+

- 1% Tetracycline eye ointment
  - Should be offered to all individuals

39 **Trachoma**

- Treatment (continued)
-
  - Older/Alternative Orals
  -
    - Tetracycline 250 mg p.o. qid x 2 weeks
    - Doxycycline 100 mg p.o. bid x 2 weeks
    - Erythromycin 500 mg p.o. qid x 2 weeks
-
  -

40 **Trachoma**

-
- Furthermore, the World Health Organization (WHO) guidelines recommend giving antibiotics to an entire community when more than 10 percent of children (ages 1-9 years old) have been affected by trachoma.

41 **Trachoma**

What we did...

- Gave them sandwich bags of 250 mg of Tetracycline and told them to take them qid until they were gone!
- Tried the best we could to stress the importance of keeping them away from children (<8 yrs.) and pregnant women.

42 **Trachoma**

- Clinical take home
  - Most likely never to be encountered in a non-third world/developing country
  - End-stage blindness is TOTALLY PREVENTABLE
  -
  - Elimination is possible!

43 **Trachoma**

- According to WHO trachoma can be effectively eliminated through the SAFE strategy:
  - Surgery to correct advanced stages of the disease
  - Antibiotics to treat active infection
  - Face washing to reduce disease transmission
  - Environmental change to increase access to clean water and improved sanitation to eliminate disease altogether

-

44 **Congenital Glaucoma**

-
-
- 3 yo male presents with his mother complaining that "he is always crying"
  -
  -

45 **Congenital Glaucoma**

- Differentials
  - Nasolacrimal duct obstruction
  - Entropion/trichiasis
  - Foreign Body
  - Dry Eyes
  - *Congenital Glaucoma*

46 **Congenital Glaucoma**

-
-
- Exam findings:
  - VA's:
    - Fixate and follow OD, OS, OU
    -
  - 20 D/Trans-illuminator
    - OD: K dia. 11mm OS: K dia. 13.5 mm w/Central Corneal Haze
    -
  - IOP's:
    - OD: 19 OS: 26
    -
    -

47 **Congenital Glaucoma**

- Exam Findings (continued)
  -
  - Cyclo-Ret
    - OD: ~ -1.00; OS: ~ -3.00
  -
  - C/D's
    - OD: 0.4 OS: 0.7
  - DFE/Ophthalmoscopy
    - Unremarkable OU
    -

48 **Patient # 3**

49 **Congenital Glaucoma**

- Critical Signs
  - Enlarged Globe
  - Enlarged Corneal Diameter (>12 mm)
  - Corneal Edema/haze
  - Increased IOP's
  - Increased C/D ratio
  - *Commonly Bilateral*

50 **Congenital Glaucoma**

- Unilateral presentation

-
  - Sturge-Weber syndrome
    - Port wine stain or nevus flammeus along the 1st & 2nd divisions of CN V
    -
    - Cerebral calcification
    -
    - Seizures

51 **Congenital Glaucoma**

- Most cases occur sporadically but there are AR and AD patterns reported
  - 1 in 10,000 births in Europe and the U.S.
  - BUT there's an higher incidence observed in the Middle East (1 in 2,500) and India (1 in 3,300)
  -
    - Applicable to Somalian refugee camps...?

      or
    - Just asymmetrical onset and progression...?

52 **Congenital Glaucoma**

- Other Signs
  - Linear Tears in Descemet membrane (Haab Striae)
  - Myopic Shift in refractive error
    - Secondary to enlarged globe
      - Monitor by ultrasound or steady increase in myopia

53 **Congenital Glaucoma**

- Clinical take home:
  - 65% are male
  - 70% bilateral
  - Usually presents before 3 yrs. of age
  - Classic Triad of Symptoms:
    - Tearing
    - Photophobia
    - Blepharospasm
  - Primary tx
    - SUGERY

54 **Congenital Glaucoma**

- World Health Organization (WHO) estimated that 2/3 of the world's 300,000 cases of blindness due to congenital glaucoma could be prevented
  - The key is early detection and intervention

55 **Congenital Glaucoma**

- So what we did...
  - Timolol 0.25% bid OU
  -
  - Arranged transport for patient and family to Addis Ababa

56 **What Do You Think?**

-
-
- No complaint

- Encountered when I was "triaging"

57

58 **WHAT WE SAW**

59 **Cranial Nerve III Palsy**

- Cause:
  - Tumors or lesions
  - Trauma
  - Infections
  - Infarction
  - Cerebral aneurysms
  - Vascular malformations
  - Sinus thrombosis
  - Migraine HA (Rare)
  - *Unknown*

60 **Cranial Nerve III Palsy**

- Most likely the cause?
-
- Cerebral Aneurysm
  - Most notably PCA subarachnoid hemorrhage
  -
- Why?
- Pupil involvement
-

61

62 **Cranial Nerve III Palsy**

- Under normal circumstances you would want to:
  - *Order and MRI and/or MRA*
  -
    - *If results are inconclusive consider a cerebral angiography*
    -
    - *If the results of the cerebral angiography are inconclusive then have a lumbar puncture performed*

63 **Cranial Nerve III Palsy**

- *Furthermore, this test sequence is to be performed on:*
  - *all pupil sparing pt. <50 yrs old w/o hx. of long-standing DM or HTN*
  -
  - *children <10 yrs old regardless of the state of the pupil*
-

64 **Cranial Nerve III Palsy**

  -
  -
  -
  - *Make the appropriate referral*
    - Aneurysms, tumor, and trauma usually require neuro-surgery
-

65 **Cranial Nerve III Palsy**

- Clinical take home:

-
  - Treatment and prognosis depends on the cause
  -
  - Pupil sparing
    - Check blood pressure
    - Lab test: fasting blood glucose, CBC, ESR, VDRL, FTA-ABS, ANA

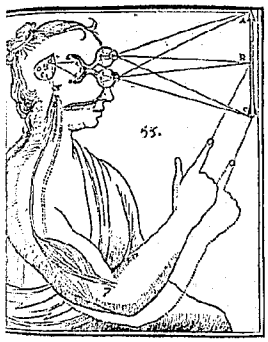
66 **Cranial Nerve III Palsy**
- Follow pupil sparing lesion closely everyday for pupil involvement for 1 week, the re-check every 4-6 weeks
-
  - If the cause is an aneurysm, the pupil will usually gradually became involved
-

67 **Cranial Nerve III Palsy**
- True pupil sparing lesions hold a possibility of being benign and self-resolving
  - In which case treat the symptoms (i.e. diplopia)
  -
  - Regained function should return within 3 months
  -
  - If not, consider imaging and referral
  -
-

68 **Cranial Nerve III Palsy**
- What I did...
  - Educated the patient the best I could
    - Have to admit I wasn't fully aware of the urgency of the situation
  - Referred her to the only ophthalmologist available
    - Did not ensure or arrange transportation

69 **Bonus...What Do You Think?**
70 **WHAT WE SAW**
71
72 **WHAT WE SAW**
73
74
75
76
77 **Just for fun/extras...**
78 **CATARACT SURGERY "BEFORE"**
79 **CATARACT SURGERY "DURING"**
80 **CATARACT SURGERY "AFTER"**
81

Neuroscience: Visual Fields



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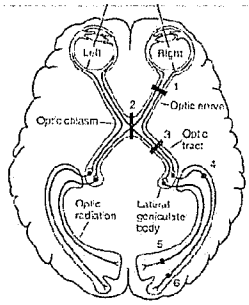
1st Rule of Visual Fields

- **Visual field defect = supratentorial level!**

Eye
Retina
Optic Nerve
Optic Chiasm
Optic Tract
Thalamus
Optic Radiations
Primary Visual Cortex
Association Cortex



Lingo of Visual Field Defects

Anopsia - field defect

Hemianopsia - half/ hemi field defect

Quadantanopsia - quarter/ quadrant field defect

Homonymous - Same field defect in both eyes

Bitemporal - both temporal fields

Binasal - both nasal fields

Macular sparing - spares macular (central) vision

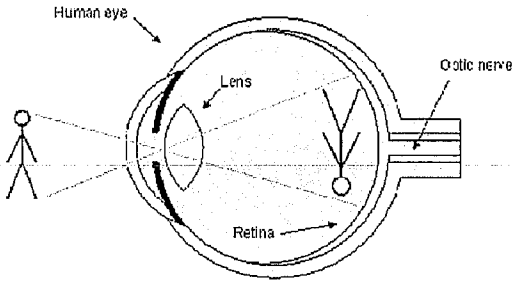
Monocular - one eye (eyeball) **Binocular** – both eyes

Central scotoma – area of central visual loss surrounded by normal vision

2nd Rule of Visual Fields

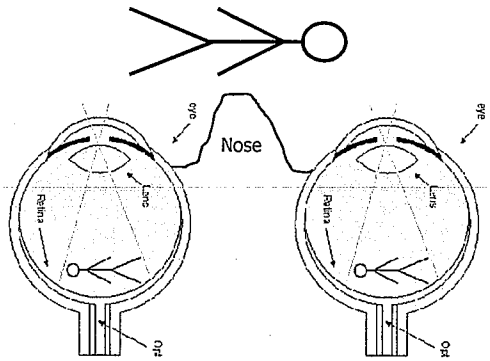
- Visual field defect = supratentorial level!
- **What's up is down and what's left is right**

Image is Reversed on Retina



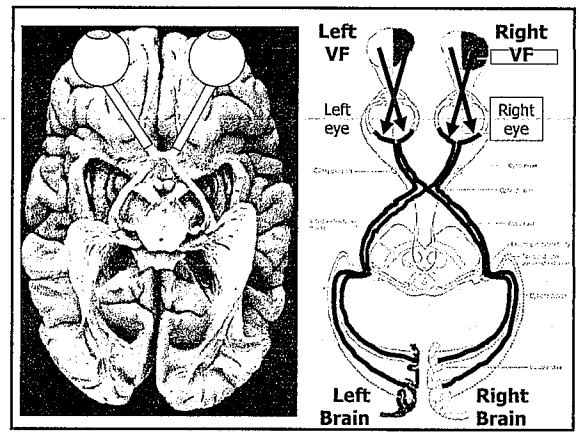
What's up is down...

...What's left is right! (or what's nasal is temporal)



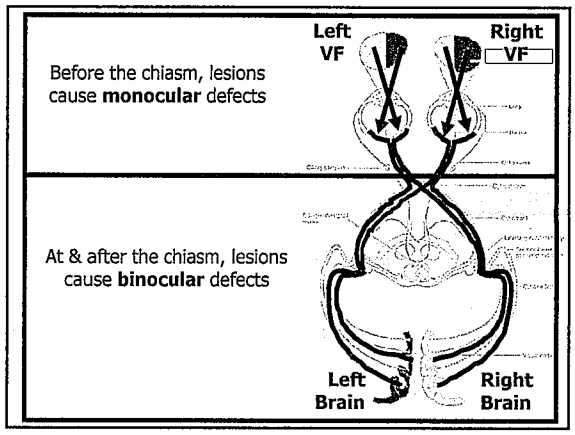
3rd Rule of Visual Fields

- Visual field defect = supratentorial level!
- What's up is down and what's left is right
- **Right visual field goes to left occipital lobe**
  Left visual field goes to right occipital lobe



4th Rule of Visual Fields

- Visual field defect = supratentorial level!
- What's up is down and what's left is right
- Right visual field goes to left occipital lobe
  Left visual field goes to right occipital lobe
- **Before the chiasm, lesions cause monocular defects**
  After the chiasm, lesions cause binocular defects



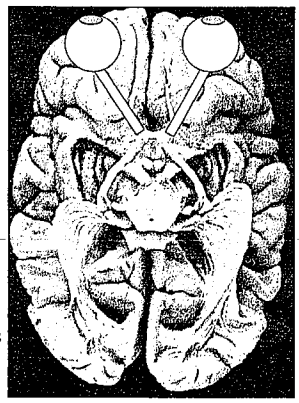
Questions

The optic tracts are made up of axons from which cell?

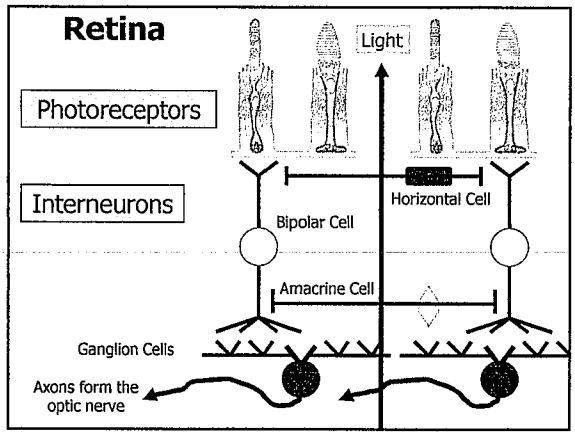
Retinal ganglion cells

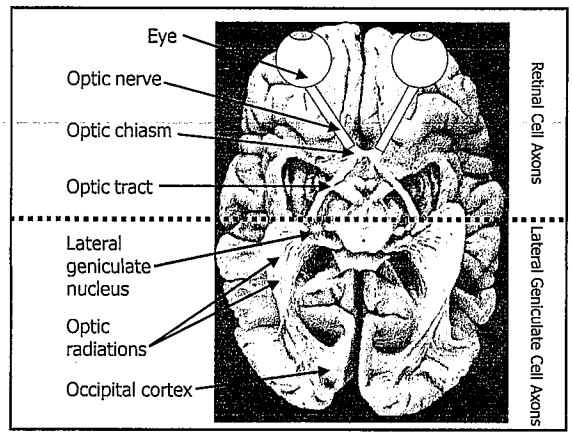
The optic radiations are made up of axons from cells located in which structure?

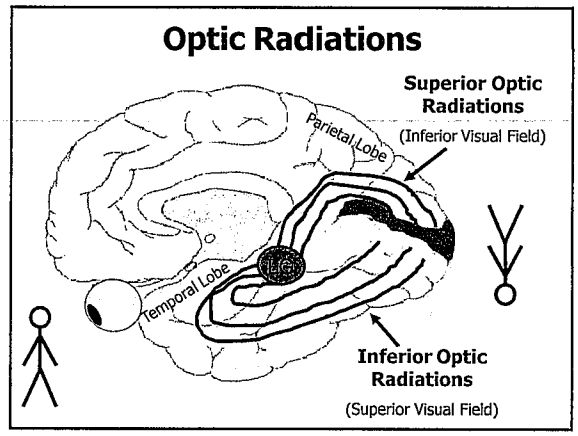
Lateral geniculate nucleus of thalamus

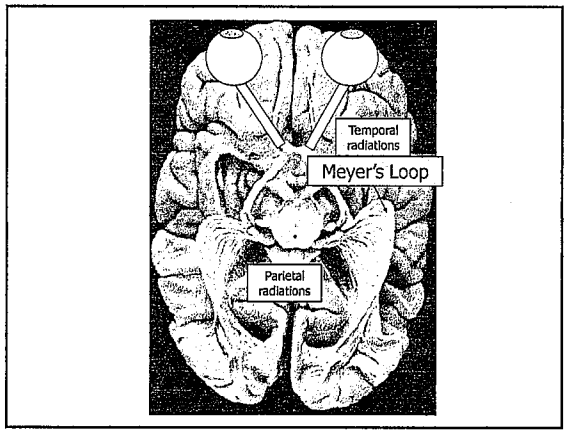


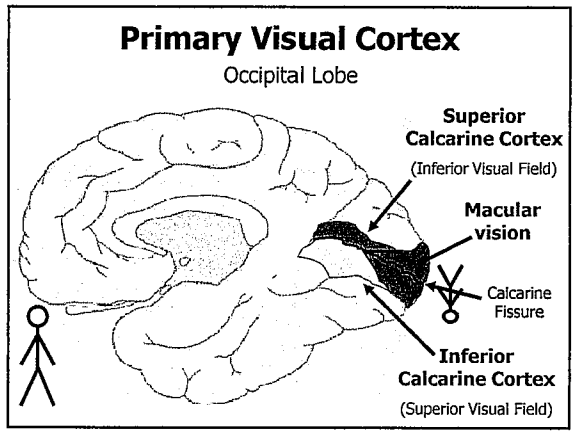
Retina



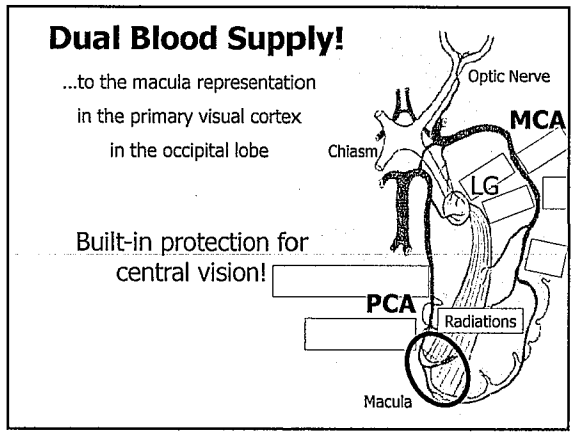




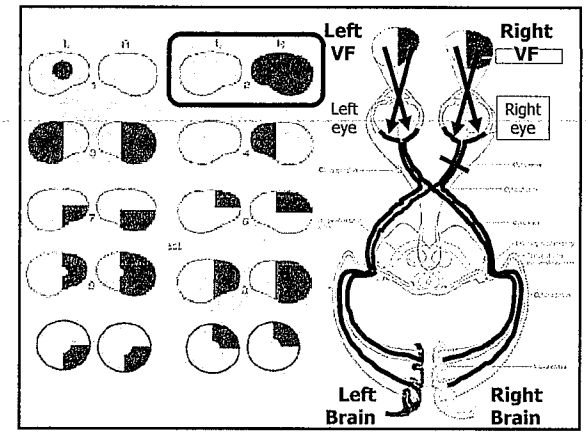




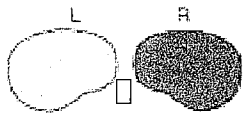
Why is there macular sparing?



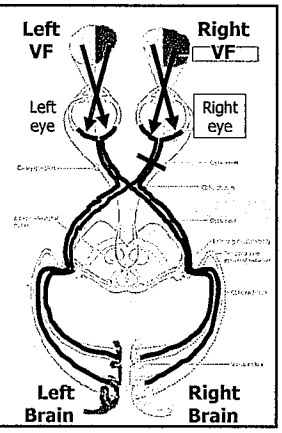
Given a Lesion, Try to Predict the Visual Field Defect!



Right Monocular Visual Loss

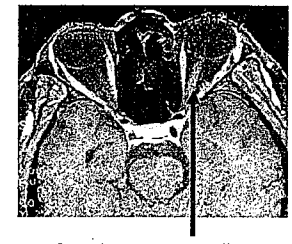


Complete optic nerve lesion



Diseases of Optic Nerve

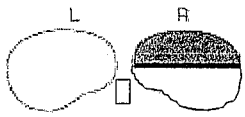
- Optic neuritis
  - → Demyelinating
  - → Infectious
  - → Inflammatory
- Optic atrophy
- Ischemic optic neuropathy
- Optic glioma or tumor pressing on optic nerve



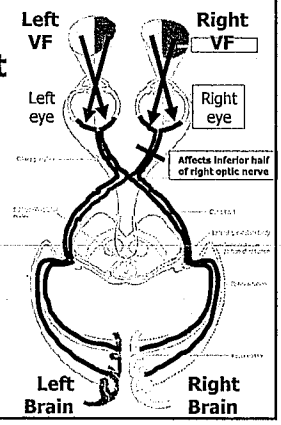
Left optic nerve is swollen & enhances with contrast

= Optic Neuritis

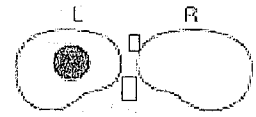
Monocular Altitudinal Defect



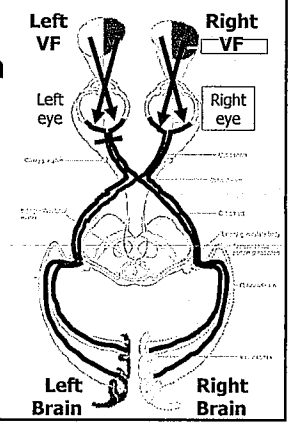
Partial optic nerve lesion affecting fibers from right inferior retina



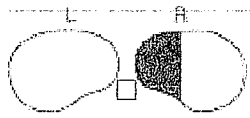
Monocular Central Scotoma



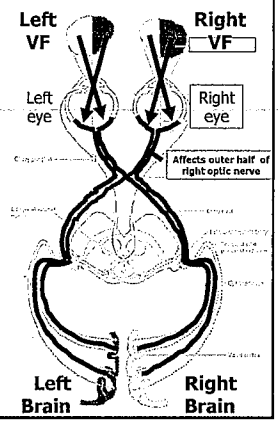
Fibers from macula are most sensitive to pressure!

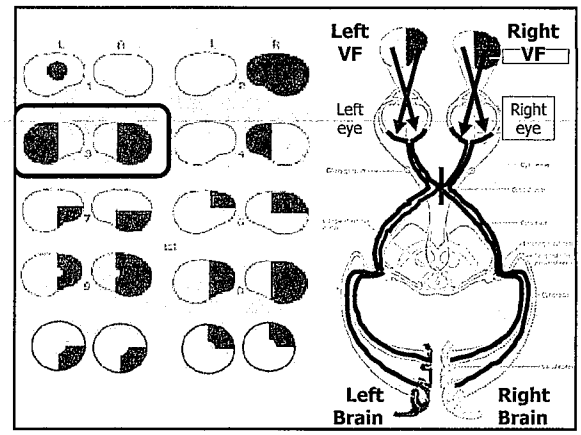


Monocular Hemianopsia

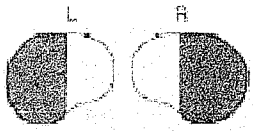


Partial optic nerve lesion affecting fibers from right temporal retina

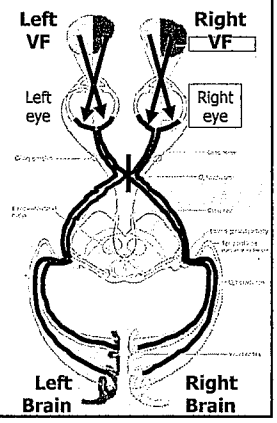




Bitemporal Hemianopsia

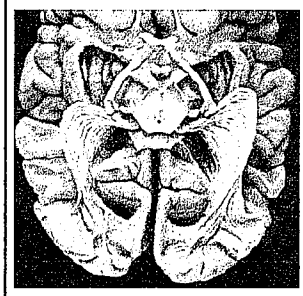


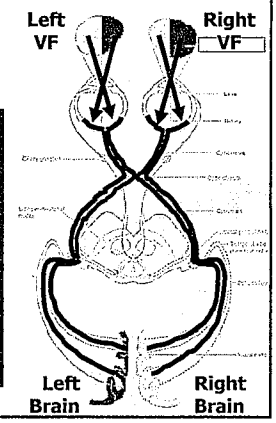
Optic chiasm lesion



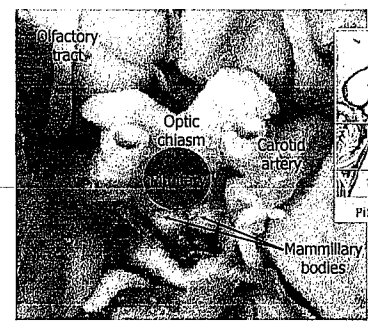
Optic Chiasm

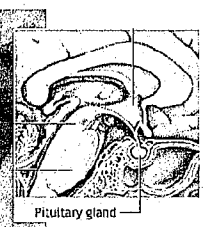
Where fibers Cross!





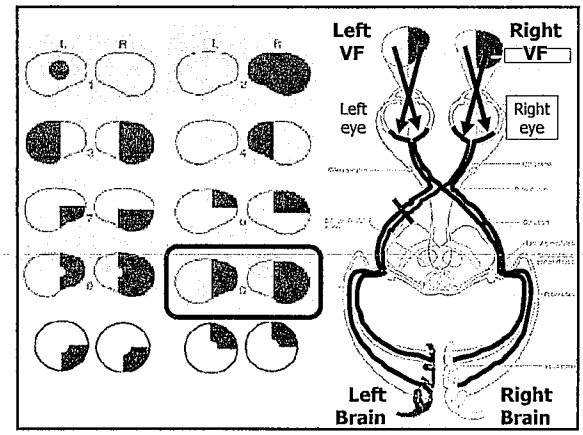
Disease at the Optic Chiasm



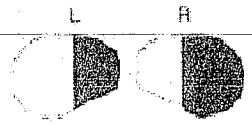


Pituitary adenoma
Pituitary hemorrhage
Hypothalamic tumor

Inferior View of Brain

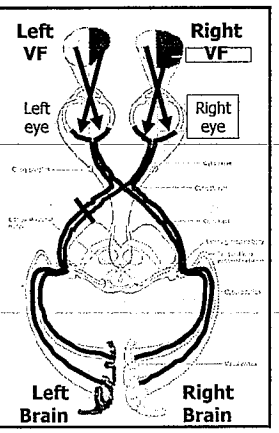


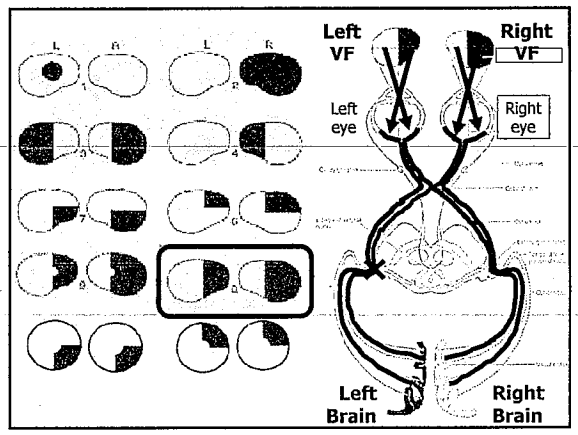
Rt Homonymous Hemianopsia



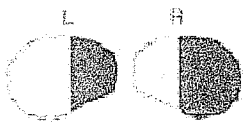
Left optic tract lesion causes a right homonymous hemianopsia

Example: Tumor



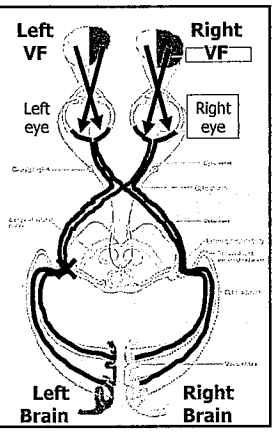


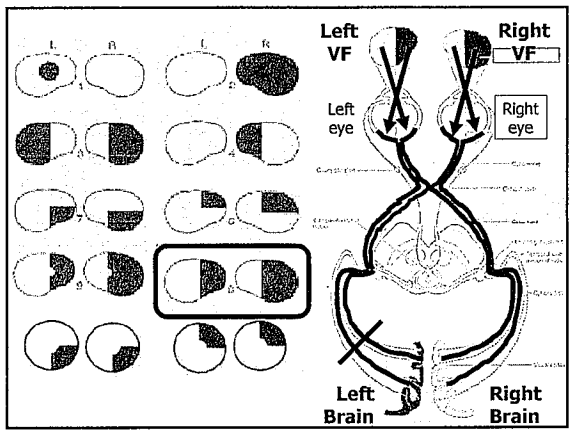
Rt Homonymous Hemianopsia



Left lateral geniculate nucleus lesion also causes a right homonymous hemianopsia

Example: Tumor

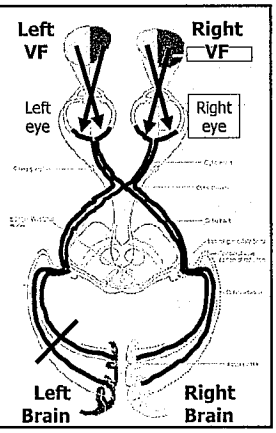


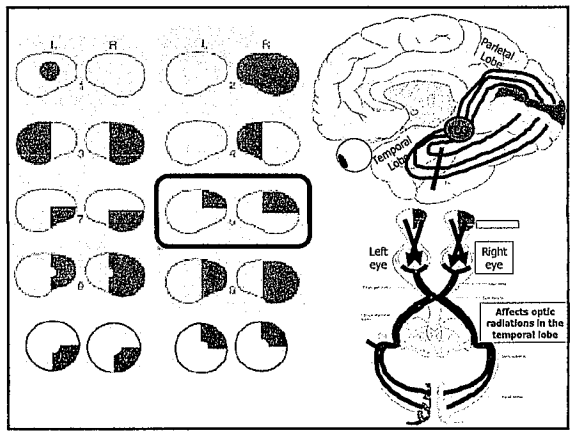


Rt Homonymous Hemianopsia

Lesion of all left optic radiations causes a right homonymous hemianopsia

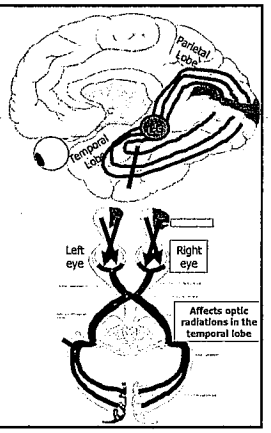
Example: Posterior cerebral artery infarct





6

Right Superior Homonymous Quadrantanopsia



Lesion of the left **inferior** optic radiations (Meyer's loop) causes a right **superior** homonymous quadrantanopsia

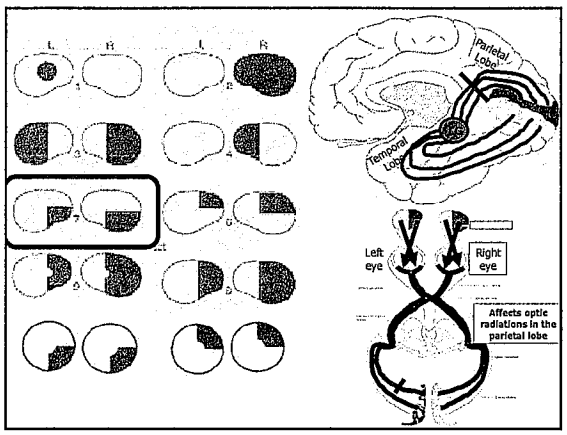
Example: Temporal lobectomy

Superior Homonymous Quadrantanopsia

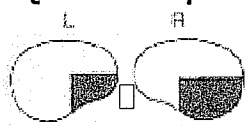
Sometimes called the

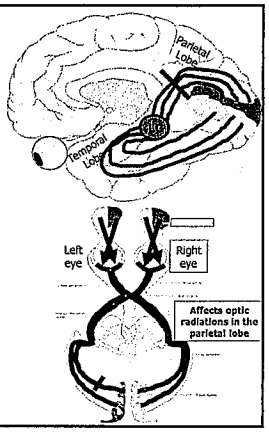
"Pie in the Sky"

visual field defect



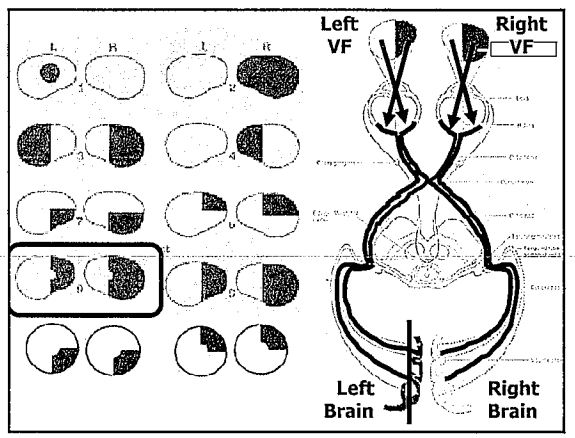
Right Inferior Homonymous Quadrantanopsia



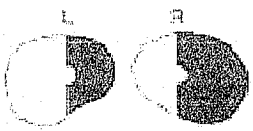


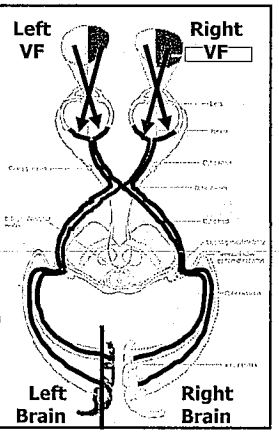
Lesion of the left **superior** optic radiations causes a right **inferior** homonymous quadrantanopsia

Example: Parietal lobe tumor



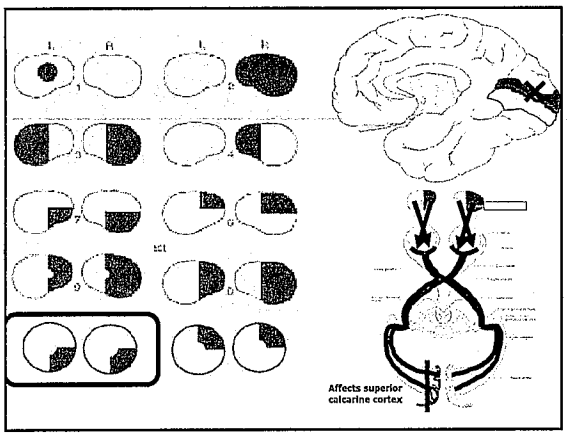
Right Homonymous Hemianopsia with Macular Sparing



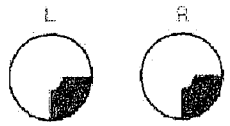


Lesion of left occipital cortex causes a right homonymous hemianopsia with macular sparing

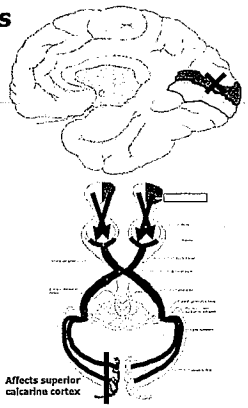
Example: PCA Infarct

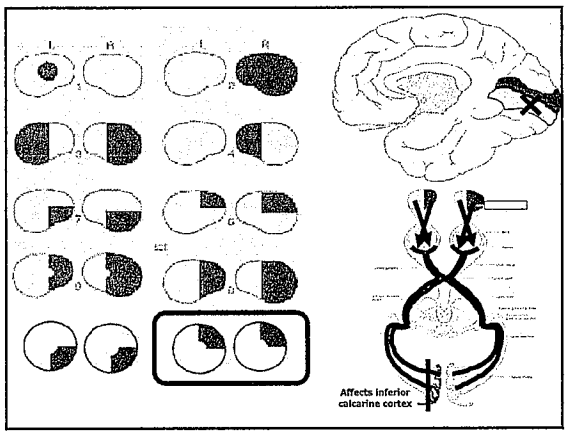


Rt Inferior Homonymous Quadrantanopsia + Macular Sparing

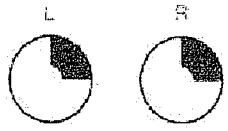


Lesion of left **superior** calcarine cortex causes a right **inferior** homonymous quadrantanopsia with macular sparing

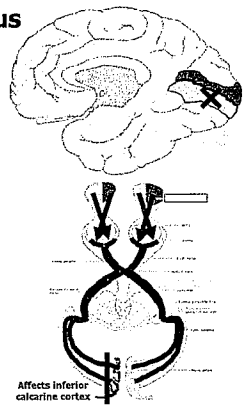




Rt Superior Homonymous Quadrantanopsia + Macular Sparing



Lesion of left **inferior** calcarine cortex causes a right **superior** homonymous quadrantanopsia with macular sparing



Three more fine points...

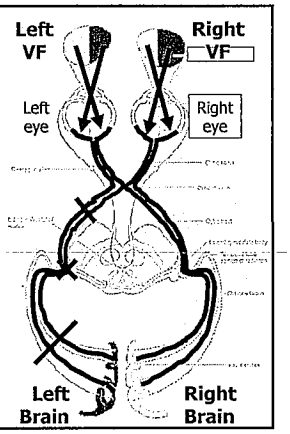
Lesions of what structures will cause a right homonymous hemianopsia?

Left optic tract

Left lateral geniculate

Left optic radiations (all)

So is there any way to distinguish these?

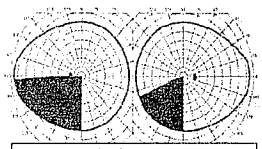


Congruency!

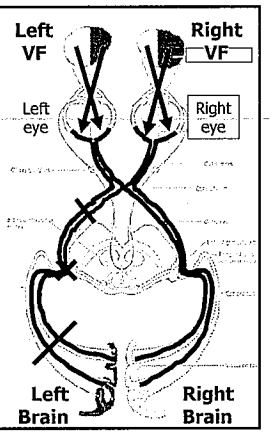
Degree of symmetry between visual field defects in the two eyes

More congruent = Posterior

Less congruent = Anterior



Example of non-congruent homonymous quadrantanopsia



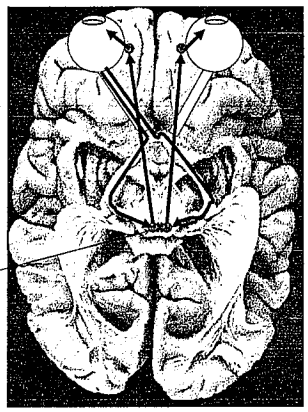
Question

Where in the visual pathway will a lesion NOT affect the pupillary light reflex?

Optic radiations and occipital cortex

Name the structure(s)?

Edinger-Westphal Nucleus/Nuclei



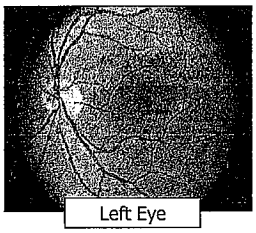
Question

What causes the blind spot?

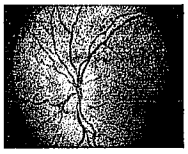
Optic disc!

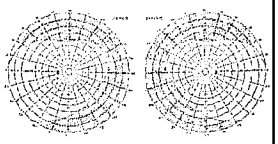
What might cause the blind spots to become enlarged?

Papilledema



Left Eye





Right Eye Left Eye

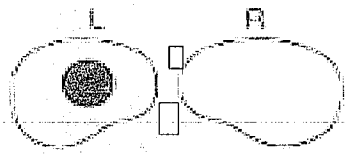
Clinical Correlation: Practice Cases

Case 1

- A 27-year-old woman experiences visual loss in the left eye that came on over 3 days. This loss of vision is accompanied by pain in the orbit.
- Exam: Left eye 20/400 acuity, right eye 20/20
  Loss of vision in center visual field of left eye only
  Optic discs normal bilaterally

Case 1

- How would you describe this visual field defect?



Left central scotoma

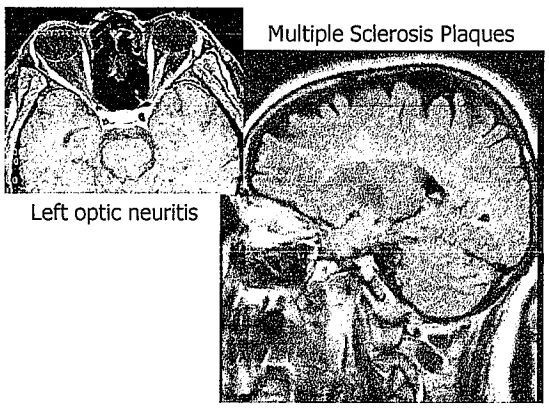
Case 1

- Localize the lesion...

Left optic nerve

- What is the diagnosis?

Left optic neuritis



Case 2

- A 76-year-old man with a history of smoking, diabetes, hypertension, and hyperlipidemia presents after an episode of sudden onset right eye visual loss that he described as "like a shade coming down." After 5 minutes, his vision fully returned.

- Exam: Normal visual acuity, visual fields, and optic discs. Left carotid bruit.

Case 2

- What is this phenomenon called?

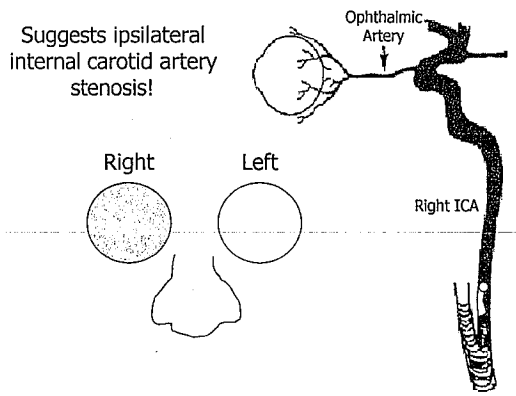
Amaurosis Fugax

- What structure is ischemic?

Retina

- Which artery is involved?

Ophthalmic Artery



Case 2

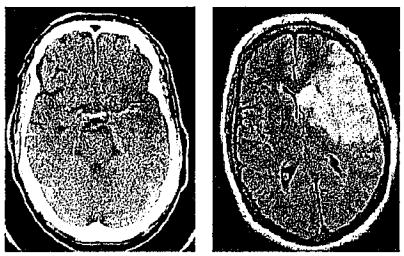
- Two months later, the same patient developed sudden right face, arm, and leg weakness with inability to speak more than single words.

- Exam: Right hemiparesis. Unable to name any objects. Follows only very simple commands.

Case 2

- What happened?

Left MCA ischemic stroke

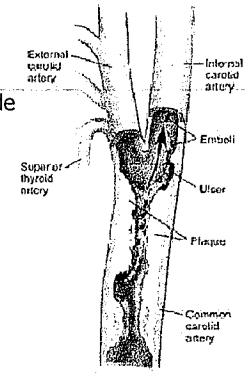


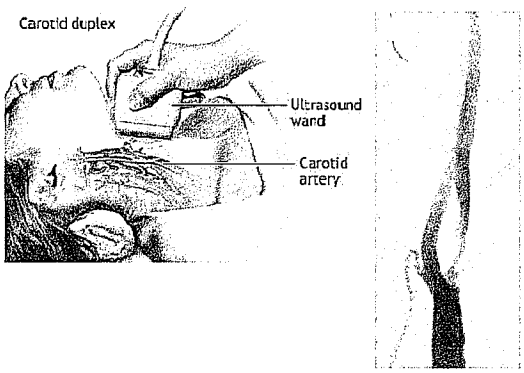
CT MRI

Case 2

- What should have been looked for after his episode of visual loss?

Ipsilateral carotid artery stenosis



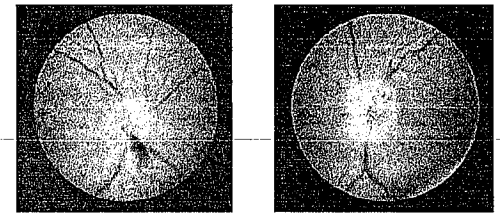


Case 3

- A 15-year-old boy with a history of hydrocephalus treated with a Ventriculoperitoneal (VP) shunt presents with gradually worsening headache. The headache awakens him at night, is associated with nausea, vomiting, and worsens with cough or strain.
- Exam: Visual acuity and visual fields are normal. Pupillary light response normal.

Case 3

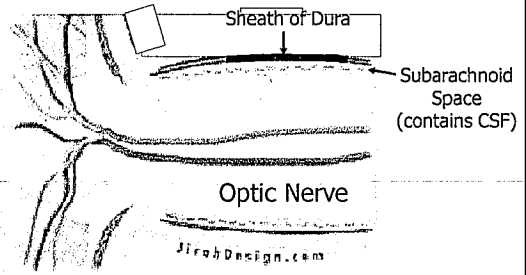
- How would you describe his funduscopic exam?



Right Eye Left Eye

Bilateral Papilledema

Papilledema



Transmission of increased intracranial pressure along the optic nerve causes swelling of optic disc

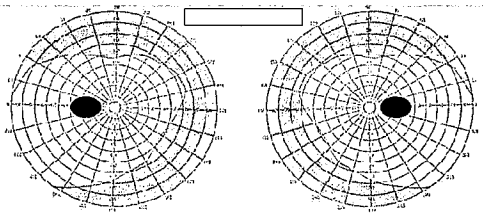
Case 3

- What might you see on head imaging?

Hydrocephalus

Case 3

- What type of visual field defect might you find?



Left Eye Right Eye

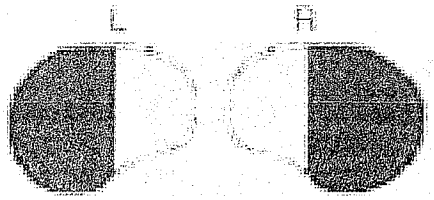
Enlarged Blind Spots

Case 4

- A 28-year-old woman experiences a sudden, severe headache with visual blurring while giving birth to a baby boy.
- Exam: Normal except for visual fields...

Case 4

- What is this visual field defect called?



Bitemporal hemianopsia

Case 4

- Where is the lesion?

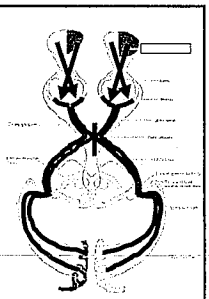
  Optic chiasm

- What adjacent structure can compress the optic chiasm?

  Pituitary gland

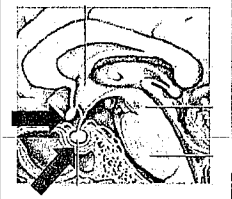
- The sudden-onset of her symptoms suggests...

  ...a vascular cause



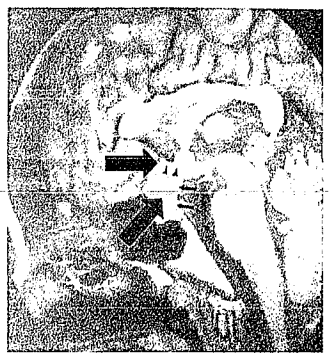
Case 4

Pituitary hemorrhage



RED = optic chiasm

PURPLE = pituitary (blood looks bright white on CT)

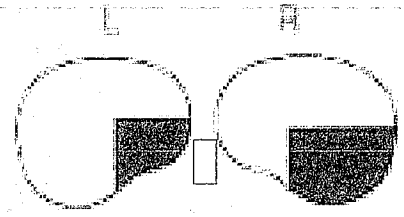


Case 5

- A 45-year-old man presents with a 2-week history of progressive headache, fever, right-sided weakness, and difficulty reading.
- Exam: Right face, arm, and leg weakness
  Normal vision acuity and ocular health

Case 5

- What is this visual field defect called?

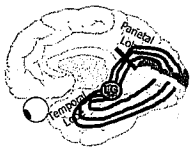


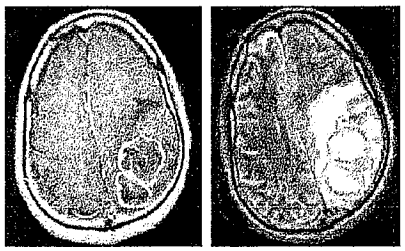
Right inferior quadrantanopsia

Case 5

- Where is the lesion?

Left parietal lobe





Axial MRI showing left parietal abscess

Case 5

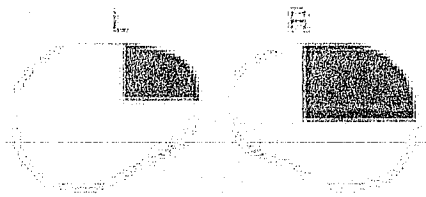
- **Why is there difficulty reading?**
  - **We read from left → right**

Case 6

- A 35-year-old woman presents with a 6-week history of spells characterized by staring off, lip smacking, & picking movements of the hands. They last about 2 minutes and afterwards she is tired. Recently, there has also been some mild changes in her memory and blurred vision.
- Exam: Normal except for visual fields...

Case 6

- What is this visual field defect called?

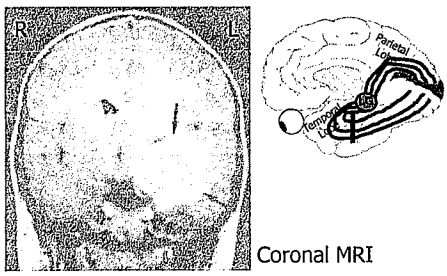


Right superior quadrantanopsia

Case 6

- Where is the lesion?

Left temporal lobe



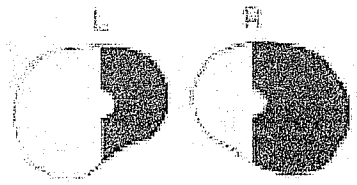
Coronal MRI

Case 6

- A 58-year-old man awakens with an occipital headache and notes problems reading the right side of the newspaper.
- Exam: Normal except for visual fields...

Case 6

- What is this visual field defect called?

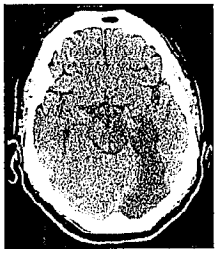


Right homonymous hemianopsia with macular sparing

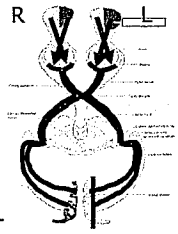
Case 6

- Where is the lesion?

Left occipital lobe



Axial CT



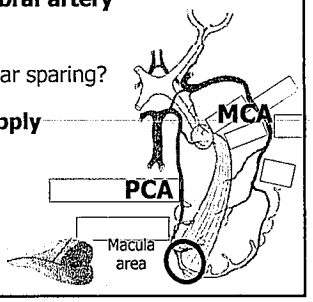
Case 6

- What artery is involved?

Posterior cerebral artery

- Why is there macular sparing?

Dual blood supply



1 **SYSTEMIC URGENCIES AND EMERGENCIES**

Joseph A. Pruitt, OD, MBA, FAAO
Riverside-San Bernardino County Indian Health, Inc

2 **INTRODUCTION**

- Systemic emergencies are uncommon in the optometric setting
-
  - BUT DO HAPPEN
  -
  -
  -
  -
- Essential to be able to identify such emergencies and act appropriately

3 **SYNCOPE**

- Also known as "fainting"
-
- Cause by cerebral anoxia or hypoxia
-
- Additionally caused by peripheral dilation without an increase in cardiac output
  - Results in a loss of consciousness
  -
-

4 **SYNCOPE**

- In an ophthalmological examination setting could be the result of:
-
  - Extremely anxious patient
  -
  - Response to medications
  -
  - Ocular manipulation
    - e.g. Goldmann tonometry and/or gonioscopy

5 **SYNCOPE**

- Symptoms:
  - Lightheadedness
  -
  - Nausea
  -
  - Sweating
  -
  - Dizziness
  -
  - Blurred vision is possible
  -
  - Generalized "just don't feel good"

6 **SYNCOPE**

- Signs
  - Pallor of neck/face
  -
  - Clammy skin
  -

- Cyanosis of the lips
-
- Eyes may roll up
-
- Tachycardia
-
- Blood pressure drop
-
- Loss of consciousness

7 **SYNCOPE**

- Management
  - Be careful to avoid injury to patient during episode
  -
  - Lean patient forward with head below the knees or lower head back so feet or elevated
  - Loosen any constrictive clothing
  -
  - Once patient is stable, SLOWLY raise chair and/or assist in standing
  -
  - Use of smelling salts somewhat controversial
    - Counteracts vagal parasympathetic effects
    -
  - Face slap, trapezius squeeze, supraorbital pressure, mandibular pressure and sternum rub are other options

8 **POSTURAL HYPOTENSION**

-
-
- Postural or orthostatic hypotension is one of the most common causes of transient unconsciousness
- Occurs as patient is raised from a sitting to standing position

9 **POSTURAL HYPOTENSION**

- Risk factors:
  - Prolonged recumbence
  -
  - Old age
  -
  - Physical exhaustion
  -
  - Certain drugs
    - Anti-hypertensives
    - Some anti-depressives
    - Narcotics
    -
  - Women in the final (3rd) trimester of pregnancy
    -

10 **POSTURAL HYPOTENSION**

- Signs and Symptoms:
-

- Blurred vision
- Lightheadedness
- Dizziness
- Sweating
- Nausea
- Pallor
- Unconsciousness
- Hypotension

11 **POSTURAL HYPOTENSION**

- Management:
-
  - Place patient in supine position
  -
  - Lay flat to restore circulation
  -
  - May need to administer supplemental oxygen
  -
  - Referral to PCP/Internist advisable if etiology is unknown

12 **HYPERVENTILATION**

- Causes:
  - Emotional upset
  - Anxiety
  - Panic disorders
  -
- Rarely observed over the age of 40
  - Typical patient is between 14-40 and female
  -
- Usually occurs with impaired consciousness with unconsciousness being rare

13 **HYPERVENTILATION**

- Symptoms:
-
  - Acute anxiety
  -
  - Faintness
  -
  - Palpitations
  -
  - Shortness of breath
  -
  - Paresthesias

14 **HYPERVENTILATION**

- Signs:
-
  - Tachycardia
  -
  - Tachypnea
  -
  - Carpopedal tetany
    - Flexion of ankles

- Muscular twitching
- Cramps
- convulsions

15 **HYPERVENTILATION**

- Management:
  - Terminate exam; pull equipment away
  -
  - Position patient upright
    - Ensure comfort
    -
  - Reassure patient
  -
  - Instruct patient to breath slowly and deeply
  -
  - Have patient breathe in a paper bag to control the amount of CO_2?
    - Remains controversial

16 **SEIZURES**

-
-
-
-
- There are 6 types of generalized seizures. Can you name them?

17 **SEIZURES**

18 **GRAND MAL SEIZURE**

- Also known as tonic-clonic
-
- Caused by abnormal neural discharge of the brain
  - Which could be the result of:
    - Head trauma
    - Space occupying lesion
    - CNS infection
    - Toxic agent exposure
    - Withdrawal
    -
- Can be precipitated by sound or light
-

19 **GRAND MAL SEIZURE**

- Signs and Symptoms:
-
  - Jerking of body parts
  -
  - Loss of consciousness
  -
  - Possible incontinence
  -
  - Can involve a single body part or repetitive acts of behavior
  -
  - Can last from 30 seconds to several minutes

20 **GRAND MAL SEIZURE**

- Management
  - Ensure a safe environment for patient
    - If possible lay to the floor on their side
    -
  - Loosen clothing around neck
  -
  - Keep airway open
  -
  - DO NOT USE:
    - Fingers
    - Soft object
    - Wooden spoon etc.

21 **GRAND MAL SEIZURE**

- Management (continued)
-
  - Refer for evaluation/seek emergency help if:
    - Patient stops breathing for longer than 30 seconds
    - Lasts longer than 3 minutes
    - This is the patient's 1st seizure OR if you do not know the patient has been diagnosed with epilepsy
    - The patient is pregnant
    - More than 1 seizure occurs within 24 hours
    - Seizure occurs after a complaint of sudden and severe headache

22 **GRAND MAL SEIZURE**

- Management (continued)
-
  - Refer for evaluation/seek emergency help if:
    - Seizure occurs with signs of CVA
    - Follows a head injury
    - Patient with diabetes
      - Can be the result of both hypoglycemia and hyperglycemia
    - Seizure occurs after eating poison or breathing fumes
    - Patient complains of severe pain after waking up
    - Develops a fever within 24 hours of seizure

23 **GRAND MAL SEIZURE**

- Management (continued)
-
  - Refer for evaluation/seek emergency help if:
    - Patient does not respond normally within 1 hour after the seizure and/or displays any of the following:
      - Reduced awareness and wakefulness or is not fully awake
      - Confusion
      - Nausea or vomiting
      - Dizziness
      - Inability to walk or stand
      - Fever

24 **MYOCARDIAL INFARCTION**

-
-

- ▶
- ▶Leading cause of death in US
- ▶Due to occluded coronary artery

25 **MYOCARDIAL INFARCTION**

- ▶Risk factors include
- ▶
  - ▶Increasing age (50-70)
  - ▶
  - ▶Family history
  - ▶
  - ▶Cigarette smoking
  - ▶
  - ▶Hypertension
  - ▶
  - ▶Diabetes
  - ▶
  - ▶Elevated cholesterol
  - ▶
  - ▶Sedentary lifestyle

26 **MYOCARDIAL INFARCTION**

- ▶Signs and Symptoms (very variable)
- ▶
  - ▶Mild to excruciate pain substernal that may radiate to arm, lasting 15 min. to several hours
  - ▶
  - ▶Malaise
  - ▶
  - ▶Weakness
  - ▶
  - ▶Difficulty breathing
  - ▶
  - ▶Vague nausea
  - ▶
  - ▶Patient may be agitated or tired and quiet
  - ▶
  - ▶Pulse may be weak
  - ▶

27 **MYOCARDIAL INFARCTION**

- ▶Management
- ▶
  - ▶Call 9-1-1
  - ▶
  - ▶If available, have patient slowly chew aspirin
    - ▶Make sure there are no contraindications (e.g. ASA allergy)
    - ▶
  - ▶Administer CPR if necessary until help arrives

28 **CEREBROVASCULAR ACCIDENT**

- ▶Also know as "stroke"

- ▶
- ▶3rd leading cause of death in the US
- ▶
- ▶Cerebral infarction due to thrombosis is most prevalent cause
  - ▶Males 60-69
  - ▶
- ▶Second most common is hemorrhagic
  - ▶Age 50 or older
  - ▶
- ▶TIA's signal existence of CV disease
  - ▶25-35% have CVA within 5 years

29 **CEREBROVASCULAR ACCIDENT**

- ▶Symptoms:
- ▶
  - ▶Headache
  - ▶Dizziness
  - ▶Sweating and/or chills
  - ▶Unilateral paresthesia
  - ▶Unilateral weakness
  - ▶Slurred speech
  - ▶Vision loss
  - ▶Diplopia

30 **CEREBROVASCULAR ACCIDENT**

- ▶Signs:
- ▶
  - ▶Unilateral paralysis
  - ▶
  - ▶Visual field loss
  - ▶
  - ▶Pupil anomalies
  - ▶
  - ▶Convulsions
  - ▶
  - ▶Incontinence
  - ▶
  - ▶Possible loss of consciousness

31 **CEREBROVASCULAR ACCIDENT**

- ▶Management: Conscious patient
- ▶
  - ▶Make patient comfortable
  - ▶
  - ▶Check vital signs: pulse, BP, respiration
  - ▶
  - ▶Summon medical assistance if symptoms last >10 minutes
  - ▶
  - ▶Urgent/emergency referral is indicated

32 **CEREBROVASCULAR ACCIDENT**

- ▶Management: Unconscious patient
- ▶

- Lay patient in supine position
- Check vital signs
- If respiration, pulse and BP are absent, call 911 and begin CPR
- If heart is beating and BP is elevated, elevate head slightly, maintain open airway, monitor vital signs, and call 911

33 **SHOCK**

- Caused by:
  - Blood loss
  - Decreased cardiac output
  - Psychogenic factors
  - Anaphylaxis
  - Essentially anything decreasing blood supply to the brain
    - e.g. loss of large quantities of fluid from body can cause shock (i.e. hypovolemic shock)

34 **SHOCK**

- Symptoms:
  - Dizziness
  - Lightheadedness
  - Possible paresthesia
  - Hypothermia
  - Profuse sweating
  - Blurred vision possible
  - Nausea
  - Severe thirst possible

35 **SHOCK**

- Signs:
  - Gray pallor
  - Cyanosis of conjunctiva and lips
  - Hypotension
  - Thready pulse
    - Rapid and weak
  - Clammy skin
  - Pupil dilation is possible

- ▶
- ▶Loss of consciousness possible

36 **SHOCK**

- ▶Management:
- ▶
  - ▶Lay patient flat or with legs slightly elevated
  - ▶
  - ▶Maintain body heat by covering patient
    - ▶Careful NOT to raise temperature
    - ▶
  - ▶If the result of bleeding, attempt to control bleeding
  - ▶
  - ▶Call 911

37 **ALLERGIC REACTION**

- ▶An atypical or exaggerated antigen-antibody reaction causing release of histamine
  - ▶Insect bites
  - ▶Food
  - ▶Medication
  - ▶
- ▶Histamine causes increased capillary permeability and bronchiolar constriction
- ▶
- ▶Can range from mild to severe

38 **ALLERGIC REACTION**

- ▶Symptoms
- ▶
  - ▶Pruritus
  - ▶
  - ▶Wheezing
  - ▶
  - ▶Acute anxiety
  - ▶
  - ▶Warm sensation
  - ▶
  - ▶Nausea or cramps possible
  - ▶

39 **ALLERGIC REACTION**

- ▶Signs:
- ▶
  - ▶Erythema
  - ▶Urticaria
  - ▶Angioedema
  - ▶Sweating
  - ▶Wheezing
  - ▶If severe:
    - ▶Pallor
    - ▶Laryngeal edema
    - ▶Loss of consciousness
  - ▶

40 **ALLERGIC REACTION**

- Management depends on the severity
-
  - Mild
    - Oral OTC antihistamines
    -
  - Moderate
    - Epinephrine inhaler, oxygen
    -
  - Severe
    - Epinephrine 0.3 ml of 1:1000 sol, SQ or IM
      - Epi-pen (much easier)
    - If airway remains obstructed an emergency cricothyrotomy may be necessary.

41 **HYPERGLYCEMIA**

-
-
-
- Due to a decrease in insulin uptake or increase in food intake
-
- Resultant elevated glucose level and begin to use fat for energy

42 **HYPERGLYCEMIA**

- Signs and Symptoms:
-
  - Dry feeling
  -
  - Thirsty
  -
  - Pain and vomiting
  -
  - Heavy respirations
  -
  - Sweet smell to breath
    - Bonus: in the same vein, do you know how diabetes was diagnosed pre-laboratory workup days?
      - Taste the patient's urine

43 **HYPERGLYCEMIA**

- Management:
-
  - Check patients blood sugar (if possible)
  -
  - Arrange for immediate care
  -
  - Patient may need insulin

44 **HYPOGLYCEMIA**

- Increase insulin intake or insufficient nutritional intake
-
- Serum glucose level is decreased
-
- Reduced sugar level available to brain

45 **HYPOGLYCEMIA**

- Signs and Symptoms:
-
  - Headache
  -
  - Dizziness
  -
  - Syncope
  -
  - Extreme hunger
  -
  - Salivation
  -
  - Weakness

46 **HYPOGLYCEMIA**

- Management
-
-
  - Check blood sugar
    - If shown to be hypoglycemic intake of sugar needed
      - Orange juice
      - Sublingual tablets

47 **OVERALL...**

- REMAIN CALM!!!!
-
- Call 911 if needed
-
- Always protect the safety of the patient
-
- Do not leave patient alone
-
- Stay up to date on BLS/CPR training
-
- Have emergency numbers available and staff trained for emergencies

1 **Vitreo-Retinal Disorders**

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2 **Anatomy and Landmarks**

- 9 Retinal Neurosensory Layers
  - Internal limiting membrane (ILM)
  - Nerve fiber layer (NFL)
  - Ganglion cells
  - Inner plexiform
  - Inner nuclear
  - Outer plexiform
  - Outer nuclear
  - External limiting membrane
  - Photoreceptors

3 **Retina**

4 **Bonds Between Layers**

- Attaching bond varies
  - RPE to retinal photoreceptors...? (tight or weak)
    - Weak
    - Easily separated by fluid
  - RPE to Bruch's membrane...? (tight or weak)
    - Tight
  - RPE cell to RPE cell...? (tight or weak)
    - Tight

5 **Coloration**

- RPE:
  - has melanin
    - Causes varying shades of black with hypertrophy
  - Has lipofuscin
    - Released by degenerated RPE cells ("wear and tear")
    - Autofluorescent

- Orange→Yellow→Golden→Brown
-
- Whites > Blacks
-
- Known to be a by-product of light exposure

6 **Lipofuscin**

- Clinical Exam
-
  - FDA biomicroscope guidelines
    -
    -
    - "Because prolonged intense light exposure can damage the retina, the use of the device for ocular examination should not be unnecessarily prolonged, and the brightness setting should not exceed what is needed to provide clear visualization of the target structures. This device should be used with filters that eliminate UV radiation (< 400 nm) and, whenever possible, filters that eliminate short-wavelength blue light (< 420 nm)."
  -

7 **Coloration**

- Choriocapillaris
  - Acts as a red filter (uniform; independent of race)
  -
- Choroidal Vessels (larger and deeper)
  - Uniformly red
  - Do not filter color
  -
- Choroid
  - Contains varying amounts melanocytes
    - Thus, variable brown/black color

8 **Coloration**

- Retina
-
  - Pale orange → orange to red → gray/brown
    - Dependent upon:
      - Hemoglobin in choriocapillaris (constant)
      - Melanin in RPE (variable)
      - Lipofuscin in RPE (variable)
      - Melanin in choroid (variable)
      -

9 **Thickness**

- Sensory Retina
-
  - Quite thin in the peripheral (normal)
  -
  - Subject to full thickness breaks from one or more:
    - Atrophy (degenerative)
    - Traction (vitreal-retinal)

10 **Approximate Distances**

- Retinal Periphery

- Equator is marked by...?
  - Vortex veins' ampullas
  -
- Vitreous base's posterior edge is usually ~2 DD posterior to ora
-
- Distance from ora to equator is ~ 4 DD
-
- Vitreous base overlying the retina starts about halfway between the ampullae and the ora

11 **Vitreous Base**

- Normally invisible
- May have pigment at its border or appear white and elevated from traction

12 **Vitreous Base**

- A PVD will not advance farther anteriorly than the posterior vitreous base
-
-
- The vitreous base may advance posteriorly with increasing age

13 **Aging Changes in the Vitreous**

- Liquefaction
  - Manifested by formation of lacunae
    - Lacunae = optically empty cavities filled with fluid, and surrounded by walls of condensed vitreous fibers
    -
- Shrinkage
  - aka "Syneresis"
    - Drawing together of fibers
    - Fibers are drawn away from the liquid (separation of liquid and solid)

14 **Age Changes in the Vitreous**

- Early Shrinkage
  - Condensation only, but readily visible
  -
- Late Shrinkage
  - Increasingly dense
  - Highly visible fibers
  - PVD
  - Traction
  - With symptoms

15 **Vitreous Shrinkage**

- Symptoms:
  - Floaters: spiders, flies, cobwebs, worms seen against light, high-contrast, backgrounds
  - Photopsia
    - Due to mechanical stimulation of retina in areas of traction
    - Varying shapes: light rays, arcuate bands, straight lines
    - Color is of no significance
  -

16 **Vitreous Shrinkage**

- Symptoms (cont.)
  - Metamorphopsia
    - Rather rare
    - Due to macular edema secondary to traction
    -
    -
  - Blur
    - Secondary to:
      - Macular edema
      - Vitreous hemorrhage
      - Transient obscuration from floaters
      -

17 **Vitreous Shrinkage**

- Signs:
  - Opacities
  -
  - Vitreous hemorrhage
    - Actually very common, but very transient and escapes notice
    -
  - Retinal hemorrhage
    - Due to traction on blood vessels

18 **Posterior Vitreous Detachment**

- Complete PVD
  - Detachment extends to the posterior border of the vitreous base, and attachment at the optic nerve is lost

19 **Posterior Vitreous Detachment**

- Incomplete PVD
  - Not a total separation of retina and vitreous
  - Usually occurs superiorly
  - Attachment at optic nerve remains
  -

20 **Course of PVD**

- Usually acute
-
- Becomes complete in several hours
-
- Particles from resolving heme disappear in a few days
-
- Vitreous contracts over a period of ~2 years
-
- Stable thereafter
-

21 **PVD Etiology**

- PVD without collapse results from syneresis but no liquefaction
-
- PVD with collapse results from syneresis with liquefication

22 **Vitreous Traction**
- 2 different directions of movement
  - Centripetal
    - Away from retina toward vitreous center
      - Edema
      - Hemes
      - Tears
    - *Intermittent traction is often centripetal*
  - Tangential
    - Moving parallel to retina
      - Thinning
      - Wrinkling
      - Horseshoe tear

23 **Development Anomalies**
- Retinal tufts (aka granular tissue)
  - Located between equator and ora
  - Can be elevated
  - 3 types (2 developmental + 1 circumstantial)
    - Non-cystic tufts:
      - Small
      - Irregularly shaped
      - Internal projections of retina
    - Cystic tufts:
      - Larger
      - Broader bases
      - Nodules of degenerated tissue
    - *Traction tufts:
      - Project more anteriorly into vitreous cavity
      - Develops close to ora (most common nasally)

24 **Retinal Tufts**

25 **Congenital Hypertrophy of RPE**
- CHRPE
  - Benign
  -
  - Rarely enlarges over time
  -
  - Sharp borders
  -
  - Usually had depigmented "halo" or internal lucunae
  -
  - CHRPEs in FAP (familial adenomatous polyposis) are irregularly shaped
  -

26 **Congenital Hypertrophy of RPE**
- Bear Tracks
  - Variety of CHRPE
  -
  - Usually multiple and smaller
  -

- aka "congenital grouped pigmentation"
-
- Multiple (or solitary), small, flat black/brown spots

27 **Congenital Hypertrophy of RPE**
28 **Congenital Hypertrophy of RPE**
29 **Congenital Hypertrophy of RPE**
30 **Choroidal Nevus**

- Benign accumulation of melanocytes in choroid
-
- Usually slate gray
  - Variable color due to overlying RPE
  -
- Feathery borders
  - Melanocytes are randomly gathered at the border
  -
- Mottled appearance due to overlying degenerated RPE
-
- Drusen occurs in response to "abnormality" underneath the RPE

31 **Choroidal Nevus**
32 **Choroidal Nevus**

- Choroidal Nevus vs. Melanoma
-
  - Clinical diagnostic skill/test...?
  -
    - Red-free filter
    -
  - How/why does it work?
  -
    - Green light is reflected and absorbed by melanin granules in RPE; thus structures deeper are absent of light (i.e. disappear)
  -
    -

33 **Choroidal Nevus**

- To Find Small Ocular Melanoma Using Helpful Hints Daily
  - T: Thickness
    - > 2 mm
  - F: Fluid
    - Sub-retinal fluid (suggestive of serous retinal detachment)
  - S: Symptoms
    - Photopsia
    - Vision loss
  - O: Orange Pigment overlying the lesion
    - Lipofuscin
  - M: Margin
    - < 3 mm from optic nerve head
  - U: Ultrasonographic Hollowness
  - H:
  - D: Drusen Absence

34 **TFSOM UHH D Pnemonic**

- Risk Scale:
  - 0 factors = <1% - 3%* risk of nevus converting to melanoma in 5 years
  - 1 factor = 8-38%* risk of nevus converting to melanoma in 5 years
  - 2-3* or more factors: 50% risk of nevus converting to melanoma in 5 years

35 **TFSOM UHH D Pnemonic**

- Good Clinical Tool
  - Relatively straight forward with the possible exception of:
    - Lipofuscin vs. Drusen

36 **Choroidal Nevus**

- Choroidal Nevus vs. Melanoma
  - S.P.O.T.S
    - S: Symptoms
    - P: Position
    - O: Orange Pigment
    - T: Thickness
    - S: Sub-retinal Fluid

37 **Choroidal Nevus**

- Choroidal Nevus vs. Melanoma
  - *Dr. Pruitt's MO:*
    - *0 factors = annual comprehensive exams*
    - *1-2 factors = follow-up every 4-6 months; photo-documentation*
    - *3 or more factors = automatic referral to ocular oncology*

38 **Bonus....**

- Cutaneous nevi vs. melanoma
  - ABCDE
    - A: Asymmetric
    - B: Borders
      - irregular
    - C: Color
      - 1 color = good
      - Multi-colored = bad
    - D: Diameter
      - > 6 mm (weakest of the system)
    - E: Enlarging or Evolving

- Some advocate for "Elevated" instead

39 **Degenerative Conditions**

- Cystoid Degeneration
  - Intra-retinal cysts in the outer plexiform and inner nuclear layers
  -
  - Cysts are separated by photoreceptor axons and Mueller cells
  -
  - Separating elements break down; cysts enlarge and become confluent
  -
  - Retinal thickness is 3x that of the usual thickness
  -
  - Translucent gray, white or red dots with a stippled surface

40 **Cystoid Degeneration**

- Outer cyst wall is intact, so no risk of penetration of liquefied vitreous
-
- "Typical Cystoid" is universal condition; not always readily visible
-
- "Reticular cystoid" occurs at the posterior border of typical cystoid
  - Net-like appearance (hence its name); often bordered by retinal vessels

41 **Cystoid Degeneration**

42 **Degenerative Conditions**

- Equatorial Drusen
  - Same composition and subretinal location as in the posterior pole
  -
  - Very often have pigment surrounding the base
    - Leads to reticular degeneration
  - Extremely low (but possible) risk of developing SRNVM

43 **Equatorial Drusen**

44 **Degenerative Conditions**

- Reticular Degeneration of the RPE
  - aka "Peripheral Senile Pigmentary Degeneration"
  - aka "Peripheral Tapetochoroidal Degeneration"
  - aka "Peripheral Chorioretinal Degeneration"
  - aka "Honeycomb Degeneration"
    - Hyper and hypo-pigmentation
      - Most common appearance is light area with variable overlying pigment
      - Reticular = net-like or lacy-appearing
  - When located at the equator
    - Histology:
      - Pigment surrounding bases of large equatorial drusen
      - Variable hyper and hypo-pigmentation of RPE cells
      - Pigmented venous cuffing (macrophages try to remove pigment)

45 **Reticular Degeneration**

- Due to a loss of perfusion of choriocapillaris from arteriosclerosis
-
- Loss of both RPE melanin granules as well as photoreceptors
-

- May have irregular lines of pigment or a "honeycomb" appearance

46 **Reticular Degeneration**

47 **Degenerative Conditions**

- Cobblestone/Pavingstone Degeneration
  - aka "Chorioretinal Atrophy"
  -
  - Depigmented round or oval areas where sclera and large choroidal vessels are visable
  -
  - Pigment varies within the area itself and its border
  -
  - Arranged parallel to the ora
  -
  - Increases with age
  -
  - Most commonly observed inferiorly
    - ~50% between 5 and 7 o'clock

48 **Cobblestone/Pavingstone Degeneration**

- Percentage of increased risk of Retinal Detachment when present...?
-
-

49 **Degenerative Conditions**

- Acquired (Adult) Retinoschisis
  - Retinal split between inner nuclear and outer plexiform layers
  -
  - Same location within retina as with cystoid degeneration
  -
  - Most often occurs inferior-temporally
  -
  - Absolute visual field defect
  -
  - Often goes unnoticed by patient until schisis progresses past the equator

50 **Retinoschisis**

51 **Retinoschisis**

52 **Degenerative Conditions**

- White with/and Without Pressure
  - WWP = with scleral depression
  - WOP = without scleral depression
  -
  - Mechanisms:
    - Related to vitreo-retinal traction
    - Interface between vitreous and retina is altered
    -

53 **White Without Pressure**

- Younger patients
  - Possibly due to increased vitreous contraction since typically too young for PVD
  -
- Associated risks/cause for concern:
  - When located along posterior border of lattice

- When posterior border is irregular or scalloped
- When any vitreous membrane or bands are attached
- When present in the fellow eye of a patient with retinal tear

54 **White Without Pressure**

55 **Degenerative Conditions**

- Lattice Degeneration
  - Epidemiology
    - Young patients; first appears in 10-20 year age group
    - Refractive error is <u>not</u> associated
    - Temporal retina more affected than nasal retina
    - Most common 11 to 1 o'clock and 5 to 7 o'clock
  - Appearances
    - Early: loss of retinal transparency; mimics WOP
    - Later: sclerosed vessels + increase RPE changes

56 **Lattice Degeneration**

- Typical Features:
  - Ragged, dull, roughened retinal
  - Oval, elongated or round in shape
  - Typically parallel to ora
- Pathogenesis most likely due to vitreous degeneration plus traction leading to loss of inner retinal layers

57 **Lattice Degeneration**

- Retina is thinned down to outer nuclear layer and external limiting membrane
  - Possibly to loss of entire sensory retina
- Signs of progression
  - Enlargement
  - Increase pigmentation
  - WOP
  - Hemes
  - Holes

58 **Lattice Degeneration**

- Holes with Lattice Degeneration
  - Occur up to ~30% of the time
  - Infrequent relation to RD; ~14%
- Tears associated with Lattice Degeneration
  - Usually linear in orientation when along posterior border
  - Much higher likeliness for RD due to liquid vitreous' easy access

59 **Lattice Degeneration**

- Follow-up
  - Yearly if asymptomatic

- Every 6 months if symptomatic
-
- Asymptomatic holes should be treated if other risks are present
-
- ALL tears and breaks should be treated
-
- Treat in the presence of cataract that precludes laser treatment
-
- Treat in monocular patient
-

60 **Lattice Degeneration**

61 **Degenerative Conditions**

- Snailtrack Degeneration
-
  - Appears like "frost" on the retina
    - Very similar to WOP
    - Shaped similarly as lattice
    -
  - ~80% occur between ora and 2 DD anterior to the equator
  -
  - Speculation eventually becomes lattice
    - Unsubstantiated

62 **Snailtrack Degeneration**

63 **Retinal Holes and Breaks**

- Atrophic retinal holes
  - NOT caused by traction
  -
  - Occur in atrophic retina
    - Possibly related to underlying vascular insufficiency
    -
  - Small, round and red
    - *Although, can appear gray-ish against darker backgrounds (e.g. tigroid fundi)*
  -
  - Non-operculated (since no traction)
  -

64 **Atrophic Retinal Holes**

- Percentage of increased risk of Retinal Detachment when present...?
-

65 **Atrophic Retinal Holes**

66 **Atrophic Retinal Holes**

67 **Retinal Holes and Breaks**

- Operculated Retinal Breaks
-
  - Round, red hole with operculum attached to vitreous
  -
  - Operculum looks smaller than hole due to degeneration of tissue
  -
  - Locations are typically between equator and ora
    - Occurs temporally more so than nasally

68 **Operculated Retinal Breaks**
- Should treat an operculated break with presence of other risk factors:
  - High myopia
  - Aphakia
  - Extensive vitreoretinal degeneration
  - History of RD in fellow eye

69 **Operculated Retinal Breaks**

70 **Retinal Holes and Breaks**
- Horseshoe Retinal Tear (Flapped Tear)
  - Characteristics
    - Horseshoe-shaped, with apex
    - Flap looks white/gray from edema and degeneration
  - Occurs more often with increasing age, myopia and aphakia
  - The leading cause of RD

71 **Horseshoe Retinal Tear**
- Up to 30% of symptomatic tears go on to a retinal detachment
  - Thus ALL symptomatic tears are treated
  - AND most all asymptomatic tears are treated

72 **Horseshoe Retinal Tear**

73 **Horseshoe Retinal Tear**

74 **Retinal Detachment**
- Contributing factors
  - Weak bonds between RPE and retina
  - Vitreous loses its shock-absorbing capacity with aging
  - Lattice, chorioretinal scars, pigments clumps all have increased traction
  - Vitreous liquefaction

75 **Retinal Detachment**
- Symptoms
  - Photopsia
  - Floaters
  - Veiling (i.e. "curtains falling")

76 **Retinal Detachment**
- Appearance
  - Grey-white retina

- o
- o NO choroidal details are visible
- o Billowing folds due to subretinal fluid
- o Undulating surface
- o Shafer's sign ("tobacco dust")
  - Can also be present with retinal tears

77 **Retinal Detachment**

Rhegmatogenous RD

- o Arising from a retinal break
  - Non-traumatic
    - Most common
    - Older patients with equatorial retinal break
  - Traumatic
    - Less common
    - Typically in the far periphery
    - Delayed appearance (up to 2 years)

78 **Retinal Detachment**

Non-rhegmatogenous RD

- o NOT arising from a retinal break
  - Accumulation of exudate or transudate in subretinal space
  - Tumors, choroiditis and retinal angiomatosis
  - Traction upon adhesion bands

79 **Retinal Detachment**

Risk Factors

- o Risk of an RD with a retinal break is 1 in 70
- o Risk increases with family history of RD
- o Risk increases with high myopia, vitreoretinal traction, retinal degeneration
- o Superior RDs progress faster due to gravity pulling subretinal fluid down
- o Superior-temporal location is worst
  - Macula most vulnerable
- o Superior-nasal area has less risk
  - Optic nerve blocks progression
- o Greater risk with non-operculated retinal breaks
  - Traction is continuous

80 **Retinal Detachment**

Histopathology

- o Serous fluid enters through retinal break
- o
- o Passes underneath retina
- o
- o Photoreceptors degenerate

-
- Outer layers become edematous and atrophic 2-3 months later
-
- Cysts and glial tissue proliferate

81 **Retinal Detachment**

- With longstanding RD
  - Extensive and degeneration of outer retinal layers
  -
  - Glial tissue proliferates extensively
  -
  - Retina contracts and stretches tightly
  -
  - Subretinal bands of tissue adhere the retina to itself
  -
  - Glial tissue may seal retinal breaks and trap retinal debris and fluid
  -
  - Trapped irritants cause uveitis, secondary glaucoma, cataract, phthisis
  -
  - Enucleation is quite likely

82 **Retinal Detachment**

83 **Retinal Detachment**

- Treatment
  - Scleral buckle
    - Adhere retina to RPE with cryo or laser
    - Then encircling silicone sponge/band placed adjacent to tear (relieving traction on retina)
    - Then drain subretinal fluid
    - Finally tighten sutures to permanently indent globe

84 **Scleral Buckle**

85 **Retinal Detachment**

- Treatment
  - Pneumoretinopexy
    - Cryo seals the tear
    - Gas is then injected to "splint" the retina against the eye wall
    - Works best for small breaks located superiorly

86 **Retinal Detachment**

- Treatment
  - Vitrectomy
    - Remove vitreous
    -
    - Replacement fluid instilled
    -
    - Then peel vitreous and debris from retina
    -
    - Then exchange air for fluid
    -

- Then endolaser to adhere retina to RPE
-
- Lastly, long-acting gas to replace the air

87 **Vitrectomy**

88 **Differentiating Retinal Detachment from Retinoschisis**

1 **The Pharmacological Management of Glaucoma**

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2 **History**

- Phase I:
  - Miotics; Pilocarpine, 1877
  - Adrenergics; Epinephrine, 1920's
  - Systemic Carbonic Anhydrase Inhibitors: acetazolamide, 1954

3 **History**

- Phase II
  - Beta-Blockers; timolol, 1979
- Phase III
  - Alpha-Selective Agonists; apraclonidine, 1993
  - Topical Carbonic Anhydrase Inhibitors; dorzolamide, 1996
  - Prostaglandin analogues: latanoprost, 1997
  - Docosanoids: unoprostone, 2000
  - Prostamides; bimatoprost, 2001
  -
  -

4 **History**

- Phase IV
  - Neuroprotection

5 **Mechanism of Action**

- Drugs increasing Aqueous Outflow
-
  - Cholinergic agonists (miotics) = increased trabecular outflow
  - Adrenergic agonists (epinephrine, dipivefrin) = increased trabecular outflow > increased uveoscleral outflow

6 **Mechanism of Action**

- Drugs that decrease Aqueous Production
-
  - Adrenergic blocking agents (beta-blockers)
  -
  - Carbonic Anhydrase inhibitors
  -

7 **Mechanism of Action**

- Drugs that increase Aqueous Outflow and/or decrease Aqueous Production
  - Alpha-2-agonists
    - Apraclonidine = decrease production + increase uveoscleral outflow
    - Brimonidine = decrease production + increase uveoscleral outflow
  - Prostanoids
    - Prostaglandin analogues = increased uveoscleral outflow

8 **Mechanism of Action**

- Prostanoids continued

-
  - Prostamides = ???; increased uveoscleral outflow + trabecular outflow

9 **Drugs**
- Cholinerigic Agonist (miotics)
  - Oldest class of glaucoma medications
  - Introduced in 1877 by von Weber
  - Acts directly on muscarinic receptors or indirectly by inhibiting Acetylcholine Esterase
  - Lowers IOP by increasing aqueous outflow
  - Works best with normal trabeculum

10 **Drugs**
- Cholinergic Agonists (continued)
  - Pilocarpine
    - ~20-30% IOP reduction (depending on concentration)
    - IOP becomes recalcitrant over time
      - In which case an increase in concentration is warranted
    - Additive with most all other drugs
      - Although, least with prostaglandins
    - Darker pigmented iridies typically require higher concentrations
    - Rarely used as a first-line drug

11 **Drugs**
- Cholinergic Agonist (continued)
  - Pilocarpine
    - Adverse Ocular effects
      - Accommodative spasm
      - Brow or head ache
      - Pupillary block with shallow anterior chamber
      - Miosis (decreased vision in low illumination)
      - Myokymia (with higher concentrations)
      - Chronic red eyes
      - *Retinal Detachments
        - »Controversial, but remains a risk for aphakes and myopes with predisposing conditions

12 **Drugs**
- Cholinergic Agonists (continued)
  - Echothiophate (Phospholine Iodide)
    - Indirect acting (does not mimic ACh)
    - Prolong duration (bid dosing)
    - Narrow therapeutic index; rarely used
  - Carbachol
    - Direct acting cholinomimetic
    - Longer duration of action the pilocarpine
    - Used by patients allergic or refractory to pilocarpine

13 **Drugs**
- Cholinergic Agonists (continued)
  - Contraindications
    - Cataract (especially on visual axis)

- < 40 years old
- Neovascular or uveitic glaucoma
- H/O Retinal Detachment

14 **Drugs**

- Adrenergic Agonists
  - Non-selective agents
    - Epinephrine
    - Dipivalyl epinephrine (dipiverfrin)
  - Alpha-2-agonists
    - Apraclonidine
    - brimonidine

15 **Drugs**

- Adrenergic Agonists (continued)
  - Epinephrine
    - Non-selective (alpha 1 + betas 1 & 2)
    - IOP reduction 15-20% with BID dosing
    - Adverse drugs reactions
      - Rebound hyperemia
      - CME in up to 20% of aphakic patients

16 **Drugs**

- Adrenergic Agonists (continued)
  - Epinephrine (continued)
    - Systemic effects via absorption at nasal mucosa
      - Anxiety
      - Palpitations
      - Headache
      - Hypertension
      - Tachycardia
      - Risk of stroke
    -

17 **Drugs**

- Adrenergic Agonists (continued)
  - Epinephrine (continued)
    - Contraindications
      - Concurrent systemic use of MAO inhibitors &tricyclics
      - Aphakes
      - Narrow angles
      - Cerebral/coronary insufficiency
      - Hypertension

18 **Drugs**

- Adrenergic Agonist (continued)
  - Dipivefrin (Propine)
    - Prodrug of epinephrine
    - Excellent corneal penetration secondary to being lipophilic; thus requires a weak concentration
    - Much safer than epinephrine
    - IOP reduction, adverse drug effects and contraindications presumably identical to epinephrine

19 **Drugs**

- Adrenergic Agonists (continued)
  - Alpha-2-Receptor Agonists
    - Apraclonidine (Iopidine)
      - Selective Alpha 2 agonist; some alpha 1
      - Derived from clonidine, but no CNS penetration
      - Efficacy not influenced by age, race or iris color
      - Clinical use:
        - » Prevention of post-op spikes
        - » Short-term IOP control

20 **Drugs**

- Adrenergic Agonist
  - Alpha 2-Receptor Agonist
    - Apraclonidine (continued)
      - Adverse Effects:
        - » Conjunctival blanching
        - » Eyelid retraction
        - » Mydriasis
        - » Tachyphylaxis (loss of efficacy)
        - » Increased risk for hypersensitiviy with prolonged use
        - » Dry mouth and/or dry nose (20-50%)
        - » Fatigue (~15%)
        - » Headache
        - » Sensation of head cold
      -

21 **Drugs**

- Adrenergic Agonists
  - Alpha-2-Receptor Agonist
    - Brimonidine (Alphagan P)
      - Stronger selective alpha-2 agonist
      - Lipophilic; thus better CNS and corneal penetration
      - No loss of efficacy
      - IOP reduction ~18-25%
      - Neuroprotective?
        - » Inhibits glutamate-mediated injury?
      -

22 **Drugs**

- Adrenergic Agonists
  - Alpha-2-Receptor Agonist
    - Brimonidine (Alphagan P)
      - Adverse Effects
        - » Conjunctival hyperemia
        - » Blurred vision
        - » FB sensation
        - » Dry Eye
        - » CNS adverse reactions (more so than apraclonidine)
          - Dry mouth
          - Fatigue/Drowsiness
          - Headache

23 **Drugs**

- Adrenergic Agonists
  - Alpha-2-Receptor Agonist
    - Brimonidine (Alphagan P)
      - Contraindications:
        - »Patients taking MOA inhibitors
        - »Coronary insufficiency
        - »Cerebral insufficiency
        - »Recent myocardial infarction

24 **Drugs**
- Beta-Blockers
  - Primary target are beta receptors on ciliary body
  - Some formulations have 2 concentrations
    - 0.25% (blue cap) & 0.5% (yellow cap)
    - IOP reduction 0.5% $\geq$ 0.25%
  - Proposed to be less effective during sleep
    - Beta-receptors thought to "shut off" during sleep
  - 10-20% of patients unresponsive to drug class

25 **Drugs**
- Beta-Blockers (continued)
  - Timolol (Timoptic)
    - Non-selective beta-blocker
    - "Gold standard" for comparison of newer agents
    - IOP reduction ranges from ~17% - 28%
    - Known for "short-term escape"
      - An exaggerated IOP reduction in the first 2-weeks of therapy
    - Known for "long-term drift"
      - A gradual loss of IOP reduction @ 3-6 months (or later)

26 **Drugs**
- Beta-Blockers
  - Timolol (continued)
    - Hypotensive effect for up to 2 weeks on d/c
    - Uniocular administration causes contralateral effect in untreated eye
    - IOP reduction is minimized in patients already taking some form of beta-blocker
    - Various preparations:
      - Timoptic, Timoptic XE, Istalol
-

27 **Drugs**
- Beta-Blockers (continued)
  - Levobunolol (Betagan)
    - Non-selective beta-blocker
    - IOP reduction similar to timolol 0.5%
  - Carteolol
    - Non-selective beta-blocker
    - IOP reduction similar to timolol 0.5%

28 **Drugs**
- Beta-Blockers (continued)
  - Metipranolol (OptiPranolol)

- Non-selective beta-blocker
- Efficacy similar to timolol 0.5% (perhaps slightly less?)
- Some corneal anesthetic effect
- Drug-induced anterior uveitis?
  - –Uncommon with U.S. concentration of 0.3%
  - –More common with European concentration of 0.6%
  - –Sterilization/Packaging? Or truly higher concentration

29 **Drugs**

- Beta-Blockers (continued)
  - – Betaxolol
    - Relative selectivity for beta-1 receptors
    - Less effect on IOP than non-selective
    - Calcium antagonistic effects
      - –May reduce calcium in neuroprotection model
      - –Tends to be the beta-blocker of choice in normal-tension GLC

30 **Drugs**

- Beta-Blockers
  - – Betaxolol (continued)
    - Better preservation of visual field
      - –mid 90's studies showed better mean sensitivities and less severe mean defects
      - –More recent study suggests blue/yellow field preserved (using SWAP)
    - Considered to be the "safest" beta-blocker for least side effects
    -

31 **Drugs**

- Beta-Blockers (continued)
  - – Adverse Systemic Effects:
    - –Cardiovascular
      - »In normal patients
        - 3-8 mmHg drop in systolic blood pressure
        - 1-5 mmHg drop in diastolic blood pressure
        - 2-4 beats/minute slower heart rate
        - Blunted exercise-induced tachycardia
      - »Effects are worse and serious those already susceptible cardiovascular systems
    - –Pulmonary
      - »Bronchospasm
      - »Decreased Forced Expiratory Volume
      - »Effects should not manifest in normal patients

32 **Drugs**

- Beta-Blockers
  - – Adverse Systemic Effects (continued)
    - –CNS
      - »Depression? (disputed and not confirmed)
      - »Fatigue
      - »Lethargy
      - »Confusion
      - »Memory loss
      - »Dizziness

»Insomnia
»Somnolence

33 **Drugs**
- Beta-Blockers
  - Adverse Systemic Effects (continued)
    - –Gastrointestinal
      - »Nausea
      - »Diarrhea
    - –Metabolic
      - »Reduction in HDLs
      - »Masks signs of hypoglycemia
    - –Sexual Dysfunction
      - »Impotence
      - »Decreased libido (disputed)
      - »

34 **Drugs**
- Beta-Blockers
  - – Adverse Ocular Effects
    - Decreased tear production
    - Decreased goblet cell density
    - Corneal anesthesia
    -

35 **Drugs**
- Beta-Blockers
  - – Contraindications
    - Congestive Heart Failure (CHF)
      - –Possibly not if stable and treated???
    - Cardiac Arrhythmia
      - –Symptomatic bradycardia (e.g. syncope or presyncope)
      - –Bradycardia (< 55 bpm)
      - –Implanted pacemaker
    - Airway Disease
      - –Asthma
      - –COPD

36 **Drugs**
- Beta-Blockers
  - – Contraindications (continued)
    - Hyperthyroidism
      - –"Thyroid storm" symptoms are masked by beta-blockers
    - Diabetes
      - –Hypoglycemia symptoms are masked by beta-blockers
    - Older patients
      - –High risk for undiagnosed and/or subclinical respiratory or cardiovascular disease
    - Depression???
      - –Your call...

37 **Drugs**

- Carbonic Anhydrase Inhibitors (Oral)
  - Decreases bicarbonate entry into posterior chamber, which reduces hypertonic concentration; thus less aqueous production
  - Need ~99% inhibition of carbonic anhydrase to achieve an effect on IOP
    - Therefore, very high oral doses are required
  -

38 **Drugs**
- Carbonic Anhydrase Inhibitors (Oral)
  - Acetazolamide (Diamox Sequels)
    - Good GI asorption with peak levels within 2-4 hours and maintained for 4-6 hours
    - IOP reduction parallels plasma drug levels
    - Adverse Effects:
      - Decreased libido
      - Depression
      - Fatigue
      - Malaise
      - Anorexia
      - Weight loss

39 **Drugs**
- Carbonic Anhydrase Inhibitors (Oral)
  - Acetazolamide (Diamox Sequels)
    - Adverse Effects (continued)
      - Numbness
      - Polyuria
      - GI upset
      - Metabolic acidosis
      - Hypokalemia (loss of potassium)
      - Renal calculi (kidney stones)
      - Transient myopia

40 **Drugs**
- Carbonic Anhydrase Inhibitors (Oral)
  - Acetazolamide (Diamox Sequels)
    - Contraindications
      - Liver Disease
      - Severe COPD
      - Renal disease
      - Pregnancy
      - Severe cardiac disease

41 **Drugs**
- Carbonic Anhydrase Inhibitor (Oral)
  - Methazolamide
    - IOP reduction is dose-dependent
    - Good PO absorption; peaks @ 2-3 hours and maintained for 8 hours
    - Greater ocular penetration than acetazolamide
    - Adverse Effects:
      - Best tolerated oral CAI
      - Less acidosis, association w/kidney stones, less paresthesia
      - Drowsiness

–Polyuria
–Dermatitis

42 **Drugs**
- Carbonic Anhydrase Inhibitors (Oral)
  - Methazolamide
    - Contraindications
      - –Essentially same as acetazolamide
      - –Better for patients with tendency toward kidney stones
      - –COPD- may be better tolerated since less metabolic acidosis

43 **Drugs**
- Carbonic Anhydrase Inhibitors (Topical)
  - –High activity against carbonic anhydrase II and IV enzymes
  - –Balanced lipid/water solubility for corneal penetration
  - –Effect limited to treated eye
  - –Effective during sleep

44 **Drugs**
- Carbonic Anhydrase Inhibitors (Topical)
  - Dorzolamide (Trusopt)
    - Sulfonamide derivative
    - TID preferred for monotherapy; BID adjunctive
    - IOP reduction ~21.8-24.4% (BID) & 22.2-26.2% (TID)
    - Peak effect: 2 hours
    - Should not be used along with oral CAI

45 **Drugs**
- Carbonic Anhydrase Inhibitors (Topical)
  - Dorzolamide (continued)
    - Adverse Effects
      - –Stinging (secondary to acidic pH)
      - –Burning
      - –Blurred vision
      - –Allergic blepharoconjunctivitis in ~10%
      - –Bitter taste (25-30%)
      - –headaches

46 **Drugs**
- Carbonic Anhydrase Inhibitor (Topical)
  - Brinzolamide (Azopt)
    - Selective inhibitor of CA II isoenzyme
    - Sulfonamide derivative
    - BID or TID dosage yield similar reductions
      - –~19.1% reduction ranging from -2.7 to -3.9 mmHg

47 **Drugs**
- Carbonic Anhydrase Inhibitor (Topical)
  - Brinzolamide (continued)
    - Adverse Effects
      - –Much less ocular discomfort (<6%)
      - –Itching
      - –FB sensation
      - –Dry eyes (< 2%)

•

48 **Drugs**
- Carbonic Anhydrase Inhibitor (Topical)
  - Contraindications
    - Severe Kidney Disease
    - Liver Disease (not critical)
    - COPD (not as critical)
    - CHF (not as critical)

49 **Drugs**
- Prostanoids
  - Includes prostaglandin analogues, docosanoids and prostamides
  - Pharmacologic and ocular effects are dose-dependent

50 **Drugs**
- Prostanoids
  - Latanaprost (Xalatan)
    - Effective during sleep
    - IOP reduction independent of race, sex, age, iris color, type of glaucoma (with exception of inflammatory types) and/or previous therapy
    - Shelf life of ~6 weeks unrefrigerated
    - Dosage QD (not critical to be QHS)
    - IOP reduction ~25-35%; thus effective as monotherapy
    - Patent recently expired 3/2011

51 **Drugs**
- Prostanoids
  - Latanoprost (continued)
    - Adverse Effects:
      - Conjunctival hyperemia
      - Stinging, burning and tearing
      - Punctate corneal erosions
      - Iris pigmentation darkens
        - »Thought to be permanent
      - Eyelid pigmentation
      - Hypertrichosis
        - »Reversible once discontinued
      - Anterior uveitis
      - CME
      - Migraines
  -

52 **Drugs**
- Prostanoids
  - Latanoprost (continued)
    - Contraindications
      - History of uveitis
      - Prior "incision surgery" or YAG capsulotomy
      - Previous episodes of recurrent HSV keratitis
      - *Relative* contraindication is <u>unilateral</u> therapy

53 **Drugs**
- Prostanoids
  - Travoprost (Travatan Z)

- Average IOP reduction between 7 to 8 mmHg
- Mean IOP reduction of up to 1.8-2.4 mmHg GREATER in blacks patients
- Rumored to have "slippage" after ~6-12 months (unsubstantiated)
- Dosage QD "evening" not bedtime
-
-

54 **Drugs**
- Prostanoids
  - Travoprost (continued)
    - Adverse Effects
      - Conjunctival hyperemia
      - FB sensation
      - Tearing
      - Dry Eyes
      - Icreased pigmentation in iris and periorbital tissue
      - Increased pigmentation and growth of eyelashes

55 **Drugs**
- Prostanoids
  - Brimatoprost (Lumigan)
    - Synthetic analogue of fatty acid prostamides
    - Prostamides are present in ocular tissues
    - Prostamides presumably lower IOP by the same mechanism as prostaglandins
    - Dosage QHS

56 **Drugs**
- Prostanoids
  - Brimatoprost (continued)
    - Adverse Effects
      - Conjunctival hyperemia
      - FB sensation
      - Growth and darkening of eyelashes
        - » Latisse
      - Pigmentation of periocular skin
-

57 **Drugs**
- Prostanoids
  - Tafluprost (Zioptan)
    - FDA approved for the treatment of OHTN & POAG Feb. 2012
    - **per Merck*
      - Average IOP reduction at 3 months -6 to -8 mmHg
      - Average IOP reduction at 6 months -5 to -8 mmHg
      - Adverse Effects
        - » Conjunctival Hyperemia (~4-20%) *

58 **Drugs**
- Prostanoids
  - Unoprostone (Rescula)
    - Originally on market 2000
    - Reintroduced 2012-2013
    - Discontinued March 31, 2015

59 **Drugs**
- Combination Formulations
  - Cosopt
    - timolol 0.5% &dorzolaminde 2%
    - Dosed BID
    - As effective as timolol 0.5% BID &dorzolomide 2% TID
    - Mean IOP changes similar to Xalatan
      - IOP reduction ~25-35%
    - Contraindications are the sum of each drug
      -

60 **Drugs**
- Combination Formulations
  - Combigan
    - brimonidine 0.2% + timolol 0.5%
      - NOTE: not Alphagan P (either 0.15% or 0.1%)
    - Dosed q12h (*BID)*
    - As effective as both meds given separately
    - Better tolerated than 0.2% brimonidine TID
    - Better tolerated than Cosopt

61 **Drugs**
- Combination Formulations
  - Simbrinza
    - Brinzoloamide 1.0%/Brimonidine 0.2%
      -

62

63

64 **Drugs**
- Combination Formulations
  - Xalacom and Extravan
    - Latnoprost or travoprost combined with timolol 0.5%
    - Dosing schedules not clarified at this time
    - FDA approval delayed for "Xalacom"
      - Although has been available in Europe for years...
    - IOP reduction may equal to, or less than, if separate drugs used together
    - Extravan may be closer to FDA approval

65 **Conclusion**
- Managing IOP remains a staple in glaucoma management
- Consider compliance and quality of life, an the frequently overlooked, cost
- "Above all else, do no harm"
  - Manage appropriately utilizing all therapeutics available
  - Do not let ANYONE go blind in your chair
    - Refer whenever appropriate and/or necessary

1 **NEURO-OPTOMETRY**

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2 **Anatomical Review**

3 **Embryological Review**

4 **Functions of the Cerebellum**

- Primary Function:
  - participates in "programming" of repeated, learned movements
-
- Therefore a cerebellar lesion could result in ipsilateral:
  - Loss of balance
  - Lack of coordination
  - Reduced muscle tone
  - Intention tremor (tremor in executing voluntary movements)

5 **Functions of the Brainstem**

- Medulla
-
  - Contains cranial nerve nuclei IX-XII
  - Contains continuation of spianal tracts
  - Pyramids of medulla carry descending cortical information (continuation of cerebral peduncles of pons)

6 **Functions of Brainstem**

- Pons
  - Contains cranial nerve nuclei IV-VII
  - Contains medial longitudinal fasciculis which connects CN VI nucleus with contralateral CN III nucleus for conjugate gaze
  - Middle cerebellar peduncle (tract) conveys information from cerebrum to cerebellum

7 **Functions of the Brainstem**

- Midbrain
  - Superior and inferior colliculi on posterior surface; function of superior colliculus is known to be involved in visual reflexes, but precise role is uncertain
  - Cerebral Peduncles (tracts) on anterior surface carry information from cerebral cortex to brainstem and spinal cord
  - Contains cranial nerve III nuclei

8 **Functions of the Brainstem**

- Lesions in the brainstem usually produces <u>serious</u> neurological deficits
-
  - Because of the proximity of small structures, multiple deficits often occur

9 **Cranial Nerve Review**

- CN I
  - Name:
    - Olfactory
  - Type (Sensory, Motor or Both):
    - Sensory
  - Function:
    - Transmits the sense of smell from the nasal cavity

10 **Cranial Nerve Review**

- CN II
  - Name:
    - Optic
  - Type (Sensory, Motor or Both):
    - Sensory
  - Function:
    - Transmit visual signals from the retina of the eye to the brain

11 **Cranial Nerve Review**

- CN III
  - Name:
    - Oculomotor
  - Type (Sensory, Motor or Both):
    - Motor
  - Function:
    - Innervates the levator palpebrae superioris, superior rectus, medial rectus, inferior rectus, and inferior oblique, which collectively perform most eye movement. Also innervates the sphincter pupillae and the muscles of the ciliary body.

12 **Cranial Nerve Review**

- CN IV
  - Name:
    - Trochlear
  - Type (Sensory, Motor or Both):
    - Motor
  - Function:
    - Innervates the superior oblique muscle, which depresses, rotates laterally and intorts the eye

13 **Cranial Nerve Review**

- CN V
  - Name:
    - Trigeminal
  - Type (Sensory, Motor or Both):
    - Both
  - Function:
    - Receives sensation from the face and innervates the muscles of mastication
    -
      - Bonus: Can you name the 3 branches?
        - Ophthalmic
        - Maxillary
        - Mandibular

14 **Cranial Nerve Review**

- CN VI
  - Name:
    - Abducens
  - Types (Sensory, Motor or Both):
    - Motor
  - Function:
    - Innervates lateral rectus

15 **Cranial Nerve Review**

- CN VII
  - Name:
    - Facial
  - Types (Sensory, Motor or Both)
    - Both
  - Function:
    - Provides motor innervation to the muscles of facial expression, posterior belly of the digastric muscle, and stapedius muscle. Also receives the special sense of taste from the anterior 2/3 of the tongue and provides secretomotor innervation to the salivary glands (not including the parotid) and the lacrimal gland.

16 **Cranial Nerve Review**

- CN VIII
  - Name:
    - Auditory, Acoustic or Vestibulocochlear
  - Type (Sensory, Motor or Both):
    - Sensory
  - Function:
    - Senses sound, rotation, and gravity (essential for balance and movement). More specifically, the vestibular branch carries impulses for equilibrium and the cochlear branch carries impulses for hearing.

17 **Cranial Nerve Review**

- CN IX
  - Name:
    - Glossopharyngeal
  - Type (Sensory, Motor or Both)
    - Both
  - Function:
    - Receives taste from the posterior 1/3 of the tongue, provides secretomotor innervation to the parotid gland, and provides motor innervation to the stylopharyngeus. Some sensation is also relayed to the brain from the palatine tonsils.

18 **Cranial Nerve Review**

- CN X
  - Name:
    - Vagus
  - Type (Sensory, Motor or Both)
    - Both
  - Function:
    - Major Function: controls muscles for voice and resonance and the soft palate
    - Supplies branchiomotor innervation to most laryngeal and pharyngeal muscles (not including stylopharyngeus.) Also provides parasympathetic fibers to nearly all thoracic and abdominal viscera down to the splenic flexure. Receives the special sense of taste from the epiglottis.

19 **Cranial Nerve Review**

- CN XI
  - Name:
    - Spinal Accessory
  - Type (Sensory, Motor or Both)
    - Motor

- Function:
  - Controls the sternocleidomastoid and trapezius muscles, and overlaps with functions of the vagus nerve (CN X).

20 **Cranial Nerve Review**

- CN XII
  - Name:
    - Hypoglossal
  - Type (Sensory, Motor or Both)
    - Motor
  - Function:
    - Provides motor innervation to the muscles of the tongue (not including the palatoglossus) and other glossal muscles.

21 **Cranial Nerve Review**

22 **Functions of the Diencephalon**

- Thalamus: a "relay" station
  - Almost all sensory information (except olfactory information) is processed in thalamus before being sent on to the cerebral cortex
    - This includes LGN for the visual pathway
  - Motor information that requires coordination between cerebral cortex and cerebellum is processed and relayed by the thalamus

23 **Functions of the Diencephalon**

- Hypothalamus
  - Autonomic system master control
    - This includes sympathetic input to the pupil, eyelids (Mueller's muscles)
    - The true "master gland" because it directs the anterior lobe of the pituitary gland

24 **Functions of the Diencephalon**

- Pituitary
  - Hormones secreted by the anterior pituitary
    - Thyroid-stimulating hormone (TSH, thyrotropin)
    - Adrenocorticotropic hormone (ACTH)
    - Luteinizing hormone (LH)
    - Follicle-stimulating hormone (FSH)
    - Prolactin
    - Growth hormone (GH)
  - Hormones secreted by the posterior pituitary
    - Vasopressin
    - Oxytocin

25 **Functions of the Telencephalon**

- Frontal Lobe
  - Functions of the Frontal Lobe:
    - Highest level of cognitive function-most sophisticated activity
    -
- Temporal Lobe
  - Functions of the Temporal Lobe:
    - Primary auditory cortex
      - Responsible for hearing and integration of auditory information

26 **Functions of the Telencephalon**

- Temporal Lobe (continued)
  - Functions of the Temporal Lobe:
    - Speech
      - Dominant side of the brain (usually left side) contains Wernicke's area in the posterior superior temporal gyrus
        - Wernicke's area is responsible for the capacity to formulate and articulate thoughts (along with small part of the parietal lobe)
    - The posterior aspect of the underside of the temporal lobe, near the occipital lobe, is involved in facial recognition
    - The uncus and hippocampal gyrus together with the adjacent amygdala in the limbic system serve gustatory and olfactory processes, learning and memory function, and behavioral regulation

27 **Functions of the Telencephalon**

- Temporal Lobe (continued)
  - Visual pathway and Meyer's loop
    - Meyer's loop is comprised of inferior fibers of the visual pathway corresponding to contralateral superior visual field
    -

28 **Functions of the Telencephalon**

- Temporal Lobe (continued)
  - Lesions of Temporal Lobe are usually neoplastic (rather than vascular)
    - Mesial temporal lobe epilepsy
    - Partial Seizures
      - Both simple and complex
    - Visual Field Defects
      - Range from small superior scotoma to complete homonymous hemianapsia with macula splitting
    - Partial Bilateral Deafness
    - Aphasia (Wernicke's aphasia)
    - Agnosia
    - Memory Loss
    - Olfactory Hallucinations

29 **Functions of the Telencephalon**

- Parietal Lobe
-
  - Functions of the Parietal Lobe
    - Spatial Relations
    - Speech (dominant hemisphere)
    - Visual Pathway
    -
  -

30 **Functions of Telencephalon**

- Parietal Lobe
  - Lesions can be both neoplastic or vascular resulting in:
    - Various apraxias
    - Aphasia
    - Agnosia
    - Acalculia
    - Motor Impersistence

- Hemi-neglect
  - Contra-lateral side
  -

31 **Functions of the Telencephalon**

- Occipital Lobe
  - Functions of the Occipital Lobe
    - Vision/Visual Functions
      - Primary visual cortex: lights, colors, movements, outlines
      - Secondary visual cortex: integrative, associative functions, pursuits and vergences
      - Occipito-temporal cortex: Recognition of familiar faces and objects
      -
    - Lesions more commonly vascular rather than neoplastic

32 **Functions of the Telencephalon**

- Occipital Lobe
  - Lesions may result with:
    - Highly congruous homonymous field defect
      - with macular sparing
    - Bilateral occipital lobe blindness with denial
      - Anton's Syndrome
  - Occipito-temporal lesions usually have to be bilateral in order to produce prosopagnosia or object agnosia

33 **Functions of Telencephalon**

- Basal Ganglia
  - Typically Includes:
    - Caudate
    - Putamen
    - Globus Pallidus
  - Potentially Includes:
    - Substantia Nigra
    - Red Nucleus
    - Subthalamic Nucleus
    - Pontine Reticular Formation

34 **Functions of Telencephalon**

- Basal Ganglia
  - Functions of Basal Ganglia
    - Primary: smooth involuntary movement
    -
  - Lesions may result in:
    - Tremor (most classically Parkinsonism)
    - Rigidity
    - Bradykinesia
    - Hypokinesia
    - Chorea (most classically Huntington's Chorea)
    - Athetosis

35 **Neurological Disorders Affecting the Visual System**

-
- Multiple Sclerosis/demyelinating disease
  - Medial Longitudinal Fasciculus (MLF)

- The MLF connects the CN VI nucleus on one side with the contralateral CN III nucleus for conjugate gaze
- A MS plaque in MLF can result in internuclear ophthalmoplegia (INO)
- Optic Neuritis
- Potential CN III, IV, VI involvement

36 **Neurological Disorders Affecting the Visual System**

- Phakomatoses
  - Neurofibromatosis Type I (Von Reckinghausen's disease)
    - Café au lait spots
    - Hamartomas of iris (Lisch nodules)
    - Peripheral nerve tumors (neurofibromas)

37 **Neurological Disorders Affecting the Visual System**

- Phakomatoses (continued)
  - Encephalotrigeminal Angiomatosis (Sturge-Weber Syndrome)
    - Port-wine stains
    - Glaucoma
    - Mental Retardation

38 **Neurological Disorders Affecting the Visual System**

- Phakomatoses (continued)
  - Tuberous Sclerosis (Bourneville's disease)
    - Facial angiofibroma (Adenoma sebaceum)
    - Achromatic nevi
    - Astrocytoma in the retina

39 **Neurological Disorders Affecting the Visual System**

- Phakomatoses (continued)
  - Retinal-Neuro-Cutaneous Cavernous Hemangioma Syndrome (Weskamp-Cotlier Syndrome)
    - Classic cavernous hemangiomas (Typically unilateral)
    - Small telangiectatic vascular lesions of the skin

40 **Neurological Disorders Affecting the Visual System**

- Phakomatoses (continued)
  - Angiomatosus Retinae (Von Hippel-Lindau disease)
    - Retinal, cerebellar, and spinal hemangioblastomas
    - Pheochromocytoma, renal cysts, renal cell carcinoma

41 **Neurological Disorders Affecting the Visual System**

- Phakomatoses (continued)
  - Wyburn-Mason
    - Arteriovenous malformations (AVM)

42 **Neurological Disorders Affecting the Visual System**

- Others
  - Sarcoidosis
  - Myasthenia Gravis

1 **Ptosis Crutch: Success Treating Myogenic Ptosis Secondary To Myasthenia Gravis**

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2 **Case History**

- 60 year old, Caucasian, male, 1st presents to Neurology May 2007
-
- Chief Complaint:
  - "Wants management of Myasthenia Gravis (MG)"
  - Intermittent Diplopia since February 2006
  - Intermittent Bilateral Ptosis since May 2007

3 **Case History**

- Medications
  - Celexa 40 mg p.o. qd
  - Atenolol 50 mg p.o. qd
  - Losartan 50mg p.o. qd
  - Cetirizine 10mg p.o. qd
  - Fish oil 880mg p.o. qd
  - HCTZ to 25 mg p.o. qam
  -
- Medical History
  - Hypertension
  - Hx. of Prostate Cancer s/p radical prostatecomy April 2004
  - Total Knee Replacement March 2004
  -
- Family Medical History
  - Unremarkable
  -

4 **Case History**

- Neurology Exam Findings
  - PERRL
  - Limited gaze in all directions
  - (+) Ptosis @ rest OD only
  -
- Assessment and Plan:
  - Presumed Seronegative Myasthenia Gravis
  - Order anti-MuSK Antibody Titer
    - Prescribed Pyridostigmine (Mestinon) 60mg TID and Azathioprine 50mg po BID for symptomatic treatment
  -
  -
  -

5 **Case History**

- Present to Neurology for Follow-up exam July 2007 (2 moths later)
-
- Exam Findings:

- PERRL
- Right Ptosis @ rest
- limited gaze in all directions bilaterally - ophthalmoparesis
  - Cranial nerves 3,4,6 bilaterally especially upon lateral gaze to the left

6 **Case History**

- Assessment and Plan
  - Presumed *Severe* Seronegative Myasthenia Gravis
    - High-dose intravenous human immunoglobulin (IVIg) 400mgs/kg x 5 days
    - Increase Mestinon 60 mg from tid to qid
    - Send out to special laboratory for a MUSK antibody titer
    - Continue Azathioprine 50 mg for 3 more weeks, if still no improvement, consider Cellcept.
  - Refer to Optometry/Ophthalmolgy for Eye Crutches
    -
-

7 **Case Report**

- Presents to Optometry August 2007 (3 weeks later)
-
- Chief Complaint
  - Referred from Neurology
  - Presents for evaluation + refraction prior to consultation c Neuro-Ophthalmology
  - (+) Intermittent diplopia and ptosis OD>OS

8 **Case Report**

- Optometry Exam Findings:
  - Uncorrected VA @ Distance:
    - OD: 20/50 PHNI
    - OS: 20/40 PHNI
  - Retinoscopy:
    - OD: Pl-0.75x 175
    - OS: +0.25-0.75x 180
      - (+) Ptosis OD + OS noticed during procedure; therefore lids taped during refraction

9 **Case Report**

- Subjective Refraction:
  - OD: -0.25-0.75x 175 VA @ dist: 20/25 PHNI ADD +2.00 VA @ near RS 20/20-
  - OS: +0.25-0.75x 180 VA @ dist: 20/25 PHNI ADD +2.00 VA @ near RS 20/20-
- Trial Lens Confirmation in Free Space:
  - OD: -0.25-0.75x 175
  - OS: +0.25-0.75x 180
  - ADD: +2.00 OU
    - VA @ distance 20/25+ OD, OS, OU
    - VA @ near RS 20/20- OD, OS, OU
    - Patient accepts

10 **Case Report**

-
- Assessment and Plan
  - Presumed Seronegative Myasthenia Gravis
  - Mixed Astigmatism OD, Compound Myopic Astigmatism OS c Presbyopia OU
    - SRx released for full-time wear c ptosis crutch to be mailed directly to patient.

Suspect slight reduction in VA (20/25 OD, OS, OU) secondary to unstable tear film; recommend OTC artificial tears QID/PRN.

11 **Case Report**

- Presented to Neurology for follow-up later that day August 2007
  - Pertinent Exam Findings
    - Lab Results:
      - Acetylcholine Receptor Antibody
        - »0.15 nmol/L → Therefore, Negative
- Assessment and Plan
  - Seronegative Ocular MG
    - Discontinue Azathioprine
    - Initiate Cellcept 1 g p.o. bid
    - Continue mestinon
    - Check MuSK antibodies at next visit
    - Await Ptosis crutch arrival in mail
    -

12 **Myasthenia Gravis**

-
- Myasthenia Gravis (MG) Defined
  - Auto-Immune Disorder that effects neuromuscular transmission
    - Acetylcholine receptor antibodies attack the post-synaptic membrane of the neuromuscular junction

  - Tracing back its Greek and Latin roots means "grave muscular weakness"
    -

13 **Myasthenia Gravis**

- Symptoms
  - Striated muscle weakness that worsens with repeated use and improves with rest
    - Primary ocular manifestations
      - Blurred Vision
      - Diplopia
      - Ptosis
      - Gaze restriction secondary to EOM involvement
    - Slurred or nasal speech and/or alterations is voice
    - Difficulty chewing or swallowing
    - Generalize fatigue
    - Difficulty breathing → Myasthenic Crisis
  -

14 **Myasthenia Gravis**

- When ocular manifestations present, it is said to be Ocular Myasthenia Gravis
  - Estimated ~50-90% of all individuals (+) for MG have ocular involvement

- Differential Diagnosis of Ocular Myasthenia Gravis
  - Gaze palsy
  - Multiple Sclerosis
  - Pupil-sparing CN III, IV, VI palsy
  - Internuclear Opthalmoplegia (INO)
  - Thyroid Ophthalmopathy
  - Chronic Progressive External Ophthalmoplegia (CPEO)
  - Inflammatory Orbital Pseudotumor
  - Levator Dehiscence

–

15 **Myasthenia Gravis**

- Diagnostic Tests
  - Tensilon (Gold Standard)
  - Acetylcholine Receptor Antibodies
  - Anti-MuSK Antibodies
  - Thyroid Function
  - Muscle Biopsy
  -
- "In-Office" Diagnostic Tests
  - Ice Test
  - Sleep Test
  - Orbicularis Weakness
  - Lid Fatigue

16 **Myasthenia Gravis**

- Diagnostic Tests con't:
  - Tensilon Test:
    - Intravenous injection of an acetylcholine sterase inhibitor
    - Injection should result in an improvement of the ptosis and/or ophthalmoplegia
  - Acetylcholine Receptor Antibodies
    - Blood titer
      - Normal Results do not rule MG
        - »~10% positive for MG and ~60% ocular MG will test seronegative
    -

17 **Myasthenia Gravis**

- Diagnostic Test con't:
  - Anti-MuSK Antibodies
    - Blood Titer for a muscle-specific receptor tyrosine kinase (MuSK)
      - Found in ~40% of patients with generalized myasthenia who were found to be negative when tested with acetylcholine receptor antibodies
  - Thyroid Function
    - Hyper or Hypo thyroid disease may be associated with myasthenia
  - Muscle Biopsy
    - Allows quantization of available acetylcholine receptors
  -

18 **Myasthenia Gravis**

- Diagnostic Tests con't:
  - "In-Office"
    - Ice Test
      - Apply an ice pack to ptotic eye for ~2 minutes
      - A positive result is an improvement greater than 2mm
    - Sleep Test
      - Patient rests in a quiet, darkened room for ~30 minutes
      - A positve result is an improvement in ptosis

19 **Myasthenia Gravis**

- Diagnostic Test con't
  - "In-Office" con't:
    - Orbicularis Weakness
      - Patient squeezes his eyelids shut tightly, then use finger pressure to try and overcome the blepharospasm

»Lagophthalmos may be present or develop if obicularis weakness is present
–A positive result is a successful attempt in overcoming the blepharospasm
–
• Lid Fatigue
–Patient looks in an extreme upgaze for ~1-2 minutes
»Assesses for fatigability of the levator muscle
–A positive result is an increasing ptosis while eyes are in upgaze
–

20 **Myasthenia Gravis**
• Treatment:
– Generalized MG
• Acetylcholinesterase inhibitors
–Pyridostigmine Bromide (Mestinon)
»Usually first-line therapy
• Immunosuppressant
–Prednisolone
–Cyclosporine
–Azathioprine
–Methotrexate
• Plasmapheresis
–Removal of antibodies from blood
• Intravenous Human Immune Globulin Injections
• Thyroidectomy
–

21 **Myasthenia Gravis**
• Treatment:
•
– Ocular MG specifically:
• Surgical
–Ptosis Repair (myogenic ptosis)
–Blepharoplasty (myogenic ptosis)
–Tutoplast sling: as a frontalis suspension (myogenic ptosis)

• In between
–Botox Injection (myogenic ptosis)
–
• Non-surgical
–Prisms (diplopia)
–Ocular Occlusion (diplopia)
–Peri-ocular Adhesives (myogenic ptosis)
–Ptosis Crutch (myogenic ptosis)
•

22 **Our Treatment**
• Ptosis Crutch
– Teflon or Plastic coated stainless steel wire mounted/soldered on spectacle frames formed to contour the patient's need
• Advantages
–Effective
–Cost Efficient (~$40-$100)
–Non-invasive

–Non-permanent

•

• Disadvantages
–Possible Dry Eye complications
–Possible mild physical discomfort

23 **Ptosis Crutch Examples**

24 **Clinical Take-Homes**

- Diagnosis of MG should ultimately be made by a physician or neurologist
-
- Eye care providers are on the front line and are likely to be the 1st to encounter an undiagnosed patient due to the susceptibility of the ocular muscles to the disease process

  – Most common complaints of a potential undiagnosed patient:
    - Blurred vision
    - Ptosis
      –May manifest unilaterally or bilaterally
      –If bilateral, may even manifest asymmetrically
    - Diplopia
      –The key in accurately associating these symptoms with MG is *variability*
      –If these symptoms wax and wane with time, think MG

25 **Clinical Take-Homes (cont.)**

-
-
- As eye care providers, the simple aforementioned "in-office" tests, are great ways to solidify a tentative diagnosis in order to effectively/efficiently initiate the appropriate follow-up care
-
-
-
- Ptosis crutch is an inexpensive first-line treatment for a ptotic patient not yet at the point of surgical intervention
-

26 **If Interested...**

-
-
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1 **AGE-RELATED MACULAR DEGENERATION**

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2 **Statistics**

- #1 Cause of blindness in US among patients >55 years of age
-
- Disease of the elderly
  - Thus "age-related"
  - Present in 10% of individuals >52 years of age
  - Present up to 33% when >75 years of age

3 **Statistics**

- Approximately 1.7 million Americans >65 years of age have suffered some vision loss from ARMD
-
- As many as 200,000 new cases of wet ARMD are diagnosed every year

4 **Risk Factors**

- Increasing age (peak 75 to 85)
- Positive family history
- Hyperopia
- Whites > Blacks
- Light colored irises and hair
- Associated with solar radiation and retinal damage
- *Smoking...*

5 **Smoking**

- Smoking has consistently been shown to be a risk factor for onset and progression of ARMD in several studies
  - Nurses Health Study
    - 2.5 fold increase in ARMD among current smokers
    - 2 fold increase for past smokers
    - Former smokers did not show decreased risk for ARMD up to 15 years after cessation
    - 29% of all ARMD associated with smoking

6 **Smoking**

- Pahologies Ocularies Liees a l'Age (POLA) Study
  - Greater than 3 fold increased risk for late ARMD in current and former smokers
  -
- Blue Mountain Eye Study
  - 4 fold increase in late ARMD among current smokers
  -
  -
- Bottom Line: DO NOT SMOKE!!!

7 **Prevalence**

- Salisbury Eye Evaluation Study
  - 3821 residents of Salisbury, MD
  - Prevalence of blindness (20/200 or worse) among white individuals with ARMD
    - 0.38% in 70-79 year olds
    - Increased to 1.15% in 80-84 year olds
  -

8 **Prevalence**

- Baltimore Eye Study
  - 5308 individuals in east Baltimore
  - The prevalence of ARMD (parameters not defined)
    - 0.32% in white 70-79 year olds
    - 2.9% in white patients > 80 year olds

9 **Prevalence**

- Beaver Dam Study
  - 4711 patients age 43-86
  - Soft drusen in 20% of eyes
  - Pigmentary abnormalities in 13.1% of eyes
  - Dry ARMD in 15.6% of patients
  - Wet in 1.2%
  - Geographic atrophy in 0.6%

10 **Prevalence**

- Framingham Eye Study
  - 5262 eyes
    - Dry ARMD in 3.2% of eyes
    - Wet in 0.2%

11 **Prevalence**

- Chesapeake Bay Waterman Study
  - 777 male Waterman >30 years old
    - 85% had one or more drusen in the macula
    - Only 0.5% had wet ARMD

12 **Pathophysiology**

- Exact cause is unknown
  - Older Theory
    - Degeneration of RPE and formation of drusen as main players
    - RPE cells are responsible for normal degradation of waste products for photoreceptors
    - In older individuals, abnormalities in degradation process leads to accumulation of byproducts within the RPE, which leads to the formation of drusen

13 **Pathophysiology**

- These drusen and damaged RPE can lead to breaks within Bruch's membrane, which can then allow passage of vessels from the choroid into the retina
- Exact stimulus for neovascularization unknown

14 **Pathophysiology**

- Newer Theory

- Looks at vascular disorder with hemodynamic alteration from atherosclerotic changes as etiology
  - Essentially, thickening and weakening of vessels walls within choroid leads to exudation of proteins and lipids into the macular in the form of drusen, as well as decreased choroidal blood flow
  - Also leads to increased rigidity of eye
  - These factors cause breaks in Bruch's membrane which makes it susceptible for CNVM formation
  - VEGF is released in response to relative ischemia of macula, providing stimulus for neovascularization

15 **Classifications**

- Dry or non-neovascular
  - 80% of all cases
  -
- Wet or neovascular
-
- Geographic atrophy
-
- Choroidal Neovascular Memberanes

16 **Dry ARMD**

- 80% of patients with ARMD have this form
- Characterized by:
  - RPE disruption
  - RPE hyperplasia
  - Drusen to varying degrees
- Typically bilateral and fairly symmetrical
- Variable degree of loss of central vision
  - Rarely reduced to legal blindness
- Color vision may also be compromised

17 **Dry ARMD: Management**

- Primary goal is education and maximizing usable vision
-
  - Education regarding signs of progression to wet
  - Home monitoring (e.g. Amsler grid?)
  - Followed routinely, every 3 to 12 months
  - Maximize vision with best SRx, low vision devices, lighting and eccentric viewing

18 **Dry ARMD: Management**

- Fluorescein Angiography and retina consult if threat of "wet" ARMD
  - Decrease vision
  - Change in metamorphopsia
  -
- UV protection?
  - Very controversial
  - Appears blue light (and perhaps violet) associated with increased risk
    - Slightly higher risk for blonde and red haired individuals
  - Appears sun exposure prior to age 25 is most important
  -
- Stop smoking!
- Supplemental vitamin therapy...

19 **Dry ARMD: Management**
- At present, the mainstay of treatment hinges upon progression prevention via vitamins, nutrition and lifestyle.
-
  - Rheophoresis, laser, anecortave acetate did not prove effective

20 **AREDS: The Age Related Eye Disease Study**
-
- Objective: To evaluate the effect of high-dose vitamins C and E, beta carotene, and zinc supplements on AMD progression and visual acuity
  - 11 center, double-masked study
  - 3640 participants, age 55-80 years of age
  - Average f/u of 6.3 years

21 **AREDS**
- Patients divided into 4 categories based on level of ARMD
-
  - Category I: early ARMD
    - Less than 5 small drusen (<63 microns)
  - Category II: mild ARMD
    - Multiple small drusen
    - Single intermediate size drusen (63-124 microns)
  - Category III: moderate ARMD
    - One large drusen (125 microns)
    - Extensive intermediate drusen
    - Geographic atrophy not centrally
  - Category IV: advance ARMD
    - More than 1 large drusen
    - Geographic atrophy centrally

22 **Categorize the Dry ARMD**
23 **Categorize the Dry ARMD**
24 **Categorize the Dry ARMD**
25 **Categorize the Dry ARMD**
26 **Categorize the Dry ARMD**
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28 **Categorize the Dry ARMD**
29 **Categorize the Dry ARMD**
30 **Categorize the Dry ARMD**
31 **Categorize the Dry ARMD**

32 **AREDS Results**
- 25% decreased risk reduction in developing advanced ARMD in categories III and IV with antioxidants plus zinc
  - 500 mg vitamin C
  - 400 IU vitamin E
  - 15 mg beta carotene
  - 80 mg zinc
  - 2 mg copper (*to prevent anemia)

33 **AREDS Results**
- @ 5 years in patients in Category III and IV
  - Risk of progression to exudative AMD
    - Placebo 28%

- Antioxidants 23%
- Zinc 22%
- Antioxidants + Zinc 20%

- Risk of ≥ 15 letter vision loss
  - Placebo 29%
  - Antioxidants 26%
  - Zinc 25%
  - Antioxidants + Zinc 23%

34 **AREDS Results**
- Unable to show benefit for categories I + II
  - Already low rate of progression to advance
  - Thus no apparent benefit (approx. 80% fall in this group)
- No statistically significant effect on cataracts
- Unsure how long supplements should be taken
- Beta carotene associated with increased risk of lung cancer in smokers
  - Substitution of other antioxidants (lutein) is unclear
  - Length of being a non-smoker debatable

35 **AREDS Results**
- Did not evaluate the role of lutein
- Overall, the benefit is modest
  - All groups had progression despite treatment

36 **AREDS: 2003 update**
- ARMD or cataract is associated with mortality
- Advance ARMD doubles the risk of death from cardiovascular disease
- Even AREDS participants with a few drusen had significant increased risk of death
- Supplemental zinc lowered the death rates

37 **AREDS: Take Home**
- Reasonable to suggest antioxidants plus zinc in patients in moderate to severe ARMD
- Discuss with all patients with ARMD
- No proven benefit in early to mild ARMD
- Increased risk of lung cancer with beta carotene should be considered in smokers and past smokers

38 **AREDS II**
- Enrollment concluded June 2008
- Study concluded October 2012
- Results released 2013
-
- Specifically looked at the role of omega 3, fatty acids, lutein and zeaxanthin in ARMD

39 **AREDS II**
- Subject Characteristics at baseline
  - Average Age: 73 y/o
  - Sex: 43% Male; 57% Female
  - Race: 96% White
  - Education: 66% some college
  - Diabetes: 13%
  - Smokers: 50% former; 9% current

- AMD Status:
  - Bilateral large drusen – 65%
  - Advance AMD in 1 eye – 35%

40 **AREDS II**

- Formula Modification
-
  - 10 mg lutein and 2 mg zeaxanthin
  - 350 mg DHA and 650 mg EPA
  - No beta-carotene
  - 25 mg zinc
  -

41 **AREDS II RESULTS**

- Adding DHA/EPA or lutein/zeaxanthin to the original AREDS formulation (containing beta-carotene) had no additional overall effect on the risk of advanced AMD
- BUT...Trial participants who took AREDS containing lutein/zeaxanthin (only; not DHA/EPA) and no beta-carotene had a slight reduction in the risk of advanced AMD

42 **AREDS II RESULTS**

- Why...?
-
  - Lutein, zeaxanthin, and beta-carotene, belong to a family of organic pigments known as carotenoids
  -
  - Thus, the thought is betacarotene competes for absorption with lutein and zeaxanthin

43 **AREDS II**

- A subgroup of participants with very low levels of lutein/zeaxanthin in their diet, adding these supplements to the AREDS formulation helped lower their risk of advanced AMD.
- Former smokers who took AREDS with beta-carotene had a higher incidence of lung cancer
- No significant changes in the effectiveness of the formulation when they removed beta-carotene or lowered zinc
-

44 **AREDS II**

- Take Home
  - Lutein/zeaxanthin is an acceptable replacement for betacarotene
  -
  - Lowering levels of Zinc did NOT affect effectiveness
    - Bonus: Given the age-group why else is this good?
      -
        - Link between Zinc and Prostate Cancer
  -
  - Still a ways to go....

45 **Veteran LAST Study**
(Lutein Antioxidant Supplementation Trial)

- 12 month randomized, double-masked, placebo-controlled clinical trial
-
- 90 subjects: 86 men, 4 women
-
- August 1999 to May 2001
-
- North Chicago Dept. of VA Hospital

46 **Veteran LAST Study**
(Lutein Antioxidant Supplementation Trial)

- 3 groups
  - Group I: 10 mg lutein
  - Group II: Lutein + additional antioxidants and nutrients
  - Group III: placebo
- Tested at baseline, 4 months, 8 months, and 12 months
  - Macular Pigment Optical Density (MPOD)
  - Glare Recovery (GR)
  - Visual Acuity in LogMAR
  - Contrast Sensitivity Function (CSF)
  - ADLs, night driving, and glare recovery symptoms were evaluated subjectively

47 **Veteran LAST Study Results**
(Lutein Antioxidant Supplementation Trial)

-
- Promising results, but longer f/u needed
  - Increase in MPOD with both Groups I + II
  - Increase in visual acuities in Groups I + II and a decrease in Group III
  - Decrease in subjective symptoms and increase in ADLs with Groups I + II
  - Progression of ARMD undetermined

48 **Progression of Age Related Macular Degeneration Study**

- Mass Eye and Ear Infirmary
  - Longitudinal study designed to measure multiple risk factors for the progression of ARMD
    - Obesity
    - Physical activity
    - Vascular status
  - 261 patients with BVA 20/200 or better with dry ARMD in at least 1 eye
    - Mean age 72.8 years
    - Average follow-up time was 4.6 years

49 **Progression of Age Related Macular Degeneration Study**

- Body Mass Index is a measure of body fat based on height and weight
  - < 19: underweight
  - 19-24: normal
  - 25-29: overweight
  - >30: obese
-
- Increased risk for ARMD progression with higher BMI (specifically above 25)

50 **Progression of Age Related Macular Degeneration Study**

- Higher waist circumference was associated with an increased risk of progression
- Increased physical activity tended to decrease the risk for progression
  - Vigorous activity at least 3x/week

- Suggested an increase for progression among current and past smokers, but not statistically significant

51 **Progression of Age Related Macular Degeneration Study**
- No apparent association between ARMD progression and systolic blood pressure or CVD
- Higher levels of dietary fat were associated with the progression of ARMD to advance stages and visual loss
  - Specifically higher intake of vegetable fat, and animal fat to a lesser degree, increased rates of progression
  - Saturated, mono, poly and tran-saturated fats were also related to progression of ARMD
    - Food groups with high levels of these fats (especially baked goods,) were also associated with higher rates of progression (except nuts)

52 **Progression of Age Related Macular Degeneration Study**
- Potential benefit of nut food group on progression of ARMD
  - May be related to reservatol, a bio-active ingredient shown to have anti-oxidant, anti-thrombotic, and anti-inflammatory properties
  - May also lower total cholesterol and protect against coronary artery disease (CAD) and atherosclerosis due to doses of vitamin E, copper, magnesium and fiber

53 **Progression of Age Related Macular Degeneration Study**
- Suggests a protective effect of fish intake
  - Especially among individuals with lower linoliec acid intake
    - Related to omega-3 fatty acids
    - Omega-3 fatty acids are found in high concentration in the retina
- Also suggests increased meat intake is associated with increased risk

54 **Progression of Age Related Macular Degeneration Study**
- Fruits, vegetables, vitamins and carotenoids
  - Intake of vitamins or carotenoids, either from diet or supplementation NOT strongly related to ARMD risk
  - NO association between vegetable intake and ARMD risk
  - HOWEVER, fruit intake was inversely related to ARMD risk, particular wet
    - Increased fruit intake = decreased risk of WET ARMD, but NOT early dry ARMD
    - Effects greatest with bananas and oranges

55 **Progression of Age Related Macular Degeneration Study**
- Take home:
  - Statistically significant trend for an increased risk of progression to advance ARMD with:
    - higher BMI
    - larger waist-circumference
    - higher waist-hip ratio
  - Possible benefit with increase physical activity
  - Fatty + processed = Bad
  - Nuts, fish, bananas & Oranges = Good
  -

56 **Other Study Summary: Statins**
- Statin use
  - Data from 2 studies showed an inverse association of statins and ARMD (27 and 28 subjects; very small)
  - Beaver Dam Study: retrospective

- 2780 participants age 48-91 followed for 5 years
- Statin use not statistically associated with the prevalence, incidence, or progression of ARMD
- POLA and Amsterdam study concur

57 **Other Study Summary: Statins**

- American Journal of Ophthalmology: April 2004
  - Looked at 326 patients with ARMD at San Francisco VA Hospital Eye Clinic from 1990 to 2003
  - Found decreased rates of CNVM among patients with ARMD who used statins or aspirin

58 **Other Study Summary: Aspirin**

- Rationale: Laboratory studies show that the choroidal blood flow of eye with ARMD is impaired
-
  - Therefore, if vascular disease is a contributory factor, then aspirin (and the like) decreases ARMD risk, right...?
-

59 **Other Study Summary: Aspirin**

- Physicians Health Study I (PHS1)
  - Results showed a statistically non-significant 23% reduced risk of ARMD during the 5 year period
  - Did find a significant reduced risk of ARMD among men who also reported HTN at baseline
  - Disputed previous studies that associated increased risk of hemorrhage with aspirin use
  - Many shortcomings...
    - Male
    - Health conscience
    - Cardiovascular disease was the focus; thus trial stopped after 5 years due to there being a 44% reduction in 1st MI risk

60 **Other Study Summary: Anti-Inflammatories**

- Many researchers feel inflammation plays a prominent role in ARMD
  - Histochemical evidence suggests an inflammatory component in drusen formation
  -
- Therefore, will oral anti-inflammatories help?
  - Evidence unclear and/or conflicting; further studies indicated

61 **Wet ARMD**

- If left untreated, prognosis is poor
  - One study showed 41-64% of untreated eyes lost 6 or more lines of acuity
    - 20/20→20/70 or worse
    -
  - Average visual acuity ranged from 20/160 to 20/320

62 **Wet ARMD: Treatment**

- Macular Photocoagulation
  - Macular Photocoagulation Study 1986
    - At 3 months 20/320 with treatment vs. 20/200 untreated
    - At 24 months 20/320 treated vs 20/400 untreated

- Treated eyes decreased an average of 3 lines from baseline vs. 4.4 without treatment
  - However, treated eyes decrease was immediate
- Long-term modest benefit must be weighed against immediate loss of vision

63 **Wet ARMD: Treatment**

- Photodynamic Therapy (PDT)
-
  - 2-step procedure
    - IV administration of photosensitizing agent (Visudyne)
    - Activation with a laser light source
      - Power of 600 mW/cm^3
      - Duration of 83 seconds
      -
  - FDA approved late 1999/early 2000

64 **Wet ARMD: Treatment**

- Photodynamic Therapy (PDT)
-
  - Patients still lost vision, but less than observation
  - Marked a step forward in ARMD treatment
  - By and large taken over by VEGF treatments
    - Some specialists still consider PDT a viable individual option, as well as, in conjunction with anti-VEGF or intravitreal steroids
  -

65 **Wet ARMD: Treatment**

- Anti-Angiogenic Agents
  - Latest therapies are looking at inhibiting vascular proliferation while preventing damage to photoreceptors
  - Various agents are used as intravitreal injection
    - Macugen (pegatanib sodium) Dec. 2004
    - Lucentis (ranibizumab) June 2006
    - Avastin (bevacizumab) not FDA approved
    - Elyea (aflibicert) Nov. 2011

66 **Wet ARMD: Treatment**

- Anti-Angiogenic Agents
  - Macugen
    - Anti-vasoactive endothelial growth factor (VEGF) aptamer
    - FDA Approved December 2004
      - Commercially available February 2005
      -
    - VISION Study
      - Intravitreal injections of 0.3 m, 1.0 mg, and 3.0 mg every 6 weeks for 48 weeks (8 total injections)
        - 70% loss < 15 letters compared to only 55% without treatment
        - 33% maintained or loss vision with treatment compared to 23% without treatment

67 **Wet ARMD: Treatment**

- Anti-Angiogenic Agents
  - Macugen
    - No longer the agent of choice due to newer agents

- Most notably Avastin, Lucentis and now Eylea
-
  - Must be injected every 6 weeks for 2 years
    - 8-9 injections/year may be indicated
    - Cost: VA medication = $780; most other places $1200

68 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
-
  - Lucentis
    - Antibody fragment which blocks VEFG activity
      - Less specific that Macugen; thus likely more efficacious
      -
    - FDA Approved June 30, 2006

69 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Lucentis
  -
    - ANCHOR Study (classic CNVM)
      - 2 year Phase 3 randomized study
        - 94% of patients treated with 0.3 mg had stable or improved vision compared to 64% with Visudyne
        - 36% had gain of 15 letters or more
        - Average acuity gain was 11.3 letter compared to only 3% with Visudyne

70 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Lucentis
  -
    - MARINA Study (minimally classic/occult)
      - 95% of treated patients versus 62% of controls had less than 15 letter loss
      - 25% of treated patients versus 4.6% of controls had 3 line gain
      - At 2 years, 6.6 letter gain with treatment versus 14.9 letter lost without

71 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Lucentis
    - Additional studies, PRONTO and PIER, looking at alternative dosing schedules
      - PRONTO: 1 injection/3 months, then inject based on clinical and/or OCT findings
      - PIER: 1 injection/3 months, then inject every 6 months for 2 years
      -
    - Results were very similar to original studies (especially with PRONTO
      -

72 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Lucentis
  -
    - Study results better than Macugen
      - First time an improvement of vision was seen (←pun intended)
    - Recommended injection: every 4-6 weeks x 2 years
    - Cost: ~$2500 for medication alone

73 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Avastin
  -
    - Currently FDA Approved for the treatment of metastatic colorectal cancer and certain lung cancers
      - Parent drug of Lucentis
      - Initially thought to be too large to penetrate the retina

74 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Avastin
  -
    - First report of intravitreal injection in May 2005
    - First case report published in July 2005
    - Within 6 months, global acceptance and widespread clinical use
      - Despite lack of large scale studies regarding efficacy, safety and dosing

75 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Avastin
  -
    - #1 advantage is cost
      - ~$15-50 per 0.3 ml injection
      - 1/40 cost of Lucentis
      -
    - The Kicker...?

      Both are made by the same pharmaceutical company!

76 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Avastin
  -
    - Issue is there are no large prospective study to judge its efficacy and safety
      - Systemically, thrombolytic events are a concern
    -
    - Despite the controversy is widely used

77 **Wet ARMD: Treatment**
- Anti-Angiogenic Agents
  - Avastin
  -
    - No studies yet to determine proper dosing
      - Most often, 1 injection/3 months
      - The repeat FA/OCT and evaluate for additional treatments
      - Also, no history of myocardial infarction or CVA within 6 months
      -
    - Patient must be informed of its off-label use

78 **Avastin or Lucentis?**
- Complications of Age-Related Macular Degeneration Treatment Trial (CATT)
  - NEI/NIH sponsored trial
  - First year results released May 1, 2011 (NEJM)
  - 1208 patients randomized

- Lucentis with 4 week dosing
- Avastin with 4 week dosing
- Lucentis with variable dosing (PRN)
- Avastin with variable dosing (PRN)

79 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 1 Year Results**

- Equivalent effects on visual acuity with same administration
  - Lucentis monthly 8.5 letters gained
  - Avastin monthly 8.0 letters gained
  - Lucentis PRN 6.8 letters gained
  - Avastin PRN 5.9 letters gained
- Lucentis PRN = Lucentis monthly
- Avastin PRN vs. Avastin monthly = inconclusive

80 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 1 Year Results**

- Central Retinal Thickness
  - Greater effect in Lucentis monthly group (196 micron decrease) than in other groups
    - 164 micron Avastin monthly
    - 168 microns Lucentis PRN
    - 152 microns Avastin PRN
  - Fluid on OCT
    - At 4 weeks, no fluid in 27.5% of patients with Lucentis vs. 17.3% with Avastin
    - At 1 year, no fluid in 43.7% Lucentis monthly and 19.2% Avastin PRN

81 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 1 Year Results**

- Adverse effects
-
  - When dosing regimens combined, slightly more serious adverse events in Avastin group
    - 24.1% for Avastin
    - 19.0% for Lucentis
    - Risk ratio 1.29 for Avastin as compared to Lucentis

82 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 1 Year Results**

- Average cost for first year treatment:
-
  - $23,400 for Lucentis monthly
  - $13,800 for Lucentis PRN
  - $595 for Avastin monthly
  - $385 for Avastin PRN

83 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 1 Year Results**

- Summary
  - Vision with Lucentis vs. Avastin relatively equal over course of first year
    - Some evidence of more effect with Lucentis on anatomical structure (i.e. greater retinal thickness on OCT, but did NOT correlate with improved visual function)
    - Some hint that less systemic events with Lucentis
    - SIGNIFICANT cost differential

84 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 1 Year Results**
- 1 year conclusion:
-
  - Avastin wins most of the time, with select cases benefiting from Lucentis

85 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 2 Year Results**
- At the end of 2 years, both had similar effects on vision when the dosing regimen was the same
  - Mean gain in acuity, proportion gaining or losing 3 lines, and percentage better than 20/40 were all equivalent
- Mean gain slightly better for monthly vs. PRN by 2.4 letters
- Rates of death from thrombotic events similar
- Adverse events higher with Avastin (39.9%) than Lucentis (31.7%)

86 **Complications of Age-Related Macular Degeneration Treatment Trial (CATT): 2 Year Results**
- Geographic Atrophy most in Lucentis monthly, but more in both monthly
-
- Less fluid at 1 and 2 years with Lucentis
  - Which resulted to 0.6 more injections with Avastin in 2nd year (1.5 more over the whole 2 years)

87 **Avastin or Lucentis?**
- A randomized controlled trial of alternative treatments to Inhibit VEGF in Age-related choroidal Neovascularization
  - IVAN Study

88 **IVAN Study**
- 1 year
- United Kingdom
- 610 patients
- Avastin vs. Lucentis, monthly vs. PRN
- Looked at:
  - Near visual acuity
  - Reading speed
  - Quality of life
  - Serum samples of VEGF Concentration

89 **IVAN Study: Results**
- Final VA was 2 letters in favor of Lucentis
- Monthly vs. PRN difference was negligible
- No real difference in reading speed or quality of life
- Angiographic and topograpic findings favored monthly administration
- Serum Concentration lower with Avastin
- Safety relatively the same
- Switching all patients from Lucentis to Avastin would save UK approximately $132 million annually

90 **Eylea**
- Eylea (aflibercept)
-
- Latest anti-Vegf agent for treatment of wet AMD

-
- Regeneron Pharmaceuticals
-
- FDA approved November 2011

91 **Eylea**

- Approved for:
  - Wet Age-related Macular Degeneration (AMD):
    -
  - Macular Edema following Retinal Vein Occlusion (RVO):
-
  - Diabetic Macular Edema (DME) and Diabetic Retinopathy (DR) in patients with DME:
-

92 **Eylea**

- View 1 Study:
  -
  - 95% of patients receiving 2 mg every 2 months achieved maintenance of vision vs. 94% with Lucentis monthly
  -
  - 7.9 letter mean improvement of vision (vs. 8.1 with Lucentis monthly)

93 **Eylea**

- View 2 Study:
  -
  - 95% of patients receiving 2 mg every 2 months achieved maintenance of vision vs. 94% with Lucentis monthly
  -
  - 8.9 letter mean improvement of vision (versus 9.4 with Lucentis monthly)

94 **Eylea**

- Adverse events were minimal with most common conjunctival hemorrhage, eye pain, vitreous floaters, cataract and increase IOP
-
- System events included falls, pneumonia, myocardial infarction, atrial fibrillation, breast cancer, and acute coronary syndrome (no difference between study arms)

95 **Eylea**

- Cost
  -
  - ~$1,850 per injection, with injection every 2 months
  -
  - Therefore ½ of Lucentis monthly

96 **Other Therapies...?**

-
-
- As of July 2013, there are 936 studies evaluating AMD
-

97 **FoVista**

- Anti-PDGF agent
  - Platelet Derived Growth Factor
  -

- Theory is that when used in conjunction with anti-Vegf agents there will be a synergistic effect
-
- Ophthotech
  - Currently in Phase III clinical trial

98 **FoVista**
- Initial phase 1 trial to show safety
-
  - 59% had improvement of three lines or more
-
- Phase 2b study: 449 patients
-
  - FoVista/Lucentis combination gained 10.6 letters at 24 weeks, versus 6.5 with Lucentis alone
    - -62% additional benefit

99 **FoVista**
- First study results were BETTER THAN Lucentis'
-
  - FoSho

100 **ARMD/DNA Connection**

- ARMD is a genetic disease with known markers responsible for 70% of the population attributable risk
-
  - The other 30% is environmental/lifestyle

101 **Major Genetic Factors**
- Complement H Factor (CHF)
  - Single most important genetic component
  - CHF Y402H
- $ARMS_2/HTRA_1$
  - Second most important gene in ARMD
- C_3
  - Another component of the complement system
- ND_2
  - Mitochondrial oxidative phosphorylation molecule

102 **Macula Risk Score**
- The Macula Risk genetic test incorporates all the known genetic predictors of AMD progression
-
- The test stratifies individuals into 5 risk groups

103 **Macula Risk Score**

104 **Macula Risk Score**
- Macula Risk testing is recommended based on presenting AREDS ARMD score:
-

105 **Macula Risk Score**
- Management recommendations:
-

106 **VEFG Eye Drops**
- ATG3: a topical eye drop for treatment of wet ARMD

- Phase II trial will enroll 330 patients to receive 2 concentrations of ATG3 bid vs placebo for 48 weeks
- Gate Study by Alcon
  - Phase III study evaluating AL-8309B as topical ocular treatment for geographic atrophy secondary to ARMD

107 **VEGF Eye Drops**

- Pazopanib
  - FDA Approved for renal cell carcinoma
  - Treatment for wet ARMD
- OT-551
  - Anti-angiogenic drop being investigated for geographic atrophy
  - Recent study showed it to be ineffective

108 **Oral Fenretinide**

- What is Fenretinide?
  - Synthetic Retinoid Derivative
- RetinPhase II study underway for treatment of advance geographic atrophy from ARMD
-
- Theory is that the medication prevents delivery of retinol to the eye, which reduces retinol derived metabolites (A2E) that are toxic to the RPE and photoreceptors
-
- 2 year study which is looking primarily at lesion size
  - 300 mg and 100 mg capsules taken once a day after evening meal x 24 months

109 **Oral Fenretinide**

- 2009 American Academy of Ophthalmology Meeting
-
  - At 18 months, lesions in 300 mg group showed 45% less growth than placebo
    - 100 mg looked most protective against growth of small lesion (< disc diameter) 300 mg against all lesions
    -
  - Conversion to wet ARMD occurred less in 100 mg (6%) and 300 mg (7%) groups vs. placebo (13.4%)
  -
  - Granted "fast-track: designation by FDA

110 **Oral Fenretinide**

- May 2011 Association for Research in Vision and Ophthalmology (ARVO)
  - 43% patients on 300 mg had decreased lesion size by 60%
  - 30% growth with treatment vs. 50% growth with placebo
  - Loss of 6 letters over 2 years vs. 11 letters with placebo
  - May also reduce incidence of CNVM
    - 22% with placebo vs. 13% with treatment

111 **Copaxone**

- Copaxone (glatiramer acetate) is a immunomodulary substance which has been proven to be safe and effective in treating neurodegenerative diseases, such as MS
- Phase II study will investigate if a weekly vaccination can stop the progression as well as conversion of dry to wet ARMD
  - New York Eye and Ear Infirmary

112 **Ciliary Neurotrophic Factor (CNTF) Intraocular Implant: NT-501**
- Recent study of patient with geographic atrophy
-
  - After 12 months, 96.3% of high-dose group had stable vision vs. 75% with sham/placebo
  -
  - Also showed increase in retinal thickness in treated group at 12 months

113 **Stem Cells**
- Transplantation of fetal RPE cells has been performed in patients with CNVM and geographic atrophy
-
- Promising results, but many researchers feel widespread use may be decades away

114 **Radiation**
- Beta Radiation with Avastin
-
  - CABERNET study
  -
  - Looking at combining local application of epiretinal beta radiation with Avastin
    - 1 year: mean improvement of 19 letters with 39% gaining 3 lines or more
    - 67% of patients were stable after initial treatment only
      - 2 injections plus radiation with vitrectomy

115 **Radiation**
- MERITAGE Study
  -
  - 53 patients with ARMD that required frequent VEGF injections
  -
  - Pars Plana Vitrectomy with single 24-GY dose fEMB (epimacuar brachytherapy)

116 **Radiation**
- Results
  - After 1 treatment, 81% had stable vision
  - Mean of 3.29 treatments in 12 months
    - On average 12.5 injections prior to study
  - Mean change in acuity: -4.0 letters
  - Mean OCT CRT increased by 50 microns
  - Stable VA in most patients and may reduce the need for frequent treatments

117 **Others**
- Effect of Saffron Supplementation on ARMD
-
- Transcorneal Electrical Stimulation Therapy for Retinal Disease
-
- Effect of Lutein-Enriched-Egg Beverage on ARMD

118 **Implantable Miniature Telescope (IMT)**
- FDA Approved July 2010 for patients with end-stage ARMD
- Two Models
  - 2.2x
  - 2.7x
  -

119 **Implantable Miniature Telescope (IMT)**

- Study
  - 219 patients
    - 75% improved from severe or profound impairment to moderate impairment
    - Average visual acuity improvement: 2 lines
  - Complications
    - Corneal Edema (9.2%)
    - Corneal Decompensation (6.9%)
    - Corneal Transplant (4.1%)

120 **Macular Degeneration**

- As stated before....
  -
  - There is still quite a ways to go
  -
  - As of 9/3/2015, # of trials returned on a search for "Macular Degeneration" on clinicaltrials.gov...?
  -
    - 1,212

1 **Diabetic Retinopathy**

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Riverside-San Bernardino County Indian Health, Inc.

2 **Statistics**

- Leading cause of blindness and low vision in ages 20-74 in the US
-
- 86% of individuals with type 1 diabetes and 40% of type 2 have some form of clinically evident retinopathy
-
- Accounts for 12% of all new cases of blindness every year
-
- Prevalence increases with the duration of the disease
  - 50% after 7 years and 90% after 17-25 years

3 **Retinopathy Risk**

4 **Retinopathy Risk**

5

Risk Factors for Retinopathy

- Long duration of diabetes
- Poor metabolic control
- Pregnancy
- Hypertension
- Renal disease
- Other:
  - Obesity
  - Hyperlipidemia
  - Smoking
  - Anemia

6 **Vision with Diabetic Retinopathy**

7 **Ocular Signs and Symptoms of Diabetes**

- Fluctuating vision
  - Secondary to fluctuating blood sugar
- Blurred vision
  - addition of diabetes meds (gradual onset)
  - Macular edema (gradual onset)
  - Diabetic optic neuropathy (sudden onset)
- Diplopia
  - CN III, IV, VI palsies
- Floaters
  - Vitreous hemorrhage
  - Retinal detachment
- Asymptomatic

8 **Non-retinal ocular sequelae**

- Optic neuropathy
  - Edema to optic nerve
  -
  - Sudden onset of blurred vision (one or both eyes)
  -

- Generally spontaneously resolves over a few months with mild long term consequence
-

9 **Non-retinal ocular sequelae**

10 **Non-retinal ocular sequelae**

- Cranial Nerve Palsies
  - Sudden onset of diplopia (may manifest in certain gazes only)
  -
  - Generally spontaneously resolves over a few months
-

11 **Non-retinal ocular sequelae**

12 **Non-retinal ocular sequelae**

- Cataracts
-
  - Major cause of decreased vision
  - Cataracts tend to develop earlier and progress more rapidly in persons with diabetes
-
  - Cortical and Posterior Sub-Capsular Cataracts incidence slightly higher in persons with diabetes
-
  - Type 2 diabetes especially associated with Nuclear Sclerotic
-

13 **Non-retinal ocular sequelae**

14 **Non-Retinal ocular sequelae**

- Fluctuating vision
  - Fluctuating blood sugar
    - Secondary to transient sorbitol influx into the crystalline lens
    - Increases near-sightedness
    - >250 mg/dl
    - Can fluctuate over a period of minutes to days
    - Generally wont prescribe glasses until blood sugar is stabilized
      - Return in 1 month
  - Addition of sulfonylureas
    - Unknown mechanism
    - Shifts towards far-sightedness
    - Lasts ~6 weeks, Will eventually return to baseline

15 **Diabetic retinopathy Pathophysiology Overview**

Accumulation of sorbitol destroys pericytes
(supportive cell in capillary walls)

As the pericytes die, capillary endothelium becomes compromised
⇓
Vascular leakage of blood, lipid and protein.
⇓ ⇓
Retinal edema (exudates) Vascular Insufficiency
⇓
Capillary Non-Perfusion
⇓
Retinal Hypoxia (CWS)

⇓

Retinal, Optic Nerve and Iris Neovascularization

16

17

18 **Neovascularization**

19

20 **Diabetic Eye Exam**

- Visual acuity
-
- Extraocular muscle evaluation (CN palsies)
-
- Refraction (myopic shift or hyperopic shift)
-
- Slit lamp examination (check for NVI + Cataracts)
-
- Intraocular pressure (neovascular glc)
-
- Gonioscopy (check the angle for NV)

21 **Diabetic Eye Exam**

- Binocular indirect ophthalmoscopy (periphery and posterior pole)
- Stereoscopic indirect biomicroscopy
-
- Fundus Photography (document change)

If warranted:

- Fluorescein angiography (check for leakage)
- OCT (check edema or sub-retinal fluid)
-

22 **Ancillary testing:**
Fluorescein Angiography

23 **Ancillary testing:**
Fluorescein Angiography

- Fluorescein is injected into the antecubital vein
- Photos are taken at about 4 sec intervals.
- Shows the retinal capillaries
- good guide for laser photocoagulation of wet ARMD and retinal vascular diseases

24 **Ancillary testing:**
Fluorescein Angiography

25 **Ancillary testing:**
Optical Coherence Tomography

- Provides a cross-sectional image of the retina by projecting a pair of near infrared light beams into the eye
-
- OCT measures the thickness of the retina, allowing for a quantitative approach to following diabetic macular edema
-
- On-going trials investigating the relationship between OCT readings and visual acuity

26 **Ancillary testing:**
Optical Coherence Tomography

27 **Before we get to the retina...**

- Cataracts are a major cause of decreased vision
- Cataracts tend to develop earlier and progress more rapidly in persons with diabetes
-
- Cortical and Posterior Sub-Capsular Cataracts incidence slightly higher in persons with diabetes
-
- Type 2 diabetes especially associated with Nuclear Sclerotic

28 **Stages of Diabetic Retinopathy**

29 **Mild NPDR**
(non-proliferative diabetic retinopathy)

- Signs
  - Microaneurysms (MA)
  - Dot/Blot hemorrhages
  -
- Risks
  - 5% risk of progression to PDR (neovascularization) in 1 yr
  - 15% risk of progression to high risk PDR within 5 yrs
  -
- Management
  - Optimize glycemic control
  - Annual follow up

30 **Moderate NPDR**

- Signs
  - Marked Hemorrhages/MA
  - Cotton wool spots
  - Venous beading
  - Exudate
  -
- Risks
  - 12-27% risk of progression to PDR in 1 yr
  - 33% chance of developing *high risk* PDR within 5 years
- Management
  - Optimize glycemic control
  - 6-12 months follow up

31 **Severe NPDR**

- Signs
  - Marked hemes/ma in all 4 quadrants
  - Venous beading in 2 or more quadrants
  - IRMA (Intraretinal Microvascular Anomolies)
- Risks
  - 52% risk of PDR in 1 year
  - 60-70% chance of developing *high risk* PDR within 5 years
- Management
  - Optimize glycemic control
  - Follow up in 2-3 months
  - Consider Fluorescein Angiogram to r/o subtle NV

32 **Mild NPDR**

33

34 **IRMA and Venous Beading**
35 **Venous beading via FA**
36 **Cotton wool spots**
37
38
39 **Efficacy of tight glycemic control**

- Intensive treatment to maintain blood glucose concentrations close to normal range has been shown to decrease the risk of the development of diabetic retinopathy by as much of 76%.

40 **Efficacy of tight glycemic control**
Diabetic Control and Complications Trial (DCCT)

- To determine the effect of tight blood sugar control on retinopathy in persons with type 1 diabetes
- Progression of retinopathy was reduced by 60% with the intensive control group versus standard treatment
- Additionally there was a 29% reduction in the risk of getting macular edema

41 **Efficacy of Glycemic Control**
U.K. Prospective Diabetes Study (UKPDS)

- Prospective study to determine the effect of tight blood sugar control on retinopathy in persons with Type 2 diabetes
-
- Every 1 point decrease in HgA1c = 35% risk reduction for retinopathy
-
- 25% Overall reduction in the risk for microvascular endpoints including the need for photocoagulation
- *Rapid control of long-standing poor control may accelerate progression of established retinopathy over the 1st year*

42 **Goals for glycemic control**
- Recommendation is glucose levels as near to normal as possible
-

43 **Goals for glycemic control**
- Now
  - For a person not diagnosed with diabetes
  -
  -
  -
  -
  - For a person with diabetes
  -
  -

44 **Blood pressure control**
- Decreases the risk and/or the progression of diabetic retinopathy and macular edema
-
- Wisconsin Epidemiologic Study of Diabetic Retinopathy (WESDR) showed an association

between progression of retinopathy and a higher diastolic reading and macular edema

-
- UKPDS demonstrated that tight control of blood pressure (<150/85) reduced the risk for photocoagulation and progression of retinopathy by 37% and 34% respectively
  - Additionally there was a 47% reduction in vision changes

45 **Serum lipid control**

- Elevated serum lipid levels affect the severity of retinopathy by increasing the presence of hard exudates and thereby increasing the risk of visual loss (ETDRS 22 and WESDR VIII)
-
- Patients with elevated total serum cholesterol levels or serum low-density lipoprotein (LDL) cholesterol levels at baseline were twice as likely to have retinal hard exudates as patients with normal levels
-
- Severe hard exudates are the strongest risk factor for subretinal fibrosis and permanent vision loss
-
- Risk for progression of retinopathy (total cholesterol)
  - 23% increased risk if >200 mg/dl
  - 50% increased risk if >240 mg/dl

46 **Proliferative Diabetic Retinopathy (PDR)**

- Signs
  - Hallmark is presence of retinal neovascularization (NVD/NVE)
  - New vessels are fragile and easily ruptured
  - Vessels grow into the vitreous leading to vitreous hemorrhages
- Risk
  - 75% risk of progression to high risk PDR within 5 yrs
- Management
  - Obtain retina consult within 2 weeks
  - Consider PRP (Panretinal Photocoagulation)
-

47 **Proliferative Diabetic Retinopathy (PDR)**

- Affects 5-10% of persons with diabetes
-
- Type 1 at increased risk compared to Type 2 (60% after 30 years)
-
- NVD (disc), NVI (iris aka: rubeosis) or NVE (elsewhere), NVA (angle)

48 **Neovascularization of the Disc (NVD)**

49 **Neovascularization of the Disc (NVD)**

50 **Neovascularization Elsewhere (NVE)**

51 **Neovascularization Elsewhere (NVE)**

52 **NVD and NVE via FA**

53 **Neovascularization with a Large Pre-retinal Hemorrhage**

54 **Vitreous Hemorrhage**

55 **Neovascularization of the Iris (rubeosis)**

56 **The treatment: Laser Panretinal Photocoagulation (PRP)**

- Goal is to eradicate neovascularization because of its potentially serious complications (Neovascular Glaucoma, Retinal Detachment)

- Mechanism: not well understood, destroy ischemic retina to get rid of neovascular

stimulus

- Initial tx is 1200-2400 spots
- Median spot size (350-500 microns)
- f/u 4 to 6 weeks
- Complications: decreased peripheral vision & night vision

57 **Diabetic Retinopathy Study**
- NIH sponsored clinical (1971-1975)
-
- PRP reduced the risk of severe vision loss by 50%
- Defined high-risk proliferative diabetic retinopathy

58 **Pan-Retinal Photocoagulation**

59 **Post PRP**

60 **Neovascular Glaucoma**
- Mechanism:
  - iris blood vessels grow into the angle, where the drainage system of the eye is.
  - Outflow of fluid is impeded and intraocular pressure increases, leading to glaucoma.
- Management: Difficult!!!
  - PRP (regress NVI)
  - Glaucoma meds (control IOP)
  - Trabeculectomy: surgery to create new channel of fluid flow directly out of the eye
  - Enucleation for blind eye with intractable pain not uncommon

61 **Neovascular Glaucoma**

62 **Retinal Detachment**

New blood vessels can cause scar tissue to develop
⇓
When it shrinks, it can pull the retina away from the back of the eye
⇓
Retinal detachment
⇓
Tx: scleral buckle, cryo

63 **Indications for Vitreoretinal Surgery**

64 **Indications for Vitreoretinal Surgery**

Dense, persistent premacular hemorrhage

65 **Indications for Vitreoretinal Surgery**

Progressive proliferation despite laser therapy

66 **Indications for Vitreoretinal Surgery**

Retinal detachment involving macula

67 **Diabetic Maculopathy**

Three types
- Focal edema
  - Localized edema near macula
  -
- Diffuse edema

- large area of edema in macula
-
- Macular ischemia
  - capillary non-profusion

68 **Circumscribed retinal thickening and associated with circinate hard exudates**

69 **Diabetic maculopathy with OCT**

70 **Diffuse Diabetic Maculopathy**

71 **Ischemic Diabetic Maculopathy**

72 **Early Treatment of Diabetic Retinopathy Study**
- NIH sponsored clinical trial (1979-1990)
-
- Studied moderate-severe NPDR and mild PDR with vision 20/40 or better
-
- Defined CSME
-
- Focal or grid photocoagulation of CSME substantially reduces the risk of moderate visual loss by clearing retinal thickening
-
- PRP causes a significant reduction in severe vision loss in patients with early treatment
-

73 **Clinically Significant Macular Edema (CSME)**

Hard exudates within 500 μm of center of fovea with adjacent thickening which may be outside 500 μm limit

74 **Clinically Significant Macular Edema (CSME)**

75 **Clinically Significant Macular Edema (CSME)**
- Focal Macula Laser (FML)
  - 50-200 micron spot size
  - 100-500 mW power
  - 0.1 sec duration
- Grid laser – diffuse treatment
- f/u 3-4 months
- Complications– paracentral scotomas, subretinal neovascular membrane, and misplaced laser spot

76 **CSME**

77 **Laser treatment of DME**

78 **Paradigm Shift**
- Treatment of DME hinges upon anti-VEGF treatments
  - Vaso-endothelial growth factor

- Currently, 3 agents FDA approved for DME:
  - Ranibizumab (Lucentis)
  - Afibercept (Eylea)
  - Bevacizumab (Avastin)

79 **Take home message**
- Regular eye exams are an important part of care for your diabetic patient, at least in 1 year intervals.
-

- If blood sugar control is out of control, refractions can be out of control!
-
- Studies have shown that a coexistence of poorly controlled hypertension and hyperlipidemia can cause progression and worsening of diabetic retinopathy

1 **Overcoming Mental Barriers in Vision Rehabilitation**

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2 **Case Report**

- A 29-year old white female presented to TBI Eye Clinic complaining of vertical diplopia and intermittent visual discomfort.
-
- Her history was remarkable for having suffered a remote traumatic head injury 7 years prior.
  - Fell off a ladder and hit the back (occipital region) of her head
  - Identified this event as onset for both her chief complaints
  - Has since worn prismatic spectacles, which resolved the diplopia up until recently, but never did resolve the intermittent visual discomfort

3 **Case Report (Continued)**

- Eye Examination:
  - Entering visual acuities through her habitual glasses were 20/20 right eye (OD), left eye (OS) and with both eyes (OU.)
  - Pupils were equal, round and reactive to light and no evidence of an afferent pupillary defect.
  - Cover Test through her habitual glasses yielded a 2 prism diopter right hypertropia at distance and near.
  - Park's 3-step isolated a right superior oblique muscle palsy.
  - Uncorrected Modified Thorington/Maddox Rod resulted 6 prism diopters right hyperphoria and 2 prism diopters esophoria.
  - Gradient accommodative convergence to the stimulus of accommodation ratio (AC/A) was measured to be 2/1.
-

4 **Case Report (Continued)**

- Subjective refraction yielded a compound myopic astigmatic refractive error OD and OS.
  - Over the subjective refraction, 3 prism diopters base-down and 1 prism diopter base-out was placed over the right eye and 3 prism diopters base-up and 1 prism diopter base-out was placed over the left eye.
  - Modified Thorington/Maddox Rod performed over the subjective prescription with the added prisms yielded the result of ortho both vertically and horizontally
- Prescription was released.
-
  -
-

5 **Case Report (Continued)**

- 6 weeks later patient returned to clinic for a follow-up exam after having received her new glasses.
  - Patient reported he diplopia had "essentially resolved," but still complained of intermittent visual discomfort.
-

6 **Case Report (Continued)**

- Eye Examination:
  - Entering visual acuities through her new glasses were 20/20 at distance and near OD, OS, OU.
  - Pupils were equal, round and reactive to light without presence of an afferent pupillary defect. Cover test was ortho at distance and near.
  - Near Point Convergence was to the nose on all three attempts.
  - Positive Prism Bar Vergences yielded the result of a break at 16 prism diopters and a recovery at 10 prism diopters.
  - Negative Prism Bar Vergences yielded the result of a break 8 prism diopters and a recovery of 4 prism diopters.
  - Minus-lens Amplitudes were found to be 8.75 diopters OD and 6.00 diopters OS. The patient was diagnosed with accommodative insufficiency OS and vision therapy was prescribed.
  -
- The patient was diagnosed with accommodative insufficiency OS and vision therapy was prescribed.

7 **Case Report (Continued)**

- 1 week later, the patient began vision therapy
  - Started with Hart Chart Minus Lens Dips using a -4.00 diopter lens with a goal of at least -8.00 diopters of accommodative amplitude OD, OS
  - Patient progressed well into week 2 of therapy having sufficiently worked her way into performing the Monocular Hart Chart Minus Lens Dips with -5.00 diopter lens.

8 **Case Report (Continued)**

  - Brock String was then introduced during week 2 primarily as a means of providing an out-of-office component into her therapy due to distributable lens blanks not being available to the clinic
    - The progress with the Brock String was not tracked given that the patient was convergence sufficient
  - Week 3 of therapy, the patient demonstrated marked difficulty with the -5.00 diopter lens and regressed to having to use a -4.00 diopter lens for Monocular Hart Chart Minus Lens Dips.

9 **Case Report (Continued)**

  - Week 4 of therapy, the patient remained only able to perform the Monocular Minus Lens Dips with -4.00 diopter.
  - Patient was referred back to TBI Eye Clinic for reevaluation.

- 3 days later, the patient presented to TBI Eye Clinic

10 **Case Reprt (Continued)**

- Eye Examination:
  - Entering visual acuities were 20/20 at distance and near OD, OS, OU
  - Pupils were equal, round and reactive to light without presence of an afferent pupillary defect
  - Cover test was ortho at distance and near

- Positive Prism Bar Vergences yielded the result of a break at 12 prism diopters and a recovery at 2 prism diopters

11 **Case Report (Continued)**
- Eye Examination (continued):
  - Negative Prism Bar Vergences yielded the result of a break 4 prism diopters and a recovery of 2 prism diopters
  - Minus-lens Amplitudes were found to be 2.75 diopters OD and 1.50 diopters OS
- Given the atypical near testing results, malingering was suspected and vision therapy was temporarily suspended until the matter could be discussed with the patient's inter-disciplinary team

12 **Case Report (Continued)**
- 6 days later, the patient's case was discussed with the patient's vision therapist, psychologist and social worker
  - The psychologist identified tentative diagnosis of Conversion Disorder
- The next day, vision therapy resumed with exception to the Brock String
  - It was made clear to the patient the prescribed therapy will resolve her visual complaints and if in the event it does not, the cause of her complaint is not visual in nature, but psychological
  - Monocular Hart Chart Minus Lens Dips were completed with -4.00 diopter lens

13 **Case Report (Continued)**
  - The following week, the patient increased her performance to being able to use a -6.00 diopter lens during Monocular Hart Chart Minus Lens Dips
  - The final week, the patient not only met, but surpassed her goal and was able to perform Monocular Hart Chart Minus Lens Dips with -9.50 diopter lens
- 1 week later, the patient was reevaluated in TBI Eye Clinic

14 **Case Report (Continued)**
- Eye Examination:
  - Patient reported she was symptom-free for the last two weeks
  - Entering visual acuities were 20/20 at distance and near OD, OS, OU
  - Pupils were equal, round and reactive to light without presence of an afferent pupillary defect
  - Cover Test was ortho at distance and near
  - Positive Prism Bar Vergences yielded the result of a break at 18 prism diopters and a recovery at 14 prism diopters
  -
  -

15 **Case Report (Continued)**
- Eye Examination (continued):
  - Negative Prism Bar Vergences yielded the result of a break 8 prism diopters and a recovery of 6 prism diopters
  - Minus-lens Amplitudes were found to be 10.00 diopters OD and 9.50 diopters OS
  - Patient successfully completed vision therapy
- Patient contacted clinic 6 months later to report she is doing "great" and to say how thankful she is for all the "help" and that she is engaged to be married

16 **Discussion**
- This case utilized the "double-bind" technique to manage the Conversion Disorder
- The double-bind technique consists of confronting the patient with two possible causalities for their symptoms
  - The first being an organic etiology

– The second being a psychological etiology
- Then it is explained to the patient if the etiology is truly organic, the treatment will work, if not, it is psychological in nature and long-term psychological treatment is warranted

17 **Discussion (continued)**
- This effectively places the patient in a difficult position whereby the only way they can prove something was indeed "wrong" or that they were "sick" is to actually recover and become well.
- The beauty of the double-bind approach is that it allows the patient a "face-saving" option to recovery
- The double-bind leaves patients little choice but to accept the face-saving option of eliminating their symptoms through rehabilitation and confronting the feared consequence of being well
-

18 **Conclusion**
- Those involved in the prescription and implementation of rehabilitative vision therapy must be cognizant of the potential mental barriers that threaten the standard progression of a prescribed vision therapy plan and ultimately the resolution of the visual symptoms and/or complaints
- Especially due to the fact conventional thought within vision therapy rehabilitation being that the lack of adequate progression within the first 3-4 weeks of consistent vision therapy is the result of a misdiagnosis of the etiology of the visual symptoms and/or complaint.

19 **Conclusion (continued)**
- It is imperative to prevent the risk of departing from an accurate diagnosis and treatment that eye care providers and therapists consider the possibility of Conversion Disorder when confronted with an atypical response to visual rehabilitative efforts.
- Therapists must have good communication with the prescribing eye care provider in order to identify the potential problem so that the eye care provider can appropriately diagnose the presence of Conversion Disorder and manage it appropriately.
-

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RIVERSIDE – SAN BERNARDINO COUNTY
INDIAN HEALTH, INC.
11980 Mount Vernon Ave. | Grand Terrace, CA 92313
(909) 864-1097

AGUA-CALIENTE BAND OF CAHUILLA INDIANS
PALM SPRINGS, CA

CAHUILLA BAND OF INDIANS
ANZA, CA

MORONGO BAND OF MISSION INDIANS
BANNING, CA

PECHANGA BAND OF LUISENO MISSION INDIANS
TEMECULA, CA

RAMONA BAND OF CAHUILLA INDIANS
ANZA, CA

SAN MANUEL BAND OF MISSION INDIANS
HIGHLAND, CA

SANTA ROSA BAND OF CAHUILLA INDIANS
ANZA, CA

SOBOBA BAND OF LUISENO INDIANS
SAN JACINTO, CA

TORRES-MARTINEZ DESERT CAHUILLA INDIANS
THERMAL, CA

ANZA INDIAN HEALTH CENTER
39100 CONTRERAS RD. SUITE C
ANZA, CA 92539
(951) 763-4835

BARSTOW INDIAN HEALTH CENTER
170 YUCCA AVE., BARSTOW, CA 92311
(760) 256-9016

MORONGO INDIAN HEALTH CENTER
11555 ½ POTRERO RD., BANNING, CA 92220
(951) 849-4761

PECHANGA INDIAN HEALTH CLINIC
12784 PECHANGA RD., TEMECULA, CA 92590
(951) 676-6810

SAN MANUEL INDIAN HEALTH CENTER
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GRAND TERRACE, CA 92313
(909) 864-1097

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607 DONNA WAY, SAN JACINTO, CA 92583
(951) 654-0803

TORRES-MARTINEZ INDIAN HEALTH CENTER
66-735 MARTINEZ ROAD
THERMAL, CA 92274
(760) 397-4476

March 16, 2016

To Whom It May Concern:

As requested, I assert the following:

- The proposed courses are open to all optometrist licensed in the state of California
- I agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation
- And finally, the reason why my application was submitted prior to the 45-days before the course date(s) was because all completed lectures were submitted at once as part of pre-determined, semi-regular, educational meetings beginning April 1st, 2016.

Please let me know if anything else is needed.

Yours,

Joseph A. Pruitt, O.D., M.B.A., FAAO

Director of Eye Care

JP/sru

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

OPTOMETRY

Request for Approval of Continuing Education Course(s)

Riverside-San Bernardino County Indian Health
ATTN: Dr. Joseph Pruitt
11980 Mount Vernon Ave
Grand Terrace, CA 92313

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-479	4395914	6210270	50

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement).

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Conjunctivitis	8/5/16	Joseph Pruitt, OD	2			
COMMITTEE COMMENTS:						

1 **Conjunctivitis**

Joseph A. Pruitt, O.D., M.B.A., FAAO
Riverside-San Bernardino County Indian Health, Inc.

2 **What Is It...**

- Commonly referred to as:
  - "red eye"
  - "pink eye"
  -
- Definition:
  - a nonspecific term used to describe an inflammation of the conjunctiva

3 **Characterization**

- Most commonly:
  -
  -
  - Conjunctival hyperemia
  - Ocular discharge

4 **Types**

- Allergic
-
- Bacterial
  - Chlamydial
  -
- Viral
-
- Contact lens-related
-
- Mechanical
-
- Traumatic
-
- Neonatal
-
- Parinaud Oculoglandular Syndrome
-
- Phlyctenular
-
- Secondary
-

5 **Allergic**

6 **Allergic**

- Symptoms
  - Swelling or puffiness of the eyes/Lid edema
  - Redness
  - Itching
  - Tearing
  - Foreign body sensation
  - Photophobia
  - Blepharospasm

- Signs
  - Stringy/ropy mucous discharge
  - Conjunctival papillae
  - Shield ulcers
  - SEI's
  - Tranta dots (vernal/atopic)

7 **Allergic**
- Atopic Keratoconjunctivitis
  - A severe chronic external ocular inflammation associated with atopic dermatitis
  - Typically occurs late in teenage years through 4-5th decade of life
- Simple Allergic Conjunctivitis
  - Occurs as the result of exposure to a wide variety of allergens
    - Commonly the result of exposure to eye medications and/or their preservatives

8 **Allergic**
- Seasonal Conjunctivitis (aka "Hayfever")
  - Technically a form of "simple allergic conjunctivitis"
  - Recurrent, usually transient, and self-limiting exposure to ragweed, pollens, dander, dust or mold spores
- Vernal Conjunctivitis
  - Majority of affected patients are males <20 years of age
  - Tend to "outgrow" the condition by the age of 30
  - Average period of time most patients

9 **Allergic**
- Atopic/Vernal conjunctivitis (con't)

10 **Allergic**
- Treatment
  - Topical Steroids
    - Inhibit inflammatory process
      - e.g. edema → capillary dilation → fibroblast proliferation

- Curtail the migration of macrophages and neutrophils to inflamed areas
-
- Block phospholipase A2 activity
  - As well as subsequent induction of the arachidonic acid cascade
  -
- *Should not be used chronically*
  - *Potential IOP increase*
  - *PSC*

11 **Allergic**
- Treatment
-
  - Topical Steroids (con't)
    - "Site-specific" steroids have been designed to reduce the complications of associated with topical use
      - Less risk of increase IOPs
    -
    - Loteprednol etabonate 0.5%
      - Effective as treatment for GPC
      - Effective as prophylaxis for seasonal allergic conjunctivitis
      -
    - Loteprednol etabonate 0.2%
      - FDA-approved and effective treatment for seasonal allergic conjuctivitis

12 **Allergic**
- Treatment
-
  - Topical vasoconstrictor/antihistamines
    - Cause vasoconstriction
    - Decrease vascular permeability
    - Reduce itching by blocking H1 histamine receptors
      - e.g. Naphcon-A, Visine-A, Opcon-A
    -
  - Topical antihistamines
    - Competitively bind with histamine receptors
      - Reduce itching and vasodilation
        - e.g. Lastacaft, Elestat, Alocril

13 **Allergic**
- Treatment
-
  - Systemic antihistamines
  -
    - Useful when associated findings are present such as:
      - Lid edema
      - Dermatitis
      - Rhinitis
      - Sinusitis
      -
    - 1st generation antihistamines greater risk of anticholinergic sedation (diphenhydramine)

14 **Allergic**

- Treatment
-
  - Topical non-steroidal anti-inflammatory (NSAIDS)
    - Inhibit activity of cyclo-oxygenase
      - One of the enzymes responsible for conversion of arachidonic acid into prostaglandins
      - e.g. Acular/Ketorolac (only one FDA approved for allergic conjunctivitis), Diclofenac

15 **Allergic**
- Treatment
-
  - Mast Cell Stabilizers
  -
    - Inhibit the degranulation of mast cells
    -
      - Which limits the release of inflammatory mediators (e.g. histamine, neutrophil + eosinophil chemotactic factors)
    -
    - Examples: nedocromil 2% + cromolyn sodium 4.0%

16 **Allergic**
- Treatment
-
  - Agents with multiple mechanism of action
  -
    - Oloptidine hydrocloride (Patanol/Pataday)
      - Selective H1 histamine antagonist
      - Mast cell stabilizer
      -
    - Ketotifen fumarate (Zaditor or Alaway)
      - Histamine antagonist
      - Mast cell stabilizer

17 **Allergic**
- Treatment
-
  - Immunosuppressants
    -
    - Cyclosporin A (Restasis)
    -
      - A potent immunosuppressant when administered systemically
      -
      - Exact mechanism unknow when administer topically as an ophthalmic solution
        - Prevailing thought is it acts as an immunomodulator

18 **Bacterial**
- Hyperacute
-
  - Rapid onset of copious purulent discharge, sever conjunctival hyperemia, conjunctival chemosis, and lid edema

-
- May be:
  - unilateral or bilateral
  - (+) pain
  - Globe tenderness
  - Preauricular lymphadenopathy
  -
- Example: gonococcal infections

19 **Bacterial**

20 **Bacterial**

- Acute
-
  - Acute onset of unilateral discharge, irritation, and diffuse conjunctival hyperemia
  -
  - Typically involves a tarsal palpebral response
  -
  - Mucopurulent/purulent discharge is common
  -
  - Prearicular lymphadenopathy is generally absent
  -
  - Fellow eye likely to become involved within 48 hours
  -

21 **Bacterial**

- Acute (continued)
-
  - Children 6 months → 3 years old
    - Bluish discoloration + swelling of periorbital skin suggests progression to orbital cellulitis
    - Likely the result of Haemophilus influenzae
      - H. influenzae may be associated with fever, upper respiratory tract infection
      - Can progress to septicemia, metastatic meningitis, septic arthritis, or endophthalmitis
  -

22 **Bacterial**

23 **Bacterial**

- Chronic
-
  - A variety of nonspecific symptoms + clinical findings
  - Often symptom of irritation > 4 weeks
  - Foreign Body Sensation
  - Low grade conjunctival hyperemia
  - Papillary or follicular reaction can occur
  - Mucoid discharge may be present
  - Often accompanied by lid hyperemia + eyelid "crusting" particular upon wakening

24 **Bacterial**

- Chlamydial
-
  - Caused by Chlamydial trachomatis
  -
  - Organism causes Trachoma and Inclusion Conjunctivitis
    - Trachoma primarily occurs in impoverished regions
    - Inclusion conjunctivitis occurs more in developed countries
    -
  - The same serotypes that cause genital infections cause Inclusion Conjunctivitis
    - Of the 19 Human Serotypes, they are serotypes D, Da, E, F, G, H, I, Ia, J, and K

25 **Chlamydial**
- Adult Inclusion
  - Large follicles
    - predominantly in the lower palpebral conj. + fornix
    -
  - Often hypermia
  -
  - Mild Mucoid Discharge
    - Can be moderate to severe in cases of secondary infection
  -
  - Lid edema
    - More common in early course of infection
    -
  - Preauricular Lymphadenopathy
    - More common in early course of infection
    -
  - Can persist for up to 3-12 months without proper treatment!
    - Causes an indolent conjunctivitis resistant to standard topical antibiotics

26 **Chlamydial**

27 **Bacterial**
- Treatment
-
  - Ideally, the method of treatment is to indentify the causative organism then initiating a known effective antimicrobial
  -
  - Typically broad spectrum antimicrobial is initiated

28 **Bacterial**
- Treatment
-
  - Aminoglycoside (gentamicin/tobramycin)
    - Effective against:
      - Staphylococcus
      - Streptococcus
      - Haemophilus
      - Proteus
      - Escherichia coli
      - Moraxella
      - Pseudomonas

29 **Bacterial**

- Treatment
-
  - Bacitracin ung
    - Effective against:
      - Staphylococcus
      - Streptococcus
      - Neisseria
      -
  - Chloramphenicol
    - Effective against:
      - Staphylococcus
      - Haemophilus
      - Proteus

30 **Bacterial**
- Treatment
-
  - Erythromycin
    - Effective against:
      - Staphylococcus
      - Streptococcus
      - Neisseri
      - Haemophilus
      -
  - Fluoroquinolone
    - Effective against:
      - Staphylococcus
      - Streptococcus
      - Haemophilus
      - Pseudomonas

31 **Bacterial**
- Treatment
-
  - Polymyxin B/neomycin
    - Effective against:
      - Staphylococcus
      - Proteus
      - Moraxella
      - Pseudomonas
      -
  - Polymyxin B/trimethoprim sulfate
    - Effective against:
      - Staphyloccus
      - Streptococcus
      - Proteus
      - Escherichia coli
      - Haemophilus
      -

32 **Bacterial**

- Treatment
-
  - Sodium sulfacetamide
    - Effective against:
      - Streptococcus
      - Haemophilus
      - Moraxella
      -
  - Sulfisoxazole diolamine
    - Effective against:
      - Streptococcus
      - Neisseria
      - Escherichia coli

33 **Bacterial**
- Treatment
-
  - Tetracycline
    - Effective against:
      - Staphylococcus
      - Neisseria
      - Escherichia coli

34 **Bacterial/Chlamydial/Gonococcal**
- Treatment
-
  - Chlamydial
    - Systemic antibiotics:
      - Azithromycin 1 gram (single dose)
      - Doxycycline 100mg bid x 7 days
      -
  - Hyperacute/Gonococcal
    - Ceftriaxone (single dose intramuscularly)
    -
    -
    -

35 **Viral**
- Adenoviral
-
  - Classically:
    - Acute onset of unilateral → then bilateral
    - Bulbar + palpebral hyperemia
    - Epiphora
    - Marked inferior tarsal and fornix follicular response

36 **Viral**
- Adenoviral (con't)
  - Less "classically" so...but possible
    - Petechial hemorrhages can be present (particularly bulbar)
    - Possible associated diffuse pattern of punctate keratitis

- Multiple SEI's can follow
- Pseudomembranes on superior or inferior tarsal conjunctiva
- Lid Edema
- Preauricular Lymphadenopathy
- More prominent on the side initially affected

37 **Viral**
- Adenovirus (con't)

38 **Viral**
- Adenoviral (con't)
  - With Adenoviruses Epidemic Keratoconjunctivitis (EKC) is possible
    - Serotypes 9, 19, & 37 have been found to be associated with EKC
  - Highly contagious
  - Signs/Symptoms similar to other adenoviral infections
    - Perhaps more pronounce...?

39 **Viral**
40 **Viral**
41 **Viral**
42 **Viral**
- Enterovirus (includes subtype Coxsackievirus)
  - Causes Acute Hemorrhagic Conjunctivitis
  - Humans are the sole host
  - Signs/Symptoms similar to viral conjunctivitis, but includes subconjunctival hemorrhage
  - Highly contagious
    - Spreads via fecal-oral route; thus higher incidence in areas of poor sanitation
  - Generally self-limiting
    - Resolves in ~5-7 days

43 **Viral**
44 **Viral**
- Herpetic
  - Lid edema
  - Hyperemia
  - Pseudomembrane formation (occasionally).

- Conjunctival Dendrites or geographic ulcers (possible)
-
- Characteristic dermatological manifestations
  - Vesicular eruptions
    - May be observed on the lids or periobital skin

45 **Viral**
- Herpetic
-
-

46 **Viral**
- Treatment

  - Adenovirus
    - No effective treatment
    - Supportive therapy (e.g. lubricants + cool compresses)
    - Topical steroids remain controversial due to potential side effect
    -
  - Herpes simplex
    - Trifluridine
      - Up to 9 drops/day
      - Toxic!!!
        - Supportive therapy only...?
      - Oral anti-virals

    -
    -
  -

47 **Contact Lens-Related**
- As the name suggests, associated with contact lens wear
  - Mild Itching
-
  - Hyperemia
  -
  - Giant Papillae (common)
-
  - Mucous Discharge (possible)
-
  - Conjunctival Thickening
    - Unilateral or Bilateral

48 **Contact Lens-Related**

49 **Contact Lens-Related**
- Treatment
-
  - DISCONTINUE CONTACT LENS WEAR
  -
  - Then treat underlying/associate causes if necessary

50 **Mechanical**
- Physical agitation of conjunctiva
  - Usually from personal rubbing of eyes or trichiasis

- Can be an exacerbating component of allergic conjunctivitis
- Also can be the result of more psychological etiologies (e.g. trichotillomania)
-
- Focal or diffuse hyperemia
-
- Foreign body sensation
-
- Epiphora

51 **Mechanical**
- Treatment
-
  - Remove trauma-inducing agent
    - e.g. stop rubbing eyes or correct trichiasis
    -
  - Artificial tears
  -
  - Prophylactic antibiotic could be considered
    - Dependent on severity

52 **Traumatic**
- Self explanatory
-
- Hyperemia
-
- Epiphora
-
- Foreign body sensation

53 **Traumatic**
- Treatment
-
-
- Totally dependent of nature of condition
-

54 **Toxic**
- Conjunctival exposure to irritating substance or agent
-
- Unilateral or Bilateral hyperemia
-
- Mixed follicular/papillary reaction of the tarsal conjunctival
-

55 **Toxic**
- Treatment
-
- Often the result overuse of topical meds or make-up
-
- Offending agent should be identified and removed
-
- Then supportive therapy

56 **Neonatal**

- The result of birthing through the birth canal
-
  - Diffuse hyperemia
  -
  - Other manifestations dependant on the etiology of disease

57 **Neonatal**

58 **Neonatal**

- Treatment
-
  - Should be co-managed with pediatrician, neonatologist, or pediatric infectious disease specialist
  -
  - Gonococcal
    - Ceftriaxone (25-50 mg/kg)
  - Herpes simplex
    - Acyclovir (30-60 mg/kg/day)
  - Chlamydial
    - Erythromycin (50 mg/kg/day)

59 **Parinaud Oculoglandular Syndrome**

- A broad category generally used to describe granulomatous conjunctivitis
- Caused by a wide range of infectious agents
-
- Cat-scratch disease is the most common cause
  - Usually unilateral
    - With accompanied ipsilateral lymphadenopathy
  - Conjunctival granulomas or ulcerations typically present

60 **Parinaud Oculoglandular Syndrome**

61 **Parinaud Oculoglandular Syndrome**

62 **Parinaud Oculoglandular Syndrome**

- Treatment (Cat-Scratch Disease)
-
  - Self-limiting
  -
  - Focus is to relieve PA lymphadenopathy tenderness
    - Warm soaks
    - Topical vasoconstrictor/lubricant
    -
  - Biopsy of granuloma in severe cases only

63 **Phlyctenular**

- A delayed hypersensitivity reaction to the introduction of foreign proteins can lead to phlyctenular conjunctivitis
- Though historically associated with tuberculoprotein sensitivity, now most commonly associated with staphylococcal infection.
-

64 **Phlyctenular**

- Unilateral

- Sectoral hyperemia
-
- Development of an elevated nodule
  - Nodule can be ulcerated
-
- Patients may experience:
  - Pain
  - Epiphora
  - Photophobia (especially with corneal involvement)

65 **Phlyctenular**

66 **Phlyctenular**

- Treatment
  -
  - Treat the underlying mechanism
    - For example:
      - Eliminating chronic lid disease (reservoir for Staph aureus)
      -
  - Topical antibiotic/corticosteroid combos effective
  -
  - Oral doxycycline can be useful with associated blepharitis or dermatologic disorder
    - Erythromycin should be used in pregnant women or children <8 years old

67 **Secondary**

- Associated with other ocular and systemic disorders
  - Non-specific
  -
  - Examples of primary etiologies include:
    - Keratoconjunctivitis sicca
    - Lyme disease
    - Blepharitis
    - Superior limbic
    - Reiter's syndrome keratoconjunctivitis
    - Cicatricial pemphigoid
    - Floppy lid syndrome
    - Erythema multiforme
    - Mucous fishing syndrome (Stevens-Johnson syndrome)
    - Collagen-vascular diseases
    - Relapsing polychondritis
    - Sarcoidosis.
  -

68 **Secondary**

- Superior Limbic Keratoconjunctivitis (SLK)
-
  - Rare chronic inflammatory disease of:
    - Superior bulbar conjunctiva
    - Limbus
    - Upper cornea
    -
  - Unknown etiology

-
- Suspect its secondary b/c it has been associated with:
  - Thyroid dysfunction
  - Keratoconjunctivitis sicca
  - Rheumatoid arthritis

69 **Secondary**
- SLK

70 **Secondary**
- Treatment
-
  - Underlying disease is the focus and must be treated
  -
  -
  - Consider managing ocular symptoms with appropriate medical professional treating the underlying cause
  -

71 **Secondary**
- Specifically with SLK, multiple treatment modalities have been described but there is not a gold standard
  - Topical silver nitrate
  - Therapeutic soft contact lens
  - Lacrimal puncta occlusion
  - Topical vitamin-A
  - Topical cyclosporine-A
  - Ketotifen fumarate
  - Autologous serum
  - Cromolyn sodium
  - Lodoxamide tromethamine
  - Botulinum injection in the muscle of Riolan
  - Supratarsal triamcinolone injection
-

(909) 721-7751
pruitt.joseph@gmail.com

Joseph A. Pruitt, O.D., M.B.A., FAAO

Objective:

Education:

Salus University, Elkins Park, Pennsylvania — 2014-present
Master of Public Health *(in progress)*

Nova Southeastern University, Fort Lauderdale-Davie, Florida — 2008-2011
Master of Business Administration, 2011

West Los Angeles Veteran Affairs Healthcare Center, Los Angeles, California — 2007-2008
Residency Certificate, Geriatric/Primary Care, 2008

Illinois College of Optometry, Chicago, Illinois — 2003-2007
Doctor of Optometry, 2007

California State Polytechnic University, Pomona, California — 2000-2003
Bachelor of Science, Biology, 2003

University of Memphis, Memphis, Tennessee — 1999-2000
Major in Biology

Licenses:

Tennessee #2753 — Date of Issue: July 10, 2007
- Active
- Injectible Certification
- Therapeutic Certification

California #13429T — Date of Issue: Sept. 28, 2007
- Active
- Therapeutic and Pharmaceutical Agent + Lacrimal Irrigation and Dilation + Glaucoma (TLG) Certified

Georgia #OPT002454 — Date of Issue: June 12, 2008
- Active
- Diagnostic and Therapeutic Pharmaceutical Agent Certified

Minnesota #3130 — Date of Issue: June 17, 2008
- Active
- Diagnostic Pharmaceutical Agent (DPA) Certified
- Therapeutic Pharmaceutical Agent (TPA) Certified

Board Certification:

American Board of Certification in Medical Optometry — Date of recertification: Feb 2018
- Board certified

Certifications:

Drug Enforcement Agency (DEA) Certified — Date of Expiration: Mar 2017

Cardiopulmonary Resuscitation (CPR) & Automated External Defibrillator (AED) — Recommended Renewal: Mar 2017

Bausch & Lomb Overnight Orthokeratology — Date of Issue/Completion: April 6, 2006

- Certification Number: 20060406002

Paragon Corneal Refractive Therapy (CRT) Date of Issue/Completion: Dec. 28, 2007
- Certification Number: 161000

Advance Competence in Medical Optometry (ACMO) Date Taken: June 13, 2008
- Administered by the National Board of Examiners in Optometry (NBEO)
- Examination only made available to candidates meeting specific clinical experience requirements/pre-requisites
- Passed examination

Employment:

Riverside San Bernardino County Indian Health, Inc Oct. 2014 – present
- Director of Eye Care
- Staff Optometrist

Riverside San Bernardino County Indian Health, Inc July 2014- Oct. 2014
- Staff Optometrist

Minneapolis Veteran Affairs Health Care System Nov 2008- June 2014
- Low Vision/Staff Optometrist
- Optometric Residency Coordinator
  - Spearheaded and implemented program
- Student Externship Coordinator
  - Spearheaded and implemented program

Wal-Mart Vision Center (Red Wing & Rochester, MN) Jul 2008- Nov 2008
- Associate Optometrist

EyExam of California Oct 2007- June 2008
- On-call/Fill-in Optometrist

Faculty Appointments:

Western University of Health Sciences College of Optometry, Pomona, California July 2014- present

University of the Incarnate Word-Rosenberg School of Optometry, San Antonio, Texas May 2012- June 2014
- Clinical Assistant Professor
- Minneapolis VA HCS Externship Site Program Director

Midwestern University-Arizona College of Optometry, Glendale, Arizona May 2012- June 2014
Adjunct Clinical Assistant Professor
Minneapolis VA HCS Externship Site Program Director

Southern College of Optometry, Memphis, Tennessee May 2012- June 2014
Adjunct Faculty
- Minneapolis VA HCS Externship Site Program Director

University of Missouri, St. Louis College of Optometry, St. Louis, Missouri May 2012- June 2014
Adjunct Assistant Professor
- Minneapolis VA HCS Externship Site Program Director

Experience:

Riverside-San Bernardino Indian Health, Inc Oct 2014 - present
- Director of Eye Care

Riverside-San Bernardino Indian Health, Inc July 2014 – Oct 2014
- Staff Optometrist

Minneapolis Veteran Affairs Medical Center — Nov 2008- June 2014

- Staff Optometrist
  - Primary Eye Care
  - Low Vision
    - Sole low vision eye care provider
  - Polytrauma/Traumatic Brain Injury (TBI) Ocular Health & Vision Assessments

- VISN 23 Low Vision Continuum of Care Conference (May 2009)
  - Faculty
  - Planning committee

- Established Associated Health Education Affiliation Agreement with University of Missouri, St. Louis College of Optometry, Ferris State University Michigan College of Optometry, & Southern College of Optometry for the optometric externship program
  - Externship program director

- Established Associated Health Education Affiliation Agreement with the Illinois College of Optometry for the optometry residency program
  - Residency in Primary Care/Brain Injury and Vision Rehabilitation
  - Residency program director
    - Designed the program's curriculum
    - Secured all necessary approvals and funding
    - After the initial site visit, program received full ACOE accreditation

Wal-Mart Vision Center (Red Wing & Rochester, MN) — Jul 2008- Nov 2008

- Associate Optometrist

Residency:

West Los Angeles Veteran Affairs Healthcare Center — Jul 2007- June 2008

- Geriatrics/Primary Care
  - Primary Care including Diabetic exams
  - Low Vision evaluations/exams
  - Nursing home/in-patient exams
  - Medically justified specialty contact lenses exams/fittings
  - Lecture Internal Medicine's and Endocrinology's Residents & Interns on Diabetic Retinopathy
    - Given during Chief Resident rotation
  - Precept Southern California College of Optometry's interns

Optometric Externships:

Atlantic Eye Institute, Jacksonville Beach, FL — Feb-May 2007

- OD/MD private practice with an emphasis on Contact Lenses and Primary Care
- Observed multiple surgical procedures:
  - Cataract Extraction
  - Blepharoplasty
  - Strabismus recession and resection

Memphis Veterans Affairs Medical Center (VAMC), Memphis, TN — Nov 2006-Feb 2007

- Emphasis on Primary Care
- Assisted in direct care in a high patient volume medical optometric eye clinic
- Assisted in optometric injections and fluorescence angiographies procedures

Illinois Eye Institute (IEI), Chicago, IL — Aug-Nov 2006

- Emphasis on Pediatrics/Binocular Vision, Advance Care, and Low Vision
- Performed comprehensive eye exams on pediatric patients (infants-11yrs of age)
- Performed comprehensive eye exams on "at risk/2nd chance" children one day a week at Maryville Academy
- Constructed, tailored and performed successful binocular vision/vision therapy treatments to 4 children over a 10 week period
- Assisted in the treatment of advance glaucoma with attending University of Chicago ophthalmologist
- Performed problem specific examinations one day per week in IEI's Emergency/Urgent Care/Walk-in clinic
- Performed full Low Vision examinations including Low Vision device selection and training

Body of Christ Optometry Clinic, Tegucigalpa, Honduras — May-Aug 2006

- Emphasis on Primary and Advance Care
- Performed full-scope optometric care in a high patient volume medical clinic geared towards the underprivileged
- Also worked closely with a local ophthalmologist
  - Observed and assisted in Cataract Extraction and Incision and Curettage procedures
  - Provided pre and post-surgical care

Primary Care Clinical Education
Illinois Eye Institute, Chicago, IL — Aug 2005-May 2006

Volunteer Optometric Assistant
Body of Christ Optometry Clinic, Tegucigalpa, Honduras — Jun-Aug 2004

- Assisted staff optometrist in direct patient care in the clinic and multiple remote satellite outreach locations

Professional Affiliations/Memberships:

- Accreditation Council on Optometric Education
  - Consultant, 2014-present
- American Academy of Optometry (AAO)
  - Fellow; Class of 2009
- American Optometric Association (AOA)
- Armed Forces Optometric Society (AFOS)
- European Academy of Optometry and Optics (EAOO)
  - Candidate for Fellowship
- Fellowship of Christian Optometrists (FCO)
- Minneapolis VAMC Medical Staff Association
  - Steering Committee, member 2010-2014
- National Association of Veteran Affairs Optometrists (NAVAO)
  - Newsletter Committee, member 2010-present
- National Optometric Association (NOA)
  - Minnesota's NOA State Representative 2010-2012
  - National Optometric Student Association (NOSA)
    - NOSA National Vice-President: 2006-2007
    - NOSA-ICO President: 2005-2006
    - NOSA-ICO Vice-President: 2004-2005
- Volunteer Optometric Service to Humanity (VOSH)
- Journal of Rehabilitation Research and Development
  - Peer Reviewer, 2013-present

20/25 (6/7.5) Visual Acuity. European Academy of Optometry and Optics Annual Meeting (2012) Poster Session.

Pruitt JA, Prussing N. Successfully Treated Horizontal Diplopia Returns with Subsequent Traumatic Brain Injury. European Academy of Optometry and Optics Annual Meeting (2012) Case Presentation Session.

Pruitt JA, Prussing N. Traumatic Brain Injury Resulting in Horizontal Diplopia Resolved 5 Years Later with 12 Weeks of Vision Therapy. Minnesota Optometric Association Annual Meeting (2012) Poster Session.

Pruitt JA, Wiley LM. Overcoming Mental Barriers in Visual Rehabilitation. American Optometric Association Annual Meeting: Optometry's Meeting (2011) Poster Session.

Pruitt JA, Prussing N. Traumatic Brain Injury Resulting in Horizontal Diplopia Resolved 5 Years Later with 12 Weeks of Vision Therapy. European Academy of Optometry and Optics Annual Meeting (2011) Poster Session.

Pruitt JA. Overcoming Mental Barriers in Visual Rehabilitation. European Academy of Optometry and Optics Annual Meeting (2011) Case Presentation Session.

Pruitt JA, Wiley LM. Overcoming Mental Barriers in Visual Rehabilitation. Minnesota Optometric Association Annual Meeting's (2011) Poster Session

Pruitt JA, Ilsen P, Yeung C. Ptosis Crutch: Success Treating Myogenic Ptosis Secondary to Myasthenia Gravis. American Optometric Association (AOA) 2008 Optometry Meeting Poster Session

Pruitt JA, Ilsen P. Ptosis Crutch: Success Treating Myogenic Ptosis Secondary To Myasthenia Gravis. Southeastern Congress of Optometry (SECO) 2008 Multimedia Poster Session

Lectures and Other:

Illinois College of Optometry: Practice Opportunities Symposium (Mar 2011)

- Represented and presented on VA Optometry
- Participated in panel discussion on "Residency-trained Optometrists"

University of Minnesota: Pre-Optometry Club (Oct. 2010)

- Presentation on the profession of Optometry
- Presented and represented VA Optometry and NOA

Illinois College of Optometry: Capstone Ceremony (May 2010)

- Represented and presented on VA Optometry

Illinois College of Optometry: Practice Opportunities Symposium (Mar 2010)

- Participant in Residency-trained Speaker's Panel
- Represented and presented on VA Optometry

Illinois College of Optometry: White Coat Ceremony/Smart Business Program (Sept 2009)

- Participant on Recent Graduate Speaker's Panel

CALIFORNIA STATE BOARD OF OPTOMETRY

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

CONTINUING EDUCATION COURSE APPROVAL APPLICATION

$50 Mandatory

Pursuant to California Code of Regulations (CCR) § 1536, the Board will approve continuing education (CE) courses after receiving the applicable fee, the requested information below and it has been determined that the course meets criteria specified in CCR § 1536(g).

In addition to the information requested below, please attach a copy of the course schedule and topical outline of the subject matter. Applications must be submitted 45 days prior to the course presentation date.

Please type or print clearly.

Course Title	**Course Presentation Date**
Previously Submitted	04/03/2016

Course Provider Contact Information

Provider Name

John (First) Lee (Last) _____ (Middle)

Provider Mailing Address

Street 2575 Yorba Linda Blvd **City** Fullerton **State** CA **Zip** 92831

Provider Email Address jlee@ketchum.edu

Will the proposed course be open to all California licensed optometrists?	☒ YES ☐ NO
Do you agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation?	☒ YES ☐ NO

Course Instructor Information

Please provide the information below and attach the curriculum vitae for each instructor or lecturer involved in the course. If there are more instructors in the course, please provide the requested information on a separate sheet of paper.

Instructor Name

_____ (First) _____ (Last) Submitted _____ (Middle)

License Number Previously	**License Type** _____
Phone Number (____) _____	**Email Address** _____

I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.

Signature of Course Provider 03/21/2016 *Date*

Agenda Item 3R

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

PM 3:59

Request for Approval of Continuing Education Course(s)

John Lee
2575 Yorba Linda Blvd
Fullerton, CA 92831

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-425	5414455	226367	200

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
KAMRA corneal inlay for the management o	4/3/16	J Machat MD, P Lydon MD	2			
LASIK Myth Busters	4/3/16	T Tooma MD	0.5			
Hyperopia	4/3/16	F Lusby MD	0.5			
Diabetic Retinopathy	4/3/16	R Yacoub OD	2			

COMMITTEE COMMENTS:

AAOS

ASIAN AMERICAN OPTOMETRIC SOCIETY
PRESENTS

2016 Spring Education Symposium

5 HOURS OF CONTINUING EDUCATION

Sunday April 3, 2016
8AM-2PM

KAMRA Corneal Inlay for the Management of Presbyopia
Jeff Machat, MD and Patrick Lydon MD
NVISION

LASIK Myth Busters
Tom Tooma, MD
NVISION

Hyperopia!
Franklin Lusby, MD
NVISION

Diabetic Retinopathy
Robert Yacoub, OD
Marshall B. Ketchum University

(Program starts promptly at 8am)
Registration starts at 7:00am
Sheraton Cerritos Hotel
12725 Center Court Drive S
Cerritos, CA 90703

Free parking is available at the hotel. Breakfast will be served.
Stay for the food truck immediately afterwards

The cost is **ZERO** as a benefit for our members.
Cost is $100 for non-members.
Our space is limited so please sign up soon!
Deadline is March 28, 2016 or when room is full
Please register by visiting out website at *www.aaosociety.org*

Title: KAMRA – Corneal Inlay for the Management of Presbyopia

Presenters: Jeff Machat, M.D. and Patrick Lydon, O.D.

NVISION Eye Centers

3501 Jamboree Road, Suite #200

Newport Beach, CA 92660

(949) 854-7400

A. Patient Selection Criteria

- Demographics of the Presbyope
- Understanding Patients Visual and Lifestyle Needs

B. Choosing Your First Patients

-PreOp Testing (Hx VA Ocular Assessment)

C. Assessment Strategies

-Patient Lifestyle

-Reading Computer Mobile Phone Detailed Tasks Driving

-Patient Expectations (Vision Needs - Occasionally wear Readers)

-Picking Your First Cases (Refractive error, BCVA, Easy going)

-Be Conservative in your first cases

-Schedule 5

-Exclusion Criteria

-Refractive Target and VA

D. Cornea vs Lens based presbyopic procedures

E. Review of the the current corneal inlays available

LASIK Myth Busters

Tom Tooma MD

1. Current status of LASIK
    a. Candidate selection
    b. Capabilities
    c. Current instruments
    d. Outcomes
    e. Medication use
    f. Poor outcomes
2. Coming generation of LASIK
    a. Instruments
    b. Capabilities
    c. Current studies
    d. Status
3. Misconceptions
    a. Media reports
    b. Anecdotal stories
4. Evidence Based
    a. Literature Review
    b. Current studies

Hyperopia

Incidence/demographics
Natural history
Hyperopia and ocular alignment
    Congenital ET
    Accommodative strabismus
    Amblyopia
        Occlusion/deprivation
    AC/A ratio (Higher in low plus, lower in high plus)
Hyperopia – associated anatomical findings
    Short eye/flat cornea
    Crowded anterior segment
    Angle closure
        Acute
        Chronic
        Management choices
Refractive management
Rx to relieve symptoms
    Denial in the 40 year-old low hyperope
Readers
    Distance eventually
        Effect on brain of constant accomodation
Refractive surgery - Ablation
    – figuring out what to treat
    Find latency
    True cycloplegia
        Accommodative reserve in the older hyperope
    "Wean up"
    Post-RK hyperopia
    Post-op refractive recovery
    Residual hyperopia
        Regression
        Undiscovered latency
    Side effects:
        Halo less than with myopes
        Possibly more dry eye

Treatment considerations
- Not as accurate (predictable) as myopic ablation, even though patient satisfaction quite high
- Angle Kappa

IOL based:
- ICL, not generally feasible
- CE or RLE
  - Pros: Rapid refractive stabilization
    - Less dry eye
  - Cons: Intraocular procedure
    - Cost
    - Refractive accuracy

Mixed astigmatism (+3.00 – 5.00 x axis)
- Doesn't "act" like hyperope
  - Tissue-conservative ablation

Aphakia – extreme version of hyperopia

Spectacles-	no periph vision
	Magnification
Contacts-	Difficult to handle
	Hygiene/ infection
Secondary IOL-	Existing IOL support
	Astigmatism
	Endothelial health

Diabetic Retinopathy

- 78D=1.2X
- 90D=1.33X

Diabetic Retinopathy

- Leading cause of blindness in 20-74 year olds. Incidence increases as the patient gets older.
- 89% spike from 2000 to 2010
- Currently there are 26 million Americans that suffer from diabetes
- 1 in 3 Americans may have diabetes by 2050
- Highest rate of diabetic retinopathy: Hispanics (Why? Genetics and socioeconomic factors)
- Early diagnosis and treatment can decrease severe vision loss(5/200) by 95%.
- Proliferative diabetic ret is more prevalent in patients who have had diabetes longer and who are on insulin.
- Proliferative vs. Non-proliferative→NVD, NVE, NVI, pre-retinal hemmhorage, vitreal hemmhorage

Theories behind diabetic retinopathy

- Glucotoxicity can lead to damage in every system in the body but the main ones are nerves, retina, and kidneys. (3 "opathy")
- 2 main things happen in the retina: hypoxia and edema
- Pericytes regulate capillary blood flow and line the capillary endothelium
- Glycation end products (AGEs) form (glucose attached to amino group of proteins). AGEs lead to disruption of the signals between proteins which leads to apoptosis of endothelial cells. AGEs have also been shown to increase the amount of VegF. Finally AGEs have been shown to cause damage to pericytes. Remember that sugar and proteins make up vessel walls.
- Increase in sorbital (From increase in blood glucose) leads to basement membrane thickening and pericyte loss

Theories behind diabetic retinopathy

- Protein kinase C plays a role in signaling Veg-F and mediating its action. Also leads to pericyte apoptosis (Protein kinase C activated by blood sugar)
- Oxidative stress (Role of antioxidants)
- Loss in pericytes(control capillary blood flow) along the endothelium of the capillaries→Weaking of capillary walls→Loss of capillary endothelial cells→ Retinal capillary cell death→ Leads to hypoxia and breakdown of blood-retina barrier.
- Loss of pericytes lead to dilated blood vessels

*Remember, The retina needs lots oxygen because of the high metabolic rate

Theories Behind Diabetic retinopathy

- Decrease in endothelial and vascular repair (Burn out)
- Abormal tissue oxygenation leads to prolonged vasodilation...Leads to pericyte degeneration and basement membrane thickening due to increase in endothelial migration.
- Hypoperfusion starts the process of diabetic retinopathy but hyperperfusion leads to further vessel damage/progression
- There is also increased platelet adherence and RBC change shape(dumb bell shaped)-->increase in thickness of blood flow(sludge) as well as thickening of blood vessels. Also there is a decrease in the ability of red blood cells to release oxygen.
- Increase in inflammatory process due to vessel stress

stats

- If diagnosed with diabetes before the age of 30
  - *97% develop retinopathy after 15 years
- If diagnosed with diabetes after the age of 30
  - *78% develop retinopathy after 15 years

What is the point???? Duration!!!!

Type 1 vs. type 2

- Type 1: 50% of patients will develop proliferative diabetic ret after 20 years
- Type 2: 10% of patients will develop proliferative diabetic ret after 20 years
- Why? 1. Duration 2. Different metabolic state of retina

Recent Study

Reducing blood sugar/Hba1c in Type 1 diabetics over a long period of time leads 76% reduction in getting diabetic retinopathy and reduces the chances of progression by 54%.

Reducing blood pressure leads to a reduction in getting diabetic retinopathy, reduces the chances of progression, reduces the chances of vision loss, and reduces the chances of needing laser.

Recent Study

- Doxycycline does not appear to improve retinal function or slow diabetic retinopathy progression in patients with mild to moderate NPDR
- 7/2014 study

Lisinopril in a patient with normal blood pressure and kindey function

- Reduced progression of diabetic retinopathy by 50% and reduced progression of proliferative diabetic retinopathy by 80%.

Other risk factors for retinopathy

- Puberty (Hormal issues?)
- Kidney problems (Nephropathy)...Proteinuria,BUN, and serum creatine levels play a role (Glycation happens throughout the whole body)...Kidney function should be checked especially with rapidlly progressing diabetic retinopathy. High link with progressive retinopathy and kidney disease (Link with glomelular filtration rate)
- Hypertension(Increase in progression)
- High cholesterol
- Pregnancy (Increase progression of retinopathy)

Other risk factors for retinopathy

- Genetics
- Ocular inflammation (Increase in fibronectin,glycoprotein, and adrenomedullin peptide)
- Sleep apnea (Nocturnal hypertension, hypoxia)
- Smoking (Leukocyte and platelet activation increase)

Protective Factors

- Besides improving health issues including improving diet (9 ounces of fruit)
- Glaucoma (Loss of ganglion cells and nerve fiber layer leads to a decrease in metabolic activity. Decrease in perfusion secondary to increase in IOP)
- Myopia..>-5D (Longer axial length leads to retinal thinning. There is also loss of retinal and choroidal blood flow, vessel thinning and attenuation. PVDs are also more common in myopes.

Protective Factors

- Carotid artery stenosis (Mild vs. Severe)...Severe carotid stenosis actually leads to an increase in ischemia especially if the patient already has later stages of diabetic ret
- Optic atrophy
- Chorio-retinal scars
- Topical NSAIDS? May help with inflammation in the posterior segment which may reduce the chances of getting diabetic retinopathy or progression of diabetic retinopathy.

Refractive Error

- Both hyperopic and myopic shifts have been associated with diabetes (Changes in thickness of lens, changes in curvature of the lens, changes more in the cortex of the lens, etc)
- What is considered stable?

  Typically Hba1c <7.5% or FBS 180

So a patient comes in for a diabetic eye exam....What do you ask?

- Helloo
- What type of diabetic are you?
- How long have you been diabetic?
- Control? Seeing a PCP?
- Any fluctuation of vision?
- Last glucose(FBS or RBS)? Hba1c?

What tests to do?

- Va's(best corrected)...may need to refract
- Pupils
- Eoms..Diabetics are prone to CN palsies especially CN 6
- Conf
- Amsler Grid
- Slit Lamp(Be sure to look for NVI at pupillary ruff)
- IOP(rule out POAG/Neovascular glaucoma)
- Dilation/Fundus
- VF
- OCT(may need to do this)
- Every diabetic should be evaluated yearly

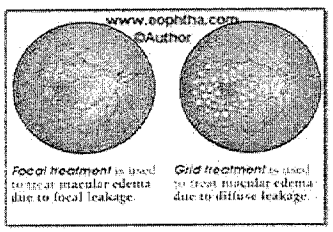
Documentation

- (-)NVI
- (-)NVD
- (-)NVE
- (-)CSME
- Always record no diabetic ret if none

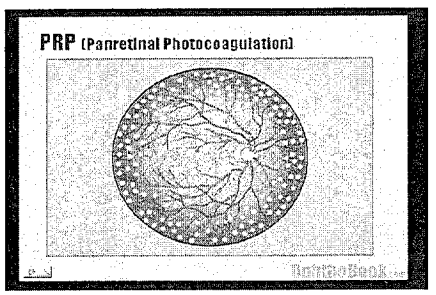
Treatments

- Control BS,BP
- Focal laser→Focal treatment, 50-100 microns
- Grid laser→Diffuse treatment, 100-200 microns, 1DD apart
- Pan retinal photocoagulation→Large diameter 500 microns.Usually 1000-2000 spots. Usually placed in midperiphery. Nasal or Inferior retina is usually done first. Always treat CSME first.
- Laser→ Increase in proliferation of RPE cells which leads to re-establishment of blood-retina barrier/Seals off leaky vessels/Decrease in oxygen demand. Also increases proliferation of endo cells in retinal capillaries.
- Vitrectomy→Take out vitreous,put saline in
- ILM strip→Take off the ILM
- Anti-VegF

Grid vs. Focal



PRP

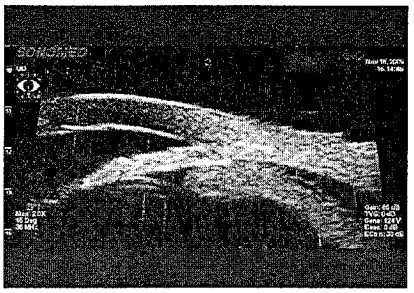


PRP

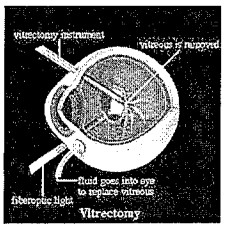
- Destroys retina and prevents further release of pro-angiogenic factors
- Does not improve visual acuity
- May make macular edema worse
- Loss of peripheral vision(How do you monitor glaucoma patients?)/night vision
- May need mutliple treatments
- Atrophic creep if done by macula/nerve
- CME
- Vitreous heme
- NVD/NVE don't always regress
- Also do at first sign of NVI...What if a secondary angle closure develops due to the NVI
- RTC in 4-6 weeks after PRP (50% will show regression at this time)

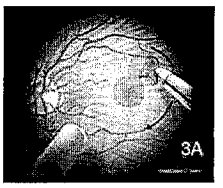
PRP

- PRP typically is done in the nasal or inferior retina first (less likely to cause macular edema)
- If neo is regressed, RTC in 3 months
- If not, more laser is needed
- If patient has cataract, prp is done before unless cataract is too thick
- PRP should not be done within 2DD of the macula and 500 microns from the nasal aspect of the nerve
- PRP is usually done in 2-3 sessions otherwise ciliochoroidal effusion (fluid between the sclera and choroid due to increase in choroidal vascular permeability from thermal damage) could occur. This could lead to angle closure glaucoma, shallow anterior chamber, and further retinal edema.



Vitrectomy/ILM strip





VegF

- Amounts increased by retinal hypoxia
- Leads to breakdown of blood-retina barrier and neo
- Associated inflammatory process occurs with pro-angiogenic and anti-angiogenic factors.
- Remember..bad for eye but good for the rest of the body
- Anti VegF drugs

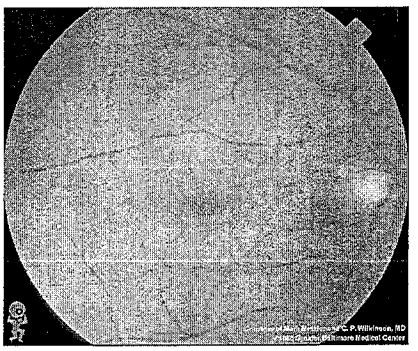
  Macugen, Lucentis, Avastin, Eyelea

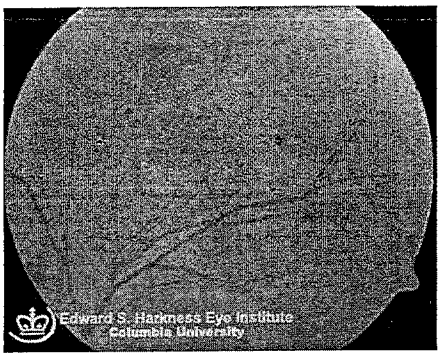
- Avastin

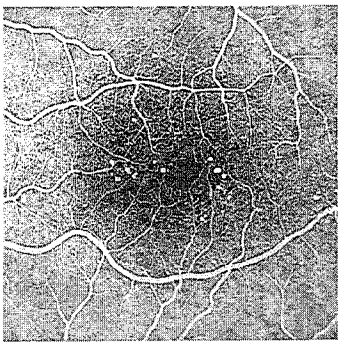
Mild Non-proliferative diabetic retinopathy

- MA(Weakness of capillary walls)..focal enlargement of capillary walls/outpouching. Usually located in inner nuclear layer and temporal to the fovea. Hyperfluorescent on FA and leak slightly around adjacent tissue.
- Dot/Blot hemes(When MA's or capillaries burst)→Inner nuclear and outer plexiform layers.
- Dot→small, distinct
- Blot→large, fuzzy borders
- Hemes resolve in about 3 months (What absorbs them?)
- Hemes hypofluoresce on FA
- Red free
- Usually the first signs are ma's,dot, and blots
- Cotton wool spots can be seen
- 5% risk of PDR in 1 year

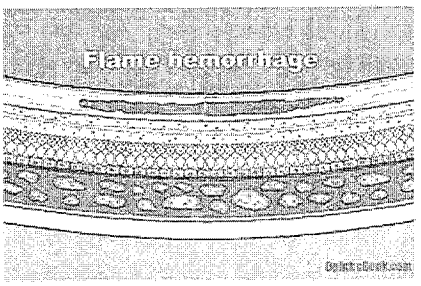
* f/u→6-12 months

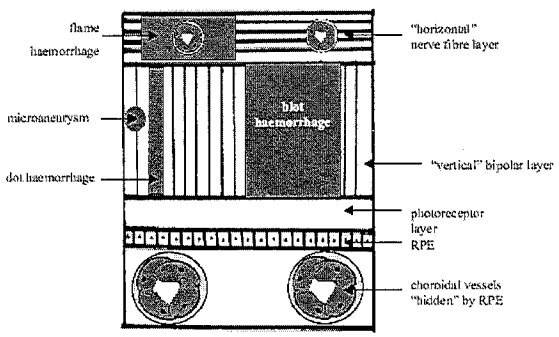






- Flame hemes are from larger pre-capillary arterioles and thus are located in the retinal nerve fiber which is not compact. Blood is able to spread horizontally.
- Dot/blot hemes are from the venous end of the capillaries and thus are located in the more compact inner nuclear/outer plexiform layer (Confinement is a result of adjacent retinal cells).
- Flame hemes usually resolve in 6 weeks (Dot/blot hemes take longer)





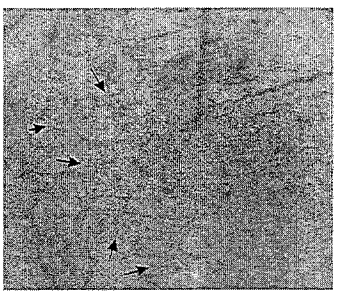
- So is the flame heme due to diabetes or high blood pressure?
  - *Are there vessel changes?
  - *Are there more cotton wool spots than hemes?

Moderate Non-proliferative diabetic retinopathy

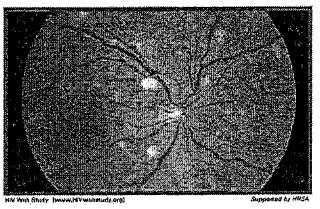
- Increase in dot/blot hemes(Moderate in 4 quadrants or severe in one quadrant)
- Ma
- CWS(cotton wool spots)→NFL infarct...dark area noted on FA which indicates non-perfusion. After resolution of CWS, there is atrophy of ganglion cell and nerve fibers which leads to a "depression" sign.
- Venous beading(in less than 2 quadrants)...Sausages(Due to weakening of blood vessel walls and sludging of blood.
- IRMA(Intra-retinal microvascular abnormalities)(mild one)→new blood vessel growth from existing blood vessels vs. remodeling of pre-existing vessels which shunt blood over none perfused areas. Look very similar to neovascularization but the key is that it is intra-retinal and it doesn't leak on the FA. At level of sensory retina.
- Vascular loop
- 12-27% risk of PDR in 1 year
- F/U→3-6 months

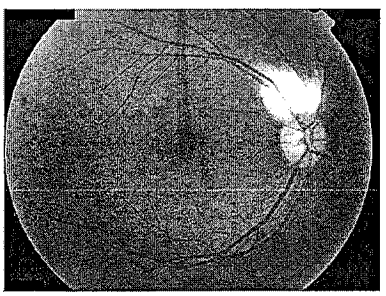
IRMA vs. Neovascularization

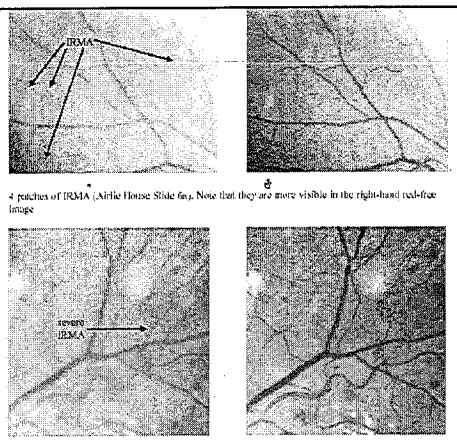
- Look very similar to neovascularization but the key is that it is intra-retinal and it doesn't really leak on the FA.
- Neo forms more of a reticular network than IRMA
- Neo goes across both arteries and veins
- Neo usually also has fibrovascular proliferation



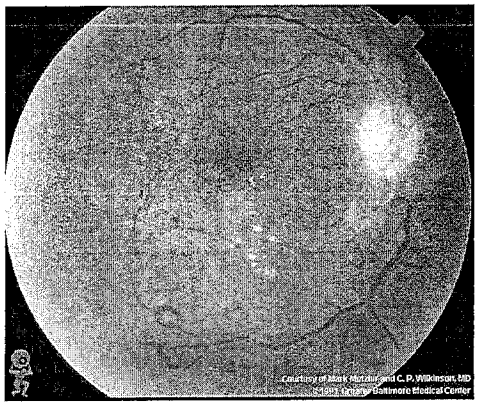
Cotton wool spots
Old vs. New
RNFL Mylenation?







4 patches of IRMA (Airlie House Slide 6a). Note that they are more visible in the right-hand red-free image



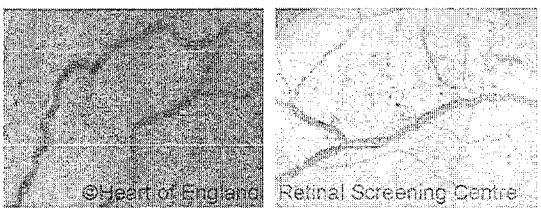
Severe Non-proliferative diabetic retinopathy

- 4:2:1 rule
- 4 quadrants of hemes(severe)
- 2 or more quadrants of venous beading(Biggest predictor of PDR)
- 1 big IRMA
- 1 item: Severe
- 2 items: Very Severe
- F/u→ 1 month
- 52% will develop PDR in 1 year
- Inconclusive whether early PRP will help. Poor compliance? Poor f/u? Rapid progression?

Biggest indicator of proliferation

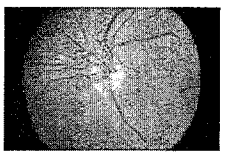
- A. Dot hemes
- B. CWS
- C. Venous beading
- D. IRMA
- E. Blot Hemes

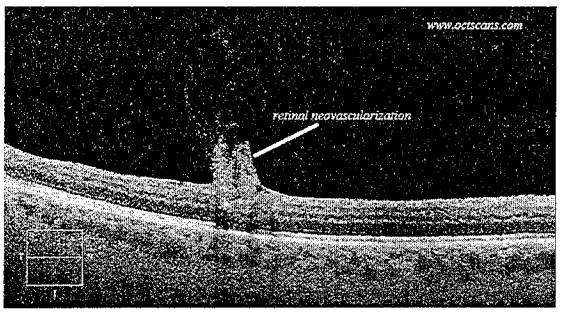
- Venous beading involves saccular bulging in a vein (Sausaging)
- Vascular Loops/Omega Loops involves extensive manipulation of a vein and are formed to bypass an occlusive area in the vein
- Both indicate severe retinal ischemia as capillary non-perfusion is typically found on both sides of the affected vein.
- Venous changes are due to extensive damage to the venous walls



Proliferation

- NVD→within 1 DD of the optic nerve. Usually arises from large veins.
- NVE→not within 1DD of the optic nerve
- NVI→On iris..usually starts at pupillary ruff but can also start in the angle itself





Neovascularization

- Angiogenesis is the growth of new blood vessels from pre-existing blood vessels.
- Neo grows towards the posterior hyaloid surface of the vitreous and towards of areas pf capillary non-perfusion.
- New vessels carry fibrotic tissue→Increases fibrovascular proliferation
- Leaky vessels along the posterior hyaloid face leads to early liquefication of the vitreous (PVD)

Proliferative Diabetic Retinopathy(Low risk)

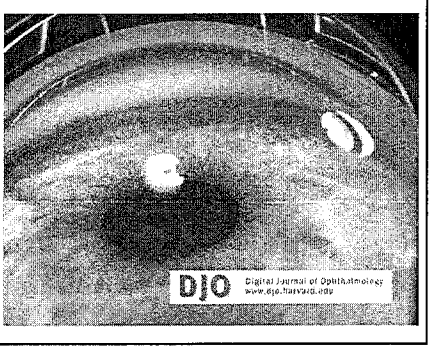
- NVD less than ¼
- NVE
- Neovascularizarion is very weak and permeable.
- Consult in 1-2 weeks

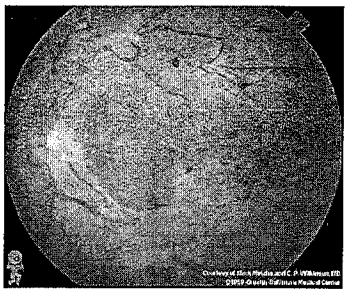
Proliferative diabetic retinopathy(High risk)

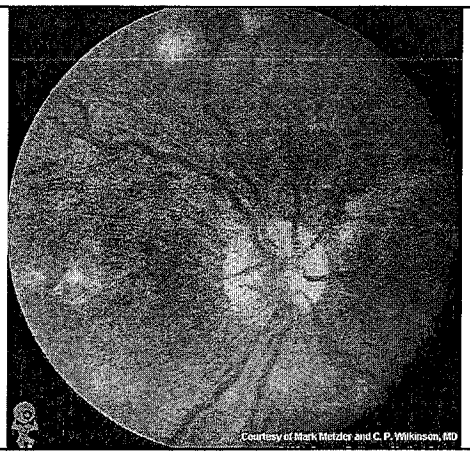
- 1/4 -1/3 DD NVD
- Any amount of NVD(definition is on or within 1 DD of the disc) with a vitreal hemmhorage or a pre-retinal heme
- NVE with a pre-retinal heme or vitreal hemhhorage
- Consult in 24-48 hours
- PRP leads to a 50% reduction in risk of severe vision loss. Also do focal/grid before PRP.
- How does PRP work? Decreasing need for oxygen which decreases hypoxia which decreases Veg-F which makes neo go away.

If see neo...

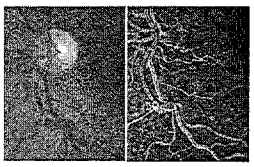
- Do gonio





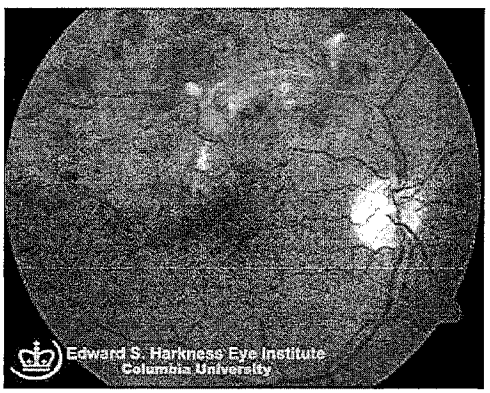


Collateral vessels

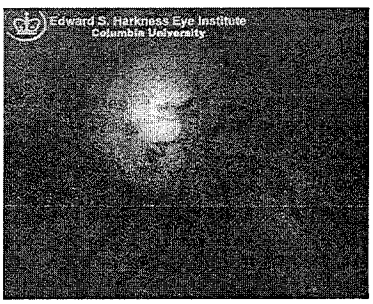


Collateral vessels

- Vessels develop within the retina vascular framework to join obstructed to non-obstructed vessels (Pre-formed capillaries)
- 3 types: A→A,V→V, A→V
- Not new vessels
- Thin vessels but not as tortuous as neo
- No leakage on FA
- Actually reduce the amount of neo



Optocilliary shunt vessels



Optocilliary shunt vessels

- Communication between central retinal vein and the peri-papillary choroidal veins.
- Occurs when retinal venous circulation is compromised
- Do not leak
- Thick,
- Can also be seen in chronic glaucoma, CRVO, optic nerve sheath menangioma, papilledema, optic nerve gliomas and disc drusen

Standard Photos

- Why??????????????

Clinically Significant Macular Edema

- Can happen during any stage of diabetc retinopathy (More likely to happen in later stages)
- Leaking occurs in outer plexiform and inner nuclear layers(cystic spaces)
- Breakdown of blood-retina barrier leads to leakage of plasma from small retinal vessels in the macula
- Worsens with vitreal traction
- Inflammatory component
- Retinal thickening at or within 500 microns (1/3dd) of the center of the macula
- Exudates at or within 500 microns(1/3dd) of the center of the macula with retinal thickening..Why not just exudates?
- Retinal thickening greater than 1DD in size within 1 DD of the center of the macula

CSME

- There is breakdown of the blood-retinal barrier which leads to leakage of small blood vessels into the macula including exudates. When receded exudates are left over. Exudates are composed of protein lipids. At outer plexiform layer.
- Exudates can take months or years to go away through phagocytosis.
- Circinate ring?? Circular ring of exudates with leakage in the middle. Seen at the junctions of normal and abnormal retina.
- Retinal consult within 2 weeks
- Treatment is focal laser(focal areas of leakage) or grid laser(diffuse areas of leakage)→ Stabilizes VA but doesn't improve it. Also using Avastin injection and steroid injection(inflammatory component to CSME)
- Vitrectomy
- Can you have 20/20 vision and still have CSME? Yes. Remember the key of laser is to stabilize vision.
- Usually takes a few weeks to months for edema to go...Usually edema goes than exudates

RestorE study

- Ranibizumab(Lucentis is superior to focal laser in improving vision after 1 year
- No difference when combined with focal laser
- 1 year long enough?
- More treatments with anti-Veg F drug than focal laser needed

Can you have CSME with just exudates

No!!
True, in order to have exudates there needs to have been an episode of edema at some point.
However, once the edema resolves, it can take months to years for the exudates to get absorbed (Usually by healthy surrounding capillaries or phagocytosis)
Thus, there can be exudates present without any active edema
If no edema is present but vision is severely reduced, consider macular ischemia which is due to significant capillary non-perfusion.
What about exudates at the fovea?

Diabetic macular edema

✖Leaking that doesn't fall under the CSME criteria

*Focal→Circinate ring

*Diffuse→Large area of leaking, Typically see less exudates than in focal edema.

*Ischemia→Due to too much CSME and laser

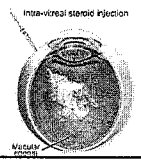
F/u→ 3 months or retinal consult

Focal/Grid Laser

- RTC in 3-4 months after treatment
- Takes time for fluid to go away...usually no retreatment after 3-4 months
- After resolution, RTC in 4-6 months
- Complications: Para-central scotomas, CNVM, misplaced laser spot

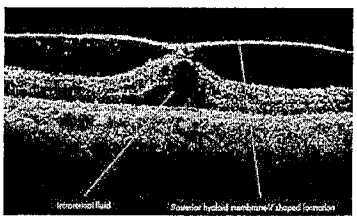
Steroids for Edema(Kenalog injection)

- Inflammatory component for diabetic macular edema (Inflammation has been shown to attract VEGF and cause further breakdown of blood-retina barrier)



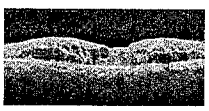
What if there is a tractional component to macular edema?

- Vitrectomy, ILM strip
- Vitreous contains angiogenic factors that lead to progression of neo and edema



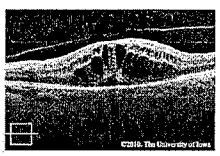
How to see edema?

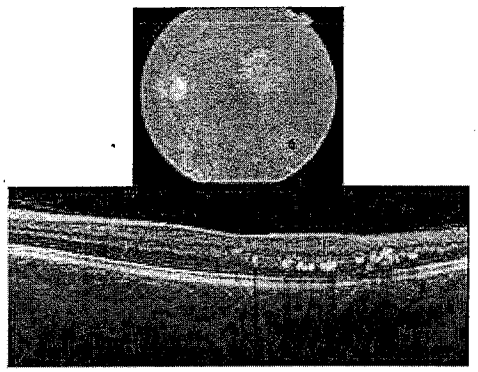
- Stereo
- Thin optic section
- Blurrying of underlying choroidal vasculature
- Foveal reflex is blunted or gone
- Amsler grid
- OCT(best way)



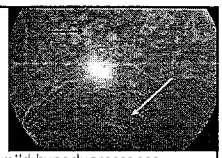
OCT of CSME

- Cystic spaces
- Sub-retinal fluid
- Decrease in reflectivity of RPE
- Exudates: hyper





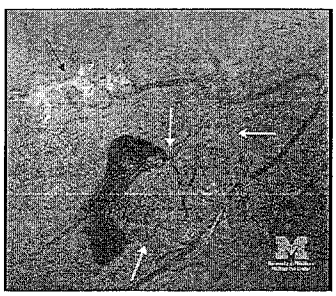
FA

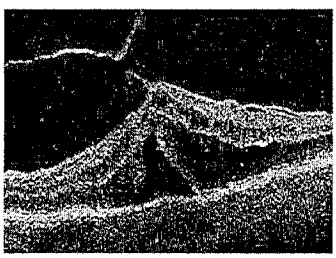


- Dot/blot hemes→Dark
- Microaneurysms→Lighted dot with adjacent mild hyperfluorescence
- Leakage/neo→Hyperfluorescence increases as the phases get later
- Cotton wool spots→Dark areas
- Capillary non-perfusion→Dark areas
- IRMA→No leakage or little leakage(not as much as neo)

Tractional RD

- Fibrovascular proliferation→Fibrous connective tissue from neovascularization and blood
- Fibrous tissue after a bleed is very sticky and this can cause an RD.
- Can also cause a rhegmatogenous retinal detachment
- Treatment: Vitrectomy/ILM peel/PRP/Avastin





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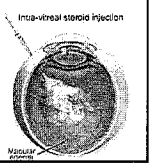

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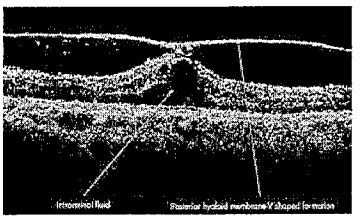

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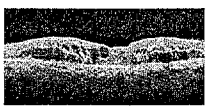

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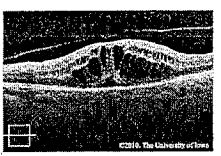
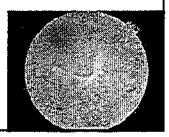


Fibrovascular proliferation

- Can lead to
  - *Dragging/distortion of the macula
  - *Dragging/distortion of the optic nerve
  - *Tractional retina detachment
  - *Vitreal hemorrhages
  - *Macular hole
  - *Retinal tears

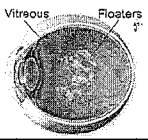


Pre-retinal hemmhorage

- In between the ILM and posterior hyaloid face..Usually in younger patients
- Boat shape appearance inferiorly
- Linear streak superiorly

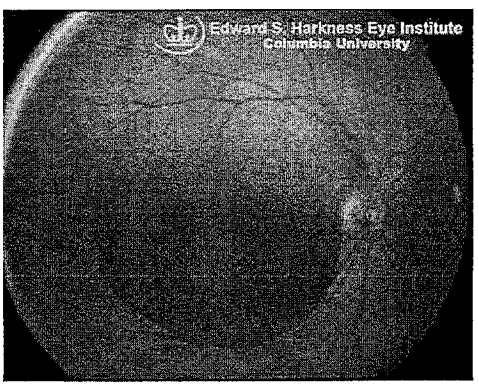
Vitreal Hemmhorage

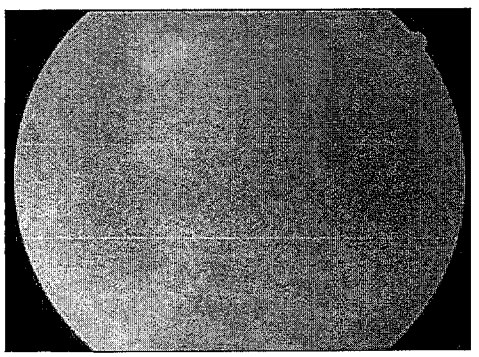
- Caused by neovascularization growing in to the vitreous and hemmhoraging.
- Old ones will usuallly turn brown or white and sink to the bottom
- Treatment: Vitrectomy(If hemmhorage is persistant or recurrent), Anti-VegF injection



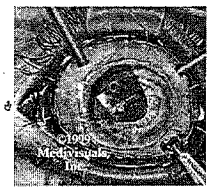
Pt ed

- No blood thinners(aspirin,etc)..unless need to prevent cerebrovascular disease(Best thing to do is talk to PCP)
- Sleep with head elevated
- No strenuous activity
- No heavy lifting
- Relax!!
- Need to see a retinal specialist...Remember if you see blood in vitreous→Proliferation/Neo





Vitrectomy



- Non-clearing vitreous heme
  - *Longstanding
  - *Recurrent
  - *Bilateral
  - *Monocular patient
- Tractional RD
- Dense Pre-retinal heme
- Severe PDR
- Tractional macular edema
- Progressive neovascularization depsite full PRP
- Pre-macular heme (Blood leads to scarring and fibrosis)
- Complications: Endophthalmitis, Cataract, RD,Corneal decompensation
- F/u in 1 day, 1 week, 1 month, 3 months...frequent DFEs

NVI

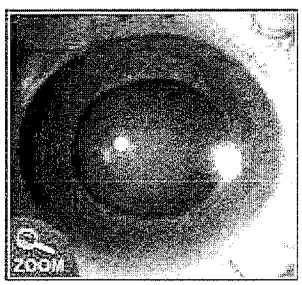
- Typically happens late in the disease.
- Can lead to neovascular glaucoma
- VegF diffuses through the vitreous and into the aqueous which than covers the iris and angle
- Always look at the pupillary ruff (But 20% of the time can start at the angle)
- Fibrosis in the angle
- If elevated IOP assume NVI, need to do gonio
- Gonio should be done
- Leads to secondary angle closure
- Treatment: PRP or bleb/shunt depending on situation

- In cases of extreme retinal hypoxia, there are few viable retinal capillaries available....VegF diffuses forward to nearest region of normal capillaries (at the iris)

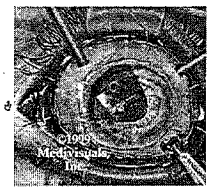
- 3 stages of glaucoma
- 1. NVI with normal IOPs
- 2. NVI with elevated IOPs (due to blockage of aqueous outflow in TM by new vessels and fibrovascular tissue. Secondary open angle glaucoma
- 3. NVI with secondary angle closure (PAS)

Treatment

- Cycloplegia 1% bid
- Topical steroids (helps with inflammation)
- Why dilate? Mechanism of angle closure is not pupillary block. Decrease IOP by increase outflow through uveo-scleral pathway.
- Glaucoma drops except pilo and prostaglandins.



Vitrectomy



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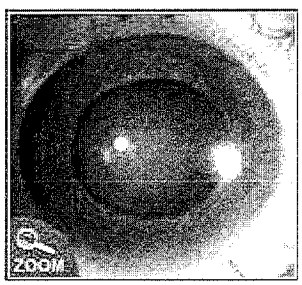
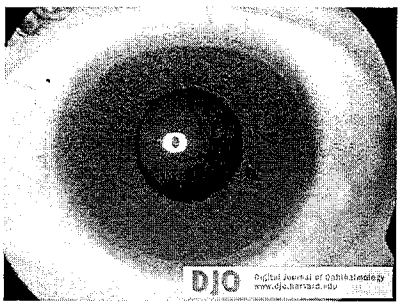
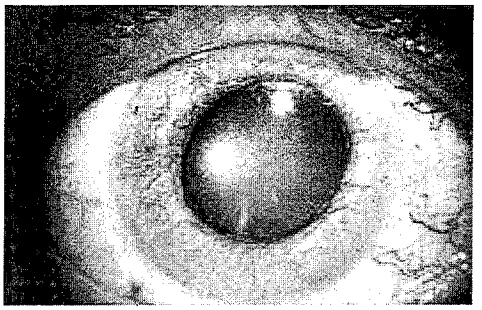
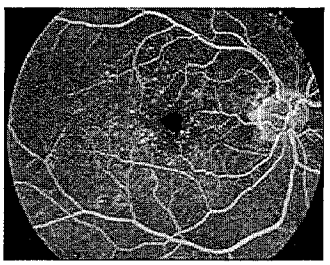


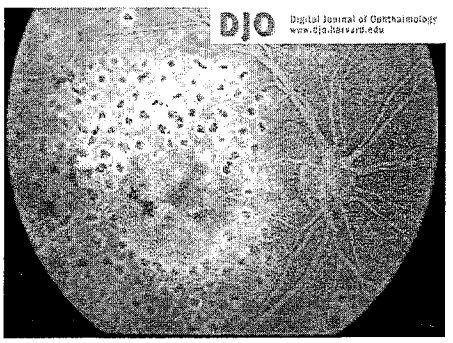




Macular Ischemia

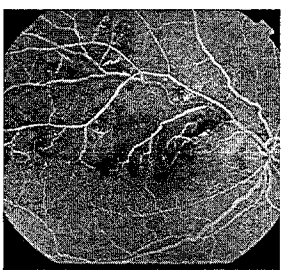
- No treatment but should not do laser in this area



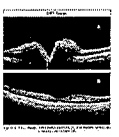


Capillary non-perfusion

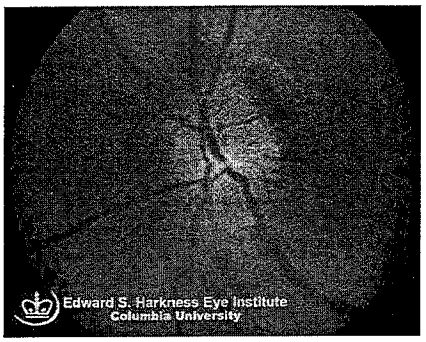
- Retina will look mottling/uneven



Diabetic Papillopathy

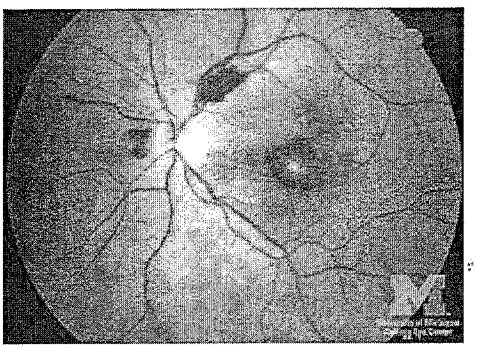


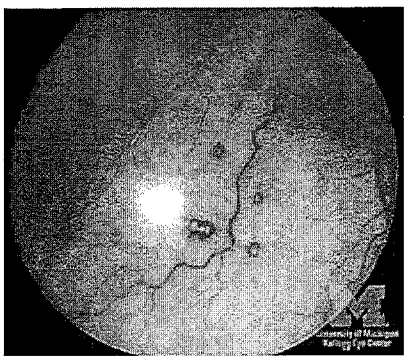
- Mild optic nerve head edema
- Unilateral(60%) or bilateral
- Prominent surface vessels with fine hemmhorages on the disc.
- Small APD present
- Form of non-AION (reversible ischemia)
- Does not correlate with amount of diabetic retinopathy.
- Vision is mildly diminished. 75% are 20/40 or better
- Treatment: None.. Usually with spontaneously resolve over weeks to months..Patients will usually have subtle optic atrophy with vf defects.



Roth spots

- Sub-retinal hemes (Flame or blot hemes) with a white center
- Initially thought to be bacterial emboli or leukocytes
- White center represents coagulated fibrin thrombus from a ruptured vessel
- Represents more of an acute systemic change





Roth spots

- Bacterial endocarditis
- Leukemia
- Anemia (Usually pernicious)
- HIV (rarely)
- Carbon monoxide poisoning
- Hypertensive retinopathy
- Shaken baby syndrome
- Sickle cell
- Lupus (Can also be seen in other connective tissue disorders)

Involutional

- Decrease in the caliber of vessels
- Fibrovascular proliferation
- Ghost vessels

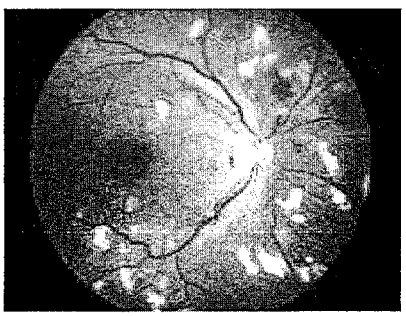
What about cataract surgery?

- Any macular edema or retinopathy needs to be treated before cataract surgery.

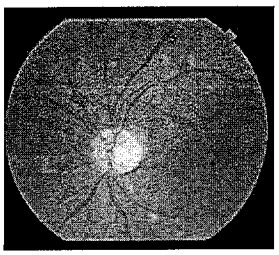
Differentials

- Hypertensive retinopathy
- Retinal Vein Occlusion
- Anemic retinopathy
- HIV retinopathy
- Sicke Cell retinopathy
- interferon retinopathy
- Ocular ischemic retinopathy
- Radiation retinopathy
- Coat's Disease
- Purtscher's retinopathy
- Eale's Disease
- Antiphosolipid Syndrome

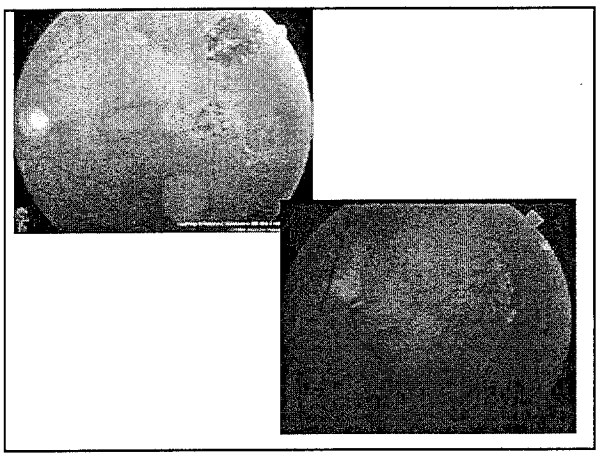
- CWS, hemes around nerve, and Purtscher flecken(large infarcts)
- History of recent trauma (Head trauma, chest compression, bone fracture, etc)
- Shock wave leads to endothelial cell damage which makes vessels more susceptible to occlusion (leukocyte emboli due to trauma, fat emboli due to fractures, air emboli due to chest compression)
- No good treatment



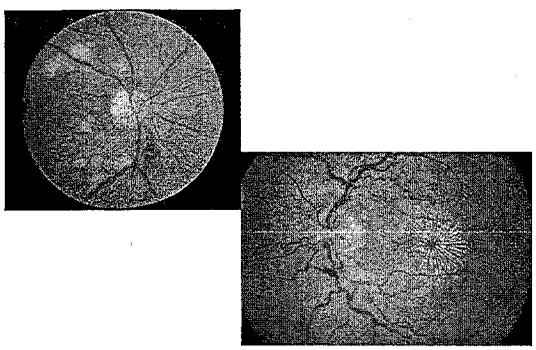
- CWS > Hemes
- Karposi's sarcoma
- CMV



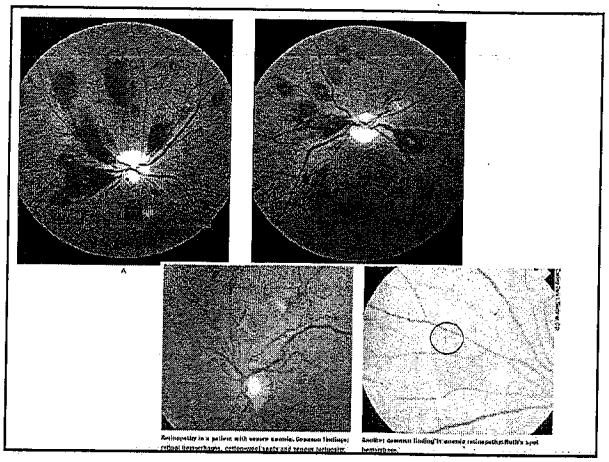
- Usually see large hemes and CWS
- Located around the optic nerve
- History of hepatitis C



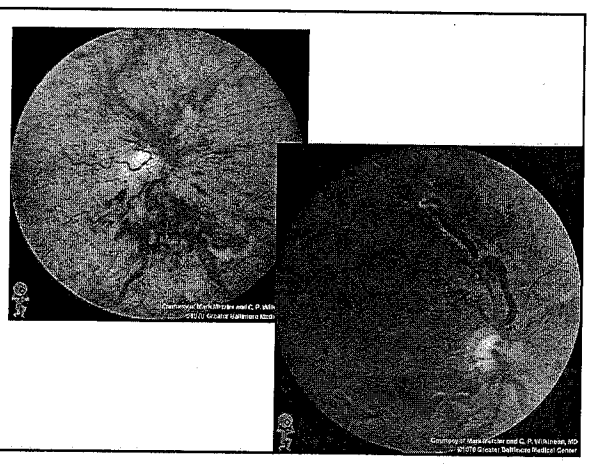
- Sea-fan neo
- Black sunbursts (Disruption of RPE)
- Salmon patches
- Angiod streaks
- Hemosiderin patches (iron-storage complex)



- CWS > Hemes
- Macular star
- Vessel changes (Attenuation,etc)

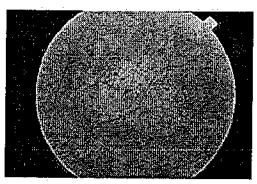


- CWS>Hemes
- Roth spots



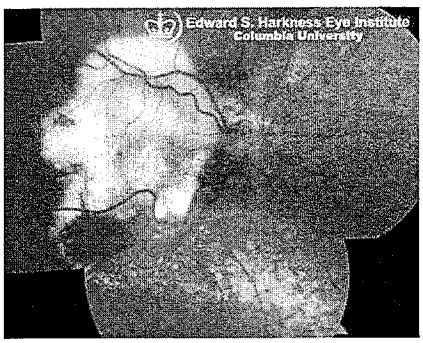
- Blood and Thunder

- Artery occlusion: Retina tissue dies quickly thus rarely get NV
- Vein occlusion: Some tissue survives. Retina able to send Vegf signal: get NV.

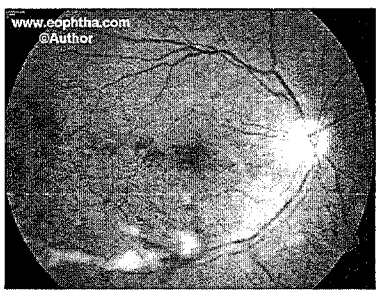


- Peripheral hemes
- Dilated but not tortuous vessels
- Unilateral
- Dull ache
- Mild iritis

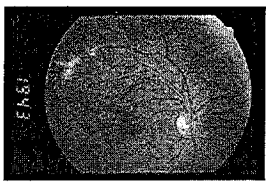
- Melanoma noted



- Extensive exudates
- Multiple telangiectatic vessels
- Young patient
- Genetic



- Auto-immune disease
- Antibodies are created which attack normal components of blood and cell membranes
- Blood clots "Sticky blood"
- History of miscarriages
- Hemes
- CWS
- Vessel sheathing



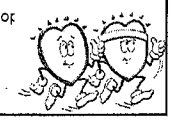
- Idiopathic vasculopathy (Occlusive vasculitis)
- Vessels sheathing
- Hemes
- Retinopathy is typically more in the periphery
- Neo can present
- Young healthy individuals
- Cells in the vitreous and anterior chamber

Fun facts

- Glyburide/Glipizide(2nd generation sulfonylureas) can cause a +2.00 hyperopic shift. Resolves in 3-4 months.
- Out of CN 3,4,6....CN 6 palsy is the most common
- Increase in BS causes a myopic shift. Every 100 mg/dl=0.50 D shift. Usually don't notice until over 250 mg/dl.
- Macular edema is the number 1 reason why people lose their vision from diabetes.
- High association with POAG and glaucoma
- Tritan defect
- Decrease in noctural vision
- Decrease in peripheral vision

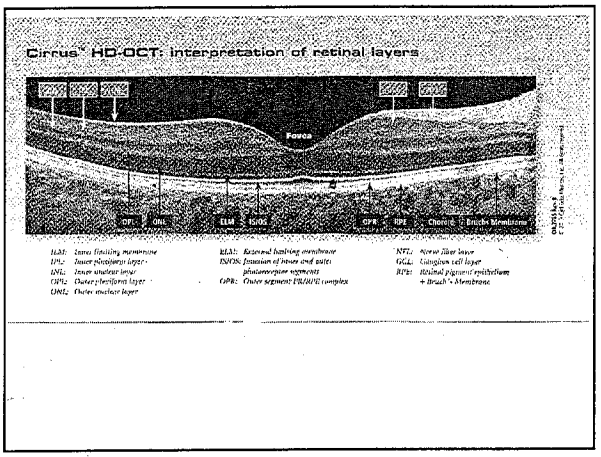
Lifestyle changes

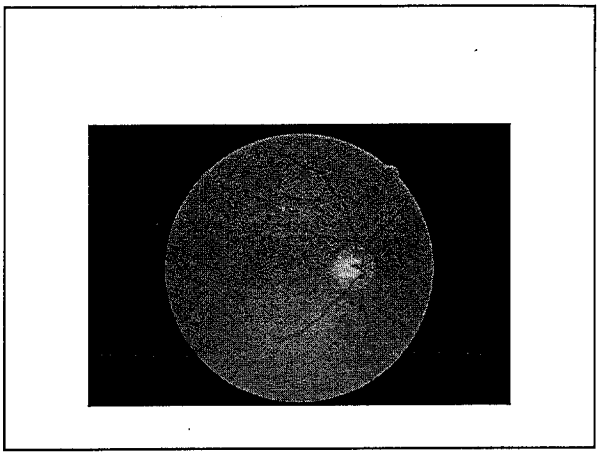
- THE DCCT shows that if you control your blood sugar there is a decrease in development of retinopathy by 76% and decrease in progression of retinopathy by 80%
- Tight control of BP leads to a 34% decrease in progression of retinopathy and vision loss (<130/80 or <120/75 if patient has renal damage)
- Increase in cholesterol has been shown to cause an increase in exudates. There is a 50% increase in progression of retinopathy if >240
- HbA1c <7%
- Lower BMI and waistline
- Aspirin neither improves or worsens diabetic retinop
- Exercise is good but be careful.

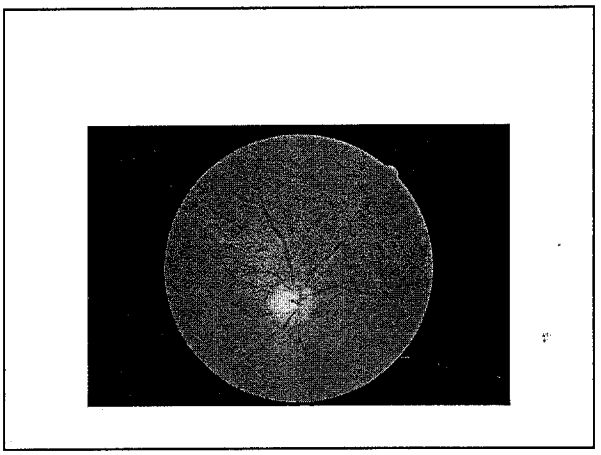


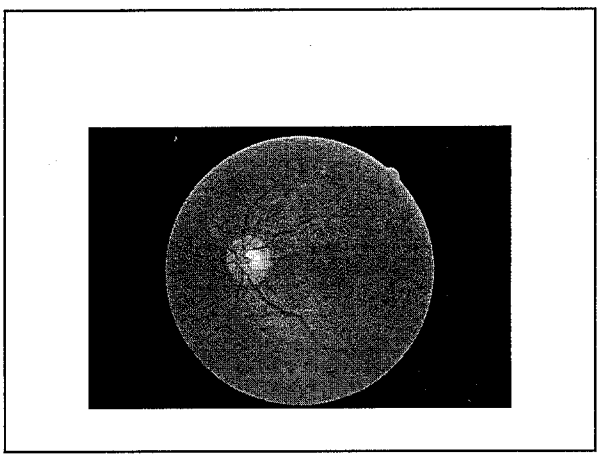
New Instrument

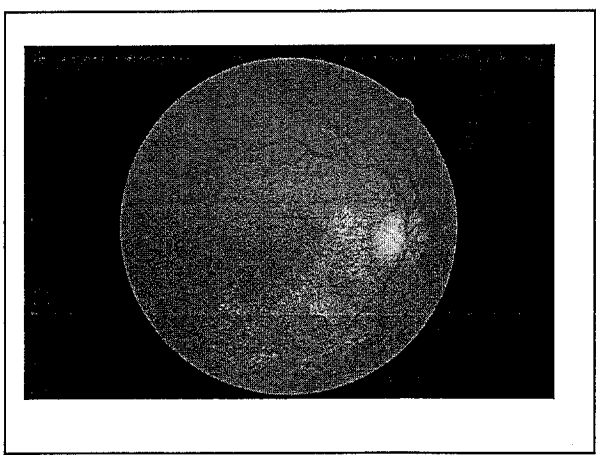
- Confocal Adaptive Optics Scanning Laser Ophthalmoscope: Mild to moderate NPDR had significant microvascular changes including corkscrew capillaries.
- Enhances hemes and micro-anueyrms
- Shows early signs of vascular wall thickening and capillary closure.

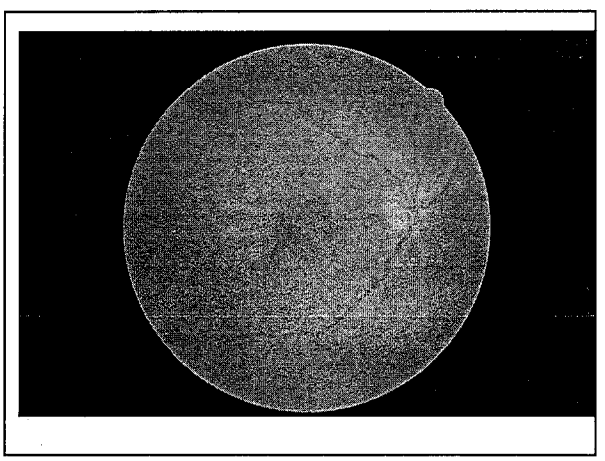

Cirrus™ HD-OCT: interpretation of retinal layers
Fovea
GCL
ELM
ISOS
OPR
RPE
Choroid
Bruch's Membrane
ILM: Inner limiting membrane
IPL: Inner plexiform layer
INL: Inner nuclear layer
OPL: Outer plexiform layer
ONL: Outer nuclear layer
ELM: External limiting membrane
ISOS: Junction of inner and outer photoreceptor segment
OPR: Outer segment/RPE/BM complex
NFL: Nerve fiber layer
GCL: Ganglion cell layer
RPE: Retinal pigment epithelium + Bruch's Membrane

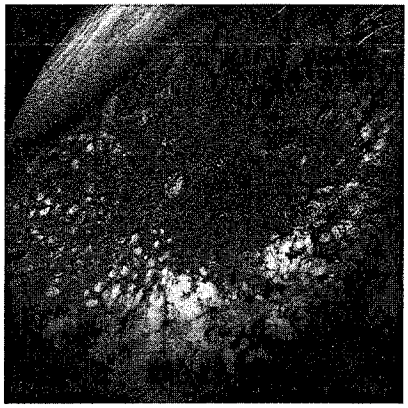


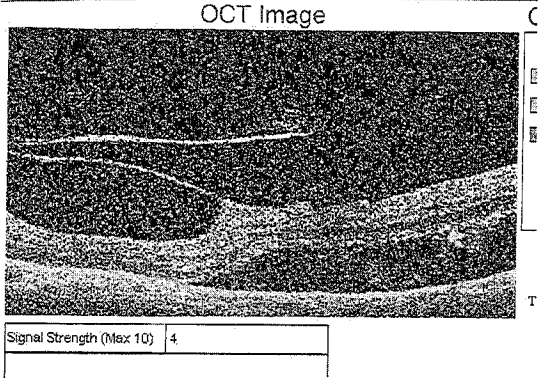


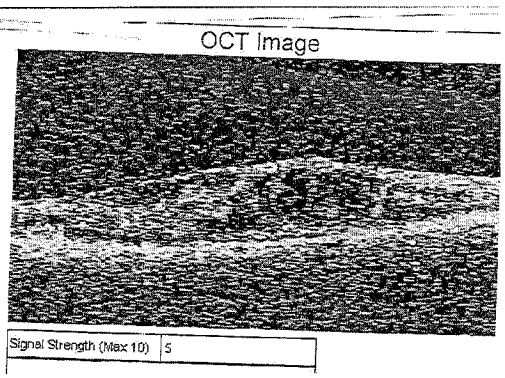









OCT Image
Signal Strength (Max 10)
4


OCT Image
Signal Strength (Max 10)
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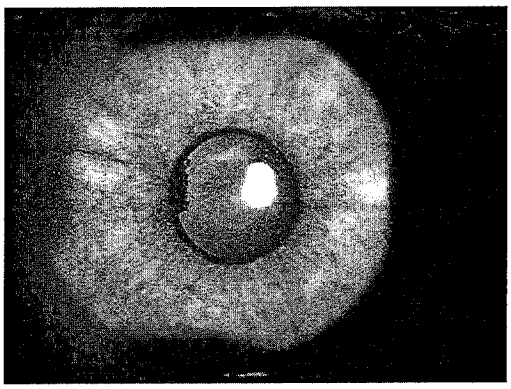

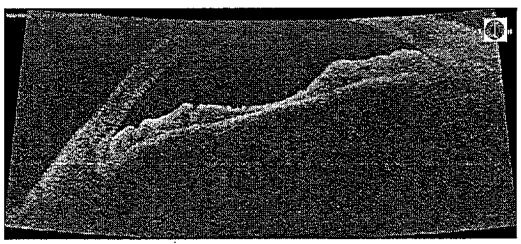

Dr. Jeffery J. Machat, M.D., F.R.C.S.C., D.A.B.O.

Founder & Medical Director – Crystal Clear Vision Canada
33 Hazelton Avenue, Toronto, Canada M5R 2E3
www.crystalclearvision.com

Dr. Machat is a double board certified ophthalmologist, achieving both his board certification in ophthalmology in Canada becoming a Fellow of the Royal College of Surgeons of Canada and the United States, with the designation of Diplomat of the American Board of Ophthalmology. He received both his medical degree in 1986 and completed his ophthalmology residency in 1990 at the University of Toronto.

Dr. Machat subspecialized in early 1991 in laser refractive surgery, devoting 100% of his time to the research, development and application of techniques and technology for laser vision correction. As an early pioneer and innovator in the field, he studied internationally in both Europe and South America, and was both a Health Canada and FDA investigator in Excimer laser trials.

Dr. Machat was one of the original pioneers of LASIK, and one of the handful of Chiron ACS and Hansatome certified trainers, and lectured and certified hundreds of physicians across North America, South America, Europe, South Africa, the Middle East and Asia. He also lectured in over twenty countries on five continents on Excimer laser and Femtosecond laser technology, Wavefront technology and other refractive techniques and innovations. He has been an investigator and instructor for 8 different laser manufacturers utilizing 18 different Excimer laser platforms. He has also been certified on several LASIK microkeratome technologies, and developed instrumentation and software for Photorefractive Keratectomy, Laser in situ Keratomileusis(LASIK), and the KAMRA Corneal Inlay reading vision procedure.

Dr. Machat was the first surgeon in Canada to perform Custom LASIK in 2000, the first to utilize Femtosecond laser technology in 2003, the first to perform Bladeless Custom LASIK with the IntraLase femtosecond laser and also the first surgeon to perform KAMRA Vision presbyopia correction and AMARIS Custom LASIK with the Schwind AMARIS 750S Excimer laser system.

LASIK, which Dr. Machat pioneered is now the most commonly performed vision correction surgery in the world. Similarly, Wavefront technology and Femtosecond Laser technology, which he also both pioneered is now used across North America for the majority of LASIK procedures to improve the safety and clinical outcomes in North America.

Dr. Machat has personally performed 60,000 laser vision correction procedures to date, including more than 50,000 LASIK procedures. He has treated over 600 optometrists, ophthalmologists and physicians. He has written two textbooks, "Excimer Laser Refractive Surgery – Practice and Principles" and was the principal

author of, "The Art of LASIK". Dr. Machat is also the author of other scientific papers and book chapters.

Dr. Machat was the first surgeon in Canada to perform KAMRA Vision reading vision correction, and he was also one of the first to have the procedure himself. He is a member of the International Medical Advisory Board for AcuFocus, the manufacturer of the KAMRA Corneal Inlay. Dr. Machat has spent time in Argentina, Holland, Japan and Korea, advancing his studies and training surgeons in the KAMRA vision technique. He has developed instruments and helped developed software for the AcuFocus AcuTarget HD improving the procedure. Dr. Machat has performed other reading correction procedures over the past two decades including Sunrise Holmium Laser Thermokeratoplasty, Visx Multifocal Ablation and RestorVision Scleral Implants.

He is a member of the American Academy of Ophthalmology, Canadian Ophthalmological Society, Canadian Society of Cataract and Refractive Surgery, American Society of Refractive Surgery, International Society of Refractive Surgery and American-European Ophthalmological Society.

Dr. Machat also developed an extensive background in the business development of laser refractive surgery medical clinics. In 1993, he was the original Co-Founder and visionary of TLC Laser Eye Centers, which became the largest laser vision correction company in the world with 83 fixed site clinics across North America, 300 mobile sites, over 14,000 referring optometrists and over 1000 surgeons. Dr. Machat's concept for refractive surgery comanagement with optometry and his close affiliation of support of optometry across North America was a key part for the success of TLC. In 1996, TLC became a publicly traded company on both the TSX and NASDAQ.

In 2001, Dr. Machat opened Custom LASIK Centre in BCE Place, a treatment and research facility, pioneering Wavefront Technology in Laser Vision Correction. The centre was the first in Canada to utilize custom technology to improve qualitative visual outcomes, prevent night glare and manage complications for other clinics across North America. The clinic was equipped with several different laser technologies and Wavefront platforms, including Hartmann-Shack, Tscherning and Ray Tracing technology. Dr. Machat was the third surgeon in the world to utilize Wavefront Technology in March 2000, and the first to utilize multiple Wavefront diagnostic and Wavefront laser systems.

In 2005, Dr. Machat was recruited to be the Chief Medical Officer and strategic advisor to Optical Express based out of Glasgow, Scotland. He was instrumental in their expansion from 11 clinics to 55 clinics over a 2 year period, becoming the largest Laser Vision Correction provider in Europe, with clinics in Scotland, England, Ireland, Holland, Belgium, France, Germany. Dr. Machat was integral to the training of over 1000 employees, optometrists and surgeons and the development of the entire consultative approach, diagnostic testing, surgical and post-operative

management of patients. He was responsible for the selection and implementation of Wavefront laser technology, and the development of their International Medical Board.

In 2007, Dr. Machat was offered the role of Chief Medical Officer for Rheo Therapeutics, and helped develop Macular Degeneration Treatment Centers across Canada, performing research and coordinating policies and procedures for the Retinal Surgeons and other physicians involved.

In 2009, Dr. Machat formally left TLC Laser Eye Centers and started Crystal Clear Vision Inc., a Delaware company, which had a pilot program with Walmart USA. Walmart has 3500 Vision Clinics within their superstores, employs 10% of all the optometrists in the United States, performs 18% of all the eye exams in the United States and is the second largest retailer of glasses and contact lenses in the United States. Dr. Frank LaRussa, their key optometric advisor to new technologies approached Dr. Machat to develop a business and clinical model with stand alone private Laser Vision Correction and Cataract clinics outside of Walmart superstores, that would work with their clinics and optometrists nationally. Simultaneously, Walmart was developing medical clinics within their superstores affiliated with local hospitals, in an effort to bolster their pharmacy sales. Although the Crystal Clear Clinic pilot launch was successful, their medical clinics were not, and Walmart ended the pilot after 2 years.

In November and December 2011, Dr. Machat was asked to return to Europe and consult again for Optical Express. Providing key insights into their clinical and business issues, future development and was again contracted to provide a series of educational events for their entire employee base.

Dr. Machat then opened Crystal Clear Vision Canada in 2012, building a state of the art facility in the boutique Yorkville area of downtown Toronto. The clinic is a not only a treatment facility, but a teaching and research facility, and offers LASIK, KAMRA Vision for reading vision correction and premium Laser Cataract Surgery. His facility is equipped with the Schwind AMARIS 750s Excimer Laser system, the first in North America for PRK and LASIK laser vision correction. An AcuFocus AcuTarget HD and Tagaki microscope, for KAMRA Vision Reading Correction. A Ziemer Z4 Femtosecond laser for LASIK and KAMRA procedures. A Bausch & Lomb Victus Femtosecond Laser for Capsulotomy, Lens Fragmentation and Astigmatism correction for Laser Cataract Surgery. As well, the clinic has a College approved full ophthalmic surgery operating suite. Dr. Machat is a consultant for Schwind, AcuFocus, Ziemer and Bausch & Lomb, and trains doctors for each of these companies.

In summary, Dr. Machat is highly specialized in laser refractive surgery and the application of lasers in ophthalmology and vision correction pioneering and developing many of the innovations that have benefitted surgeons and patients in North America. Unlike other surgeons however, he has an added expertise in

developing and managing medical and surgical clinics, ranging from staff and surgeon training, to equipping and designing facilities, creating marketing and educational tools, to building an optometric referral network. His broad experience with multiple laser technologies from multiple manufacturers, and his business background, allow him to advise on the best technology purchases and their implementation. His understanding of current and future technologies from his research also allow him to position practices for future growth and advise companies how to market and position themselves competitively. This highly advanced and very unique dual skill set, has made him highly sought after in the ophthalmic industry internationally and he is currently working with several companies on confidential developing projects.

Moving forward, his two big areas of consulting are focused on Presbyopia(Reading Vision) and Refractive Laser Cataract Surgery(RLCS). With over 50 million Americans depending on reading glasses or bifocals, an aging baby boomer demographic and the expected approval of KAMRA Vision by the US FDA in 2015, Dr. Machat's extensive surgical and business experience with the procedure has creating significant demand for his consulting time. Similarly, Femtosecond laser Cataract Surgery is used in less than 3% of the 4 million cataract surgeries performed each year in North America, but by 2020 it is expected to reach 50%. Dr. Machat utilizes this technology in 100% of his Cataract and Refractive Lens Exchange(RLE) cases at Crystal Clear Vision, and his clinical and business approach to this developing technology is another major part of his consulting practice.

CURRICULUM VITAE

Dr. Patrick J. Lydon, Clinical Research Optometrist – Manager and Director of Clinical Affairs

Primary Residence:
77-251 Tribecca St. Indian Wells, CA 92210
Home: 760-360-5245
Email: pjlwolf@earthlink.net
Cell: (949)-735-2766

STATEMENT OF PURPOSE

This resume is a condensed summary of my professional, educational, and personal background. It outlines my qualifications in the areas of patient care, training, business management, and clinical trials for medical devices and procedures. I believe that because of my familiarity with the certification processes, as well as my background in research, I am uniquely positioned for consideration in any role related to those fields.

WORK EXPERIENCE

Current:

1. **January 2016 – Consulting Optometrist – NVISION Center Palm Desert California**
   Responsible for Pre Op and Post Op Comanagement LASIK/Cataract

2. **March 2015 to present – Consulting Director of Optometric Services – S. Shah, MD Family Charitable Foundation for Health – Palm Desert , CA**

   Primary Eyecare - directing the clinical program at the Shah Foundation, with special emphasis on Glaucoma Patients, and disadvantaged students of the Coachella Valley, ensuring no student is left behind because of a vision problem.

3. **Nov. 2014 to present - Consulting Director of Clinical And Medical Affairs, Eye Therapies Inc. (Lutronic division)** - San Francisco-based ophthalmic laser medical devices

   - Surgical Trainer – AMD 10 Laser
   - Staff Trainer
   - Site Qualification, Initiation
   - Study Protocol Development and Review

- IRB Submission
- Site Contract Review
- Study Documentation Development and Review

4. **Nov. 2014 to present - Consultant to Refocus Group, Dallas TX – Clinical research** – Medical device company studying the surgical treatment of presbyopia

- Surgical Trainer – VisAbility Implant System (Spain and Ireland)
- Site Staff Training and Managing /Reviewing Subject Enrollment
- Post Marketing Protocol Development and Review

Previous Work Experience: (full time – non consulting)

1. **Eye Therapies, San Francisco, CA – Director of Clinical and Medical Affairs** – Nov. 2014 to March 2015

-Reported directly to the President and CEO

-Credited with designing the clinical program and providing expertise in the Surgical Training for the AMD 10 Ophthalmic Laser

-Co-developed clinical research strategic programs in line with global strategy and supported the local product registration and marketing.

-Acted as a medical resource to the company as a whole and particularly to the clinical research department - protocol and CRF writing, adverse events reporting, discussions with investigators, and internal meetings.

-Worked closely and cooperatively with research centers internationally

-Initiated and Developed clinical trial programs to support product registration and marketing.

-Provided medical and scientific input to global product development teams.

-Provided medical expertise in the review of adverse experiences

-Established ongoing liaison with key opinion leaders, government officials, CRO's and other healthcare organizations to ensure that significant developments in the field are identified and monitored.

-Represented the company at professional worldwide meetings

-Ensured that the interfaces between Medical/Clinical and other departments were managed optimally.

- Formed informal networks with company senior management, updating them on a regular basis on developments within Medical and progress made with the clinical and regulatory program.
- Worked in conjunction Regulatory, Marketing and Financial people through cross-functional teams, to ensure timely entry of new device to the market
- Worked with company management to determine requirements for clinical programs - involved with the identification and selection of suitable candidates for positions.
- Ensured effective team communication throughout the department through the application of suitable reporting systems and structures and the identification and provision of appropriate training.

2. **Refocus Group, Dallas TX – Global Clinical Affairs Manager** – April, 2014 to Nov 2014.

- Primary responsibility for overseeing all clinical activities related to sites in Spain and England/Ireland.
- Managed trial exclusion and inclusion enrollment.
- Surgical Trainer for VisAbility Implant System
- Qualified clinical investigators and clinical sites on the VisAbility Implant System.
- Obtained and reviewed all required essential documents necessary for study initiation.
- Interacted with all levels of medical and scientific professionals.
- Assisted in the preparation and presentation of clinical training materials for investigator site staff.
- Provided scientific support to health care professionals at clinical sites.
- Independently handled various clinical study assignments including: conceptualizing, planning, designing, executing and monitoring
- Managed staff at site for company in regards to trial activities
- Summer 2014 Visiting Scholar at the University of Terraza, School of Optometry (Barcelona) Spain for the VisAbility Implant Trial
- Managed resource planning, project timelines and effective use of budget
- Managed project related professional meetings and presentations
- Established and maintained ties to Surgeons and Staff Globally
- Responsible for providing assistance in direction of overall corporate strategy and evaluating market potential
- Monitored clinical studies, ensuring site compliance with the clinical protocols; assuring subject rights, safety, and welfare are protected; ensured data integrity through completeness, accuracy, and legibility.
- Reviewed and monitored required corrective actions; conduct follow-up activities on required action items directly with investigator sites. .

- Maintained professional, product, and market expertise via independent reading, networking, and training.

3. **AcuFocus Inc., Irvine, CA - CRA / Clinical Research Optometrist / Director of Training / Global Training Manager** (Feb 2012-2014 April)

- Clinical Research Optometrist: In this position I was responsible for monitoring sponsor-initiated clinical research studies for the KAMRA Inlay, 020A and 020B trials – conducted monitoring visits to confirm protocol compliance and to ensure sponsor/investigator obligations were met nationally as well as in Australia , New Zealand, Canada , Peru, and Chile.
- Verified that sites were compliant with applicable local requirements and FDA / ICH guidelines
- Monitored the trials to confirm protocol compliance. Included Surgeon (and staff) Training on femtosecond lasers, AcuFocus Home Office training and assessed qualifications of study personnel to ensure "Good Clinical Practice".
- Identified site issues and initiated correction plans based on monitoring reports (including study logs and device accountability) and performed necessary follow-up onsite training
- Verified the data in source documents (EDC) were in agreement with source, initiated data query resolutions, and confirmed resolutions in a timely manner
- Ensured subject safety and adverse event reporting to sponsor and IRB/IEC
- Promoted to Director of Training USA /Global Training Manager – Europe, India and Canada. Worked within the team environment to provide commercial training to team members such as project managers.
- Responsible for developing and training interactions for all trained surgeons and staff in use of the KAMRA inlay. Opened the commercial markets for KAMRA in India and Canada. Monitored the training guidelines and introduced surgeons and staff to the device.
- Initiated the Global Data Base Registry for KAMRA patients in Canada / ROW
- Credited with obtaining the highest volume of clinical KAMRA subjects for new sites in Canada
- Developed the Visiometric AcuFocus HD Acutarget project for site use

4. **NeoVista Inc., Fremont, CA – Clinical Affairs Specialist / CRA/ VA Trainer /Director of Clinical Marketing Training.** May 2006 – April 2012

- Formed informal networks with company senior management, updating them on a regular basis on developments within Medical and progress made with the clinical and regulatory program.
- Worked in conjunction Regulatory, Marketing and Financial people through cross-functional teams, to ensure timely entry of new device to the market
- Worked with company management to determine requirements for clinical programs - involved with the identification and selection of suitable candidates for positions.
- Ensured effective team communication throughout the department through the application of suitable reporting systems and structures and the identification and provision of appropriate training.

2. **Refocus Group, Dallas TX – Global Clinical Affairs Manager** – April, 2014 to Nov 2014.

- Primary responsibility for overseeing all clinical activities related to sites in Spain and England/Ireland.
- Managed trial exclusion and inclusion enrollment.
- Surgical Trainer for VisAbility Implant System
- Qualified clinical investigators and clinical sites on the VisAbility Implant System.
- Obtained and reviewed all required essential documents necessary for study initiation.
- Interacted with all levels of medical and scientific professionals.
- Assisted in the preparation and presentation of clinical training materials for investigator site staff.
- Provided scientific support to health care professionals at clinical sites.
- Independently handled various clinical study assignments including: conceptualizing, planning, designing, executing and monitoring
- Managed staff at site for company in regards to trial activities
- Summer 2014 Visiting Scholar at the University of Terraza, School of Optometry (Barcelona) Spain for the VisAbility Implant Trial
- Managed resource planning, project timelines and effective use of budget
- Managed project related professional meetings and presentations
- Established and maintained ties to Surgeons and Staff Globally
- Responsible for providing assistance in direction of overall corporate strategy and evaluating market potential
- Monitored clinical studies, ensuring site compliance with the clinical protocols; assuring subject rights, safety, and welfare are protected; ensured data integrity through completeness, accuracy, and legibility.
- Reviewed and monitored required corrective actions; conduct follow-up activities on required action items directly with investigator sites. .

- Began at NeoVista as CAS with Retinal Surgeon Training, Monitoring (US And OUS), Radiation Oncologist Training, Medical Physicist Training , and Optometrist trainer.
- Performed IRB, and Protocol submission in the United States, Europe, and South America for multiple NeoVista clinical trials.
- In charge of VA Certification for worldwide trial CABERNET,
- London based Director of Clinical Marketing Training for the MERLOT Trial -23 NHS sites

Specific Job Functions in UK for NeoVista:

- Credited with completing enrollment of subjects on time for the MERLOT trial (373 subjects at 23 sites).
- During the CABERNET And MERLOT clinical studies, initiated frequent interactions with clinical investigators to ensure compliance with protocol and overall clinical project objectives.
- Trained surgeons on use of the VIDEON (radiation device). Trained nursing and radiation staff on use of VIDEON. Represented NeoVista in OR situations worldwide (USA, South America, Europe , Israel and South Africa.
- Responsible for training of medical staff in follow-up to cases performed (AE Reporting)
- Assured studies were conducted in compliance with UK NHS/NICE Good Clinical Practice and appropriate international, federal, state, and local regulations and guidance's.
- Provided assistance in the evaluation and analysis of clinical data.
- Responsible for regular updates to Senior Management on site status.
- Managed the Physics Project NeoVista. Ensuring the on time , replacement and exchange of expiring medical devices in the UK. Credited with "saving" the MERLOT Trial
- Organized and worked closely with an international team (Austria – Germany – UK) to initiate successful clinical trials enrollment strategies
- Audited sites in the United States, Europe, Middle East and South America.
- Maintained accurate and timely sponsor/site correspondence and communication.
- Prepared and presented project progress reports to keep NeoVista management and clinical staff informed
- Presented MERLOT Trial to the Royal College of Surgeons, London UK

- MERLOT Trial Specifics: Responsible for site qualification, initiation, surgeon/ radiation oncology training, data monitoring, adverse event reporting, IRB applications, protocol review, informed consent, and creating SOPs.
- I transferred to AcuFocus (a sister company of NeoVista) in March of 2012. As a Clinical Research Optometrist, I continued in monitoring and training sites worldwide. I worked with refractive surgeons, R & D and Marketing on developing the KAMRA inlay.

5. **Genentech Corporation Visual Acuity Evaluator/Trainer (August 2002 - May 2006) -**
   - VA Evaluator/Trainer for the Lucentis Series of Clinical Trials ---Focus, Anchor, Marina, Sailor, and Horizon
   - Trained and worked with site staff on VA requirements for Lucentis development.
   - Trained Protocol and Developed New Training Upgrades for Genentech Clinical Trial Managers
   - Extensive US travel – responsible for > 30 sites
   - Contributed to the success of Lucentis with VA results meeting endpoint

   Transferred to NeoVista to continue work in wAMD

Field-Related WORK EXPERIENCE:

- Prior to joining Genentech: Pearle VisionCare HMO of California
- November 1986 – 2002 Starting as a Staff OD in a single office in 1986, my career at Pearle saw my responsibilities expand to include the following positions:

Medical Director/VP Cole Managed Vision (parent company of Pearle)

- Staff OD, Managing OD
- Regional Optometric Coordinator
- 1996 Externship Binder Gordon Laser Vision Institute
- Quality Assurance Committee Chairman
- Director of Doctor Relations PVC California
- Medical Director PVC
- President Pearle Vision Care of California

During these transitional years, my responsibilities grew to include oversight, administration, and clinical decisions for approximately 50 California corporate locations. I was credited for contributing significantly to a business turnaround that reversed downsizing, leveled a financial slide and turned comp growth. During this period, Pearle's California offices improved efficiency dramatically (i.e., fewer offices saw more patients with higher quality). Creation and oversight of a network of over

100 providers. Monitoring performance of direct-reporting OD's, training, coaching, counseling, conducted performance reviews, and recommended merit increases where appropriate. During this tenure I also participated in my first clinical trials. We participated in contact lens development and the solutions used to treat them.

EDUCATION

- Doctor of Optometry, University of California, Berkeley, School of Optometry
- BS Optometry, University of California , Berkeley
- Certificate in Clinical Research (CRA)
- Kaiser Hospital Staff, Cataract Lens Clinic
- Letterman Hospital , Presidio San Francisco Cataract Rotation and Internship
- Externship Binder and Gordon Laser Vision Institute
- Bachelor of Science, Combined Sciences, Minors in Biochemistry and History, University of Santa Clara - Captain Crew Team / Academic All American
- London School of Economics and Oxford, University of Freiburg, Germany, University of Santa Clara Studies Abroad Program
- Archbishop Mitty High School, Cupertino, California
    - recipient of Alumni Award for Constant Achievement
    - Spanish Award

OUTSIDE INTERESTS

- Athletics: Golf, tennis, bicycling, scuba diving, volleyball
- Hobbies: amateur musician - Currently member of two musical groups with interests in contemporary, traditional, folk, and Irish/folk music.

STATEMENT

Throughout my career, I've been able to work myself into positions of ever-increasing challenge and responsibility. My background includes clinical care/training and business management at the local, regional, state, national and international levels. I maintain a passion for oversight and training in the research environment, and commercial settings. At my core, I feel a strong dedication to pursuing answers to the question, "What is around the next corner".

It has been a unique journey, from local staff Optometrist, National Medical Director and Vice President at Pearle Vision, to my current positions as a consultant with multiple Global Clinical Research Companies.

REFERENCES – upon request

Curriculum Vitae

Sheri Rowen, MD

Office Address:
Mercy Medical Center
Eye & Cosmetic Surgery Center
301 St.Paul Place, Suite #514
Baltimore, Maryland 21202

Office - (410) 332-9500
Direct - (410) 332-9733
Fax- (410) 545-5161
E-Mail- Srowen10@gmail.com

Education:

- University of Maryland, College Park, Maryland
  B.S., May 1976
- University of Maryland, School of Medicine, Baltimore, Maryland
  M.D, May 28, 1982
- Internship, General Surgery, Johns Hopkins Hospital, Baltimore, Maryland
  July 1, 1982 - June 30, 1983
- General Surgery Fellow, Johns Hopkins, Department of General Surgery, Baltimore, Maryland
  July 1, 1983 - June 30, 1985
- Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1985 - June 30, 1987
- Chief Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1987 - June 30, 1988

Work History:

- Hirsch Eye Group, Fallston, MD 21047
  July 1988 - June 1989
- Katzen Eye Group, Dulaney Valley Rd. . Towson Md. 21204
  June 1989 - December 1996
- Eye & Cosmetic Surgery Ctr. St.Paul Place, Baltimore Md 21202
  Dec 1996 - Present

Honors:
Phi Kappa Phi
Phi Beta Kappa
Eta Beta Rho Honors Society
Cum Laude Graduate, University of Maryland, College Park
Dean's List, 1971-1976, University of Maryland, College Park

Board Certification:
Diplomat & Fellow, American Board of Ophthalmology

Research Appointment:

- Research Assistant, National Institute of Health / National Cancer Institute, Bethesda, Maryland
  1976-1978
- Research Assistant, Baltimore Cancer Research Center, Baltimore, Maryland
  1978-1980
- Research Fellow, Johns Hopkins University School of Medicine, Center for Vitreoretinal Research, Baltimore, Maryland
  1983-1985
- Clinical Investigator, for FDA approved study Staar Collamer Lens
  1996
- Clinical Investigator, for FDA approved study Visian ICL
  1997 - 2006

Academic Appointment:

- Clinical Instructor, University of Maryland School of Medicine, Baltimore, Maryland
  1989 – 1990
- Assistant Clinical Professor of Ophthalmology, University of Maryland School of Medicine, Baltimore, Maryland
  1990- Present
- Clinical Instructor, Johns Hopkins Hospital, Baltimore, Maryland
  1991- Present
- Director: Mercy Medical Center for: Eye & Cosmetic Surgery
  1996- Present
  1996- Investigator: Staar Surgical, FDA Study (Collamer Lens)
  1997- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens)

Professional Memberships:

Member, American Medical Association
Member, Association for Research and Vision in Ophthalmology (1982- 1988)
Member, Maryland Eye Physician and Surgeons
Member, MED CHI of Maryland
Committee Member, Research to Prevent Blindness, Inc.
Member, Universal Scleroderma Foundation
Member, Wilmer Resident's Association
Member, American Society of Cataract & Refractive Surgery
Member, American Diabetes Association
Member, American Society for Laser Medicine and Surgery
Board Member, International Society of Cosmetic Laser Surgeons
Vice President, International Association of Women Eye Surgeons

Research Appointment:

- Research Assistant, National Institute of Health / National Cancer Institute, Bethesda, Maryland
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Member, American Society of Cataract & Refractive Surgery
Member, American Diabetes Association
Member, American Society for Laser Medicine and Surgery
Board Member, International Society of Cosmetic Laser Surgeons
Vice President, International Association of Women Eye Surgeons

Medical Licenses:
Maryland
District Of Columbia
Virginia
North Carolina
New York

Community & Volunteer services:

- Health Mission, "Project Dawn" Guyana
  March 1988
- Free Screening, Mercy Medical Center, and Department of Aging
  1997, 1998
- Son's Of Italy – Current Techniques in Eye Surgery
  1999
- Baltimore County Department of Aging
  1990- 1996
- Health Mission - Cali, Columbia
  February 2008

Television:
The Women's Doctor:
1994- "Topical Anesthesia for Cataract Surgery"
1995- "Topical Anesthesia & Clear Corneal Incisions & Foldable Lens"
1996- "First Use Of C02 laser in Baltimore for Eyelid Surgery & Facial Resurfacing"
1997- " Implantable Lens Correcting Hyperopia & Myopia"
1998 " Laser Resurfacing with Co2 & Erbuim Lasers" For Pre Mature Aging
1999- " Implantable Contact Lens" Lasik Surgery
2000- " Toric Lens" Correcting Astigmatisim

1997- National Television: " Implantable Contact Lens"
1998- Ivanhoe Broadcast: " Implantable Contact Lens"
1998- National Television: " Topical, Clear Corneal Cataract Surgery"

Publication:

- Rowen, S.L. & Glaser, B.M. (1985). "Retinal Pigment Epithelial Cells Release a Chemoattractant For Astrocytes, "ARCHIVES OF OPHTHALMOLOGY, 103 (5), 704-707.

- McDonnell, P.J., Rowen, S.R., Glaser, B.M. & Sato, M. (1985). "Posterior Capsule Opacification." ARCHIVES OF OPHTHALMOLOGY, 103 (9), 1378-1381.

- Rowen, S.L. (1994). "Advanced Phacomachine & New Kelman Tip". PHACO AND FOLDABLES, Vol 7 No. 1.

Research Appointment:

- Research Assistant, National Institute of Health / National Cancer Institute, Bethesda, Maryland
  1976-1978
- Research Assistant, Baltimore Cancer Research Center, Baltimore, Maryland
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  1997- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens)

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Member, Maryland Eye Physician and Surgeons
Member, MED CHI of Maryland
Committee Member, Research to Prevent Blindness, Inc.
Member, Universal Scleroderma Foundation
Member, Wilmer Resident's Association
Member, American Society of Cataract & Refractive Surgery
Member, American Diabetes Association
Member, American Society for Laser Medicine and Surgery
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  1996- Present
  1996- Investigator: Staar Surgical, FDA Study (Collamer Lens)
  1997- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens)

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Member, American Society of Cataract & Refractive Surgery
Member, American Diabetes Association
Member, American Society for Laser Medicine and Surgery
Board Member, International Society of Cosmetic Laser Surgeons
Vice President, International Association of Women Eye Surgeons

- OCULAR SURGERY NEWS. (1994) "Leaders in Clear Corneal Incisions"
- Rowen, S.L. (1996). "Topical Anesthesia in Cataract Surgery". REVIEW OF OPHTHALMOLOGY, Supplement to VOL. 2, No. 6
- OPHTHALMOLOGY TIMES. (1995). "Miochol-E with Topical Anesthesia"
- EYE TECHNOLOGY (1996). "Current Trends in Cataract Surgery".
- Rowen, S.L. (1996) "Yes, You Can Convert To Clear Corneal Incisions". REVIEW OF OPHTHALMOLOGY, Vol. 3 No. 5, 110-115
- OCULAR SURGERY, News Symposium Supplement, Feb. 1996
- OCULAR SURGERY, News Symposium Supplement, Feb. 1997
- Rowen, S.L. (1997) "Understanding the Benefits of Plate Haptic Lenses" REVIEW OF OPHTHALMOLOGY, Vol. IV., and No.7 4B- 6B
- Rowen. S.L. (1999) " Why & How to Convert to Injectable Lens" REVIEW OF OPHTHALMOLOGY, VOL 8, and page87
- Rowen S.L. 9 (1999) "Pre-Operative & Post- Operative Medications used for Cataract Surgery" CURRENT OPINIONS IN OPHTHALMOLOGY, VOL 10, PAGES 29-35

American Academy of Ophthalmology - Annual Meeting:
1994 – 2009: 40 Credits Each Calendar Year

American Society of Cataracts and Refractive Surgery - Annual Meeting:
1995 – 1996, 1998 – 2010: 40 Credits Each Calendar Year

American Meeting International Society of Cosmetic Laser - Surgeons:

1996 - 24 Credits	1999 –24 Credits
1998 - 29 Credits	2000 – 24 Credits

International Society of Refractive Surgeons:
1995, 1998 – 2002, 2004: 16 Credits Each Calendar Year

Maryland Optometric Association
1998- 6 Credits

Baltimore Refractive Surgery Society

1999- 6 Credits

Greater Baltimore Medical Center
1999- 6 Credits

Visual FreedomCenter
1998- 12 Credits

Preceptorships - Ultrapulse CO2 Laser:
1995 - January - Dr. Robert Adrian, Washington, D.C.
Facial Resurfacing Technique

1995 - February - Dr. Sterling Baker, Oklahoma City, OK.

Preceptor: Coherent Medical:
1996- Present Supervise use of C02 & Erbium Laser

Laser Education Foundation - I.S.C.L.S.
1996- October- Sterling S. Baker MD. , Chicago, IL.
Pre- AAO Cosmetic Symposium

Coherent / Ultra FineErbium
1998- January, Maureen A. Foley, RN, BSN, CNOR
Mercy Hospital

The International Society of Cosmetic Laser Symposium
1998- February – C.William Hanke, MD. , Orlando, FL.

Eyelid Incision Techniques International Workshop on Anesthetic Surgery:
1996 April - Dr. Oscar Remirez, Course Director
Rejuvenation of the Centra Oval of the Face, Perioral Area and Lips

Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course
1992 - August - Dr. Charles Williamson , Course Director

Lamellar Refractive Surgery Course
1997 – May, Dr.Stephan G. Slade, Baltimore, MD.

Visual Freedom Center
1998- February – Dr. Charles Casebeer, Course Director
Introduction / Visx Certification Course, Transition to Lasik/ Wet Lab

VISX University

1998- November – Visx Excimer Laser System
Hyperopia Training Course

Johns Hopkins Hospital, Wilmer Eye
1998- Preceptorship for PRK, Course Director, Terrance O'Brian MD.

Presentations: Cataracts, Glaucoma, Foldable Lens & Topical Anesthesia

- 1984- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
- 1989- ARVO, Wilmer Eye Meeting, Sarasota, FL.
  "Endothelial Cell Produce a Chemoattractant for Astrocytes"
- 1985- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
  "Retinal Pigment Epithelial Cells Release a Chemoattractant for Astrocytes"
- 1992- Greater Baltimore Medical Center Symposium, Baltimore, MD.
  "The Use of Foldable Lenses in Cataract Surgery"
- 1993- Maryland Eye Physicians and Surgeons
  "No Stitch Incision, Capsulorhexis, and Foldable Lenses" Invited Paper
- 1993-American Academy of Ophthalmology
  IOLAB BOOTH " Perilimbal Incisions and Topical Anesthesia"
- 1994- American Society of Cataract and Refractive Surgeons, Boston, Mass.
  "Perilimbal Incisions Using Topical Anesthesia "
- 1994- American Academy of Ophthalmology , San Francisco, CA
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clinical Decisions in Management of Complications"
  "What I'm Doing Differently This Year"
  "Techniques and Variation of the I. Howard Fine Clear Corneal Incision Course"
- 1995- Staar Surgical: Course Director: Baltimore, MD.
  "Techniques and Variation of the I.Howard Fine Clear Corneal Incision Course"
- 1995- American Society of Cataract and Refractive Surgery, San Diego, CA.
  "The use of Miochol- E for Cataract Surgery and Topical Anesthesia"
  "Advances in Topical Anesthesia and Clear Corneal Incisions"
  "Topical Anesthesia and Clear Corneal Incisions" Staar Booth ASCRS.
- 1995 - American Academy of Ophthalmology: Atlanta, GA.
  "Clinical Decision in Management of Complications"
  "What I Am Doing Differently This Year"
  "Advance Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clear Corneal Incisions" Invited: ASCRS Symposium
- 1996- Techniques and Variations of the I.Howard Fine Clear Corneal Incision Course: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"
- 1996-The New Jersey Academy of Ophthalmology: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"

- 1996-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Cataract Surgery for the 90's" Staar and Chiron
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"

- 1996-Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course; Minneapolis
  "Cataract Surgery for the 90's" Course Director Invited Presentation
- 1996- American Academy of Ophthalmology": Chicago, IL.
  "Clinical Decisions in Management of Complication in Cataract Surgery"
  "Cataract Surgery of the 90's" Staar & Chiron
  "Advanced Phacoemulsification and Combined Glaucoma – Phaco Surgery"
- 1996- Tarrand County Medical Society: Fort Worth, TX.
  " Cataract Surgery for the 90's"
- 1997- Ophthalmology Society: Bethlehem, PA.
  "Cataract Surgery for the 90's"
- 1998- The Virginia Society of Ophthalmology: Williamsburg, VA.
  "Posterior Chamber Phakic IOLS"
  "Clear Cornea Cataract Surgery"
  " Co2 Laser for Blepharoplasty & Resurfacing"
- 1998- American Academy of Ophthalmology: New Orleans, LA.
  "Clinical Decisions in the Management of Complication in Cataract and IOL Surgery"
  Preceptor for ICL – Staar Booth
- 1998-Hawaii Eye Meeting / Slack Incorp: Hawaii
  "Topical Clear Corneal Cataract with Diclofenc Sodium"
- 1998-Women in Ophthalmology: Aspen, CO.
  "Cataract Surgery for the Millenium"
- 1998- Maryland Physicians & Eye Surgeons: Maryland
  " Cataract Surgery for the 90's"
  " ICL Update"
  " Toric IOL'S"
- 1999-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Advanced Techniques for Cataract Surgery using Topical Anestheia and Clear Corneal Incisions"
  "Pre & Post Op Medications for the ICL"
  Course Instructor – 2 hrs. " Advance Techniques for Cataract Surgery, ICL's & Toric Lenses"
- 1999- Greater Baltimore Medical Center Baltimore, MD.
  "ICL Update"
- 1999-Society of Ophthalmology: Puerto Rico
  "Cataract Surgery for the Millenium"
  "ICL Update" " Toric IOL'S for Cataract Surgery"
- 1999-Los Angeles Society of Ophthalmology: Los Angeles, CA.
  "Cataract Surgery for the Millenium"
- 2000- American Society of Cataract and Refractive Surgery : Boston Mass.

" International Challenges & Techniques in Advanced Cataract Surgery'

- 2002- American Academy Of Ophthalmology - Florida
  " Clinical Decision & Management of Complication 2002"
  " Prevention & Management of Iris Prolapse During Cataract Surgery"

Presentations: Cosmetic - Techniques using CO2 & Erbium Lasers:

- 1996- International Society of Cosmetic Laser Surgery: Chicago IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- Coherent / Pre- AAO, Chicago, IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- International Society of Cosmetic Laser Surgery: Washington, DC.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1998- The Virginia Society of Ophthalmology, Williamsburg, VA.
  "Skin Resurfacing with the CO2 & Erbium laser"
- 1998- Maryland Optometric Association: Baltimore, MD.
  "Cosmetic Laser Surgery using the CO2 & Erbium Lasers"
- 1998- 7th. International Society of Cosmetic Laser Surgeons: Orlando, FL.
  "Great Marketing – Minimal Expense – Coordinated Skin care"
- 1999-International Society of Cosmetic Laser Surgeons: New Orleans, LA.
  "Erbium Resurfacing for Xanthelasma"
  " CO2 Laser Blepharoplasty"
- 2002 – International Society of Cosmetic Laser Surgeons : New York
  "Lower Lid Blepharoplasty Multi-Modal approved"
  Presentations: Toric & Implantable Contact Lens:
- 1997- Taustin Eye Center: Louisville, KY.
  " Implantable contact lenses"
  " Toric IOL Update"
- 1998- Maryland Society of Eye Physicians & Surgeons: Baltimore, MD.
  "Intraocular Contact Lens"
- 1998- Sixth Annual Ophthalmic Allied Health Symposium: Wilmington, DE.
  "Implantable Contact Lens, My Personal Experience"
  "Update: Phase 1 & 2"
- 1998- Women in Ophthalmology: Colorado
  "Correction of High Myopia & Hyperopia with Intraocular contacts"
- 1998- American Society of Cataract and Refractive Surgery: San Diego, CA.
  Staar Surgical: ICL
  "Implantable Contact Lenses, My Personal Experience"
  "Phase 1 & 2" " ICL Update"
- 1998- Hoover Naquian Conference: Baltimore, Md.
  "Implantable Contact Lenses for Myopia and Hyperopia"
- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"

" International Challenges & Techniques in Advanced Cataract Surgery'

- 2002- American Academy Of Ophthalmology - Florida
  " Clinical Decision & Management of Complication 2002"
  " Prevention & Management of Iris Prolapse During Cataract Surgery"

Presentations: Cosmetic - Techniques using CO2 & Erbium Lasers:

- 1996- International Society of Cosmetic Laser Surgery: Chicago IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- Coherent / Pre- AAO, Chicago, IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- International Society of Cosmetic Laser Surgery: Washington, DC.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1998- The Virginia Society of Ophthalmology, Williamsburg, VA.
  "Skin Resurfacing with the CO2 & Erbium laser"
- 1998- Maryland Optometric Association: Baltimore, MD.
  "Cosmetic Laser Surgery using the CO2 & Erbium Lasers"
- 1998- 7th. International Society of Cosmetic Laser Surgeons: Orlando, FL.
  "Great Marketing – Minimal Expense – Coordinated Skin care"
- 1999-International Society of Cosmetic Laser Surgeons: New Orleans, LA.
  "Erbium Resurfacing for Xanthelasma"
  " CO2 Laser Blepharoplasty"
- 2002 – International Society of Cosmetic Laser Surgeons : New York
  "Lower Lid Blepharoplasty Multi-Modal approved"
  Presentations: Toric & Implantable Contact Lens:
- 1997- Taustin Eye Center: Louisville, KY.
  " Implantable contact lenses"
  " Toric IOL Update"
- 1998- Maryland Society of Eye Physicians & Surgeons: Baltimore, MD.
  "Intraocular Contact Lens"
- 1998- Sixth Annual Ophthalmic Allied Health Symposium: Wilmington, DE.
  "Implantable Contact Lens, My Personal Experience"
  "Update: Phase 1 & 2"
- 1998- Women in Ophthalmology: Colorado
  "Correction of High Myopia & Hyperopia with Intraocular contacts"
- 1998- American Society of Cataract and Refractive Surgery: San Diego, CA.
  Staar Surgical: ICL
  "Implantable Contact Lenses, My Personal Experience"
  "Phase 1 & 2" " ICL Update"
- 1998- Hoover Naquian Conference: Baltimore, Md.
  "Implantable Contact Lenses for Myopia and Hyperopia"
- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"

"Implantacle Contact Lens For Myopia & Hyperopia"

- 1999- American Society of Cataract and Refractive Surgery: Seattle Washington
  Round Table Discussion Group: Starr Surgical: ICL
  "Latest Technique and variations of Refractive Surgery and the Benefits of using the Implantable Contact lens"
- 2000- Hawaii Eye Meeting / Slack Incorp. Hawaii
  "Current Trends in Refractive Surgery"
  "The Implantable Contact Lens FDA update, for Personal Experience & Techniques"
- 2002- New England Ophthalmological Society Inc,
  " Implantable Contact Lens , Personal Experiences"
  " FDA Update" " Toric & IOL "

International Presentation:

1994- Starr Surgical: Australia
Five City Lectures: Sidney, Perth, Melbourne, Adelaide, and Brisbane
"Clear Corneal Incisions Using Topical Anesthesia"

1995- Live Cataract Surgery: Toulouse, France
"Topical Anesthesia and Clear Corneal Incisions"

1995- Live Cataract Surgery: Juan De Pain, France
"Topical Anesthesia and Clear Corneal Incisions"

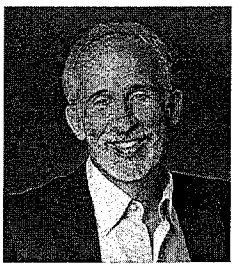
1997- Live Cataract Surgery: Clinique Sourdille, France
"From Phaco to CO2"
"Topical Anesthesia for Cataract Surgery"

1997- Live Cataract Surgery: University of Bologna, Italy
"Live Cataract Surgery and Discussion"

1998- IV Congresso International DE-Cataract: Rio de Janeiro, Brazil
"Toric Update & Foldable Lens"
"Implantable Contact Lens"
"Advanced Cataract Techniques"

1999- European Society of Ophthalmology
" Live Cataract Surgery" International Society of Women Eye Surgeons

NVISION
LASER EYE CENTERS | THE EYE DOCTORS' #1 CHOICE



Dr. Tom Tooma

Medical Director NVISION Laser Eye Centers

Dr. Tooma has performed more than 100,000 LASIK procedures and believes that laser vision correction at NVISION is as safe as it can be. In fact, he has performed LASIK surgery on hundreds of doctors, including 250 eye doctors. That's why NVISION and Dr. Tooma are The Eye Doctors' #1 Choice for their eyes and their patients' eyes. Dr. Tooma believes that the combination of experience and technology gives NVISIONS's patients the highest possible likelihood of achieving 20/20 or better vision through LASIK procedures.

A pioneer in the world of LASIK surgery, Dr. Tooma has been a principal investigator in the field of laser vision correction since 1993. He helped several excimer laser manufacturers obtain FDA approvals for their lasers in the United States. He holds the record for many firsts: he was the first doctor in California to perform LASIK surgery and was the first to perform custom Wavefront-guided LASIK. He was also the first in the U.S. to use the FemtoSecond Laser (IntraLase FS30 – bladeless all laser LASIK), which is safer and more precise than a traditional blade.

In 2010, Dr. Tooma purchased TLC's interest in the 8 Southern California locations and formed NVISION Laser Eye Centers. At NVISION, Dr. Tooma provides his patients with a lifetime commitment, giving them the assurance that if they need any enhancement surgeries in the future, they can be performed at any NVISION center, for life and at no cost.

Dr. Tooma received his M.D. from Loma Linda University School of Medicine, where he also completed his internship in internal medicine and residency in ophthalmology. He completed his fellowship in Corneal and Refractive Surgery at the Emory University Department of Ophthalmology in Atlanta, Georgia. He has been board certified in ophthalmology for more than 25 years.

For Dr. Tooma, helping patients achieve their vision goals is his passion. "I feel privileged and blessed to participate in what is a life-changing experience for my patients," he said.

In his spare time, Dr. Tooma has served on medical teaching missions to Romania, Bulgaria, China and Fiji, helping teach local ophthalmology doctors new surgical techniques. In 2008, he and his wife, Marta Tooma, D.D.S., founded the Mission at Natuvu Creek in Fiji. The Mission serves the 250,000 people living on the island, with medical, dental and eye care provided by visiting physicians, including the Toomas.

1-877-91-NVISION | NVISIONCenters.com

Biography

Education

1975 B.S. in Biochemistry, Magna Cum Laude, Loma Linda University
1979 M.D., Loma Linda University School of Medicine

Professional Training

1980 Internship in internal medicine, Loma Linda University Medical Center
1983 Completed a residency in ophthalmology, Loma Linda University Department of Ophthalmology

Fellowships

1984 Fellow in Corneal Surgery & External Disease, Emory University Department of Ophthalmology, Atlanta, GA

Board Certification

1984 American Board of Ophthalmology

Professional Affiliations

- American Society of Cataract & Refractive Surgery
- International Society of Refractive Surgery
- Castroviejo Corneal Society
- American Academy of Ophthalmology
- And many others

University & Hospital Positions

- Chief, Department of Ophthalmology, Loma Linda University Community Hospital
- Director of Cornea Service, Department of Ophthalmology, Loma Linda University
- Director of Refractive Surgery, Department of Ophthalmology, Loma Linda University

NVISION
EYE CENTERS

Medical Doctor Curriculum Vitae

As of July 17, 2015

Thomas Tooma, MD

Dr. Tooma has performed more than 100,000 LASIK procedures and believes that laser vision correction at NVISION is as safe as it can be. In fact, he has performed LASIK surgery on hundreds of doctors, including 250 eye doctors. That's why NVISION and Dr. Tooma are The Eye Doctors' #1 Choice for their eyes and their patients' eyes. Dr. Tooma believes that the combination of experience and technology gives NVISIONS's patients the highest possible likelihood of achieving 20/20 or better vision through LASIK procedures.

A pioneer in the world of LASIK surgery, Dr. Tooma has been a principal investigator in the field of laser vision correction since 1993. He helped several excimer laser manufacturers obtain FDA approvals for their lasers in the United States. He holds the record for many firsts: he was the first doctor in California to perform LASIK surgery and was the first to perform custom Wavefront-guided LASIK. He was also the first in the U.S. to use the FemtoSecond Laser (IntraLase FS30 — bladeless all laser LASIK), which is safer and more precise than a traditional blade.

In 2010, Dr. Tooma purchased TLC's interest in the 8 Southern California locations and formed NVISION Laser Eye Centers. At NVISION, Dr. Tooma provides his patients with a lifetime commitment, giving them the assurance that if they need any enhancement surgeries in the future, they can be performed at any NVISION center, for life and at no cost.

Dr. Tooma received his M.D. from Loma Linda University School of Medicine, where he also completed his internship in internal medicine and residency in ophthalmology. He completed his fellowship in Corneal and Refractive Surgery at the Emory University Department of Ophthalmology in Atlanta, Georgia. He has been board certified in ophthalmology for more than 25 years.

For Dr. Tooma, helping patients achieve their vision goals is his passion. "I feel privileged and blessed to participate in what is a life-changing experience for my patients," he said.

In his spare time, Dr. Tooma has served on medical teaching missions to Romania, Bulgaria, China and Fiji, helping teach local ophthalmology doctors new surgical techniques. In 2008, he and his wife, Marta Tooma, D.D.S., founded the Mission at Natuvu Creek in Fiji. The Mission serves the 250,000 people living on the island, with medical, dental and eye care provided by visiting physicians, including the Toomas.

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
p: 949.274.4652 • *f:* 949.509.4858 • *e:* info@nvisioncenters.com • *w:* www.nvisioncenters.com

CURRICULUM VITAE

Franklin W. Lusby, Jr., M.D.

Personal Information

Business Address:	9850 Genesee Avenue, Suite 220 La Jolla, CA 92037 (858) 459-6200
Web address:	www.drlusby.com
Medical License:	G-41830 (California)
UPIN:	A48707
DEA:	AL9233634

Education:

High School:	High Point High School Beltsville, Maryland (1971)
College:	Columbia Union College Takoma Park, Maryland (1974) B.A. – Chemistry – Magna cum Laude
Medical School:	Loma Linda University School of Medicine Loma Linda, California (1978) M.D.
Internship:	Flexible Malden Hospital Malden, Massachusetts Boston University School of Medicine (1978-1979)
Pre-Residency Study:	Basic and Clinical Sciences for Ophthalmology Massachusetts Eye and Ear Infirmary Harvard Medical School (September-December 1979)

Franklin W. Lusby MD

Residency:	White Memorial Medical Center Los Angeles, California Ophthalmology (1980-1983)
Fellowship:	Extracapsular Cataract Extraction and Intraocular Lens Implantation James M. McCaffery, M.D. Glendale Eye Medical Group (1983-1984)
Examinations:	National Board of Medical Examiners (1979)
Board Certification:	American Board of Ophthalmology (1985)

Certifications:

Refractive Surgery:

-A System of Precise, Predictable Keratorefractive Surgery: J. Charles Casebeer, M.D., May, 1992
-Fellowship in Advanced Incisional Keratotomy: Lee Nordan, M.D., June-August, 1995
-ExciMed UV200 Certfication, Summit Technology, October, 1995
-Automated Lamellar Keratoplasty: J. Charles Casebeer, M.D., Stephen G. Slade, M.D., November, 1995
-Mini Fellowship in Lamellar Refractive Surgery: Stephen G. Slade, M.D., January, 1996
-CHIRON VISION Advanced Mini Fellowship in C-LASIK: Shanghai, China, January, 1996
-VISX Excimer Laser System PRK Training Course: VISX, July, 1996
-VISX Excimer Laser System Astigmatism Training Course: VISX, May, 1997
-VISX Excimer Laser System PRK with Astigmatism & High Myopia Training Course: VISX, March, 1998
-VISX Excimer Laser System Hyperopia Training Course: VISX, November, 1998
-VISX Excimer Laser System LASIK Training Course: VISX, January, 2000
-VISX Excimer Laser System Blend Zone with Variable Spot Scanning Training Course: VISX, April, 2001
-LADARVision Excimer Laser Workstation Certification: Alcon, October, 2001

-VISX Excimer Laser System LASIK for the Treatment of Mixed Astigmatism Training Course: VISX, March, 2002
-VISX Excimer Laser System Custom CAP Training Course: VISX, June, 2002
-LADARVision Ladarwave Customcornea Certification: Alcon, February, 2003
-VISX Excimer Laser System CustomVue Training Course: VISX, June 2003
-IntraLASIK Training Course: Intralase, January, 2004
- VISX Excimer Laser System Fourier Algorithm Training Course: VISX, November, 2004
-Allegretto Excimer Laser Certification: Wavelight, November, 2004
- VISX Excimer Laser System CustomVue Hyperopia and Hyperopic Astigmatism: VISX, December, 2004
- VISX Excimer Laser System CustomVue Mixed Astigmatism: VISX, March, 2005
- VISX Excimer Laser System Iris Registration: VISX, March, 2005
- VISX Excimer Laser System CustomVue High Myopia: VISX, October, 2005
- VISX Excimer Laser System CustomVue Treatments for Monovision in Presbyopic Patients with Low to Moderate Myopia and Myopic Astigmatism: VISX, March, 2008

Professional Activity:

Private Practice:

Glendale Eye Medical Group
607 North Central Avenue, Suite 105
Glendale, California 91203
(818) 956-1010
(1984-1989)
(1991-1997)

Franklin W. Lusby, M.D., Inc.
655 North Central Avenue, Suite 209
Glendale, California 91203
(818) 546-2020
(1989-1990)

Franklin W. Lusby, M.D., Inc.
(dba Lusby Eye Medical Group)

Franklin W Lusby MD

205 W. Mission Avenue, Suite M
Escondido, California 92025
(760) 746-6900
(1991-1993)
700 West El Norte Parkway
Escondido, California 92026
(760) 738-7800
(1993-1997)

Franklin W. Lusby, M.D., Inc.
(dba La Jolla Eye and Laser Surgery Medical Center, Inc.)
6523 La Jolla Boulevard
La Jolla, California 92037
(858) 459-6200
(1994-1996)
7825 Fay Avenue, Suite 140
La Jolla, California 92037
(858) 459-6200
(1996-2006)
(dba Lusby Vision Institute)
9850 Genesee Avenue, Suite 220
La Jolla, California 92037
(858) 459-6200
(2006-current)

Franklin W. Lusby, M.D., Inc.
330 North Brand Boulevard, Suite 110
Glendale, California 91203
(818) 409-0900
(1997-2002)

TLC Laser Eye Center – Newport Beach
3501 Jamboree Road, Suite 1100
Newport Beach, California 92660
(949) 854-7400
(2001-2008)

Medical Directorships:

Pacific Laser Eye Center
Medical Director
4330 Barranca Parkway, Suite 101
Irvine, California 92604
(949) 733-3937

Franklin W Lusby MD

(1998-2000)

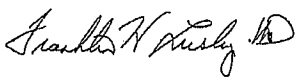
Maloney-Lusby Vision Institute
Medical Director
4330 Barranca Parkway , Suite 101
Irvine, California 92604
(949) 733-3937
(2000)

F. W. Lusby, M.D., Inc.
(dba Lusby Vision Institute-Irvine)
Medical Director
4330 Barranca Parkway , Suite 101
Irvine, California 92604
(949) 733-3937
(2000-2001)
910 East Birch Street, Suite 350
Brea, California 92821
(949) 733-3937
(2001-2005)
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

TLC Laser Eye Centers – Brea
Medical Director
910 East Birch Street, Suite 350
Brea, California 92821
(714) 257-0560
(2001-2005)

TLC Laser Eye Centers – Fullerton @ SCCO
Medical Director
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

ClearSight Laser Center
Medical Director
2121 E. Coast Highway, Suite 200
Corona del Mar, California 92625



(949) 600-4668
(2008-2011)
10 Pointe Dr., Suite 310
Brea, California 92821
(714) 880-8808
(2008-2011)
1680 E. Herndon Ave., Suite 101
Fresno, California 93720
(559) 473-4053
(2008-current)
9850 Genesee Ave. Suite 220
La Jolla, California 92037
(858) 926-4664
(2008 – 2011)
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Fullerton
Medical Director
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Torrance
Medical Director
23550 Hawthorne Blvd., Suite 220
Torrance, CA 90505
(310) 784-2020
(2011- current)

Society Memberships: Member - San Diego County Medical Society
Fellow- American Academy of Ophthalmology
Member- American Society of Cataract and Refractive Surgery
Member- International Society of Refractive Surgery
Charter Member- American College of Eye Surgeons
Member- David Paton Society
Member- Research to Prevent Blindness Ophthalmological Soc.

Hospital Affiliations: Scripps Memorial Hospital-La Jolla (1994-Current)
Cedars Sinai Medical Center (1999-2001)
Glendale Adventist Medical Center (1984-2002)
Memorial Hospital of Glendale (1984-2002)
Verdugo Hills Hospital (1984-2002)
Arcadia Outpatient Surgery Center (1984-1988)
Victor Valley Community Hospital (1989-1997)
Palomar Medical Center (1991-1994)
Pomerado Hospital (1991-1997)
Escondido Surgery Center (1991-1997)
Premiere Surgery Center (1993-2001)
Healthsouth Surgery Center (1994-Current)
Glendale Eye Surgery Center (1989-2002)

Section Chief
Division of Ophthalmology
Department of Surgery
Glendale Adventist Medical Center
(1990-1996)

Laser Center Affiliations: Mericos Eye Institute
San Diego Excimer Laser Center
TLC Laser Eye Centers

Publications:

1. Oyakawa, R.T., Lusby, F.W., Schachat, A.P., Brown, R.H.: An Irrigating Endo-illuminator for Anterior Vitrectomy. Am. Journal of Ophthalmology (submitted)

2. Byer, L.V., Oyakawa, R.T., Lusby, F.W.: Vitrectomy Instrumentation in Failed Trabeculectomy. Am. Journal of Ophthalmology (submitted)

3. McCaffery, J.M., Lusby, F.W.: A Review of 584 3M Style 30 Intraocular Lens Implants. American Journal of Cataract and Refractive Surgery, 12: 278-280, 1986

4. Lusby, F.W., Franke, J.W., McCaffery, J.M.: Clinical Comparison of Manual and Automated Keratometry in a Geriatric Population. Contact Lens Association of Ophthalmology Journal, Vol 15 #2, 119-121, March, 1987

5. Nordan, L.T., Lusby, F.W.: Refractive Aspects of Cataract Surgery. Current Opinion in Ophthalmology Vol. 6 #1, 36-40, February, 1995

Franklin W Lusby MD

Scientific Presentations:

1. "A Statistical Review of 584 3M Style 30 Intraocular Lens Implants," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

2. "Review of 838 Office-Based Posterior Capsulotomies," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

3. "The Accuracy of the Assumed Anterior Chamber Depth in the Binkhorst Formula," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

4. "Pre-operative Axial Length vs. Post-operative Axial Length," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

5. "Comparison of the Enhancement Rates of the Casebeer and the Nordan/Maxwell Refractive Surgery Methods," Lusby, F.W., ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

6. "Incisional Keratotomy: Current Status," Lusby, F.W., Mericos Eye Institute Visions in Ophthalmology, La Jolla, CA, March, 1996

Scientific Exhibits:

"An Irrigating Endo-illuminator for Anterior Vitrectomy." Lusby, F.W., Oyakawa, R.T., Schachat, A.P., Brown, R.H. Contact Lens Association of Ophthalmology and the Combined Meeting of the Anterior Segment Societies, Las Vegas, Nevada, 1982

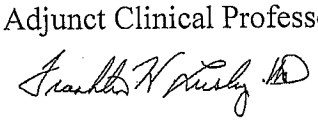
Teaching Appointments:

Faculty: Residents Skills Training Course in Radial Keratotomy, ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

Mentor: Health Professions Preparation Program, UCSD, 1998-Current

Academic Appointment:

Adjunct Clinical Professor



Southern California College of Optometry
Fullerton, California
(2006-2012)

Part-time Clinical Professor
Southern California College of Optometry
Fullerton, California
(2012-current)

Robert M. Yacoub, O.D.

email: ryacoubod@gmail.com

Education

Doctor of Optometry 2006
Southern California College of Optometry, Fullerton, CA

Bachelor of Arts, **Major: Psychology** 2002
University of California Los Angeles, Los Angeles, CA

Clinical Experience

QTC/VA examiner (Specialized exams with reports)	Dec 2007- Present
Southern California College of Optometry, Fullerton, CA	July 2006-Present
(Primary Care/Ocular Disease and Special Testing)	
Puente a La Salud –St. Joseph's Hospital, Orange County, CA	October 2006-Nov 2013
Tustin Village of Hope—Hurrt Family Clinic, Tustin, CA	October 2008-June 2010
Cal State Fullerton Health Clinic, Fullerton, CA	Sep 2008- June 2010
Cerritos College Health Clinic, Cerritos, CA	July 2007-Sep 2008

Residency

Optometric Residency in Primary Eye Care and Geriatrics
VA Sepulveda Ambulatory Care Center/Nursing Home July 2006-July 2007
Affiliated with Southern California College of Optometry

Services and Activities

Case Reviews sent to 4th year students	August 2013-Present
Planned Commencement Lunch for SCCO	May 2013-Present
Spirit Week Participant/Judge	Nov 2012-Present
Wrote Ocular Disease Questions for SCCO Academic Superbowl	March 2010-Present
Judge for SCCO Academic Superbowl	March 2009-Present
Help pick graduating student awards (Ocular Disease/Primary Care)	April 2008-Present
Job reference/referrals for many alumni	April 2008-Present
Residency Mentor	October 2007-Present
Instituted Arctic Macula Risk in clinic	Aug 2014
Instituted Biotissue Products in clinic	Feb 2014
Helped plan Faculty Institute	Nov 2013

First Year Orientation	August 2013
HeartSmart Integration in Clinic	Feb 2013
Faces of SCCO You Tube Video	Jan 2013
SCCO Student Interviews(12)	Dec 2012- April 2013
Helped plan Faculty Institute	Nov 2012
Helped with Public Health video for students	May 2012
Boards Review	March 2012
Wrote Scope Article	October 2011
SCCO Student Interviews (3)	Dec 2011-April 2012
Helped with Writing Diabetic Retinopathy/ARMD Study Sheets(BSK)	July 2011
Helped get Remote Access started	June 2011
EyeSi Demonstration	Jan 2011
Helped Tested 4 Mirror for Volk	October 2011
SCCO Student interview(4)	Jan 2010 – April 2010
SCCO Student interview(6)	Nov 2008-April 2009
Health Fair at Santa Ana High School	October 2008
"Por Tu Familia" ADA Health Fair	April 2008
Oasis Punctal Plug Workshop for 4th years	April 2008
Pathology Symposium for 3rd years	April 2008
"Unidos Contra La Diabetes" Health Fair-American Diabetes Association	April 2007
American Diabetes Association Health Fair	October 2006

Certification

Working on FAAO for Academy Anaheim 2016	Pending
Board Certified in Medical Optometry	May 2014
Completed Glaucoma Certification	Nov 2011
Board Certification for ABO passed (Diplomate)	Sep 2011
Lacrimal dilation/irrigation certification(TPL)(Went from TPA to TPL)	May 2009

Consultation Groups

Manthan Healthcare Panel	Feb 2013-Present
Gershon Lehrman Group Research	Nov 2011-Present
Optoprep Question Writing	March 2011-Present
Guidepoint Global Consultation Group	Aug 2007-Present
SCCO Personalized Prescribing Workshop	April 2009

Committees

Curriculum Committee	July 2012-Present
Faculty Council Executive Committee **(Treasurer)**	July 2012-Present
Alcon Case Report Committee Member	Feb 2012-Present
Faculty Development and Technology **(Chair)**	July 2012-July 2013
PA Program Committee	August 2011-July 2012
Faculty Development and Technology **(Vice Chair)**	July 2011-July 2012
Faculty Council Executive Committee (**Director)**	July 2010-July 2012
FTE Committee	August 2009-July 2010
Student Admissions Committee **(Vice Chair)**	August 2009-July 2011
Merit Committee	September 2008-July 2010

Affiliations

American Optometric Association, Member
California Optometric Association, Member
Orange County Optometric Society, Member
Asian American Optometric Society, Member

Labs

Interprofessional Education **(Co-Instructor of Record)**	July 2015-Present
Case Analysis Lab **(Instructor of Record)**	November 2009-Present
Clinical Medicine	Sep 2008-Present
Ocular Disease: Case Management **(Instructor of Record)**	Feb 2008-Present
OHP III	February 2008-Present
OHP I	November 2007-Present
OHP II	September 2007-Present
2nd Year Clinic	November 2007-Present
Problem Based Learning	August 2011-July 2015

Retakes/Remediation

Clinical Medicine	Sep 2008-Present

OHP I	Sep 2007-Present
OHP II	Nov 2007-Present

Electives

Advanced Ocular Disease Case Management	March 2013-May 2014

Lectures

"Ocular Nutrition" (1 hour) OHP IV, SCCO	April 2012-Present
"Iris Lesions" (2 hours) OHP IV, SCCO	April 2012-Present
"Differentiating Choroidal Lesions/ Peripheral Retina" (2 hours) Ocular Disease II, SCCO	Sep 2012-Present
"Diabetic Retinopathy" (2 hours) Ocular Disease II, SCCO	Sep 2012-Present
"Case History" (2 hours) Case Analysis I **(Instructor of record)**	August 2011-Present
"Chief Complaints" (2 hours) Case Analysis I (**Instructor of record)**	August 2011-Present
"Macugen, Lucentis, Avastin...Oh My"(2 hour) OHP IV, SCCO	April 2009-Present
"Case Analysis and Prescribing Part 2" (2 hours) Case Analysis I **(Instructor of record),** SCCO	November 2008-Present
"Case Analysis and Prescribing Part 1" (2 hours) Case Analysis I**(Instructor of record),** SCCO	November 2008-Present
"Techniques and Tests to Evaluate Retina/Post Segment" (2 hours) OHP II, SCCO	October 2008- Present
"Retinal and Optic Nerve Diseases in the Elderly " (2 hours)	October 2008-Present

Geriatrics Course, SCCO

"Ocular Diseases in the Elderly Part I" (2 hours) — October 2008-Present
Geriatrics Course, SCCO

"Pre and Post op Cataract Evaluation and Management" (2 hours) — September 2008-Present
OHP II, SCCO

"The Red Eye" (2 hours) — September 2008-Present
OHP II, SCCO

"Systemic Diseases in the Elderly Part II" (2 hours) — September 2008-Present
Geriatrics Course,SCCO

"Systemic Diseases in the Elderly Part 1" (2 hours) — September 2008-Present
Geriatrics Course, SCCO

"Cranial Nerve Testing" (1 hour) — October 2008-2010
Clinical Medicine, SCCO

"Pupils,Pupils, and more Pupils" (1.5 hours) — September 2008
4th year Clinical Seminar

"Charles-Bonnet Syndrome" (1 hour) — February 2007
Residency symposium, SCCO

"A Day in the Life at the VA" (1 hour) — August 2006
Senior Residency Forum, SCCO

CE Lectures

Pseudoexfoliation Syndrome Online CE — Pending
SCCO

Glaucoma Medications Online CE — Pending
SCCO

"The Diagnosis is Glaucoma.....Or is it??" — Feb 2015
SCCO CE

Glaucoma Grand Rounds — Aug 2015
SCCO CE

"Macular Degeneration: Genetic Markers and Your Patient" SCCO CE	May 2015
"That is Secondary, My Dear Watson: A Review of Secondary Glaucomas" SCCO CE	Feb 2015
Glaucoma Grand Rounds SCCO CE	Feb 2015
Glaucoma Grand Rounds SCCO CE	May 2015
Glaucoma Grand Rounds SCCO CE	March 2015
Pigment Dispersion Syndrome Online CE SCCO	Jan 2014
Glaucoma Grand Rounds SCCO CE	Dec 2013
Glaucoma Grand Rounds SCCO CE	Sep 2013
Glaucoma Grand Rounds SCCO CE	July 2013
"OCT of Macular Degeneration Patients" San Diego Optometric Society CE	June 2013
"Ocular Jeopardy" Los Angeles Optometric Society CE	June 2013
Ocular Foreign Bodies Lab SCCO CE	May 2013
"Secondary Glaucomas" C&E's Ocular Symposium	Jan 2013
Glaucoma Grand Rounds SCCO CE	Nov 2012
"OCT of Macular Degeneration Patients" AAOS CE	Sep 2012
"This or That: Similar Presentations of Two Different Ocular Diseases"	Sep 2012

AAOS CE

Glaucoma Grand Rounds — May 2012
SCCO CE

Glaucoma Grand Rounds — April 2012
SCCO CE

"Interesting Retinal Cases" — March 2012
SCCO CE

Glaucoma Grand Rounds — Feb 2012
SCCO CE

"6 Things You Didn't Know about Diabetic Retinopathy" — Nov 2011
SCCO CE

"Differentiating Iris Lesions" — June 2011
AAOS CE

"*Differentiating Choroidal Lesions"* — Sep 2010
SCCO CE

"Secondary Glaucomas" — March 2009
SCCO CE

"Pupils, Pupils, and more Pupils: Common Cases you may encounter in Office — April 2008
AAOS CE

"Lab Testing in Office" — March 2008
SCCO CE

Dilation and Irrigation Lab CE — March 2008
SCCO CE

Leadership

Tustin Eye Clinic — October 2008-April 2009

Cerritos Eye Clinic — July 2007-May 2009

Proctoring

OHP I	February 2008-Present
Clinical Medicine	October 2007-Present
12 Station/5 station	October 2007-Present
OHP II	October 2007-Present
Clinical Methods I	May 2008-May 2013
Clinical Methods II	October 2007-May 2013

Publications

"Role of Speciality Pharmacists in Preventing Vision Loss Resulting from Macular Edema" Pending
Pharmacy Times (Second Author)

"Ultra Wide Field Fundus and Fundus Autofluorescence Photography in Dark Without PressureFundus Lesions" (Poster) Oct 2015
AAO New Orleans

"Age-related Macular Degeneration and Primary Care of Optometry" Sep 2013
California Optometry Magazine. Sep/Oct 2013 issue (Second author)

"Detection of Diabetic Retinal Neuropathy Using Standard Clinical Electrodiagnostic Testing" August 2013
Internal Journal of Ophthalmic Pathology August 2013 (Fourth author)

"Charles-Bonnet Syndrome" July 2011
Optometry: Journal of the AOA (First author)

"Glaucoma...The Silent Cause of Vision Loss" Jan 2011
SCCO newsletter

"Macular Pigment and Retinal Function in Healthy Adults" (Poster) Dec 2010
AAO San Francisco

"Therapeutic Treatment in Glaucoma: Usage, Side effects, and Contraindications" December 2009
California Optometry Magazine- Jan/Feb 2010 issue (First author)

Research

Hoya Lens Technologies Research Branistorming Session Sep 2013

Prospective Case Crossover Study to Assess Whether PDE5 Inhibitor Exposure in Men with Erectile Dysfunction Increases the Risk for the Development of a N-AION.
P.I. Dr. Robert Yacoub July 2009-Aug 2011

OHP I	February 2008-Present
Clinical Medicine	October 2007-Present
12 Station/5 station	October 2007-Present
OHP II	October 2007-Present
Clinical Methods I	May 2008-May 2013
Clinical Methods II	October 2007-May 2013

Publications

"Role of Speciality Pharmacists in Preventing Vision Loss Resulting from Macular Edema" Pending
Pharmacy Times (Second Author)

"Ultra Wide Field Fundus and Fundus Autofluorescence Photography in Dark Without PressureFundus Lesions" (Poster) Oct 2015
AAO New Orleans

"Age-related Macular Degeneration and Primary Care of Optometry" Sep 2013
California Optometry Magazine. Sep/Oct 2013 issue (Second author)

"Detection of Diabetic Retinal Neuropathy Using Standard Clinical Electrodiagnostic Testing" August 2013
Internal Journal of Ophthalmic Pathology August 2013 (Fourth author)

"Charles-Bonnet Syndrome" July 2011
Optometry: Journal of the AOA (First author)

"Glaucoma...The Silent Cause of Vision Loss" Jan 2011
SCCO newsletter

"Macular Pigment and Retinal Function in Healthy Adults" (Poster) Dec 2010
AAO San Francisco

"Therapeutic Treatment in Glaucoma: Usage, Side effects, and Contraindications" December 2009
California Optometry Magazine- Jan/Feb 2010 issue (First author)

Research

Hoya Lens Technologies Research Branistorming Session Sep 2013

Prospective Case Crossover Study to Assess Whether PDE5 Inhibitor Exposure in Men with Erectile Dysfunction Increases the Risk for the Development of a N-AION.
P.I. Dr. Robert Yacoub July 2009-Aug 2011

Multi-focal ERG and Diabetic Retinopathy
P.I. Dr. Jason Ng — April 2009-June 2011

Collection of Normative and Glaucomatous Data for the Heidelberg Edge Perimeter
P.I. Dr. George Comer — April 2008-Oct 2008

Student Research

Development for a basic tutorial for assessing C/D ratios using fundus photos — January 2009-Present
(Presented at student research symposium)

A Case Report on Juvenile X-Linked Retinoschisis — August 2011-2013

A Literature Review of the Effects of Nutritional Supplementation on ARMD — August 2011-2013

Keep it PG: A Comparative Review of Prostaglandins Analogues in the Treatment of Primary Open Angle Glaucoma — August 2011-2013

GDX Capstone — August 2011-2013

The Accuracy of Optivue OCT in measuring corneal thickness — August 2010-2012

Literature Review of Effects of Dietary DHA and EPA on Retinal Pathology and Function — August 2010-2012

A Literature Review of Macular Pigment Optical Denisty — August 2010-2012

Current Treatments for Blepharitis — August 2010-2012

A review of the Effects of Nutritional Supplements on ARMD — August 2010-2012

The ocular effects of drug use — September 2009-2011

OCT and dry eyes — August 2009-2011

Effect of Lasik with intralase on RNFL thickness — April 2009-2010

Effect of playing the Nintendo Wii on gross hand-eye coordination — February 2009-2010

OCT in the analysis of pathological changes associated with diabetic macular edema — January 2009-2010

Awards/Recognitions

Elected for Faculty Hooding for Graduation	May 2015
Teacher of the Quarter (Spring)	May 2015
Innovative Educator Award	Feb 2014
Elected for Faculty Hooding for Graduation	May 2013
Teacher of the Quarter (Spring)	Spring 2013
Teacher of the Quarter (Spring)	Spring 2012
Teacher of the Quarter (Fall)	Fall 2011
5 year Service Award	Dec 2011
Elected for Faculty Hooding for Graduation	May 2011
Staff Doctor of the Year	August 2010
Elected for Faculty Hooding for Graduation	May 2010

References

Available upon request

STATE AND CONSUMER SERVICES AGENCY

EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

2010 FEB 26 PM 12:48

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Date Rec'd _____

Request for Approval of Continuing Education Course(s)

Claudia Silva
15051 Hesperian Blvd, suite A
San Leandro, CA 94578

Please type or print name and mailing address in the space provided to the left

1-510/6213490/2403134/50

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
CE Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Integrated Platform for Cataract Surgery & LASIK	03/24/16	V.Nicholas Batra, M.D.	1.0			
Complications in the Anophthalmic Socket	03/24/16	Kasra Eliasieh, M.D.	0.75			
Normal Tension Glaucoma	03/24/16	Ting Ting Liu, M.D.	0.75			
Uveitis & Systemic Disease	03/24/16	Daniel Ting, M.D.	0.5			
		Total	3.0			

COMMITTEE COMMENTS:

Instructions for Obtaining Continuing Education Course Approval

Requests for approval of continuing optometric education (CE) courses may be submitted on the form provided by the Board. As the form indicates, the Board requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

Continuing Education Requirements

Optometrists licensed to practice in California who have not obtained therapeutic pharmaceutical agent (TPA) certification are required to complete 40 hours of CE course work within the two years immediately preceding the expiration date of their license. TPA-certified optometrists are required to complete 50 hours of CE, 35 of which must be in the diagnosis, treatment and management of ocular disease.

BayArea*RetinaAssociates*

MEDICAL GROUP

Diseases and
Surgery of the
Retina and
Vitreous

T. Daniel Ting, M.D., Ph.D.
CURRICULUM VITAE

ALLEN Z. VERNE, M.D.
Professional Corporation

CRAIG J. LEONG, M.D.
Professional Corporation

STEWART A. DANIELS, M.D.
Professional Corporation

SUBHRANSU K. RAY, M.D., Ph.D

T. DANIEL TING, M.D., Ph.D.

TUSHAR M RANCHOD, M.D.

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FAX (925) 943-6880

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FAX (510) 881-5332

491 30TH STREET
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OAKLAND, CA 94609
(510) 832-6554
FAX (510) 832-3119

1460 NO CAMINO ALTO
SUITE 109
VALLEJO, CA 94589
(707) 552-9596
FAX (707) 552-9599

2147 MOWRY AVENUE
SUITE C-3
FREMONT, CA 94538
(510) 505-1430
FAX (510) 794-6264

2219 BUCHANAN ROAD
SUITE 6
ANTIOCH, CA 94509
(925) 522-8850
FAX (925) 522-8851

15051 HESPERIAN BLVD.
SUITE D
SAN LEANDRO, CA 94578
(510) 317-1111
FAX (510) 317-1113

www.bayarearetina.com

CURRENT POSITION

Vitreoretinal Surgeon
Bay Area Retina Associates
122 La Casa Via, Suite 223
Walnut Creek, CA 94598
August 2004 – Present

PREVIOUS POSITION

Vitreoretinal Surgeon
Northern Illinois Retina
1855 East State Street
Rockford, Illinois 61107
August 2001 – August 2004

ACADEMIC APPOINTMENTS

Clinical Assistant Professor
University of Illinois
College of Medicine at Rockford
Rockford, Illinois
April 2002 – August 2004

Clinical Associate
Duke University Medical Center
Department of Ophthalmology
Durham, North Carolina
July 1999 - June 2001

EDUCATION

Fellowship — Duke University Medical Center
Department of Ophthalmology
Vitreoretinal Surgery
Durham, North Carolina
July 1999 - June 2001

Residency — The Cleveland Clinic Foundation
Division of Ophthalmology
Cleveland, Ohio
July 1996 - June 1999
Chief Resident: 1998 - 1999

Internship — Rush-Presbyterian-St. Luke's Medical Center
Department of Internal Medicine
Chicago, Illinois
July 1995 - June 1996

BayArea*RetinaAssociates*

Curriculum Vitae – T. Daniel Ting, M.D., Ph.D.

M.D./Ph.D.	The University of Illinois at Chicago College of Medicine Chicago, Illinois August 1987 - May 1995
	The University of Illinois at Chicago Department of Biochemistry Chicago, Illinois August 1989 - December 1994
B.A.	The University of Chicago Biology Chicago, Illinois September 1982 - June 1986

HONORS

2000 – 2001	Hornaday Fellow Award, Duke University Eye Center, for excellence in clinical care, ethics, and research
2000 – 2001	Knapp Fellowship, The American Ophthalmological Society
1999 - 2000	Heed Fellowship, The Heed Ophthalmic Foundation
1998 - 1999	Chief Resident The Cleveland Clinic Foundation, Division of Ophthalmology
1998	Second Place, Annual Residents' and Alumni Meeting "Mutational Analysis of the Norrie Disease Gene in Patients with Retinal Malformation" The Cleveland Clinic Foundation, Division of Ophthalmology
1997	First Place, Annual Residents' and Alumni Meeting "Epidemiologic analysis of Propionibacterium acnes Using Contour-Clamped Homogeneous Electric Field Electrophoresis (CHEF)" The Cleveland Clinic Foundation, Division of Ophthalmology
1997	National Eye Institute ARVO Travel Fellowship Grant "Strain Identification Of *Propionibacterium acnes* Using Contour-Clamped Homogeneous Electric Field Electrophoresis (CHEF)"
1994	Liaison Committee for Medical Education, M.D.-Ph.D. Section The University of Illinois at Chicago
1992 - 1993	Graduate College Fellowship The University of Illinois at Chicago
1991	Second Place, Sigma Xi Research Forum The University of Illinois at Chicago
1990	Third Place, Sigma Xi Research Forum The University of Illinois at Chicago
1988	Summer Research Fellowship The University of Illinois at Chicago

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Curriculum Vitae – T. Daniel Ting, M.D., Ph.D.

CLINICAL TRIALS

Investigator – FOCUS Study for RhuFab V2 Phase II – 2004 – 2006 Sponsor – Genentech, Inc.

Investigator – MARINA Study for RhuFab V2 Phase III -2004 – 2006 Sponsor – Genentech, Inc.

Investigator – HORIZON Study for RhuFab V2 Phase IIIb -2005 Sponsor – Genentech, Inc.

Investigator – SAILOR Study for RhuFab V2 Phase IIIb -2005 Sponsor – Genentech, Inc.

Investigator – ACU201-Cand5 Study Phase II -2005 Sponsor – Acuity Pharmaceuticals, Inc.

Investigator – Ruboxistarin Study for Diabetic Macular Edema Phase III -2004 – Sponsor –Eli Lilly, Inc.

Investigator – SCORE Study for BRVO/CRVO – 2004 Sponsor – NIH/NEI

Investigator – DRCR Studies for Diabetic Retinopathy – 2004 – Sponsor – NIH/NEI

PUBLICATIONS

Ting, T.D., Oh, M., Meyer, C.H., Cox, T.A., Toth, C.A. "Cystoid Macular Edema Is a Common Finding in Patients with Choroidal Neovascular Membrane Associated with Age-Related Macular Degeneration" *Arch Ophthalmol.* 120, 731-737, (2002)

Ting, T.D., McCuen, B.W., MD Fekrat, S. "Combined Hamartoma of the Retina and Retinal Pigment Epithelium: Optical Coherence Tomography" *Retina* 22, 98-101, (2002)

Ho Y.K., Ting T.D., Lee R.H.. "Phosducin down-regulation of G-protein coupling: reconstitution of phosducin and transducin of cGMP cascade in bovine rod photoreceptor cells" *Methods Enzymol.* 344, 126-39, (2002)

Deramo, V.A., Ting, T.D. "Treatment of Propionibacterium acnes endophthalmitis.", *Curr. Opin. Ophthalmol.* 12, 225-229, (2001)

Paxhia, M.J., Ting, T.D., Fekrat, S. " Ischemic central retinal vein occlusion and retinitis pigmentosa: lower risk of neovascularization?" *Retina*, 21, 179-180, (2001)

Ting, T.D., Chern, K.C., Meisler, D.M., Hall, G.S., Knapp, C.C., Doyle, L.J., Ludwig, M., Tuohy, M., Foster, R.E., and Lowder, C.Y. "Evaluation of *Propionibacterium acnes* Isolates using Contour-clamped Homogeneous Electric Field Gel Electrophoresis", *Anaerobe* 5, 579-582 (1999)

Wu, T.-H., Ting, T.D., Okajima, T.-I. L., Pepperberg, D.R., Ho, Y.-K., Ripps, H., and Naash, M.I. "Opsin Localization and Rhodopsin Photochemistry in a Transgenic Mouse Model Of Retinitis Pigmentosa", *Neuroscience* 87, 709-717 (1998)

Morrison, D.F., Ting, T.D., Vallury, V, Ho Y.K., Crouch, R.K., Corson, D.W., Mangini, N.J., and Pepperberg, D.R. "Reduced Light-Dependent Phosphorylation of an Analog Visual Pigment Containing 9-Demethylretinal as Its Chromophore", *J. Biol. Chem.* 270, 6718-6721 (1995).

Tar, A., Ting, T.D. and Ho, Y.-K. "Purification of Bovine Retinal cGMP Phosphodiesterase", *Methods of Enzymology,* Vol. "G-Proteins", Iyengar, R., ed., Academic Press, New York, (1994).

BayArea*RetinaAssociates*

Curriculum Vitae – T. Daniel Ting, M.D., Ph.D.

Ting, T.D., Lee, R.H. and Ho, Y.-K. "The GTPase Cycle: Transducin" in *Handbook of Experimental Pharmacology*, Vol. 181/II "GTPase in Biology", Dickey, B. and Birnbaumer, L., eds., pp. 99-118, Springer-Verlag, Heidelberg (1993)

Ting, T.D., Goldin, S.B. and Ho, Y.-K. "Purification and Characterization of Bovine Transducin and Its Subunits" in *Methods in Neurosciences* 15, "Photoreceptor Cells", Hargrave, P.A., ed., pp. 180-195, Academic Press, New York (1993).

Lee, R.H., Ting, T.D., Lieberman, B.S., Tobias, D.E., Lolley, R.N. and Ho, Y.-K. "Regulation of Retinal cGMP Cascade by Phosducin in Bovine Rod Photoreceptor Cells: Interaction of Phosducin and Transducin", *J. Biol. Chem.* 267, 25104-25112 (1992).

Ting, T.D. and Ho, Y.-K. "Molecular Mechanism of GTP Hydrolysis by Bovine Transducin: Pre-steady State Kinetic Analyses", *Biochemistry* 30, 8996-9007 (1991).

ABSTRACTS

Oh, M., Ting, T.D., Meyer, C.H., Toth, C.A. "Correlation between cystoid macular edema and fluorescein angiography characteristics of choroidal neovascular membranes in patients with new subfoveal neovascular age related macular degeneration" [ARVO Abstract] *Invest. Ophthalmol. Vis. Sci.* (2001)

Ting, T.D., Postel, E.A., Paxhia, M.J., McCuen, B.W. "Optical Coherence Tomography (OCT) Features of Adult-Onset Foveomacular Pigment Epithelial Dystrophy (AOFPED)" [AAO Annual Meeting Abstract] (2000)

Ting, T.D., Meyer, C.H., Toth, C.A., Bailey, S.F. "Cystoid Macular Edema Is a Common Finding in Patients with Choroidal Neovascular Membrane Associated with Age-Related Macular Degeneration" [ARVO Abstract] *Invest. Ophthalmol. Vis. Sci.* (2000)

Paxhia, M.J., Ting, T.D., Fekrat, S. "Ischemic central retinal vein occlusion and retinitis pigmentosa: lower risk of neovascularization?" [ARVO Abstract] *Invest. Ophthalmol. Vis. Sci.* (2000)

Ting, T.D., Meisler, D.M., Hall, G.S., Doyle, L.J., Tuohy, M., Lowder, C.Y. "A Comparison of External Eye and Intraocular *Propionibacterium acnes* Isolates in Patients with Chronic Postoperative Endophthalmitis" [ARVO Abstract] *Invest. Ophthalmol. Vis. Sci.* 40, S867 (1999)

Ting, T.D., Meisler, D.M., Kaiser, P.K., Hall, G.S., Doyle, L.J., Tuohy, M., Lowder, C.Y. "Prevalence Of *Propionibacterium acnes* in the Lid and Conjunctiva of Normal Subjects", [ARVO Abstract] *Invest. Ophthalmol. Vis. Sci.* 39, S141 (1998)

Ting, T.D., Meisler, D.M., Hall, G.S., Doyle, L.J., Ludwig, M., Tuohy, M., Lowder, C.Y., Foster, R.E. "Strain Identification Of *Propionibacterium acnes* Using Contour-Clamped Homogeneous Electric Field Electrophoresis (CHEF)", [ARVO Abstract] *Invest. Ophthalmol. Vis. Sci.* 38, S870 (1997)

Ting, T.D., Wu, T.-H., Okajima, T.-I.L., Pepperberg, D.R., and Naash, M.I. "Analysis of Rhodopsin and Retinoids in a Transgenic Mouse Model of ADRP", [ARVO Abstract] *Invest. Ophthalmol. Vis. Sci.* 36, S5 (1995)

Morrison, D.F., Ting, T.D., Ho, Y.-K., Crouch, R.K., Corson, D.W., and Pepperberg, D.R. "Reduced Light-Dependent Phosphorylation of 9-Desmethyl Rhodopsin", [ARVO Abstract] *Invest. Ophthalmol. Vis. Res.* 34, S215 (1993)

BayArea*RetinaAssociates*

Curriculum Vitae – T. Daniel Ting, M.D., Ph.D.

Ho, Y.-K., Ting, T.D., Tobias, D.T., Lolley, R.N., and Lee, R.H. "Interaction of the 33 kDa Phosphoprotein (Phosducin) and Transducin of Rod Photoreceptor Cells", [ARVO Abstract] *Invest. Ophthalmol. Vis. Res.* 31, S215 (1990)

Ting, T.D. and Ho, Y.-K. "Molecular Mechanism of GTP Hydrolysis by Transducin", [ARVO Abstract] *Invest. Ophthalmol. Vis. Res.* 30, S172 (1989).

MEMBERSHIPS

American Academy of Ophthalmology
American Society of Retina Specialists

UVEITIS AND SYSTEMIC DISEASE

History and Physical Examination

Differential Diagnosis

Diagnostic Testing

Treatment

Medications

V. Nicholas Batra, MD
15051 Hesperian Blvd, Suite A
San Leandro, CA 94578
W:510-276-1212
F: 510-276-1313
drbatra@batravision.com

CURRENT POSITION

BATRA VISION MEDICAL GROUP — SAN LEANDRO, CA
Director, Cornea, Cataract and Refractive Surgeon — 2002-Current

EDUCATION

UCSF DEPARTMENT OF OPHTHALMOLOGY — SAN FRANCISCO, CA
Clinical fellow in Cornea and Refractive Surgery (UCSF/Proctor Foundation) — 1999-2000
Heed Foundation Fellow — 1999-2000
Resident in Ophthalmology — 1996-1999

UCLA SCHOOL OF MEDICINE — LOS ANGELES, CA
Intern in Internal Medicine (SFV Program) — 1995-1996
M.D., 1995 — 1991-1995

DARTMOUTH COLLEGE — HANOVER, NH
A.B. in Economics modified with Biology, 1991 — 1988-1991

PUBLICATIONS

Batra VN, Mcleod SD "Phakic IOL's" Ophthalmology Clinics of North America 2001
Batra VN, Turner SG "Quinolone Resistant Staph following LASIK" Poster ISRS 2001
Batra VN, Abbott RA "Bacterial Corneal Ulcers" Ophthalmology for Self Assessment/Review 2001
Abbott RA, Batra VN "Intrastromal Corneal Rings" Duane's Ophthalmology 2000
Batra VN, "Corneal Physiology" for YourDoctor.com (ed G Smolin MD)
Batra VN, "Implantable lens technology for refractive errors" for YourDoctor.com (ed D Hwang MD)
Batra VN, Maloney RK "Refractive outcome in radial keratotomy: does the result of the first eye predict the outcome in the second?" Ophthalmology Digest, Oct 1997
Batra VN, Maloney RK, "Refractive outcome of radial keratotomy: does the result of the first eye predict outcome in the second eye?" American Journal of Ophthalmology, Feb 1997.

MEETINGS/LECTURES/COURSES

"Refractive Surgery Update 2004" San Ramon, CA 2004
"Scleritis, Episcleritis, Endrophthalmitis" UC Berkeley School of Optometry 2003
~~"Thin Flap Lasik" Course Director ASCRS 2003 (San Francisco)~~
"Intacs following PRK in Keratoconus" ASCRS 2003 (San Francisco)
"Visx S3 Versus Visx S4 Laser Comparison" ASCRS (San Francisco)
"Intacs in Keratoconus" Cordes Eye Society Meeting 2003
"Wavefront Rountable" Alamo CA 2003
"Scleritis, Episcleritis, Endophthalmitis" UC Berkeley School of Optometry 2002
"New Developments in Ocular Diseases" Eden Hospital Grand Rounds 2002
"Use of Lasers in Ophthalmology" Eden Hospital Grand Rounds 2002
"Scleritis, Episcleritis, Endophthalmitis" UC Berkeley School of Optometry 2001
"Tracking Laser Comparison VISX S3 vs Ladarvision" ISRS 2001 (New Orleans)

"VISX S3 and Autononomous LADARVISION" Cordes Eye Society Meeting 2001
"New Advancements in Refractive Surgery" Eden Hospital Grand Rounds 2001
"Refractive Surgery Advancements and Complications" Commonwealth Club of SF April 2001
"LASIK and other Refractive Surgical Procedures" Rotary Club of Oakland 2001
"SB929 for OD's" Course Director TEIMG February and March Meetings 2001
"Cornea and External Disease" Santa Clara Optometric Society Meeting February 2001
"The Ocular Surface";"LASIK Complications";"Cornea and External Disease" for SB929 TEIMG 2001
"Scleritis, Episcleritis, Endophthalmitis" UC Berkeley School of Optometry 2000
"Xalatan for Corneal Haze following PRK" ASRCS 2000 (Boston)
"Sterile Corneal Infiltrates following PRK" ASCRS 2000 (Boston)
"Ocular Toxicity" Cordes Eye Society Meeting 2000 (San Francisco)
"The role of drug compounding in Ophthalmology" PCCA Meeting 2000 (Key Note) 2000
"Principles of cataract surgery" UCSF Basic Science Course December 1999
"Anterior segment surgical techniques and pearls" UCSF Microsurgery Course Fall 1999
"Intraocular Infection in a Pediatric Consult Service" OMIG 1999 (AAO-Orlando)
"Analysis of the pediatric ophthalmology consult service" 1999 PCOOS Meeting (Vancouver)
"Pediatric Ophthalmology at UCSF" Cordes Eye Society Meeting 1999 (San Francisco)
"Outcomes of the ICRS Phase III Study" presented at UCSF Residents' Day 1998
"Outcomes in refractive surgery" presented at PCOOS Meeting 1997 (San Diego)
"Juxtafoveal telangectasia" case presentation at UCSF grand rounds 1998
"Intraocular pressure measurement" case presentation at UCSF grand rounds 1997
"Hypertensive retinopathy" case presentation at UCSF grand rounds 1997
"Radiographic Assessment of Thoracic Coccidioidomycosis" 1994 American Roentgenray Society (ARS) and 1993 Radiological Society of North America (RSNA).
"Hypersensitivity Lung Diseases" 1992 ARS and 1991 RSNA.
"Cavitary Lung Cancer: Causes of Excavation, Radiographic Features and Differential Diagnosis" 1992 ARS and 1991 RSNA.

WORK EXPERIENCE

Eye Physician and Surgeon — July 2000-February 2003
Turner Eye Institute, Performed Cornea, Cataract and Refractive Surgery

Medical Assistant — Spring 1990, summer 1991
Set up computer database for the office ans assisted in patient care in a private practice setting

Tutor — 1988-1991
Peer tutor in Economics and Physics

SOCIETIES

American Board of Ophthalmology, Diplomate	2000-Current
American Academy of Ophthalmology, Member	1997-Current
American Society of Cataract and Refractive Surgery, Member	1998-Current
Association of American Physicians of Indian Origin, Member	1998-Current
Frederick C. Cordes Eye Society, Member	1996-Current
Student President, Indian Medical Association of Greater Los Angeles	1992-1994
Medical School Curriculum Evaluation Committee, Member	1993-1994
Sales Coordinator, Class of 1995	1992-1994
Big Sibling Coordinator	1992-1993

PERSONAL

Racquetball (finalist, UCLA 1991-1992), basketball, skiing and salt-water fish hobbyist.

Improving Cataract Surgery Outcomes using advanced technologies LenSx

V. Nicholas Batra, MD

Cornea, Cataract and Refractive Surgery

Batra Vision Medical Group

San Leandro, CA

Financial Disclosure

I have spoken at CME talks paid for or subsidized by AMO, Allergan, Alcon, Bausch and Lomb and am a consultant to WaveTec

Background

Founder of the Batra Vision Medical Group in San Leandro, CA

Currently comprised of 3 Ophthalmologists and 2 O.D.s

Dartmouth College, AB

UCLA School of Medicine, MD

UCSF, Opthalmology Residency

UCSF/Proctor Foundation, Cornea Fellowship

Cornea, Cataract, and Refractive Surgery

Increasing number of premium lenses

About 40% of patients have an upgraded lens procedure

Cataract Surgery

Has been around for over 2000 years

Started with "couching" in greek and roman times

Progressed to intracapsular surgery then extracapsular surgery, phaco and now with femtosecond surgery

Has turned into a refractive procedure

Changes patient expectations

Current Cataract Removal and IOL Implant Procedure

Manual calculation of astigmatism, degree of vision correction needed, appropriate lens based on pre-op measurements taken through cataract

Remove cataract and insert intraocular lens (IOL)

Perform limbal relaxing incisions (LRI) in cornea to reshape eye & correct astigmatism, if necessary

Determine accuracy of pre-op decisions

Depending on outcome, can then:

Write glasses prescription

Perform secondary procedure

Current Surgery Tools Unable to Support Future Expectations

Historical IOL power formulas have modest success, ~50% within 0.5 diopter (D)

>40% of patients dissatisfied: need glasses or request secondary enhancement surgery

Surgeons bear cost of post-surgery enhancement procedures, which can reduce procedure profit by up to 50%

Patients paying out-of-pocket for premium lenses expect spectacle-free, LASIK-like results

Surgeons need refractive measurement when it matters most – intraoperatively

Use of LenSx improves accuracy and reproduceability

How to improve outcomes?

No one item will improve outcomes to that of LASIK

Electronic Health Records (EHR)

3- D Wave

Meticulous Surgery

ORA

~~Femtosecond Laser Cataract Surgery (LenSx)~~

LASIK

Electronic Health Records

Improve the completeness and accuracy of data input and entry for each patient

Make sure that primary care physicians and optometrists are noted in the record

Ease of communication among providers

Document surgical necessity

3-D Wave OPD Scan
Wavefront Aberrometer Topographer
Automatic Refractor Keratometer
Pupillometer

The 3-D Wave combines three advanced

technologies —plus wavefront analysis—in one

easy-to-use refractive diagnostic workstation.

Now, with a single device, you can obtain

refraction, corneal topography, optical path

difference (OPD) and wavefront analysis.

The 3-D Wave allows you to evaluate your

patient comprehensively, perform refractive

and cataract surgery screenings, evaluate

postoperative complaints, and determine

pathology diagnoses. In short, the system gives you

vision diagnostic capabilities

Use in Practice

Every premium cataract patient receives a 3-D Wave prior to having surgery done

Helps with Astigmatism Correction

Wavefront Aberration

Lens selection

Pupil size helps with Restor vs Tecnis vs Crystalens

Use of the 3-D Wave

This patient displays with-the-rule astigmatism on the

standard corneal topography axial map, which indicates 1.5D of cylinder on the cornea. However, looking at the OPD map, which is the measurement of the entire optical system (from the anterior cornea to the retina), the values displayed are spherical. The auto refraction is also spherical. How then can this patient have this much astigmatism on the cornea without affecting his or her vision? ***Only the 3-D Wave subtracts the cornea from the entire eye, leaving the*** internal OPD, including lenticular, posterior cornea, vitreous and retina, which in this case displays approximately 1.5D against-the-rule astigmatism on the crystalline lens. If this patient receives an IOL implant, the surgery itself will unmask the 1.5D of astigmatism on the cornea. Or if for any reason the patient has LASIK surgery, 1.5 D of astigmatism will be unmasked lenticularly. ***The 3-D Wave is the only instrument that can quantify lenticular power to give you the whole picture, including what lies beneath.***

Meticulous Surgery

Good Capsulorhexis

Clean Cataract Removal

Polish Posterior Capsule

Clean off Anterior Capsule

Femtosecond Laser

LenSx with a white cataract

Continuum of Innovation: LenSx® Laser 2012

- ✓ Modified Patient Interface
    - ✓ Narrower cone apex, easier docking
    - ✓ 19.8 mm diameter
- ✓ Software 2.16: Precision, Automation & Flexibility
    - ✓ HD OCT, 2x Resolution
    - ✓ Advanced Automation
    - ✓ Procedure pattern overlays
    - ✓ Supports Bi-Manual technique
    - ✓ Faster overall procedure

Surgical Performance Improvement

Better capsulotomy and lens fragmentation

Product Requirements

The LenSx® SoftFit™ Patient Interface Delivers:

- ✓ Lower IOP
- ✓ Easier docking
- ✓ Patient comfort
    - ✓ Free floating capsulotomy in nearly all cases
    - ✓ Pristine cut edges

A Simple Solution

Proprietary soft contact lens insert

Alcon® LenSx® Laser SoftFit™ Patient Interface

- Current PI Design with extended suction skirt
- Proprietary soft contact lens insert
- Lower IOP – 16 mm Hg increase*
- Simple docking process – better eye control, no fogging

- Improved surgical performance*

New LenSx® Laser SoftFit™ Patient Interface: Reduces Corneal Compression & IOP to 16 mmHg Over Baseline

NEW CAPSULOTOMY PERFORMANCE

New LenSx® Laser SoftFit™ Patient Interface

Eliminates corneal compression

Lowers IOP – 16mmHg increase

Better visibility w/ no fogging

Improves docking and centration

Fixates cornea, no eye movement for precision incisions

Dramatically improves surgical performance

No liquid required.....

LenSx® Laser SoftFit™ Patient Interface

New Alcon® LenSx® Laser PI with proprietary soft contact lens technology allows the natural curvature of the cornea to conform to a soft contact lens insert delivering a gentle, secure fit with minimal corneal distortion.

New PI retains all of the features of our single piece curved patient interface and provides additional benefits.

Easier docking

Lower IOP – 16 mmHg increase (over baseline)

Enhanced Patient comfort

Free floating capsulotomy in nearly all cases

Pristine capsulotomy edge

New Surgical Tool That Improves
Refractive Outcomes

Cataract outcomes are not what they need to be

"Accuracy Gap" vs. Refractive Surgery

Increasing expectations (patient/surgeon)

Right Technology at the Right Time

Value Proposition:

Increase accuracy

Improve refractive outcomes

Reduce enhancements

Increase revenue

Maximize capacity

WaveTec's Technology

The first registered with the FDA for use in cataract surgery

Introduced to the market April 2009 as the ORange Intraoperative Wavefront Aberrometer

2011 made changes/ improvements and introduced at AAO 2011 a new aberrometer

70% of the aberrometer hardware has changed

Still utilizes Talbot Moiré interferometry

Large dynamic range -5 to +20D

ORange is now ORA System™ (Optiwave Refractive Analysis)

ORA System™: Designed to
Optimize Every Cataract Procedure

ORA's all new Optiwave™ technology takes intraoperative wavefront aberrometry to a ***new level of precision*** providing surgeons a ***higher level of confidence***

What Makes ORA New:
Improved Precision and Accuracy

Enhanced calibration routine – increases accuracy across all powers

New light source – cleaner fringe pattern & improved consistency

Improved optics – less sensitive to decentration

Improved algorithms

ELP compensation for Toric lenses

Defocus compensation

Reticle – guide LRI incision and Toric placement

New capture routine

One step

Live video of eye – help surgeon recognize surgical factors

Surgeon outlier cautions

Why?

Desire to improve refractive outcomes of my cataract patients

Bar has been raised because of premium IOL cases

With IOL Master alone only 50% are within 0.50D of target

Desire to increase premium IOL procedures

Improved outcomes would provide a means to accomplish this

Deviation From Target
Less than half are within 0.5 D- Crystalens DATA

Binocular UCNVA
1 Month and 3 Month
Crystalens AO "Plano" Outcome

Achieved Spherical Equivalent vs Intended Target n= 181 within +/- 0.75 (1.5D!)

How to get from these results to a plano outcome

50 % IOL MASTER/etc are within 0.5 D

LASIK/PRK on about 15-20% of these patient to make them close to plano

WAVETEC- ORA to make 82% within 0.5D

With Combo of LenSx and ORA close to 95%

Use advanced instruments to make cataract surgery more reproducible- LenSx

ORA System™: Designed to
Optimize Every Cataract Procedure

ORA's all new Optiwave™ technology takes intraoperative wavefront aberrometry to a ***new level of precision*** providing surgeons a ***higher level of confidence***

Sample ORange Screenshots

WaveTec Outcomes Update
Initial ORA Results

Adapted from my talk at the American College of Ophthalmic Surgery (Aspen 2012)

WaveTec Intraoperative Wavefront Aberrometer
Clinical Applications

Uses the aphakic and pseudophakic refraction to provide guidance for:

IOL power calculations for presbyopic and standard IOLs

Astigmatic management

Toric IOLs:

Cylinder power

Axis placement

Spherical power

Refinement of final lens orientation

Guidance during LRI procedures

IOL power calculations for post refractive patients

Simplified process compared to conventional post refractive power formulas

IOL Power Calculation
Source of Data

Population

All cases from ORA clinical evaluation with 1 month post-op

Wide range of IOL types

No models excluded

Compared to ORange v2.6 results

MAVPE and Distribution
ORange 2.6 / ORA Comparison
One Month Post-op

Dr. Batra MAVPE and Distribution
One Month Post-op
N=20

Dr. Batra UDVA
One Month Post-op
N=20

Crystalens Outcomes with ORA

Evolution of WaveTec Guided Outcomes

Toric IOL Results
Source of Data

Population

All cases from ORA clinical evaluation with 1 month post-op

ORA toric IOL guidance employed

ORA IOL power calculation performed

Alcon and Staar toric IOLs

All cylinder powers

Compared to results from Alcon toric clinical study

ORA Toric IOL Results
Cumulative Post-op Refractive Cylinder

ORA Toric IOL Results
Cylinder Reduction

ORA One Month LRI Results
Postoperative Refractive Cylinder
N=39

Summary: Astigmatic Management

ORA refines toric IOL outcomes by providing guidance for:

Spherical power

Cylinder power

Axis placement

Using ORA for toric IOL cases has resulted in improved refractive and uncorrected acuity outcomes

Guidance for LRIs results in good post-op results for corneal astigmatic management

Post Refractive Results

Post refractive results

Post myopic LASIK cases from WaveTec Post refractive study

Prediction error and cumulative distribution

Comparison to literature

WaveTec Intraoperative Aberrometry
Out Performs Post-LASIK
Patient Outcomes In Literature

Summary: Post Refractive

Excellent refractive and visual acuity outcomes in a very challenging patient group

Refractive predictability

Better than published results derived from standard post refractive formulas

Conclusions

LenSx improves the safety and accuracy of cataract surgery

ORA provides guidance that results in refinement of refractive outcomes for cataract patients

IOL power calculations

Astigmatic management

Toric Lens

Premium Lenses

Post refractive cases

How we use it in practice

All patients screened for cataract surgery given a choice of procedures:

Standard- Basic Cataract surgery covered by insurance

Wavefront optimized Lens with Intraoperative Aberrometry with an LRI if needed (Can be an AMO, Alcon or Bausch and Lomb) w or w/o LenSx

ORA with Toric lens w/ or w/o LenSx

ORA with multifocal or presbyopic lens (Tecnis MF, Crystalens, Restor) w/ or w/o LenSx (soon to be only with LenSx)

Patient pays out of pocket

Bundled in costs for patient

What we have found

Improved Patient satisfaction

More patients 20/20 UCVA (all types of lenses)

More people immediately wanting their second eye done

Less need for enhancements with LASIK

Much happier patient when they see better right away

Went from several per month to 2 in 12 months

30% increase in premium IOL procedures

30% increase in overall cataract volume

Improving Cataract Surgery Outcomes using advanced technologies

Gradual Stepwise approach to improve outcomes

EHR

EPIC/3 D Wave

Meticulous Surgery

Wavetec ORA

Femtosecond surgery

Thank You- Any Questions?

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EDUCATION

Jefferson Medical College - Philadelphia, PA 08/2006 – 05/2010
Medical Doctorate

Scripps College - Claremont, CA 06/2004 – 06/2005
Post-Baccalaureate Pre-Medical Program

University of California, Berkeley - CA 08/1999 – 05/2003
Bachelor of Arts; Major, Cognitive Science; Minor, Business Administration

POST-GRADUATE EDUCATION

New York Eye and Ear Infirmary of Mount Sinai – New York, NY 07/2014 – 06/2015
Clinical Fellowship, Glaucoma

Yale New Haven Hospital, Yale School of Medicine – New Haven, CT 07/2011 – 06/2014
Residency, Ophthalmology

Cooper University Hospital, UMDNJ - Robert Wood Johnson – Camden, NJ 07/2010 – 06/2011
Internship, Department of Medicine

RESEARCH EXPERIENCE

Yale School of Medicine - New Haven, CT 07/2013 – 06/2014
Department of Ophthalmology and Visual Science. PI: Ji Liu, M.D.
Evaluated the efficacy of selective laser trabeculoplasty before cataract extraction surgery through retrospective analysis.

Yale School of Medicine - New Haven, CT 07/2012 – 05/2013
Department of Ophthalmology and Visual Science. PI: Juan J Servat, M.D.
Characterized surgical versus nonsurgical orbital fracture patients seen by ophthalmology hospital consult service, and analyzed the management pattern of orbital fracture patients among different specialties: ophthalmology, otolaryngology, and plastic surgery.

Yale School of Medicine - New Haven, CT 09/2012 – 11/2013
Department of Ophthalmology and Visual Science. PI: Tomas M Grippo, M.D.
Investigated the long term effectiveness and safety of ab interno trabeculectomy with Trabectome (Neomedix, Tustin, CA), and its use in various types of glaucoma and ocular hypertension conditions.

Doheny Eye Institute - Los Angeles, CA 07/2009 – 05/2010
Clinical Research Investigator, Division of Cornea. PI: Samuel Yiu, MD PhD.
Investigated the use of sutureless and adhesiveless amniotic membrane device (ProKera, Bio-Tissue, Inc., Miami, FL) as an adjunct in penetrating keratoplasty patients with high risk for post operative inflammation, graft rejection, graft failure, or delayed epithelialization.

City of Hope Comprehensive Cancer Center - Duarte, CA 06/2005 – 03/2006
Research Assistant, Department of Molecular Genetics. PI: Ji-Cheng Wang, PhD.
Investigated the existence and signature of transient hypermutability producing multiple mutations by studying the oncogenesis of mutation showers using Big Blue transgenic mouse mutation detection assay and genotype analysis.

University of California, Berkeley - Berkeley, CA 05/2002 – 11/2002
Department of Computer Science. PI: John Canny PhD.
Designed and implemented a GPS-enabled, real time, and location based news feeder application with ubiquitous computing techniques.

Columbia University College of Physicians and Surgeons - New York, NY 06/2000 – 08/2000
Research Assistant, Department of Psychiatry. PI: James Knowles, MD.
Conducted linkage study by using microsatellite markers in the identification of Gene PPH1 for familial primary pulmonary hypertension.

PUBLICATIONS

Lin J, **Liu TT**, Manes RP, Galvin JA. Superior oblique muscle palsy: A complication of endoscopic surgery. Journal of AAPOS. Apr 2015; 19(2): 180-181

Greene D, **Liu TT**, Shield DR, Huang JJ. Yale Ophthalmology resident's review of corneal endothelial cell loss and corneal thickness in conventional compared to femtosecond laser-assisted cataract surgery. EyeWorld Sep 2013.

Liu TT, Phuchantuk P, Wang SXY, Liu J, Grippo TM. Ab Interno Trabeculectomy: a Comprehensive Review. Vis. Pan-Am. June 2013; 12(2): 45-50

Liu TT, Fintelmann R. Painless, rapid loss of vision prompts a hospital visit and a trip to the Wills Emergency Room. Review of Ophthalmology. Feb 2009; 16(2): 84-86.

PRESENTATIONS

Liu, TT, Xu C, Tsai J, Liu J. Long-term Outcomes of Laser Trabeculoplasty Prior to Cataract Surgery. Association for Research in Vision and Ophthalmology Annual Meeting, Dever, CO, May 2015. Poster Presentations.

Liu TT, Tsai J, Liu J. A Retrospective Evaluation to Determine the Efficacy of Selective Laser Trabeculoplasty before Cataract Extraction Surgery. Yale Resident Research, New Haven, CT, June 2014. Oral Presentation.

Liu TT, Servat JJ. Characterization of Orbital Fracture Patients and Management Patterns by Specialties. Yale Resident Research, New Haven, CT, May 2013. Oral Presentation.

Liu TT, Khashabi S, Yiu SC. Use of ProKera in High Risk Corneal Transplants. Association for Research in Vision and Ophthalmology Annual Meeting, Fort Lauderdale, FL, May 2010. Abstract 956. Poster Presentations.

Liu TT, Moorjani S, Suen J, Canny J. NewsAlert: Ubiquitous News Application for BREW. Berkeley Electrical Engineering and Computer Sciences Annual Research Symposium, University of California, Berkeley, CA, Sep 2002. Poster Presentation.

SELECTED ACTIVITIES & WORK EXPERIENCES

East Haven Lions Club - East Haven, CT 07/2011 – 06/2014
Volunteer
Provided eye screenings in various community events.

JeffSEES - Jefferson Medical College 08/2007 – 05/2010
Education Chair
Conducted eye screening and patient education community outreach programs at homeless shelters, senior citizen centers, and various health fairs in Philadelphia.

Unite For Sight - Our Lady of Grace Hospital, Asikuma, Ghana 07/2007 – 08/2007
International Volunteer, Foerderer Grant for International Study Recipient
Delivered eye care to over 1,500 patients in more than 20 rural locations through outreach programs. Raised over $1,600 in donation to Unite For Sight and brought 300 pairs of glasses to the local chapter.

Dr. Jacob DaCosta Learning Society - Jefferson Medical College 08/2006 – 05/2010
Steering Committee
Established mentoring programs in two Philadelphia public high schools to promote interests in healthcare. Provided mentoring on course work, college applications and career planning.

JeffHOPE - Jefferson Medical College 08/2006 – 05/2010
Volunteer
Provided medical care, patient education, and guidance of social support for patients at JeffHOPE clinics, a student-run free clinic project that serves five homeless shelters in Philadelphia.

Citrus Valley Health Partners - West Covina, CA 03/2004 – 03/2006
Clinical Care Volunteer & Leadership Committee
Devoted over 300 hours in patient care, clerical assistance, and leadership committee.

Trilogy Financial Services - West Covina, CA 09/2003 – 04/2004
Financial Consultant
Provided full service financial planning packages, and managed a variety of personalized portfolios.

EBS Dealing Resources - Parsippany, NJ 06/2000 – 05/2003
Industry Research Analyst
Produced technical reports on the Internet trading and brokerage industry to shape the company's technology policy.

Berlitz Language Center - Ridgewood, NJ 06/1996 – 09/1998
Chinese Language Instructor
Instructed spoken Chinese to business professionals in individual and group settings.

BOARD CERTIFICATION & LICENSURE

Ophthalmology, Board Eligible 07/2014 – Present
New York State License 02/2014 – 01/2016

PROFESSIONAL MEMBERSHIPS

American Academy of Ophthalmology
American Glaucoma Society
Association for Research in Vision and Ophthalmology
Connecticut Society of Eye Physicians
Women in Ophthalmology

PERSONAL INTERESTS

Hiking, world travel, photography, Zumba/dance

Normal Tension Glaucoma

I. Case presentation
II. Overview
III. Clinical features
IV. Pathophysiology
V. Diagnosis
VI. Management

Kasra Eliasieh, M.D.

Phone: (415) 799-8800
Email: eliasiehmd@gmail.com

EDUCATION/TRAINING

Undergraduate (10/98-08/02)	University of California, Davis. B.S. in Neurobiology, Physiology, and Behavior. *Cum Laude* Davis, CA
Medical (08/03-06/08)	University of California, Davis School of Medicine, M.D. Sacramento, CA
Internship (07/08-06/09)	St. Mary Medical Center, Department of Internal Medicine Long Beach, CA
Residency (07/09-06/12)	The New York Eye and Ear Infirmary, Department of Ophthalmology New York, NY
Fellowship (07/12- 06/14)	Wilmer Eye Institute, Johns Hopkins Hospital, Baltimore, MD Division of Cosmetic and Reconstructive Oculoplastic Surgery American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) Fellowship Fellowship Director: Dr. Shannath Merbs

BOARD CERTIFICATIONS

07/14	American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) – Eligible
06/14	American Board of Ophthalmology

MEMBERSHIPS

07/12 - Current	American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) - Eligible
07/09 - Current	American Academy of Ophthalmology

WORK EXPERIENCE

01/15 - Current	Director	San Francisco Oculofacial Plastic Surgery
01/15 - Current	Oculoplastics Consultant	UCSF Benioff Children's Hospital, Oakland
01/15 - Current	Clinical Instructor	Oculoplastics Division, Highland Hospital, Oakland
01/15 - Current	Oculoplastics Consultant	Batra Vision Medical Group, San Leandro

RESEARCH

Publications

Liets LC, **Eliasieh** K, van der List DA, Chalupa LM. Dendrites of rod bipolar cells sprout in normal aging retina. Proceedings of the National Academy of Sciences. August 2006, Vol. 103, No. 32, pp. 12156-12160.

Eliasieh K, Liets LC, Chalupa LM. Cellular reorganization in the human retina during normal aging. Investigative Ophthalmology and Visual Science. June 2007, Vol. 48, No. 6, pp. 2824-2830.

Graue-Hernández EO, Mannis MJ, **Eliasieh** K, Greasby T, Beckett L, Bradley J, Schwab IR. Salzmann Nodular Degeneration. Cornea. March 2010, Vol. 29, No. 3, pp. 283-289.

Gutmark R, **Eliasieh K**, Rivera-Michlig R. A case of bilateral trochleitis in Adult-onset Still's disease. Seminars in Arthritis and Rheumatism. April 2014, Vol. 43, No. 5, pp. 689-691.

Eliasieh K, Grant M, Mahoney N, Merbs S. Use of bicanalicular stents with intra-lacrimal sac fixation suture for punctal and canalicular stenosis. *Pending Submission.*

Eliasieh K, Grant M, Mahoney N, Merbs S. Postural effects on lower eyelid position. *Pending Submission.*

Textbook Chapters

Zoumalan C, **Eliasieh K**, Lelli Jr. GJ. Chapter: Instrumentation in Ophthalmic Plastic Surgery. Smith and Nesi's Ophthalmic Plastic and Reconstructive Surgery. Black EH, Nesi FA, Calvano CJ, Gladstone GJ, Levine MR (Editors). 3rd edition. 2013

Eliasieh K. Chapter: Trichiasis. Master Techniques in Ophthalmic Surgery. Roy FH (Editor). *In Press*

Eliasieh K. Chapter: Intra-orbital Foreign Bodies. Master Techniques in Ophthalmic Surgery. Roy FH (Editor). *In Press*

Abstracts

Eliasieh K, Liets LC, van der List DA, Chalupa LM. Dendrites of Rod Bipolar Cells Sprout in the Aging Retina. The Association for Research in Vision and Ophthalmology (ARVO), May 2006, Ft. Lauderdale, FL.

Kashyap Y, Dorairaj SK, **Eliasieh K**, Nezgoda JT, Teng CC. Evaluation of Laser Iridotomy Performed by Residents in a Teaching Institution. The Association for Research in Vision and Ophthalmology (ARVO), May 2010, Ft. Lauderdale, FL.

Eliasieh K, Dorairaj SK, Kashyap Y, Nezgoda JT, Teng CC. Evaluation of Argon Laser Peripheral Iridoplasties Performed by Residents: Does It Really Work? Association for Research in Vision and Ophthalmology (ARVO), May 2010, Ft. Lauderdale, FL.

Eliasieh K, Zoumalan C, Gentile R, McCormick S, Milman T, Maher E. *The Spectrum of Periocular Atypical Mycobacterial Infections: A Case Series.* The American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) Fall Scientific Symposium, Oct. 2010. Chicago, IL.

Eliasieh K, Fitzgerald C, Merbs S, Rivera-Michlig R. Bilateral Müller muscle-conjunctiva resection in a patient with oculosympathetic spasm. The American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) Fall Scientific Symposium, Nov. 2013. New Orleans, LA

INVITED LECTURES

Howard Hughes Medical Institute (HHMI) Annual Medical Fellows Conference, May 2006. Chevy Chase, MD.
Aging and Plasticity of the Retina

25th Annual Wilmer (Johns Hopkins Medical Institute) Current Concepts in Ophthalmology, December 2012, Baltimore, MD
Management of Nasolacrimal Duct Trauma

26th Annual Wilmer (Johns Hopkins Medical Institute) Current Concepts in Ophthalmology, December 2013, Baltimore, MD
Complications of the Anophthalmic Socket

73rd Annual Wilmer (Johns Hopkins Medical Institute) Resident's Association Clinical Meeting, June 2014, Baltimore, MD
Postural Effects on Lower Eyelid Biometrics

The American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) Fall Symposium, Oct 2014, Chicago, IL
Bicanalicular silicone intubation with intra-lacrimal sac fixation suture for punctal and canalicular stenosis

HONORS

1998 Integrated Studies Honors Program, UC Davis
1998 Regents Scholarship, UC Davis
2005 Howard Hughes Medical Institute Research Fellowship
2007 Nominated for AOA (Top 25% of class)

ADDITIONAL EXPERIENCE

Research

12/01-06/02 University of California, Davis Department of Neurobiology, Physiology, and Behavior
Student Researcher, The role of dopaminergic amacrine cells in the stratification of retinal ganglion cell axons during development. Preceptor: Leo M. Chalupa, PhD

06/05-06/06 Howard Hughes Medical Institute
Research Fellow, Reorganization of neural circuitry in mouse and human retina in context of age related vision loss. Preceptor: Leo M. Chalupa, PhD, University of California, Davis

Leadership

2004-2006 Physiology and Neuroanatomy Instructor, UC Davis School of Medicine
2007 Co-Director- Willow Project Homeless Clinic, UC Davis School of Medicine
2007 Co-Director- Ophthalmology Student Interest Group, UC Davis School of Medicine

OTHER LANGUAGES Fluent in Spanish and Persian (Farsi)

INTERESTS Photography, film, silkscreen printing, bicycling

REFERENCES

Shannath Merbs, MD, PhD – ASOPRS Fellowship Director
Wilmer Eye Institute, Johns Hopkins Hospital
600 N Wolfe St., Maumenee 505
Baltimore, MD 21287
smerbs@jhmi.edu (410) 955-1113

Complications in the Anophthalmic Socket

1. Entropion
2. Ptosis
3. Deep superior sulcus
4. Forniceal contracture
5. Lower eyelid laxity and ectropion
6. Implant migration
7. Implant extrusion
8. Implant exposure

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OPTOMETRY

2016 FEB 26 PM 12:56

Request for Approval of Continuing Education Course(s)

For Office Use Only

Receipt No. _____

ATS No. _____

Date Rec'd _____

Vantage Eye Center
Attn: Kristen Ish
622 Abbott Street
Salinas, CA 93901

Please type or print name and mailing address in the space provided to the left

1-525/6173494/6213486/50

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____

CE Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Oculoplastics/Orbit Eyelid lesions: evaluation and	5/26/16	Carlo R. Bernardino, MD	2.0			
treatment of benign and malignant tumors						
Anterior Segment/Cataract Cataract surgery with Flomax:	9/21/16	Jon Page, MD	2.0			
Floppy Iris Syndrome						
Glaucoma Update Ocular hypertension	10/20/16	Victoria Min, MD	2.0			

COMMITTEE COMMENTS:

VANTAGE EYE CENTER

CONTINUING EDUCATION LECTURE SERIES

2016

Oculoplastics/Orbit — Rob Bernardino, MD
Eyelid lesions: evaluation and treatment of benign and malignant tumors
May 26, 2016

Anterior Segment/Cataract — Jon Page, MD
Cataract surgery with Flomax: Floppy Iris Syndrome
September 21, 2016

Glaucoma Update — Victoria Min, MD
Ocular hypertension
October 20, 2016

VANTAGE EYE CENTER

CONTINUING EDUCATION LECTURE SERIES

2016

Oculoplastics
Eyelid lesions: evaluation and treatment of benign and malignant tumors

The presentation will begin with a brief review of the normal anatomy and function of the orbit and eyelid region. Case presentations will then be used to introduce and discuss the evaluation and appropriate management of several commonly encountered benign and malignant lesions. Color photographs will be used to illustrate and highlight clinical features that are usually worrisome for identifying malignant lesions. Emphasis will be placed on helping to decide which lesions can be safely observed over time compared to others that should more appropriately be referred urgently to an oculoplastics specialist. The lecture will conclude with slides and surgical videos showing postoperative outcomes of patients undergoing simple excisional biopsies as well as Mohs' reconstructive surgery with primary closures or skin grafts/flaps.

Anterior segment/Cataract
Cataract surgery with Flomax: floppy iris syndrome

As the population in the United States ages, increasing numbers of patients are undergoing cataract surgery for visual restoration. Cataract surgery is generally a very safe and effective surgery, but there are risks for intraoperative and postoperative complications. These complications occur more frequently in patients that have been given alpha adrenergic agonists which are oral medications commonly used to treat benign prostatic hypertrophy as well as hypertension. This lecture will review the growing literature describing floppy iris syndrome, including its prevalence in the US population, strategies to minimize its effect as well as suggestions of how to manage some of the more common postoperative issues that can be encountered. Particular attention will be given to how to approach and counsel patients preoperatively in order to give them accurate risk assessments and recommendations for cataract surgery.

Glaucoma Update
Ocular hypertension

The approach to the patient with elevated intraocular pressure will be presented. Other risk factors for glaucoma, including family history, corneal pachymetry, medical and ophthalmic history, optic nerve cupping and visual field defects will be discussed. We will review the results of several large glaucoma clinical trials regarding the indications for treatment of ocular hypertension. The lecture will end with a discussion of the pros and cons of different classes of pharmacotherapies, lasers and surgeries for treatment.

Oculoplastics
Eyelid lesions: evaluation and treatment of benign and malignant tumors

The presentation will begin with a brief review of the normal anatomy and function of the facial and eyelid region. Case presentations will then be used to introduce and discuss the evaluation and appropriate management of several commonly encountered benign and malignant lesions. Color photographs will be used to illustrate and highlight clinical features that are usually worrisome for identifying malignant lesions. Emphasis will be placed on helping to decide which lesions can be safely observed over time compared to others that should more appropriately be referred urgently to an oculoplastics specialist. The lecture will conclude with slides and surgical videos showing postoperative outcomes of patients undergoing simple excisional biopsies as well as Mohs micrographic surgery with reconstructive closures including skin grafts and flaps.

Eyelid anatomy and function

Benign Eyelid tumors

1. Epithelial proliferations/hyperplasias
    a. seborrheic keratosis
    b. verruca
    c. acrochordon (skin tag)
2. Epithelial lesions
    a. epidermal inclusion cyst
    b. Molluscum contagiosum
    c. xanthelasma
3. Adnexal lesions
    a. chalazion
    b. syringoma
    c. apocrine hidrocystoma
    d. trichoepithelioma
4. Melanocytic lesions
    a. nevus
    b. demal melanocytosis

Premalignant Epidermal lesions

1. Actinic keratosis

In Situ Epithelial Malignancies

1. Bowen disease (squamous cell carcinoma in situ)
2. Keratoacanthoma

Premalignant Melanocytic Lesions

1. Lentigo maligna

Malignant Eyelid Tumors

1. Basal cell carcinoma
2. Squamous cell carcinoma
3. Sebaceous adenocarcinoma
4. Melanoma
5. Kaposi sarcoma
6. Merkel cell carcinoma

Clinical evaluation, work-up and testing

1. History
2. Physical exam
3. Other tests/imaging

Case studies with outcomes

Take home message

Anterior Segment/Cataract
Cataract surgery with Flomax: Floppy Iris Syndrome

As the population in the United States ages, increasing numbers of patients are undergoing cataract surgery for visual restoration. Cataract surgery is generally a very safe and effective surgery, but there are risks for intraoperative and postoperative complications. These complications occur more frequently in patients that have been given alpha adrenergic agonists which are oral medications commonly used to treat benign prostatic hypertrophy as well as hypertension. This lecture will review the growing literature describing floppy iris syndrome, including its prevalence in the US population, strategies to minimize its effect as well as suggestions of how to manage some of the more common postoperative issues that can be encountered. Particular attention will be given to how to approach and counsel patients preoperatively in order to give them accurate risk assessments and recommendations for cataract surgery.

Modern phacoemulsification cataract surgery

1. Goals of surgery
2. Post-operative outcomes
3. Potential intraoperative and postoperative complications
4. Assessing patients pre-operatively for risk factors, density of cataracts, functional complaints of cataract impairing activities of daily living, realistic patient expectations

Alpha agonists

1. Pharmacology
2. Used for the treatment of benign prostatic hypertrophy (BPH) and hypertension
3. Prevalence of use in the United States
4. Men vs. Women

Floppy Iris Syndrome

1. History
2. Features of IFIS during cataract surgery
3. Potential complications during and after surgery

Detection/Prevention for IFIS

1. Pre-operative history taking and slit lamp examination
2. Duration and history of Flomax use
3. Intraoperative strategies to minimize IFIS
    a. topical vs. peribulbar block
    b. dilation strategies
    c. pupil expanders
        i. pupil stretching
        ii. iris retraction hooks
        iii. Malyugin ring
    d. capsular staining dye
    e. viscoelastic choice

Managing post-operative complications

1. irregular, distorted pupil
2. decentered IOL
3. retained lens fragments

Implications of IFIS on cataract surgery

1. Accurate patient risk assessment/recommendation for cataract surgery
2. Patient candidacy for premium IOL's, femtosecond assisted cataract surgery?
3. Counseling urology and family care colleagues on its use and implications for cataract surgery

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Work Experience

9/10-present	Oculoplastics and Aesthetic Surgery, Vantage Eye Center
5/07-9/10	Director, Ophthalmic Plastics and Orbital Surgery Service Yale Eye Center
9/03-2/07	Oculoplastics and Orbital Surgery, Emory Eye Center

Hospital Appointments

9/10-present	Active Staff, Community Hospital of Monterey Peninsula, Monterey, CA
9/10-present	Active Staff, Salinas Valley Memorial Hospital, Salinas, CA
5/07-9/10	Attending Physician, Department of Ophthalmology Yale New Haven Hospital, New Haven, CT
10/07-9/10	Physician, Surgery Service, Ophthalmology Section West Haven Veterans Administration Hospital, West Haven, CT
9/03-2/07	Attending Physician, Department of Ophthalmology Emory University Hospital, Atlanta, GA
9/03-2/07	Attending Physician, Department of Ophthalmology Children's Healthcare of Atlanta at Egelston, Atlanta, GA
9/03-2/07	Attending Physician, Department of Ophthalmology Crawford Long Hospital, Atlanta, GA
9/03-2/07	Attending Physician, Department of Ophthalmology Grady Memorial Hospital, Atlanta, GA
9/03-2/07	Attending Physician, Department of Ophthalmology Atlanta Veterans Affairs Medical Center, Atlanta, GA
7/01-6/03	Clinical Instructor, Department of Ophthalmology Massachusetts Eye & Ear Infirmary, Boston, MA

Academic Appointments

5/07-9/10	Associate Professor of Ophthalmology Yale School of Medicine Clinician-Educator Track
7/07-8/10	Residency Program Director Yale New Haven Hospital Yale School of Medicine Department of Ophthalmology and Visual Science

9/03-3/07	Assistant Professor of Ophthalmology Emory University School of Medicine	

Medical Licensure

7/8/10-7/31/15	State of California	C54238
2/28/07-7/31/11	State of Connecticut	045150
5/1/03-7/31/07	State of Georgia	052891
8/2/01-7/15/03	Commonwealth of Massachusetts	MB 0447575A
3/15/00-3/31/01	State of Delaware	C1-0005939
9/7/99-12/31/02	Commonwealth of Pennsylvania	MD-069718-L

Specialty Boards

6/8/03-12/31/13	American Board of Ophthalmology	Certified
1/1/14-12/31/23		Recertified

Examinations

12/97	USMLE Step III	Pass
8/96	USMLE Step II	Pass
6/95	USMLE Step I	Pass

Postgraduate Training

7/01-6/03 **Massachusetts Eye and Ear Infirmary,** Boston, MA
Fellowship in Oculoplastics, Oncology, and Ophthalmic Pathology
Preceptors: Peter A. D. Rubin, MD
Frederick A. Jakobiec, MD
Thaddeus Dryja, MD

7/98-6/01 **Wills Eye Hospital,** Philadelphia, PA
Residency & Chief Residency in Ophthalmology
Program Director, Marlon Maus, MD
Ophthalmologist-in-Chief, William S. Tasman, MD

7/97-6/98 **Crozer-Chester Medical Center,** Upland, PA
Internship in a Medicine Transitional Year
Director, Susan Williams, MD

Education

8/93-5/97 **Jefferson Medical College,** Philadelphia, PA
Medical Doctorate

9/89-5/93 **Lehigh University,** Bethlehem, PA
Bachelor of Arts in Biology, Minor in Spanish, and Classics
Graduated *Cum Laude*

09/91-12/91 **University of Alicante,** Alicante, Spain
Language and culture study

6/88-8/88 **University of Florida**, Gainesville, FL
Student Science Training Program

National Committee Membership

10-present	Examiner, American Board of Ophthalmology
09-present	E-Learning Committee, Joint Commission on Allied Health Personnel in Ophthalmology (JCAHPO)
09-14	Committee on Aging – Member, American Academy of Ophthalmology (AAO)
11-12	Member-at-Large, Joint Commission on Allied Health Personnel in Ophthalmology (JCAHPO) Board of Directors
10-12	International Relations Committee, Joint Commission on Allied Health Personnel in Ophthalmology (JCAHPO)
09-12	Treasurer, Commission on Accreditation of Ophthalmic Medical Programs (CoA-OMP) Board of Directors
03-11	Specialty Information Team Member, Oculoplastics, AAO
09-10	Annual Meeting Program Committee, Oculoplastic Reviewer, AAO
08-10	Connecticut Society of Eye Physicians Executive Committee
08-09	JCAHPO representative to CoA-OMP Board of Directors
00-02	Council of Representatives of the Candidate and Associate Society, American College of Surgeons
00-01	National Eyecare Outcomes Network Palm Pilot Project, AAO
00	Program Advisory Committee of AAO

Institutional Committee Membership

09-10	Yale Medical Group Clinical Information Systems Committee - practice standards for clinical information systems subcommittee
07-10	Graduate Medical Education Committee, Yale School of Medicine
07-10	Member, Chairman's Trauma Task Force, Yale Eye Center (YEC)
07-10	Chair, Resident Education Committee, YEC
07	Member, Intranet and List-serve Design Committee, Emory Eye Center (EEC)
05-07	Chair, Webpage Re-design Committee, EEC
05	Member, Information Technology and Simulations Subcommittee, Emory University School of Medicine (ESoM) Curriculum Planning, Co-Chairs: Martin Reznek, MD and Kenneth Walker, MD
04-07	Resident Selection Committee, Application Reviewer, Department of Ophthalmology, ESoM
04-07	EeMR STARS member – Emory Healthcare electronic medical record transition committee
03-07	Resident Selection Committee, Interviewer, Department of Ophthalmology, ESoM
94-95	Admissions Committee, Jefferson Medical College, Philadelphia, PA

Public Service

8/10	Surgical and Medical Education Mission, Da Nang, Vietnam, ORBIS
7/10	Medical Education Mission, Port au Prince, Haiti, AAO/JCAHPO
3/06	Surgical Mission, Healing the Children, Guaranda, Ecuador
00-01	Director, Esperanza, Free Ophthalmology Clinic serving the Hispanic Population of Northern Philadelphia, PA

Editorship

09-present	Series Editor – Medscape/WebMD – "Cases in Ophthalmology from the Baylor School of Medicine and the Yale School of Medicine."
06-11	Contributing Editor – Review of Ophthalmology, Plastics Pearls
08-10	Editor in Chief – Open Plastic and Reconstructive Surgery Journal
05-09	Contributor Editor – Retina CME Review - Medscape/WebMD
00-05	Contributing Editor – Journal Scan on Medscape/WebMD

Manuscript Reviewer

10-present	Clinical and Experimental Ophthalmology
07-present	Ophthalmology
05-present	Ophthalmic Plastic Reconstructive Surgery
04-present	Cornea
02-present	American Journal of Ophthalmology
00-present	Lippincott, Williams, and Wilkins
09	Case Reports in Medicine
09	Oxford University Press
08	Journal of Zhejiang University-SCIENCE B

Honors & Awards

09-14	Best Doctors in America
11-12	Marquis Who's Who in Medicine and Healthcare, 8th Edition
11-12	America's Top Doctors (10th & 11th edition), Castle Connolly Medical, Ltd.
09-12	Honorary Consultant, Bahamas Medical Council, Nassau, Bahamas
09-10	Top Doctors: New York Metro Area (12&13th edition), Castle Connolly Medical, Ltd.
5/10	Resident Research Day Award, Servat JJ, Palmisano P, **Bernardino CR**. Eyelid changes associated with Bimatoprost use.
10	Guide to America's Top Ophthalmologists, 2010 Edition, Consumers' Research Council of America
09	nominated – Alice Bohmfalk Teaching Award in Clinical Science, YSoM
09	Cambridge Who's Who among Executives, Professionals and Entrepreneurs, 2009-2010
09	Connecticut chapter of American College of Surgeons, 1st place resident presentation, Lin JL, **Bernardino CR**. Supine Exophthalmometry as a Screening Tool for Thryoid Eye Disease.

07	Marquis Who's Who of Emerging Leaders, 1st Edition
07	Secretariat Award, American Academy of Ophthalmology
06-07	Marquis Who's Who in America, 60th & 61st Edition
06	Achievement Award, American Academy of Ophthalmology
05	Residents' Day Presentation – Second Place, Takle LM, **Bernardino CR.** Periocular Cutaneous Lesions and Their Management Through Mohs Reconstructive Surgery.
01-04	American Medical Association Physician Recognition Award
02-03	Outstanding Teaching and Commitment to Education, Residency Retreat, Ophthalmology Residents, MEEI
02-03	Marquis Who's Who in Medicine and Healthcare, 4th Edition
2/01	Bausch & Lomb Travel Grant for Young Investigators, Contact Lens Association of Ophthalmologist Annual Meeting
1/00	Bausch & Lomb Travel Grant for Young Investigators, Contact Lens Association of Ophthalmologist Annual Meeting

Society Membership

13-present	American Society of Ophthalmic Plastic Surgeons
10-present	California Academy of Eye Physicians & Surgeons
10-present	California Medical Association, Monterey County Medical Society
08-present	American Eye Study Club
05-present	American College of Surgeons – Fellow
98-present	American Academy of Ophthalmology – Fellow
09-10	The Most Venerable Order of the Hospital of St. John of Jerusalem, Serving Brother
07-10	Association of University Professors of Ophthalmology
06-10	Association of Philippine Ophthalmologists in America
07-10	Connecticut Society of Eye Physicians
98-09	American Medical Association
03-07	Georgia Society of Ophthalmology

Grant History

08-10 American Geriatrics Society/John A. Hartford Foundation Project
Geriatrics for Specialists Initiative
Geriatrics Education for Specialty Residents Program
Geriatrics Curriculum in Ophthalmology
PI: C. Robert Bernardino, MD
$40,000

06-07 Research to Prevent Blindness, Departmental Research Grant
Taxotere Related Stenosis Study (TRSS)
PI: C. Robert Bernardino, MD
$3000

02-04 National Organization of Rare Diseases.
Development of a mouse model of adenoid cystic carcinoma of the lacrimal gland.
PI: Eli L. Chiang, MD
Role: Investigator
$28,000

02-03 Fight For Sight/Prevent Blindness America - GA 02010
Development of a mouse model of human ocular adenexal neoplasms.
PI: Eli L. Chiang, MD
Role: Investigator
$12,000

Formal Teaching
College Students

07-10 Yale University/YSoM
Mentoring college students interested in a career in medicine
Shadowing elective: 2 per year

Physician Assistants

07-10 YSoM
Ocular Emergencies Lecture 1 hour/year

Medical Students

07-09 YSoM
Orbital Anatomy/Dissection: 3 hours/year

03-07 ESoM
Orbital Anatomy/Dissection: 3 hours/year
Mentored 1st Year medical students 2 per year
05 Alan Bengtzen
Jesse Jeno Jung
04 Victor Po-Hung Chen
Nicholas Kiefer
Research Elective for 1st yr. student 3 months/year
06 Jonathan C. Seccombe

Ophthalmology Residency

07-10 YSoM

Director of Ophthalmic Plastics and Orbital Surgery Section
3-month rotation of first and third year of residency
3-month surgical rotation with second year resident at West Haven Veterans Hospital

Basic Science Course in Oculoplastics:	24 hours/year
Mentored Grand Rounds in Oculoplastics:	4 hours/year
Resident Suturing Skills Course:	4 hours/year
Orbital Dissection Course:	4 hours/year
Journal Club	2/year

03-07 ESoM

One of three full-time Oculoplastics Attendings
4-week rotation with each of 6 first-year residents
1 day/month surgical rotation with residents at Grady Memorial Hospital

Basic Science Course in Oculoplastics:	4 hours/year
Mentored Grand Rounds in Oculoplastics:	4 hours/year
Resident Suturing Skills Course:	4 hours/year
Orbital Dissection Course:	4 hours/alt year
Journal Club	4/year

Oculoplastics Fellowship

08-10 YSoM

Director of one-year fellowship

Clinical Fellow:	10	Alison V. Crum, MD
Research Fellows:	09-10	Sung Bok Lee, MD Daejeon, Korea
	08-09	Chih-Hsien Hsiao, MD Magong City, Taiwan

03-07 ESoM

Co-Director of one-year fellowship

Clinical Fellows:	06-07	Leiv M. Takle, Jr MD Private Practice, Griffin, GA
	05-06	Ann P. Murchison, MD Wills Eye Institute
Foreign Fellows	06-07	Heeyoung Choi, MD – South Korea
	06	Patricia Rosas, MD – Cusco, Peru

Oral Maxillofacial Surgery Residency

03-07 ESoM

Elective in periocular and orbital surgery	one-month/year
Lecture on Orbital Anatomy:	1 hour/year
Lecture on Periocular Surgery:	1 hour/year

Internal Medicine Residency

08-10	two-week and one-month electives in ophthalmology

Emergency Medicine Residency

08-10	two-week and one-month electives in ophthalmology

Plastics Surgery Residency

08-10	one-month elective in oculoplastics

Lectures/Courses

10-11	Managing the Difficult or Unhappy Patient. JCAHPO Annual Continuing Education Meeting
08-11	Red Drop, Yellow Drop, Blue Drop, Eye Drop - Ophthalmic Pharmacology. JCAHPO Annual Continuing Education Meeting
06-11	Preoperative and Postoperative Management of the Surgical Patient. JCAHPO Continuing Education Program. JCAHPO Annual Continuing Education Meeting
10/11	Eyelids Lumps and Bumps. JCAHPO Annual Continuing Education Meeting
10/11	The Lacrimal System. American Society of Ocularist Fall Meeting. Orlando, FL.
10/11	Eyelids Lumps and Bumps. JCAHPO Webinar
8/11	Eyelid Lumps and Bumps. Vantage Eye Center Optometric Continuing Education Lecture Series
08-10	iEmergencies. Physician Assistant Lecture Series, YSoM, New Haven, CT
06-10	Entering the Orbit – Incisions and Approaches. Orbital Fracture Repair – Plating Course. Lecturer and Instructor. AAO Skills Transfer Course
10/10	Surfing the Silver Tsunami. Geriatric Medicine for the Ophthalmologist. AAO Annual Meeting, Chicago, IL.
10/10	Management of Pain and Anxiety in an Office Setting. American Society of Ophthalmic Registered Nurses Annual Meeting, Chicago, IL.
9/10	Why XRT for TED does not make sense? Oculoplastics Symposium. Asia Pacific Ophthalmology Association Annual Meeting, Beijing, China.

5/10	Orbital Compartment Syndrome Orbital Cellulitis Yale Ophthalmic Emergencies Symposium, Course director and lecturer, New York Academy of Medicine, New York, NY
4/10	Red Drop, Yellow Drop, Blue Drop, Eye Drop: Ophthalmic Pharmacology Preoperative and Postoperative Management of the Surgical Patient American Society of Cataract and Refractive Surgery Technicians and Nurses Program. Boston, MA
3/10	Losing an Eye – a Patient's Perspective Blind, Painful Eye – Medical and Surgical Management Motility Issues in the Anophthalmic Socket Eyelid Malposition in the Anophthalmic Socket 2nd Ophthalmic Technician Seminar. Keynote Speaker. King Khalid Eye Specialist Hospital, Ryadh, Saudi Arabia
1/10	Resident Education and Scholarship: ACGME Requirements, Practice Management, and a Contact Lens Curriculum. Opportunities at JCAHPO. Association of University Professor of Ophthalmology, Sarasota, FL
1/10	Thyroid Eye Disease Update. Endocrine Surgery Grand Rounds, YSoM, New Haven, CT
07-09	The One-Eyed Exam – Issues of Anophthalmia. JCAHPO Continuing Education Program. JCAHPO Annual Meeting
10/09	Orbital Compartment Syndrome Periocular Lacerations Periocular Trauma Symposium, Panel Session Leader and lecturer. American College of Surgeons Clinical Congress, Chicago, IL
10/09	Anophthalmia. Wolcott Lions Club, Wolcott, CT
1/09, 10/09	Thyroid Eye Disease. JCAHPO Continuing Education Program. New York Academy of Science, New York, NY
8/09	Pediatric Eyelid Malpositions, Plastic Surgery Grand Rounds, YSoM, New Haven, CT
7/09	Thyroid Eye Disease. JCAHPO Continuing Education Program. Course Coordinator and Lecturer. Boston, MA

5/09	Eye Examination for the General Practitioner The Eye and Thyroid Disease Connecticut Association of Philippine Physicians Spring Symposium, Hartford, CT
2/09	Overview on Cosmetic Surgery Patient Evaluation Commonly Performed Procedures Economics and Demoographics AAO On-Line Cosmetic Surgery Course: http://one.aao.org/CE/EducationalContent/Courses.aspx
11/08	Update on the Anophthalmic Socket Orbit Reconstruction Medical and Surgical Management of Thyroid Eye Disease Keynote Speaker, Fifth National and International Congress of Oculoplastics and Orbit: Mexican Society of Oculoplastics and Orbit, Morelia, Michoacán, Mexico
2/08	The Eye and Thyroid Disease, Thyroid Surgery Grand Rounds, YSoM, New Haven, CT
02-07	Patient Selection and Medications, Anxiety and Post-Operative Nausea and Vomiting. Office-Based Surgery That Is Painless for Both Patient and Surgeon: Pearls on Anesthesia, Pain, Nausea, and Anxiety. Lecturer and Course Director. AAO Instructional Course
10/07	Management of Enophthalmos in Anophthalmia. New England Ophthalmological Society. Boston, MA
9/07	Managing Thyroid Related Eye Disease, Endocrinology Grand Rounds, YSoM, New Haven, CT
8/07	Update on Periocular Trauma, Plastic Surgery Grand Rounds, YSoM, New Haven, CT
1/07	Repair of Periocular Fractures. Porex Surgical Flight School 2007, Atlanta, GA
8/06	Management of Ocular Trauma and Orbital Bone Fractures. Diagnosis and Treatment of Traumatic Injuries to the Pediatric Craniofacial Skeleton Course, ESoM, Atlanta, GA
8/06	Pain Management/Anesthesia for Office-Based Surgery Ptosis After Ocular Surgery Georgia Society of Ophthalmology Annual Summer Meeting, Amelia Island, FL

8/06	Anophthalmia Lacrimal System Orbital Fractures Porex Surgical Global Sales Meeting 2006, Lake Lanier, GA
8/06	Managing Periocular Skin Malignancies with Mohs Micrographic Surgery. *Current Insights* – AAO Website. Web-based education. http://aaophp.aao.org/ current_insight_managing_periocular_ skin_malignancies_with_mohs_micrographic_surgery
03-05	Medial Wall Fractures. Orbital Fracture Repair – Plating Course. Lecturer and Instructor. AAO Skills Transfer Course
7/05	Hydrogel and the Anophthalmic Socket – An Expanding Role. Georgia Society of Ophthalmology Annual Summer Meeting, Sea Island, GA
03-04	Eye Plastic Essentials for the Anterior Segment Surgeon. Course director and lecturer. AAO Instructional Course
3/03	Transition to Office-Based Oculoplastics Surgery. Philippine Society of Ophthalmic Plastic and Reconstructive Surgery Annual Meeting, Manila, Philippines
3/03	Overview of Thyroid-Related Ophthalmopathy. Department of Ophthalmology, University of the Philippines, Manila, Philippines
3/03	Anatomy of the Midface for the Ophthalmologist. Department of Ophthalmology, University of Santo Thomas, Manila, Philippines
1/02	Orbital Fractures – Evaluation and Treatment. Department of Ophthalmology, University of the Philippines Medical School, Manila, Philippines
8/01	Anatomy, Reconstruction, and Cosmetic Surgery: A Hands-On Course. Eyelid and Ocular Adenexal Cadaveric Dissection. Instructor. Boston University School of Medicine, Boston, MA
12/99	Evaluation and Treatment of Ophthalmic Sequela of Facial Nerve Palsy. Department of Ophthalmology, University of the Philippines Medical School, Manila, Philippines

Published Research

5/12	Lin JL, Servat JJ, **Bernardino CR**, Goldberg RA, Levin F. Bilateral Corneal Perforations and Autoproptosis as Self-Induced Manifestations of Ocular Munchausen's Syndrome. *Orbit* 2012.
10/11	Servat JJ, Williamson JE, Piepmeier J, Sinard J, **Bernardino CR**. Giant Myofibroma of the Orbit in an Adult Male. *Orbit* 2011.
10/10	Lee SB, Kim KN, Lee SR, **Bernardino CR.** Mucoepidermoid carcinoma of the lacrimal sac after dacryocystectomy for squamous papilloma. *Ophthal Plast Reconstr Surg* 2010.
5/09	Bengtzen AR, Grossniklaus HE, **Bernardino CR**. A Case of Multiple Pilomatrixoma in Turner Syndrome. *Ophthal Plast Reconstr Surg* 2009;25(3):229-30.
10/08	Prakalapakorn SG, **Bernardino CR**, Auclair PL, Grossniklaus HE. Carcinosarcoma of the Orbit. Report of Two Cases and Review of the Literature. *Ophthalmology* 2008;115(11):2065-9.
8/08	Murchison AP, **Bernardino CR**. Oculocerebrocutaneous Syndrome: A Case Report. *Orbit.* 2008;27(4):313-6.
9/07	Murchison AP, Washington CV, Soloman AR, **Bernardino CR**. Ocular Effects of Imiquimod with Treatment of Eyelid Melanoma *in situ. Dermatol Surg* 2007; 33(9):1136-8.
5/07	Price KM, Murchison AP, **Bernardino CR**, Kang SJ, Grossniklaus HE. Ophthalmomyiasis externa caused by *Dermatobia hominis* in Ft. Walton Beach, Florida. *Br J Ophthalmol* 2007;91:695.
3/07	Golub JS, Parikh SL, Budnick SD, **Bernardino CR**, DelGaudio JM. Inverted Papilloma of the Nasolacrimal System Invading the Orbit. *Ophthal Plast Reconstr Surg* 2007;23(2):151-3.
9/06	Hatton MP, Chen SH, **Bernardino CR**, Rubin PA, D'Amico DJ, Eskandar E. Trans-orbital foreign body with intracranial extension. *J Trauma* 2006;61(3):752-4.
5/06	**Bernardino CR**, Mihora LD, Fay AM, Rubin PA. Orbital complications of hydrogel scleral buckles. *Ophthal Plast Reconstr Surg* 2006;22(3):206-8.
12/05	Weyand CM, Ma-Krupa W, Pryshchep Om Groschel S, **Bernardino CR**, Goronzy JJ. Vascular dendritic cells in giant cell arteritis. *Ann N Y Acad Sci* 2005;1062:195-208.

7/05	Chang EL, Hatton MP, **Bernardino CR**, Rubin PAD. Simplified Repair of Zygomatic Fractures through a Transconjunctival Approach. *Ophthalmol* 2005;112:1302–1309.
12/04	Chang El, **Bernardino CR**, Rubin PAD. Normalization of upper eyelid height and contour after bony decompression in thyroid related Ophthalmopathy – a digital image analysis. *Arch Ophthalmol* 2004;122 1882-1885.
9/04	Rubin PA, Chang E, **Bernardino CR**, Hatton MP, Dohlman CH. Technique of connecting a glaucoma valve shunt to extraorbital locations in cases of severe glaucoma. *Ophthal Plast Reconstr Surg* 2004; 20(5):362-7.
7/04	Boulos PR, **Bernardino CR**, Rubin PAD. Pneumocele – A rare cause of air in the orbit. *Am J Ophthalmol* 2004; 138(1):168-169.
6/04	Wu YU, **Bernardino CR**, Rubin PAD. The Clinical Evolution of a Kissing Nevus after Incomplete Excision. *Br J Ophthalmol* 2004; 88(6):848-849.
9/03	Chang EL, **Bernardino CR**, Rubin PAD. Transcaruncular Orbital Decompression for Management of Vision-Threatening Thyroid Related Orbitopathy. *Plast Reconstr Surg* 2003;112(3):739-47.
6/03	Horikawa Y, Shatos MA, Hodges RR, Zoukrhi D, Rios JD, Chang EL, **Bernardino CR**, Rubin PAD, Dartt DA. Activation of Mitogen-activated Protein kinase by Cholinergic Agonists and EGF in Human Compared to Rat Cultured Conjunctival Goblet Cells. *Invest Ophthalmol Vis Sci* 2003;44(6): 2535-44.
6/03	Shatos MA, Rios JD, Horikawa Y, Hodges RR, Chang EL, **Bernardino CR**, Rubin PAD, Dartt DA. Isolation and Characterization of Cultured Human Conjunctival Goblet Cells. *Invest Ophthalmol Vis Sci* 2003; 44(6): 2477-86.
9/02	**Bernardino CR**, Rubin PAD. Ptosis after Cataract Surgery. *Semin Ophthalmol* 2002;17(3-4):144-8.
8/02	Fynn-Thompson N, **Bernardino CR**, Rubin PAD. Traumatic Globe Avulsion. *Digital Journal of Ophthalmology*. 2002;8. www.djo.harvard.edu
9/01	**Bernardino CR**, Davidson RS, Maus M, Spaeth GL. Angle-closure Glaucoma in Association with Orbital Pseudotumor, *Ophthalmology* 2001;108(9):1603-1606.

6/01	Cutney C, **Bernardino CR**, Buono LM, Goldman HW, Maus M. Transorbital Craniotomy through a Suprabrow Approach: a Case Series. *Orbit.* 2001; 22(1):1-11.
4/00	**Bernardino CR,** Rapuano CJ. Ophthalmia Nodosum Caused by Casual Handling of a Tarantula. Case report. *CLAO J* 2000; 26(2):111-112.
10/96	**Bernardino CR**, Rubin PAD. Recurrent Orbital Retinoblastoma after Enucleation. *Digital Journal of Ophthalmology* 1996;10. www.djo.harvard.edu

Review Articles

07/11	Servat JJ, Risco M, Nakasato YR, **Bernardino CR**. Visual impairment in the elderly: impact on functional ability and quality of life. *Clinical Geriatrics.* 2011;19(7):49-56.
06/11	**Bernardino CR.** Evaluating Epiphora: Nothing to Cry About. *Rev Ophthalmol* 2011.
04/11	Servat JJ, **Bernardino CR.** Effects of common topical antiglaucoma medications on the ocular surface, eyelids and periorbital tissue. Drugs Aging. 2011 Apr 1;28(4):267-82.
10/10	Crum AV, **Bernardino CR**. Preventing and Managing Post-Surgical Ptosis. *Rev Ophthalmol* 2010.
6/10	Lee SB, **Bernardino CR**. Orbital fractures. *Rev Ophthalmol* 2010.
4/10	**Bernardino CR.** Congenital anophthalmia: a review of dealing with volume. Middle East Afr J Ophthalmol. 2010; vol. 17(2) pp. 156-60.
12/09	**Bernardino CR.** Cómo Diagnosticar y Mitigar el Espasmo Periocular. *Rev Ophthalmol Esp* 2009.
8/09	**Bernardino CR.** How to Diagnose and Relieve Periocular Spasms. *Rev Ophthalmol* 2009.
4/09	**Bernardino CR**. Orbital Compartment Syndrome – A True Emergency. *Rev Ophthalmol* 2009.
~~1/09~~	~~Hsiao CH, **Bernardino CR.** An Update on Thyroid Eye Disease.~~ *Rev Ophthalmol* 2009.

11/08	Nicolitz E, Champion L, Lamell PT. Eds. **Bernardino CR**, Magoon EH. Botulinum Toxin: Clinical Applications In Ophthalmology. Refinements – Clinical Education Modules for Today's Ophthalmic Team. *JCAHPO* 2008;11:1-8.
11/08	**Bernardino CR**. Cirugía Ambulatoria: Previendo y tratando el dolor quirúrgico. *Rev Ophthalmol Esp* 2008.
9/08	**Bernardino CR.** Lower Eyelid Malpositions. *Rev Ophthalmol* 2008.
4/08	**Bernardino CR**. Transitioning to Office-Based Surgery. *Rev Ophthalmol* 2008.
11/07	Nakamoto N, **Bernardino CR**. The Annoying Lash in the Eye: A Review of Trichiasis. *Rev Ophthalmol* 2007.
4/07	Takle LM, **Bernardino CR**. A Rapidly Emerging Ocular Adnexal Villain. *Rev Ophthalmol* 2007.
9/06	Murchison AP, **Bernardino CR.** Evaluation of the Anophthalmic Socket. *Rev Ophthalmol* 2006; 13(9).
11/04	Chang EL, **Bernardino CR**. Update on orbital trauma. *Contemporary Ophthalmol* 2004;3(23): 1-5.
10/04	Chang EL, **Bernardino CR**. Update on orbital trauma. *Current Opinion in Ophthalmol* 2004;15(5):411-415.
9/03	**Bernardino CR**. Rubin PAD. Asian Americans: Cultural and Anatomic Considerations for Periocular Surgery. *Int Ophthalmol Clinics* 2003;43(4):151-71.

Book Chapters

2012	Crum AV, **Bernardino CR.** Anesthesia and the Pediatric Oculoplastics Patient. Smith and Nesi's Ophthalmic Plastic & Reconstructive Surgery. 3rd Edition. eds. Nesi F, Calvano C, Black E, Levine M, Gladstone G. Springer-Verlag: New York, NY.
In Press	**Bernardino CR**, Rubin PAD. Surgical Treatment of Neurotrophic Keratopathy. Contemporary Ophthalmology
2011	**Bernardino CR**. Trauma. Oxford American Handbook of Ophthalmology. 1st Edition. eds. Tsai JC, Denniston AKO, Murray PI, Huang JJ, Aldad TS. Oxford University Press: New York, NY. Ch. 3: 79-103.

2011 **Bernardino CR**. Lids. Oxford American Handbook of Ophthalmology. 1st Edition. eds. Tsai JC, Denniston AKO, Murray PI, Huang JJ, Aldad TS. Oxford University Press: New York, NY. Ch. 4: 103-27.

2011 **Bernardino CR**. Lacrimal. Oxford American Handbook of Ophthalmology. 1st Edition. eds. Tsai JC, Denniston AKO, Murray PI, Huang JJ, Aldad TS. Oxford University Press: New York, NY. Ch. 4: 127-35.

2011 **Bernardino CR**. Orbit Oxford American Handbook of Ophthalmology. 1st Edition. eds. Tsai JC, Denniston AKO, Murray PI, Huang JJ, Aldad TS. Oxford University Press: New York, NY. Ch. 14: 469-93.

2011 **Bernardino CR**. Neuro-ophthalmology. Oxford American Handbook of Ophthalmology. 1st Edition. eds. Tsai JC, Denniston AKO, Murray PI, Huang JJ, Aldad TS. Oxford University Press: New York, NY. Ch. 4: 103-127.

2010 **Bernardino CR**. Reconstruction of Canthal Defects. Ophthalmology Monographs 8:Surgery of the Eyelid, Orbit, and Lacrimal System. 2nd Edition. Oxford University Press. Ch. 6: 63-75.

2010 **Bernardino CR.** In-office surgery, anesthesia and analgesia. Cohen AJ, Weinberg, DA. [eds.]. Blepharoptosis-Diagnosis and Management. Springer-Verlag: New York, NY. Ch. 24: 231-243.

3/10 Valenzuela Scheker E, Bernardino CR. Orbital Inflammation. Ocular Inflammatory Disease and Uveitis Manual. eds. Huang JJ, Gaudio PA. Philadelphia: Lippincott, Williams, & Wilkins, 2010, Ch. 12.

1/08 **Bernardino CR**, Bernardino VB. Sebaceous Carcinoma of the Eyelid. Albert and Jakobiec's Principles and Practices of Ophthalmology. 3rd Edition. Section 12, Chapter 251. Elsevier.

10/07 **Bernardino CR.** Pediatric Orbital Trauma. Diagnosis and Treatment of Traumatic Injuries to the Pediatric Craniofacial Skeleton. ed. Moore CE. Plural Publishing, 2007.

~~1/07~~ ~~Cohen A, Spirn MJ, Khoramian D, **Bernardino CR**.~~ Blepharospasm. Therapeutic Uses of Botox. ed. Cooper G. New Jersey: Humana Press. Ch. 14: 207-219.

11/04 **Bernardino CR**, Rubin PAD. Eye Plastic Considerations for the Anterior Segment Surgeon – Indications and Techniques. Smolins and Thoft – The Cornea. Philadelphia: Lippincott, Williams, & Wilkins, 2004, ch. 57.

6/00 **Bernardino CR,** Naidoff M. Guidelines for Ophthalmologic Referral. The Clinics Atlas of Office Procedures - Essentials of Ophthalmology. Philadelphia: W.B. Saunders, 2000, ch. 10, 295-301.

Textbooks

4/11 Erickson B, Modi Y. Yale Guide to Ophthalmic Surgery. ed. **Bernardino CR**. Philadelphia: Lippincott, Williams, & Wilkins, 2011.

Letters To The Editor

4/12 Chang EL, **Bernardino CR**, Rubin PAD. Letter to the Editor: Lid Changes After Decompression. *Ophthal Plast Reconstr Surg.*

3/10 Lee SB, Shafranov G, **Bernardino CR**. Letter to the Editor RE: Lee et al, Tight orbit syndrome: a previously unrecognized cause of open-angle glaucoma. *Acta Ophthalmologica.*

10/09 Hsiao CH, Chang EL, Hatton MP, Rubin PAD, **Bernardino CR**. Comment on "Versatile Use of Extended Transconjunctival Approach for Orbital Reconstruction." *Ann Plast Surg* 2009;63(4): 468.

10/07 **Bernardino CR.** Enucleation vs. Evisceration. *Ophthalmol* 2007;114(10):1959.

8/07 **Bernardino CR.** Alternative Etiology and Surgical Correction of Acquired Lower Eyelid Entropion. *Ann Plast Surg* 2007;59(2):229.

3/07 **Bernardino CR**. Re: Full-Thickness Eyelid Reconstruction With a Single Upper Eyelid Orbicularis Oculi Musculocutaneous Flap. *Ann Plast Surg.* 2007;58(3).

9/06 **Bernardino CR**, Chang EL, Rubin PA. Transcaruncular orbital decompression: an alternative procedure for graves ophthalmopathy with compressive optic neuropathy. *Am J Ophthalmol* 2006;142(4):711-2.

9/06 **Bernardino CR.** Correction of late post-traumatic enophthalmos using a tissue expander. *Ann Plast Surg* 2006;57(4):477.

4/06 **Bernardino CR**. Correction of ectropion in facial paralysis. *Plast Reconstruct Surg* 2006:117(4):1351-2.

7/05 **Bernardino CR**, Chang EL, Hatton MP, Rubin PAD, Dohlman CH.

Re: Glaucoma Drainage Devices: A systemic Literature Review and Current Controversies. *Surv Ophthalmol* 2005;50(4);411.

4/05 **Bernardino CR**. Re: Break into the Movies (And Keep Your Day Job). *Rev Ophthalmol* 2005;4:26.

12/04 **Bernardino CR**. Re: Improvement of Dermatochalasis and Periorbital Rhytids with a High-Energy Pulsed CO Laser: A Retrospective Study. *Dermatol Surg* 2004;30(12 Pt1):1500.

6/03 Chang EL, **Bernardino CR**, Watkins, LM, Rubin, PAD. Rebleed of Traumatic Hyphema after Closed Reduction of Nasal Fracture. *Journal of Cranio-Maxillofacial Surgery* 2003;31:191-192.

Published Abstracts

10/11 Lin JL, Servat JJ, **Bernardino CR**, Levin F. Ocular Self-Mutilation Requiring Surgical and/or Psychiatric Intervention. ASOPRS Fall Meeting, Orlando, FL.

10/10 Lee SB, Kahn N, Weinberg D, **Bernardino CR**. Initial Experience with the AlphaSphere Orbital Implant. ASOPRS Fall Meeting, Chicago, IL.

5/10 Servat JJ, Lin J, **Bernardino CR**. The effects of topical antiglaucoma medications on eyelid malposition in the elderly. American Geriatrics Society Annual Meeting. Poster Presentation. Orlando, FL

5/10 Prescott CR, Crum AV, **Bernardino CR**. Orbital Fractures and Their Relation to Ocular Injuries in the Geriatric Population. American Geriatrics Society Annual Meeting. Poster Presentation. Orlando, FL

5/10 Lin JL, **Bernardino CR**. Supine Exophthalmometry as a Screening Tool for Thyroid Eye Disease. Association for Research in Vision and Ophthalmology Annual Meeting, Ft. Lauderdale, FL

5/10 Servat JJ, Palmisano P, **Bernardino CR**. Eyelid changes associated with Bimatoprost use. Resident Research Day, YSoM

5/10 Crum AV, **Bernardino CR**. Tarsoconjuncitvo-Muller-Levator Resection, a novel technique for involutional ptosis. Resident Research Day, YSoM

5/10 Lin JL, **Bernardino CR**. The modified tarsal strip tarsorrhaphy versus the lateral tarsal strip for entropion and ectropion. Resident Research Day, YSoM

1/10	**Bernardino CR**. Developing a Geriatrics Curriculum for Eye Care. Educating the Educators, Association of University Professors of Ophthalmology Annual Meeting, Sarasota, FL
10/09	Lin JL, Fay AM, **Bernardino CR**. Supine Exophthalmometry as a Screening Tool for Thryoid Eye Disease. ASOPRS Fall Meeting, San Francisco, CA
9/09	**Bernardino CR**, Liggett PE. Orbital carcinoid: first or second ocular metastasis. International Society of Ocular Oncology Meeting, Cambridge, UK
5/09	Crum AV, Servat JJ, **Bernardino CR.** Developing a Geriatrics Curriculum for Eye Care – The Yale Geriatrics for Ophthalmology Initiative. American Geriatrics Society Annual Meeting, Geriatrics Education for Specialty Residents, Chicago, IL
6/08	Servat JJ, **Bernardino CR**, Sierra C, Nesi F, Gladstone G. Correlation Between Irrigation Around Silicone Tubes After Endoscopic Dacryocystorhinostomy With Clinical Symptoms And Surgical Outcomes. Connecticut Society of Eye Physicians Spring Meeting, Plantsville, CT
11/06	**Bernardino CR.** Hydrogel and the Anophthalmic Socket: An Expanding Role. AAO Annual Meeting, Las Vegas, NV
10/05	Chang EL, **Bernardino CR**, Rubin PAD. Development of an Orthotopic Xenographic Mouse Model of Adenoid Cystic Carcinoma of the Lacrimal Gland. ASOPRS Fall Meeting, Chicago, IL
6/05	Takle LM, **Bernardino CR**. Periocular Cutaneous Lesions and Their Management Through Mohs Reconstructive Surgery. Resident Day Research Presentation. EEC, Atlanta, GA
3/04	**Bernardino CR**, Chang EL, Ksander BR, Rubin PAD. Histological Characteristics of Recurrent Conjunctival Melanoma When Implanted in a SCID Mouse. Wills Eye Hospital Annual Conference, Philadelphia, PA.
11/03	Chang EL, **Bernardino CR**, Rubin PAD, Ksander BR. Orthotopic metastatic mouse model of ocular tumors for anticancer treatment evaluation: bridging the gap from lab to clinic. ASOPRS Fall Meeting, Anaheim, CA.

11/03	**Bernardino CR**, Leibsch NJ, Rubin PAD. Lateral Orbitotomy for Potentially Malignant Lacrimal Gland Tumors: Incision Design Based on Radiotherapy Considerations. ASOPRS Fall Meeting, Anaheim, CA
11/03	Rubin PAD, **Bernardino CR**, Chang EL, Dohlman CH. Oculocentric Orbitofacial Surgery: Connecting a Glaucoma Valve Shunt to Extraorbital Locations in Severe Glaucoma. ASOPRS Fall Meeting, Anaheim, CA
5/03	Chang EL, **Bernardino CR**, Ksander BR, Rubin PAD. Primary tumor growth and metastatic spread of human conjunctival melanomas in an animal model. ARVO, Ft. Lauderdale, FL
5/03	**Bernardino CR,** Fay AM, Rubin PAD. A clinicopathological series of the spectrum of long-term complications from hydrogel scleral buckles – orbital cellulitis mimicry, prosthesis intolerance, and orbital pseudotumor. ARVO, Ft. Lauderdale, FL
5/03	Kim EC, **Bernardino CR**, Fay AM, Rubin PAD. Study of the Expansile Properties of a Hydrogel Implant within Porcine Scleral Shells. ARVO, Ft. Lauderdale, FL
10/02	Dohlman CH, Grosskreutz CL, Pasquale L, Ma JJK, Nouri M, **Bernardino CR**, Rubin PAD. Tube Extension from Ahmed Valve to Lacrimal Sac, Ethmoid or Maxillary Sinuses in Patients with Keratoprothesis. AAO Annual Meeting, Orlando, FL
10/02	**Bernardino CR**, Rubin PAD. The Mustardé Flap Revisited: a Multipurpose Rotational Flap to Address Skin Defects and Eyelid Malposition. AAO Annual Meeting, Orlando, FL
10/02	**Bernardino CR**, Chang EL, Fay AM, Rubin PAD. Lid Contour after Lateral Tarsal Strip Procedure for Entropion and Ectropion. ASOPRS Fall Meeting, Orlando, FL
5/02	**Bernardino CR**, Chang EL, Fay AM, Rubin PAD. Orbital Fractures Associated with Ocular Trauma – Clinical Features. Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL

3/02	Carrasco JR, Bilyk JR, Pribitkin E, **Bernardino CR**, Rubin PAD. Endoscopic Orbital Apical Decompression for Compressive Optic Neuropathy Due to Mass Lesions. Wills Eye Hospital Annual Conference, Philadelphia, PA.
5/01	**Bernardino CR**, Maus M, Lee J. Balloon Dacryoplasty in Conjunction with Digital Subtraction Dacryocystography for the Treatment of Acquired Nasal Lacrimal Duct Obstruction. ARVO, Ft. Lauderdale, FL
3/01	Maust HA, Jeffers JB, **Bernardino CR**, Aldave AJ. Esperanza, a Resident-Run Free Ophthalmology Clinic for Philadelphia's Hispanic Community. Wills Eye Hospital Annual Conference, Philadelphia, PA.
2/01	**Bernardino CR**, Lee SY. A Case Series of 15 patients with Dehiscence of the Corneal Graft Wound. Contact Lens Association of Ophthalmologists Annual Meeting, Las Vegas, NV
5/00	**Bernardino CR,** Bernardino VB. Utility of Frozen-Section Surgical-Margin Control in Primary Excision of Basal Cell Carcinoma. Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL

Industry Manuals

06	Noted User – Product Insert. Medpor Attractor Magnetic Coupling System. Porex Surgical, Noonan, GA
05	Noted User – Product Insert. Medpor Titan Sheets. Porex Surgical, Noonan, GA

Published Interviews

7/09	Physician at Work: Droopy eyelids, bulging eyes and double vision. *Yale Practice* 2009;14(7):1-2.
9/08	Phillips, P. Pain in the Eye. Managing Patients with Severe or Chronic Ocular Pain. *Eyenet* 2008:9:50-55.
9/07	Phillips P. Preempting the Pain From Eye Surgery. *Eyenet* 2007;9:41-2.
3/04	Daly R. Strategies to boost pain control and patient comfort during office procedures. *EyeWorld*, 2004;3.
3/04	Herskovits B. Surgical decisions affect area of radiation in lacrimal tumors. *Ocular Surgery News*, 2004; 3:53-6.
1/04	Billingsley J. Paintball: More Dangerous than Meets the Eye. *HealthDayNews*, 2004.

Published Videos

11/10	Internal Ptosis Repair. Youtube. http://www.youtube.com/watch?v=eLQOFeD6ZGs
11/10	External Ptosis Repair and Upper Eyelid Blepharoplasty. Youtube. http://www.youtube.com/watch?v=wIPR6baf5ms
10/10	Enucleation - Eye Surgery to Remove a Blind, Painful Eye. Youtube. http://www.youtube.com/watch?v=dIBh_oCTNvQ
10/10	External Dacryocystorhinostomy. Youtube. http://www.youtube.com/watch?v=gPF6omOTXv0
8/09	Losing an eye - how to treat. The Doctors Channel. http://www.thedoctorschannel.com/video/2362.html?specialty=
8/09	Cosmeceuticals and eyelash growth. The Doctors Channel. http://www.thedoctorschannel.com/video/2361.html?specialty=
8/09	Orbital decompression for thyroid eye disease. The Doctors Channel. http://www.thedoctorschannel.com/video/2361.html?specialty=
8/09	Thyroid eye disease referral. The Doctors Channel. http://www.thedoctorschannel.com/video/2359.html?specialty=
8/09	Eye surgery transitioning from OR to the office. The Doctors Channel. http://www.thedoctorschannel.com/video/2275.html?specialty=
8/09	Thyroid Eye Disease. The Doctors Channel. http://www.thedoctorschannel.com/video/2272.html?specialty=

JON P. PAGE, MD

EDUCATION

2006-2007 Jules Stein Eye Institute, UCLA Los Angeles, CA
Fellow, Cornea-External Diseases & Uveitis

- Preceptors: Anthony J. Aldave, M.D., Gary N. Holland, M.D., D. Rex Hamilton, M.D., Bartly J. Mondino, M.D., Richard Casey, M.D.

2003-2006 New York Eye & Ear Infirmary New York, NY
Residency, Ophthalmology

- Chief Resident, 2005-2006.
- Austen T. Gray Memorial Scholarship as top graduating resident

2002-2003 Lenox Hill Hospital New York, NY
Internship, Internal Medicine

1998-2002 Temple University School of Medicine Philadelphia, PA
M.D.

- Elected AOA as Junior.

1991-1995 Stanford University Stanford, CA
B.A., Human Biology, with Honors.

EMPLOYMENT

2007-present Vantage Eye Center Salinas, CA

- Specializing in medical and surgical treatement of anterior segment, corneal and refractive ocular diseases.

1996-1998 Univ. California at San Francisco San Francisco, CA

- Post-Graduate Researcher, Department of Pharmaceutical Chemistry.

1995-1996 Centaur Pharmaceuticals, Inc. Sunnyvale, CA

- Research Associate.

PUBLICATIONS & PRESENTATIONS

J.P. Page, P.M.T. Garcia, S. Schneider, R.B. Rosen. Scanning laser ophthalmoscopy-optical coherence tomography (SLO-OCT) evaluation of choroidal nevi. ARVO Poster Presentation, 2005.

Frank MG, Page J, Heller HC (1997). The effects of REM sleep-inhibiting drugs in neonatal rats: evidence for a distinction between neonatal active sleep and REM sleep. Brain Research 778:64-72.

Page JP, Managala NR, Wang CC (1999). Point mutations in the guanine phosphoribosyltransferase from Giardia lamblia modulate pyrophosphate binding and enzyme catalysis. Eur J of Biochemistry 259(3):565-71.

US Patent #6,075,044. Wang CC, Somoza J, Page JP, Knegtel RMA, Kuntz ID, Oshiro CM, Skillman AG (2000) Heterocyclic derivatives as inhibitors of purine salvage phosphoribosyltransferases.

INTERESTS/HOBBIES

Golf, Fly-fishing.

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Demographics

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Education

2002-2006 **Bachelor of Arts – Biology, Classical Studies**
School of Arts and Sciences
University of Pennsylvania, Philadelphia, Pennsylvania

2006-2010 **Doctorate of Medicine**
University of MichiganMedicalSchool, Ann Arbor, Michigan

Positions and Employment

Aug 3, 2015-present **Ophthalmologist and Glaucoma Specialist**
Vantage Eye Center, Salinas, California

2014-2015 **Glaucoma Fellow,** Ophthalmology
HenryFordHospital, Detroit, Michigan
Program Director: Nauman Imami, MD, MHSA

2011-2014 **Resident,** Ophthalmology
HenryFordHospital, Detroit, Michigan

2010-2011 **Intern,** Transitional Year Program
WayneStateUniversitySchool of Medicine, Rochester, Michigan

2004 **Congressional Intern**
Congressman Todd Platts, U.S. House of Representatives

Research Experience, Presentations/Publications

2014	**Min V, Crandall D, Imami N. Canaloplasty Efficacy: early outcomes in an urban population. 2014 Michigan Society of Eye Physicians and Surgeons, Mackinac Island MI. Presentation, August 8, 2014.**
2014	**Min V, Zhang A, Crandall D, Imami N. Canaloplasty Outcomes: The Henry Ford Experience. 2014 David Barsky, MD Resident Research Award Competition, Detroit MI. Presentation, June 7, 2014.**
2013-Present	**Efficacy and Safety Outcomes in Combined Cataract and Canaloplasty in Glaucoma Patients at HenryFordHospital** *Analyzing postoperative intraocular outcomes of combined cataract extraction with canaloplasty in glaucoma patients, including the need for pressure lowering medications after surgery, and reporting any complications*
2012-Present	**Comparison of Tube Shunt Surgery, ExPress Shunt Surgery, and Trabeculectomy in Blunting the Intraocular Pressure Increase with Positional Changes** *Currently enrolling. Comparing eye pressure variations when lying supine in patients who have glaucoma tube shunt surgery, trabeculectomy, or ExPress shunt surgery*
2010	**Min VK. Aging Vision, Oakland County Area Agency on Aging, Rochester MI. Presentation, Aug 20, 2010.**
2009	**Karimipour DJ, Rittie L, Hammerberg C, Min VK*, Voorhees JJ, Orringer JS, Sachs DL, Hamilton T, Fisher GJ. Molecular analysis of aggressive microdermabrasion in photoaged skin. Arch Dermatol 145(10):1114-22, 2009.** *Content, acquisition of data, critical revision for important intellectual content, administrative/technical/material support*
2009	**Medical Student Research – Preceptor AlonKahana MD, PhD, Department of Ophthalmology and Visual Sciences, University of Michigan Kellogg Eye Center** *Investigating the effects of notch and hedgehog signal inhibition in the ocular development of zebrafish, using the gamma-secretase inhibitor DAPT and the alkaloid cyclopamine*
2007	**Min V, Karimipour DJ, Hammerberg C, Rittie L, Fisher GJ. RoughGritDiamondTome Microdermabrasion Triggers a Wound Healing Response and Dermal Remodeling in Human Skin in vivo. University of MichiganMedicalSchool 53rd Annual Student Biomedical Research Forum, Ann Arbor MI. Poster Presentation, Nov. 11, 2007.**
5-8/2007	**Medical Student Research – Preceptor Gary Fisher PhD, University of Michigan Department of Dermatology** *Analyzing the extent of molecular repair processes stimulated in the dermis by Microdermabrasion*
2002-2006	**Honors Thesis – Preceptor Eric Weinberg PhD, University of Pennsylvania Department of Biology** *Characterizing a novel recessive mutation named tempest in the zebrafish, including genotype matching and phenotype examination*

Volunteer Activities

2011-present **Detroit Tigers Health Screening**
Detroit, Michigan

2013 **Hope Clinic**
Detroit, Michigan

2006-2010 **Project H Clinic**
Ypsilanti, Michigan

2006-2010 **Galens Medical Society**
Ann Arbor, Michigan

Honors and Awards

2014 **Grand Prize Winner**
2014 David Barsky, MD Resident Research Award Competition

2009 **Helping Hand Award for co-coordination of the M3Survival Workshop**
University of MichiganMedicalSchool

2009 **Note of Commendation from AlonKahana, MD, PhD for research in the Department of Ophthalmology and Visual Sciences**
University of MichiganKelloggEye Center

2009 **Note of Commendation from Larry Koreen, MD, PhD for clinical performance and research in the Department of Ophthalmology and Visual Sciences**
University of MichiganKelloggEye Center

2007 **University of Michigan Student Biomedical Research Fellowship**
University of MichiganMedicalSchool

2007 **Upjohn Memorial Educational Fellowship**
University of MichiganMedicalSchool

2006 **Magna Cum Laude, with Distinction in Biology**
University of Pennsylvania

Professional Memberships

Michigan Society of Eye Physicians and Surgeons

American Academy of Ophthalmology

Association for Research in Vision and Ophthalmology

American Medical Association

Hobbies and Interests

2nd degree black belt - Tang Soo Do, Pennsylvania Dutch culture, British television

STATE AND CONSUMER SERVICES AGENCY

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OPTOMETRY

Request for Approval of Continuing Education Course(s)

Cynthia Adame
NVISION Eye Centers
75 Enterprise, Suite 200
Aliso Viejo, CA 92656

Cashiering and Board Use Only			
Receipt#	Payor ID#	Beneficiary ID#	Amount
1-524	6199013	6199017	100

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____

CE Committee Member

NVISION
EYE CENTERS

STATE BOARD OF OPTOMETRY
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

January 6, 2016

On behalf of NVISION Eye Centers, we are writing to request approval of 2 (two) hours Continuing Education to California doctors of optometry. The education will be delivered by Board Certified Ophthalmologists, clinical investigators and experts in technology and patient consultation.

Program Date: February 3, 2015, and additional dates thereafter.

Location: NVISION Torrance Center, 23550 Hawthorne Blvd, Suite 220, Torrance, CA 90505
This course will be repeated by NVISION surgeons and affiliate surgeons at centers and venues located in and around Camarillo, Fullerton, Laguna Hills, Murrieta, Newport Beach, Ontario, Palm Desert, Sacramento, San Diego, San Francisco, San Luis Obispo, and Torrance.

Program Name and Description:

Peripheral Retinal Lesions – 1 Hour
A comprehensive overview of Lesions and Conditions Affecting the Peripheral Retina, including Vitreoretinal Abnormalities, Mass Lesions, and Masquerade Lesions/Conditions, as common conditions of Age-Related Macular Degeneration (AMD). This course also takes a look at AMD types, risk factors, preventative measures, treatment history and current options.

Hyperopia – 1 Hour
This hour covers a wide variety of discussions, all focused on Hyperopia. We introduce the topics by reviewing the condition, causes, and symptoms, and go in depth with the various options of treatment based on the severity and possible complications, and risk factors associated with Hyperopia, such as Acute angle closure Glaucoma. Patient selection and candidacy is also included with the various treatment options.

We are seeking a total of 2 hours of continuing education credit for these courses. The contact person for this program is myself, and I can be reached at 949.243.7482 or cynthia.adame@nvisioncenters.com.

Sincerely,

Cynthia Adame
NVISION Laser Eye Centers
Continuing Education and Special Projects Coordinator

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
p: 949.274.4652 • *f:* 949.509.4858 • *e:* info@nvisioncenters.com • *w:* www.nvisioncenters.com

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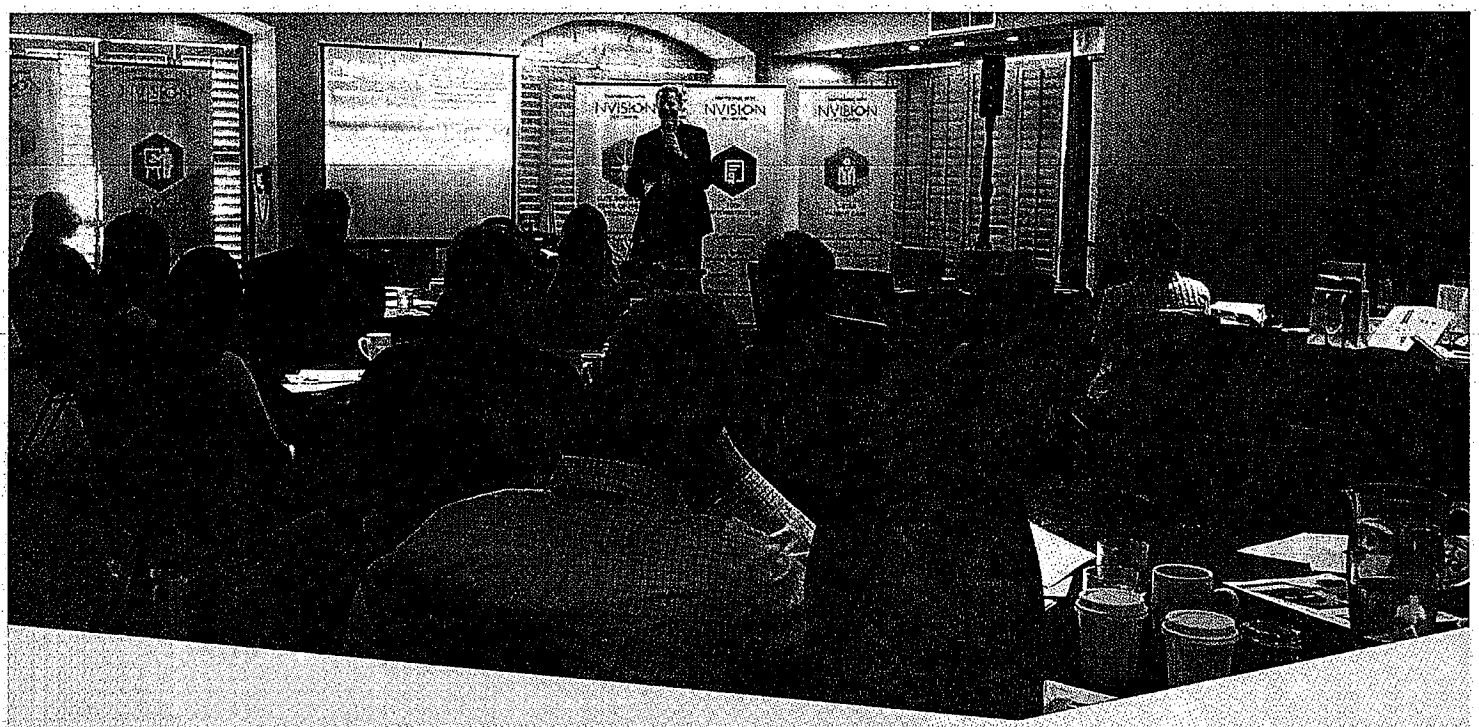
Course Title	Date(s) of Course	Instructor(s)/ Lecturer(s)	CE Hours Requested	Approved	Disapproved	ID#
Peripheral Retinal Lesions	2/3/16 and ongoing	Mitra Ayazifar, MD George Baerveldt, MD Sondra Black, OD Amarpreet Brar, MD Richard Burns, MD Paul Casey, MD John Davidson, MD Loren Little, MD Franklin Lusby, MD Patrick Lydon, OD Jeff Machat, MD Mihir Parikh, MD Steward Park, MD Jonathan Pirnazar, MD Archana Reddy, MD Sheri Rowen, MD Richard Meister, MD Stanley Teplick, MD Thomas Tooma, MD George Simon, MD Emil Stein, MD Jon-Marc Weston, MD	1			
Hyperopia			1			
		TOTAL TIME	2			
COMMITTEE COMMENTS:						



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8:40 - 9:00 PM	**Q&A with Franklin Lusby, MD and Ron Taban, MD**

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Mehran Ron Taban, M.D., Inc

EMPLOYMENT
Macula Retina Vitreous Center (MRVC) – Director, Founder (2014)

DEGREES:
Undergraduate:
University of California – Los Angeles (UCLA)
Bachelor of Science, Biology-- *Summa Cum Laude*

Medical School:
University of California – Irvine (UCI)
M.D., College of Medicine

Internship:
University of California – Irvine Medical Center
Internal Medicine

Residency:
Cleveland Clinic, Cole Eye Institute
Cleveland, OH -- Ophthalmology

Fellowship:
Cleveland Clinic, Cole Eye Institute
Cleveland, OH -- Vitreoretinal Surgery

AWARDS and HONORS:

Undergraduate:
- ***Summa Cum Laude*** graduate, UCLA
- **Phi Beta Kappa**
- Dean's **Honor List**, UCLA (1996-99)
- College **Honors** Program, UCLA (1996-99)

Medical School:
- Member of the **Alpha Omega Alpha (AΩA)** Honor Medical Society
- Achieved **Honors** in basic science courses
- **Basic Science Certificate of Excellence**
- **Distinguished Achievement Award in General & Systemic Pathology**
- **Certificate of Excellence in Medical Physiology**
- **Certificate of Excellence in Microbiology**
- Elected to Pathology Honor Society through the **Association of Pathology Chairs (APC) Honor Society**
- Achieved **Honors** in Medicine, Surgery, Family Medicine, and Emergency Medicine
- Achieved **Honors** in Ophthalmology (clinical & research)
- Received **Letters of Commendation** from Medicine and Surgery clerkships for high performance

Residency:

- **Chief Resident** for 2006-2007
- Grandrounds/Quiz Award 2006-2007

Fellowship:
- **Heed Fellow**, 2007-2008
- **Retina Society Fellowship Award**, September 2008
- **Ronald G. Michels Fellowship Foundation** award, November 2008
- Best Fellow Research Paper, Cole Eye Institute 2009

Board Certification:
- American Board of Ophthalmology

Licensure:
- Medical/State of California

Academic Appointments:

Assistant Clinical Professor, UCLA/Harbor Medical Center

RESEARCH Experience:

Undergraduate: 1996-1999

UCLA, Jules Stein Eye Institute. Mentor: Suraj P. Bhat.

Medical School: 1999-2003
- Beckman Laser Institute, University of California-Irvine. Mentor: Corinne G. Wong, Ph.D.
- Cornea Research Laboratory, University of California-Irvine, Dept. Ophthalmology. Mentors: Peter J. McDonnell, M.D., Roy S. Chuck, M.D., Ph.D.

Residency: 2004-2007
- Cole Eye Institute, Cleveland Clinic Foundation. Mentors: Hilel Lewis, Elias Traboulsi, Jonathan Sears, Peter Kaiser, Andrew Schachat, others.

Fellowship: 2007-2009
- Cole Eye Institute, Cleveland Clinic Foundation. Mentors: Hilel Lewis, Jonathan Sears, Peter Kaiser, Andrew Schachat, Dan Martin, Rishi Singh, Nadia Waheed.

CLINICAL RESEARCH Experience:

- Sub-Investigator: Ranibizumab for Edema of the Macula in Diabetes: Protocol 3 with High Dose- the READ3 study (2010)

- Sub-Investigator: Regeneron A Randomized, Double Masked, Controlled Phase 3 Study of the Efficacy, Safety, and Tolerability of Repeated Intravitreal Administration of VEGF Trap-Eye in Subjects with Macular Edema Secondary to Central Retinal Vein Occlusion (2010).

- Sub-Investigator: Alcon ALKOR: C-07-43 - A Clinical Safety and Efficacy Comparison of NEVANAC® 0.1% to Vehicle Following Cataract Surgery in Diabetic Retinopathy Patients (2009).

- Sub-Investigator: Genentech HORIZON: An open-label, multicenter Extension study to evaluate the safety and tolerability of RANIBIZUMAB in subjects with choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD) or macular edema secondary to retinal vein occlusion (RVO) who have completed a genentech-sponsored RANIBIZUMAB STUDY (2009).

- Sub-Investigator: Genentech HARBOR: A Phase III, Double Masked, Multicenter, Randomized, Active Treatment-Controlled Study of the Efficacy and Safety of 0.5mg and 2.0mg Ranibizumab Administered Monthly or on an As-Needed Basis (PRN) in Patients with Subfoveal Neovascular Age-Related Macular Degeneration (2009).

- Sub-Investigator: Alcon GATE: The Safety and Efficacy of AL-8309B Ophthalmic Solution for the Treatment of Geographic Atrophy (GA) Secondary to Age-Related Macular Denegeration (2009).

- Sub-Investigator: Regeneron VIEW1: A Randomized, Double Masked, Active Controlled Phase III Study of the Efficacy, Safety, and Tolerability of Repeated Doses of Intravitreal VEGF Trap in Subjects with Neovascular Age-Related Macular Degeneration (2008).

- Sub-Investigator: Genentech FVF4165g BRAVO: A Phase III, Multi-Center, Randomized, Sham Injection-Controlled Study of the Efficacy and Safety of Ranibizumab Injection Compared with Sham in Subjects with Macular Edema Secondary to Branch Vein Occlusion (2007).

- Sub-Investigator: Genentech FVF4166g CRUISE: A Phase III, Multi-Center, Randomized, Sham Injection-Controlled Study of the Efficacy and Safety of Ranibizumab Injection Compared with Sham in Subjects with Macular Edema Secondary to Central Retinal Vein Occlusion (2007).

Published/Accepted Manuscripts/Lectures:

1. McDonnell PJ, **Taban M**, Sarayba MA, Rao B, Zhang J, Schiffman R, Chen Z. Dynamic morphology of clear corneal cataract incisions. *Ophthalmology* 2003;110:2342-8.
   - Morphology of Clear Corneal Incisions. *Ophthalmology* 2004;111:849.
2. Rao B, Zhang J, **Taban M**, McDonnell PJ, Chen Z. Imaging and investigating the effects of incision angle of clear corneal cataract surgery with optic coherence tomography. *Optics Express* 2003;11:3254-61.
3. Tungsiripat T, Sarayba MA, Kaufman MB, Sweet PM, **Taban M**, Carpenter TR, and McDonnell PJ. Fluroquinolone therapy in multiple-drug resistant staphylococcal keratitis after lamellar keratectomy. *Am J Ophthalmol* 2003;136:76-81.
4. **Taban M**, Rao B, Reznik J, Zhang J, Chen Z, McDonnell PJ. Dynamic morphology of sutureless cataract wounds—Effect of incision angle and location. *Surv Ophthalmol* 2004;49 Suppl 2:S62-72.
5. Tungsiripat T, Sarayba MA, **Taban M**, Sweet PM, Osann KE, Chuck RS. Viability of limbal corneal epithelium after anterior lamellar harvesting using a microkeratome. *Ophthalmology* 2004;111:469-75.
6. Chuck RS, Shehada RN, **Taban M**, Tungsiripat T, Sweet PM, Grundfest WS, McDonnell PJ. 193 nm excimer laser-induced fluorescence detection of fluoroquinolones in rabbit corneas. *Arch ophthalmol* 2004;122:1693-9.
7. Taban M, Boyer DS, Thomas EL, **Taban M**. Chronic central serous chorioretinopathy: photodynamic therapy. *Am J Ophthalmol* 2004;137:1073-80.
8. Rao B, Zhang J, **Taban M**, McDonnell PJ, Chen Z. Visualizing morphological changes of clear corneal cataract incisions with optic coherence tomography. *Progress in Biomed Optics Imaging* 2004;5:112-8.
9. Sarayba MA, **Taban M**, Ignacio TS, Behrens A, McDonnell PJ. Inflow of ocular surface fluid through clear corneal cataract incisions: A laboratory model. *Am J Ophthalmol* 2004;138:206-10.
   - Inflow of ocular surface fluid through clear corneal cataract incisions: a laboratory model. *Am J Ophthalmol* 2005;139:392-3.
   - Inflow of ocular surface fluid through clear corneal cataract incisions: a laboratory model. *Am J Ophthalmol* 2005;139:576-7.
   - Inflow of ocular surface fluid through clear corneal cataract incisions: a laboratory model. *Am J Ophthalmol* 2005;139:753-5.
10. Erb MH, **Taban M**, Barsam CA, Sweet PM, Chuck RS. Mechanical stability of microkeratome-assisted intracorneal keratoprosthesis implantation. *Arch Ophthalmol* 2004;122:1839-43.
11. Reiser BJ, Ignacio TS, Wang Y, **Taban M**, Graff JM, Sweet P, Chen Z, Chuck RS. In vitro measurement of rabbit corneal epithelial thickness using ultrahigh resolution optical coherence tomography. *Vet Ophthalmol* 2005;8:85-8.
12. Sarayba MA, Shamie N, Reiser BJ, Sweet PM, **Taban M**, Graff JM, Kesler-Diaz A, Osann KE, McDonnell PJ. Fluoroquinolone therapy in Mycobacterium chelonae keratitis after lamellar keratectomy. *J Cataract Refract Surg* 2005;31:1396-402.
13. **Taban M**, Behrens A, Newcomb RL, Nobe MY, Saedi G, Sweet PM, McDonnell PJ. Acute endophthalmitis following cataract surgery: A systematic review of the literature. *Arch Ophthalmol* 2005;123:613-20.
14. **Taban M**, Behrens A, Newcomb RL, Nobe MY, McDonnell PJ. Incidence of acute endophthalmitis following penetrating keratoplasty: A systematic review. *Arch Ophthalmol* 2005;123:605-9.
15. **Taban M**, Sarayba MA, Almeda TI, Behrens A, McDonnell PJ. Ingress of India ink into the anterior chamber through sutureless clear corneal cataract wounds. *Arch Ophthalmol* 2005;123:643-8.
    - Sutureless clear corneal cataract wounds and India ink. *Arch Ophthalmol* 2005;124:426.
16. **Taban M**, Sharma MC, Lee MS. Anterior ischemic optic neuropathy after uncomplicated scleral buckling surgery. *Graefes Arch Clin Exp Ophthalmol* 2006;244:1370-2.
17. **Taban M**, Ufret-Vincenty RL, Sears JE. Endophthalmitis following 25-gauge transconjunctival sutureless vitrectomy. *Retina* 2006;26:830-1.
18. **Taban M**, Dupps WJ, Mandell B, Perez VL. Etanercept (Enbrel) associated inflammatory eye disease: case report and review of the literature. *Ocul Immunol Inflamm* 2006;14:145-50.
19. **Taban M**, Chand D, Sears JE. Ocular findings in IgA nephropathy with renal failure and hypertension. *J Pediatr Ophthalmol Strabismus* 2006;43:378-380.
20. Taban M, **Taban M**, Perry JD. Plasma leptin levels in patients with floppy eyelid syndrome. *Ophthal Plast Reconstr Surg* 2006;22:375-7.
21. **Taban M**, Lewis H, Lee MS. Nonarteritic anterior ischemic optic neuropathy and 'visual field defects' following vitrectomy: Could they be related? *Graefes Arch Clin Exp Ophthalmol* 2007;245:600-5.
22. **Taban M**, Taban M, Lee MS, Smith S, Heyka R, Kosmorsky G. Optic disc edema in patients with peripheral hemodialysis shunts. *Ophthalmology*, 2007;114:1580-3.
23. **Taban M**, Traboulsi EI. Malignant melanoma of the conjunctiva in children: A review of the international literature 1965-2006. *J Pediatr Ophthalmol Strabismus* 2007;44:277-82.
24. **Taban M**, Taban M, Sears JE. Ocular findings following trauma from paintball sports. *Eye* 2008 Jul;22:930-4.
25. **Taban M**, Singh AD, Hajj-Ali R, Lowder CY. Anterior scleritis as the first presenting sign of metastastic lung cancer. *British J Ophthalmol*, 2008;92:147.
26. **Taban M**, Taban M, Perry JD. Lower eyelid position after transconjunctival lower blepharoplasty with versus without a skin pinch. *Ophthal Plast Reconstr Surg*, 2008;24:7-9.
27. **Taban M**, Lowder CY, Kaiser PK. Outcome of Fluocinolone Acetonide Implant (Retisert™) Re-implantation for Chronic Non-infectious Posterior Uveitis. *Retina* 2008, Jul 14. [Epub ahead of print].
28. Ventura C, Hayden BC, **Taban M**, Lowder CY. Ocular inflammatory diseases. *Ultrasound Clinics* 2008;3:245-55.
29. **Taban M**, Moshfeghi D, Singh RP. Radiation therapy for neovascular age-related macular degeneration. *Retinal Physician* 2008;5:17-21.

30. **Taban M**, Ventura A, Sharma S, Kaiser PK. Dynamic evaluation of sutureless vitrectomy wounds: an optical coherence tomography and histopathology study. *Ophthalmology* 2008;115:2221-8.
31. **Taban M**, Sharma S, Ventura A, Kaiser PK. Evaluation of wound closure in oblique 23-gauge sutureless sclerotomies with Visante optical coherence tomography. *Am J Ophthalmol* 2009;147:101-107.
32. **Taban M**, Sharma S, Williams DR, Waheed N, Kaiser PK. Comparing retinal thickness measurements using automated fast macular thickness map versus six-radial line scans with manual measurements. *Ophthalmology* 2009;116:964-70.
33. Semmer AE, Lee MS, **Taban M**, Smith S, Kosmorsky G. The Operation Was a Success, but the Patient Cannot See. *Surv Ophthalmol* 2009;54:708-13.
34. **Taban M**, Williams D, Smith SD, Kaiser PK. Assessing the reliability of automated OCT retinal thickness measurements in patients with choroidal neovascularization due to age-related macular degeneration. *Ophthalmic Surg Lasers Imaging* 2010;41:166-74.
35. **Taban M**, Lowder CY, Ventura AA, Sharma S, Nutter B, Hayden BC, Dupps WJ, Kaiser PK. Scleral thickness following fluocinolone acetonide implant (Retisert). *Ocul Immunol Inflamm* 2010;18:305-13.
36. Ezra N, **Taban M**, Behroozan D. Central serous chorioretinopathy associated with topical corticosteroids in a patient with psoriasis. *J Drugs Dermatol* 2011;10:918-21.

Chapters:

1. **Taban M**, Taban M, Singh AD. Ocular complications of radiation, Chapter 1-9, *Clinical Ophthalmic Oncology*, Ed. Singh AD, Damato, Pe'er, Murphree, Perry (2006).
2. **Taban M**, Perry JD. Classification of orbital tumors, Chapter 7-3, *Clinical Ophthalmic Oncology*, Ed. Singh AD, Damato, Pe'er, Murphree, Perry (2006).
3. Taban M, **Taban M**, Singh AD. Retinal astrocytic tumors, Chapter 5-3, *Clinical Ophthalmic Oncology*, Ed. Singh AD, Damato, Pe'er, Murphree, Perry (2006).
4. **Taban M**. Retinal astrocytoma. *Encyclopedia of Ophthalmology*, Ed. Hans Grossniklaus (2008).

Presentations/Abstracts:

1. **Taban M**, Bhat SP. Differential expression of aB-crystallin gene. Jules Stein Eye Institute. 1998.
2. Carvalho R, **Taban M**, Kuppermann BD, Wong CG. Rational therapeutic design for treatment of posterior segment neovascular diseases. *Fifth Annual Vision Research Conference, Animal Models of Retinal Degeneration: New Approaches and Applications*, April 27-28, 2001, Fort Lauderdale, FL, USA.
3. **Taban M**. Stimulation of choroidal neovascularization in the rabbit through sustained release of vEGF and bFGF. *J of Invest Med* 2002 Jan; 50(1).
4. **Taban M**, Carvalho R, Kuppermann BD, Wong CG. Stimulation of choroidal neovascularization in the rabbit through sustained release of VEGF and bFGF.
   - *30th Annual Western Student Medical Research Forum*. Feb 6-9, 2002, Carmel/Monterey, CA, USA. (Paper)
   - *52nd Annual American Medical Student Association (AMSA) Convention*. Mar 6-10, 2002, Houston, TX, USA. (Poster)
   - *9th Annual UCI Faculty Research Poster Session*. Mar 20, 2002, Irvine, CA, USA. (Poster).
5. Wong CG, **Taban M**, Wilson M, Berns MW. Bioengineering retinal blood vessels with pro-angiogenic polymeric scaffolds. *2002 Annual ARVO Meeting*. Fort Lauderdale, FL, USA.
6. Shamie N, Pirnazar JR, Behrens A, Sarayba MA, **Taban M**, McDonnell PJ, Suarez E, Vongtongshri A, Chuck RS. Evaluation of LASIK Outcomes in a Hispanic and a Thai Population. 2002.
7. **Taban M**, Behrens A, Newcomb RL, Nobe MY, Saedi G, Sweet PM, McDonnell PJ. Incidence of acute endophthalmitis following cataract surgery or penetrating keratoplasty: A meta-analysis. *2003 Annual AAO Meeting*. Anaheim, CA, USA. (Paper)
8. **Taban M**, Sarayba MA, Rao B, Zhang J, Schiffman R, Chen Z, McDonnell PJ. Dynamic morphology of clear corneal cataract incisions. *2003 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2003;44:E-Abstract 2578.
9. Shamie N, **Taban M**, Ohanesian RV, Chuck RS. Keratopigmentation: a surgical technique with improved cosmetic results for the removal of limbal dermoids. *2003 ASCRS Meeting*, San Francisco, CA, USA.
10. Rao B, Zhang J, McDonnell PJ, **Taban M**, Chen Z. In-vitro optic coherence tomography of clear corneal cataract incisions. *2003 American Society for Laser Medicine and Surgery*, Anaheim, CA, USA. *Lasers in Surgery and Medicine* 2003;32:4.
11. Rao B, Zhang J, Chen Z, McDonnell PJ, **Taban M**. In-vitro optic coherence tomography of clear corneal cataract incisions by phase-resolved functional OCT. UCI Integrated Nanosystems Research Facility. 2003.
12. **Taban M**, Conn H, Simpson JL. Z-plasty as a surgical technique for repair of upper lid colobomas in a case of Delleman syndrome with atypical features and a review. 2003.
13. De Carvalho RA, **Taban M**, Reynolds P, Rao N, Murphree AL. Clinical and histopathological characterization of a new xenograft model of vitreous seeding of human intraocular retinoblastoma. *2003 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2003;44:E-Abstract 1584.
14. Ross-Cisneros FN, De Carvalho R, **Taban M**, Kuppermann BD, Sadun AA, Wong CG. Bioengineering suprachoroidal pro-angiogenic VEGF/bFGF implants for induction of subretinal neovascularization in the rabbit. *2003 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2003;44:E-Abstract 3924.
15. Shamie N, Sarayba M, Reiser B, Sweet PM, **Taban M**, McDonnell PJ. Fluoroquinolone therapy in an animal model of Mycobacterium chelonae keratitis after lamellar keratectomy. *2003 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2003;44:E-Abstract 4278.
16. **Taban M**, Behrens A, Newcomb RL, Nobe MY, Saedi G, Sweet PM, McDonnell PJ. Incidence of acute endophthalmitis following cataract surgery or penetrating keratoplasty: A meta-analysis. *2004 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2004;45:E-Abstract 505.
17. **Taban M**, Tuthill R, McMahon JT, Singh A, Meisler DM. Mobile conjunctival epithelial inclusion cysts, December 2004.
18. Erb MH, **Taban M**, Barsam CA, Sweet PM, Chuck RS. Mechanical stability of microkeratome-assisted intracorneal keratoprosthesis implantation. *2004 ASCRS Meeting*, San Diego, CA, USA.
19. De Carvalho RA, **Taban M**, Kalous O, Reynolds P, Rao N, Murphree AL. Efficacy of periocular carboplastin in a xenograft model of vitreous seeding human retinoblastoma. *2004 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2004;45:E-Abstract 5192.
20. **Taban M**, Crowe S, Sculley L, Traboulsi EI. Selecting intraocular lens power in children. *2006 Annual Research, Residents, and Alumni Meeting*, Cole Eye Institute. June 16, 2005.
21. **Taban M**, Dupps Jr, WJ, Mandell B, Perez VL. Etanercept (Enbrel) associated inflammatory eye disease: case report and review of the literature. *2005 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2005;46:E-Abstract 2849.
22. **Taban M**, Perry JD. Lower eyelid position following transconjunctival lower eyelid blepharoplasty with versus without skin pinch. *2005 Annual Research, Residents, and Alumni Meeting*, Cole Eye Institute. June 17, 2005.
23. **Taban M**, Lewis H, Lee MS. Visual Field Defects and Ischemic Optic Neuropathy After Vitrectomy. *2006 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2006;47:E-Abstract 777.
24. **Taban M**, Williams D, Kaiser PK. Assessing CNV with Stratus OCT: Automated Fast Macular Thickness Maps versus Manual Measurements. *Combined Meeting of Club Jules Gonin & The Retina Society*. October 15-20, 2006, Cape Town, South Africa. (Paper)
25. **Taban M**, Taban M, Sears JE. Ocular findings following trauma from paintball sports. *24th Annual Meeting of the American Society of Retina Specialists & 6th Annual Meeting of the European Vitreo-Retinal Society*. September 9-13, 2006. Cannes, France.
26. **Taban M**, Lowder CY. Herpetic uveitis. *6th Uveitis Conference*, Cole Eye Institute. February 11, 2006.

27. **Taban M**, Lowder CY, Kaiser PK. Outcome of Fluocinolone Acetonide Implant (Retisert™) Re-implantation for Chronic Non-infectious Posterior Uveitis. 40th Annual Meeting of The *Retina Society*, September 27-30, 2007, Boston, MA. **(Paper)**
28. **Taban M**, Lowder CY, Kaiser PK. Outcome of Fluocinolone Acetonide Implant (Retisert™) Re-implantation for Chronic Non-infectious Posterior Uveitis. 25th Annual Meeting of the *ASRS*, December 1-5, 2007, Indian Wells, CA.
29. **Taban M**, Williams D, Kaiser PK. Assessing choroidal neovascularization with Stratus OCT: Automated Fast Macular Thickness Maps versus Manual Measurements. *2007 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2007;48:E-Abstract 136.
30. **Taban M**, Lowder CY, Kaiser PK. Outcome of Fluocinolone Acetonide Implant (Retisert™) Re-implantation for Chronic Non-infectious Posterior Uveitis. *2008 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2008;49:E-Abstract 5633.
31. Williams D, **Taban M**, Sharma S, Kaiser PK. Comparison of retinal thickness measurements using Fast Macular Thickness Map versus 6-radial line scan. *2008 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2008;49:E-Abstract 905.
32. **Taban M**, Ventura A, Sharma S, Kaiser PK. Dynamic evaluation of sutureless vitrectomy wounds: an optical coherence tomography and histopathology study. 41st Annual Meeting of The *Retina Society*, September 25-28, 2008, Scottsdale, AZ. **(received the Retina Society Fellowship Award and Presentation)**
33. **Taban M**, Ventura A, Sharma S, Kaiser PK. Dynamic evaluation of sutureless vitrectomy wounds: an optical coherence tomography and histopathology study. 26th Annual Meeting of the *ASRS*, October 11-15, 2008, Maui, HI.
34. **Taban M**, Ventura A, Sharma S, Kaiser PK. Dynamic evaluation of sutureless vitrectomy wounds: an optical coherence tomography and India ink study. *2009 Annual ARVO Meeting*. Fort Lauderdale, FL, USA. *Invest Ophthalmol Vis Sci* 2009;50:E-Abstract 5204.

Newsletter Articles and Brief Reviews:

1. **Taban M.** Clear corneal incisions implicated in endophthalmitis. *EuroTimes* 2004.
2. **Taban M.** Clear corneal incision linked to rising endophthalmitis risk. *Ophthalmology Times* 2004.
3. **Taban M.** Is Endophthalmitis on the rise? *Cataract Refract Surg Today* 2005.
4. **Taban M**, Trattler W, Clark WL, Kaiser PK. Endophthalmitis, Postoperative. *eMedicine* 2008.

Professional Societies:

- Alpha Omega Alpha (AΩA) Medical Honor Society
- Association of Pathology Chairs (APC) Honor Society
- American Academy of Ophthalmology (AAO)
- American Society of Retina Specialists (ASRS)
- Iranian Society of Ophthalmologists and Vision Scientists (ISOV)
- American Medical Association (AMA)
- Heed Fellowship Foundation
- Ronald G. Michels Fellowship Foundation

NVISION EYE CENTERS

Medical Doctor Curriculum Vitae

As of February 8, 2016

Mitra Ayazifar, MD

5959 Greenback Lane#310 Mobile: (916) 960-9176
Citrus Heights, CA 95621 Tel: (916)723-7400
E-mail: mayazifar@gmail.com Fax: (916)723-4449

EDUCATION

Undergraduate
University of California at Berkeley
B.A., Molecular and Cellular Biology
Emphasis: Cell and Developmental Biology
January 1988- December 1991

Medical School
George Washington University School of Medicine and Health Sciences
Washington, D.C.
Doctor of Medicine
August 1993- May 1997
Honors and Appointments:
Distinguished Service Award Nominee, 1994
Main Coordinator: Medical School Orientation for Class of 1998 (1994)
GWU Admissions Committee Member, 1996-1997
Coordinator, AMSA's STATS (Students Teaching AIDS To Students)
Community Outreach Program, 1993-1994
Treasurer, Medical School Student Council, 1993-1995
GWU Representative to Organization of Student Representatives (OSR)
at State and national conventions, 1994-1995

POSTGRADUATE TRAINING

Internship Washington Hospital Center
110 Irving Street, N.W.
Washington, D.C. 20010
July 1997- June 1998
Internal Medicine Preliminary Year

NVISION EYE CENTERS

Residency Rhode Island Hospital/ Brown University School of Medicine
Department of Ophthalmology
593 Eddy Street
APC 7th floor Eye Clinic
Providence, RI 02903
July 1998- June 2001

Fellowship Rhode Island Hospital/ Brown Medical School
Department of Ophthalmology
593 Eddy Street, Providence, RI 02903
Chief Resident/ Clinical Assistant Instructor in Surgery (Ophthalmology)
July 2001- June 2002

Rhode Island Hospital/ Brown University Program in Surgery
Department of Ophthalmology
Fellowship in Oculofacial Surgery
Program directors: Yoash Enzer, MD and R. Jeffrey Hofmann, MD
September 2003- August 31, 2004

PROFESSIONAL LICENSES/ BOARD CERTIFICATION

USMLE Step I: pass 6/95
Step II: pass 8/96
Step III: pass 11/01

Medical License Rhode Island State Medical License
Awarded: 2/13/02
Active Status to June 2006

California State Medical License
Awarded: 03/10/06
Active Status to 05/31/2015

American Board Eligible
of Ophthalmology Registered for 3/2015 Written Qualifying Examination

ACADEMIC APPOINTMENTS/ HOSPITAL APPOINTMENTS

Clinical Assistant Instructor of Surgery (Ophthalmology)
Brown Medical School/ Rhode Island Hospital
July 2001- June 2002

Clinical Assistant Professor of Surgery (Ophthalmology)

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NVISION EYE CENTERS

Brown Medical School/ Rhode Island Hospital
July 2002- July 2005

Clinical Assistant Professor of Surgery (Ophthalmology)
Veterans Administration Medical Center
Providence, Rhode Island
Staff Ophthalmologist
Comprehensive Ophthalmology and Oculoplastic Service
July 2002-2005

Interim Residency Program Director
Department of Ophthalmology
Rhode Island Hospital
July 2002- June 2003

SOCIETY MEMBERSHIPS

American Academy of Ophthalmology
American Society of Cataract and Refractive Surgery
American Medical Women Association (AMWA)
American Medical Association (AMA)
Roseville Chamber of Commerce

PUBLICATIONS

1- Murphy MA, Ayazifar M. Permanent visual deficits secondary to the HELLP syndrome. Journal of Neuro-Ophthalmology. 25(2): 122-127; June 2005.

2- Strauch M, Ayazifar M. Bent DNA is found in some but not all regions recognized by the Bacillus subtilis AbrB protein. Molecular and General Genetics 1995; 246(6):756-760.

BOOK CHAPTERS

Ayazifar M, Snady-McCoy L. Abnormal appearing Blood Vessels, In: Steidl SM, Hartnett ME eds. Clinical Pathways in Vitreoretinal Disease, New York: Thieme Medical Publishers, pp 183-202, 2002.

INVITED PRESENTATIONS

"Ophthalmology in the Hospital Setting" presented at Mercy San Juan Hospital Friday Grand Rounds (January 2015).

"Cosmetic and Functional Oculoplastic Procedures" presented at Nvision's Yearly CEjevent to Optometrists in Northern California (October 2014).

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"Maintaining Younger Looking Eyes" presented at Mercy's **Care Begins with Me** yearly Health Fair for Women (October 2013).

"Benign and Malignant Eyelid Lesions" presented at the Mercy San Juan Medical Center Grand Rounds (April 2012).

"Red Eye", presented quarterly to internal medicine housestaff at the Rhode Island Hospital and the Providence Veterans Administration Medical Center (1999-2001).

"CMV Retinitis", presented at the monthly Combined Retina Conference, Department of Ophthalmology, Rhode Island Hospital (October 1999).

"Ocular Manifestations of Systemic Disease", presented for the Lifespan community education series, Rhode Island Hospital, October 2000.

BCSC Review Lectures series: presented monthly to the ophthalmology residents, Department of Ophthalmology, Rhode Island Hospital (August 2001- 2003).

Oculoplastic surgery lecture series: "Thyroid Orbitopathy", presented to ophthalmology residents, Rhode Island Hospital, April 2002.

Oculoplastic surgery lecture series: "Ectropion, Entropion, and Trichiasis" presented to ophthalmology residents, October 2004.

Oculoplastic surgery lecture series: "The enophthalmic socket and late socket deformities", presented to ophthalmology residents, April 2004.

HOSPITAL TEACHING ROLES

Cataract surgical attending: Weekly cases with residents at Rhode Island Hospital Ambulatory Surgery Center (July 2001- 2005).

Cataract surgical attending: Weekly cases with residents at the Veterans Administration Medical Center (July 2001- 2005).

Clinical Assistant Instructor in Surgery: Department of Ophthalmology, management of the outpatient eye clinic and the inpatient Ophthalmology Consult Service at the Rhode Island Hospital (July 2001- June 2002).

Clinical Assistant Professor of Surgery (Ophthalmology): Management of the general ophthalmology and the oculoplastic service at the VAMC Providence. (July 2002- June 2005).

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Clinical Assistant Professor of Surgery (Ophthalmology): Call coverage for management of complex eyelid, orbital, facial trauma, and ruptured globe repairs, Rhode Island Hospital and the Providence Veterans Administration Medical Center (July 2002-2005).

EMPLOYMENT HISTORY)

December 2013-present
Nvision Sacramento

Capital Eye Medical Group joined Nvision sacramento. I continue to perform all of my previous procedures but have added cataract surgery to my list.

November 2011-December 2013
Capital Eye Medical Group:

Sole Practitioner in private practice in Carmichael, California
Providing comprehensive eye care and Oculoplastic services for the Sacramento area. Majority of my practice includes treatment of functional and cosmetic eyelid procedures including ptosis repair (eyelid and brow), blepharoplasty (upper and lower eyelids), ectropion, entropion, and various eyelid malpositions. The cosmetic procedures offered at my practice includes: Botox, Juvederm, Skin care regimen, and chemical peels. Also, I perform comprehensive eye examination for my patients.

September 2007- November 2011
Ophthalmology Associate Position at Sierra View Medical Eye:

Private Practice in Grass Valley, California including 3 Ophthalmologists and 1 Optometrist with its own optical department and accredited Ambulatory Surgery Center. My practice includes General Ophthalmology patients and all functional and cosmetic ophthalmic plastic procedures. This includes all the procedures mentioned below but expands to include the newer dermal fillers such as Juvederm Ultra and Juvederm Ultra Plus.

May 2006-August 2007

Ophthalmology Associate position at Martel Eye Medical Group: Majority of my practice included treatment of functional and cosmetic eyelid procedures including ptosis repair (eyelid and brow), blepharoplasty (upper and lower eyelids), ectropion, entropion, and various eyelid malpositions. I also performed post traumatic eyelid reconstructive surgery.
The **cosmetic procedures** offered at my clinic included: Botox, Restylane, Perlane, Laser hair removal, Laser Photorejuvenation, Skin care regimen, and chemical peels.

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George Baerveldt, MD

Dr. Baerveldt's international reputation is based on his glaucoma research and surgical innovations. Dr. Baerveldt developed the BaerveldtTM Glaucoma Implant and presently holds six patents related to this invention. He also invented Trabetome®, a minimally-invasive glaucoma surgical instrument for the treatment of adult and infantile open-angle glaucoma which is performed worldwide. In 2012, the American Glaucoma Society awarded Dr. Baerveldt with the Innovator Award for these contributions.

Born and educated in South Africa, Dr. Baerveldt obtained his medical degree from the University of Pretoria and his residency in ophthalmology at the University of the Witwatersrand. In 1980, Dr. Baerveldt, was head of St. John's Eye Hospital in Johannesburg when he was recruited as a fulltime faculty member at the Doheny Eye Institute, University of Southern California. In 1994, he accepted a faculty position as the Director of Glaucoma at the Cleveland Clinic Foundation where he remained until joining University of California at Irvine in 1999 as Director of Glaucoma. He was the Irving H. Leopold Professior and Chair of the Department of Ophthalmology, and Director of the Gavin Herbert Eye Institute from July 2003 - Novemeber 2008.

Dr. Baerveldt received the American Academy of Opthalmology's Senior Achievement Award in 2002 and was honored in Best Doctors in America (1996 - present). He was also named the Top Ophthalmologist by the International Association with the Distinguished Alumnus Award in 2000. He lectures internationally on glaucoma surgery and drugs.

Dr. Baerveldt's humanitarian endeavors have been recognized by the National Society to Prevent Blindness. He also received hte Teacher of the Year award in 1981 from the University of Southern California, and Staff of the Year from the Cleveland Clinic Foundation, 1997/1998 and 1998/1999.

Dr. Baerveldt performs surgery of several NVISION's Southern California locations and looks forward to meeting you and assisting with your glaucoma-related needs. In his spare time, he enjoys spending time with his wife, three children and four grandchildren.

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Sondra Black, OD

68 Sparkhall Ave
Toronto, Ontario
M4K 1G6
drsblack@yahoo.ca
416-988-8495

Education Graduated in 1980 from the University of Waterloo School of Optometry

Experience

1980-2000 Optometrist in private optometric practice
2000-2003 Clinical Director for TLC Custom LASIK
2003-2009 Clinical Director for TLC Toronto
2009-2010 VP/Clinical Director for Ocular Esthetics
2010-2012 VP-Clinical Operations for Crystal Clear Vision
2012-present Director of Clinical Operations for Crystal Clear Vision Canada

Licenses / Certificates

Member of Ontario College of Optometrists
Board Certified Treatment and Management of Ocular Disease
VISX Custom LASIK Certified
Orbscan Trainer for Technolas
Optometric Advisory Board for Acufocus

Memberships

OCRS
Editorial Board for Advanced Ocular Care
Optometric Advisory Board for Acufocus

Lectures, Articles and Clinical Trials:

Have lectured at major Optometric Meetings including:

- Vision Expo East and West
- American Optometric Association
- SECO
- American Academy of Optometry
- American Academy of Ophthalmology
- ASOA

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- CAO

Lecture topics include:

- How to Build your refractive surgery practice
- Iris registration
- Presbyopia options
- New Technology in refractive surgery
- Restorvision Reading implants
- Is your patient a candidate for Refractive Surgery
- Post-operative Complications
- Multifocal IOL's
- Maps
- Cross linking
- How to incorporate Topography into your private practice
- Refractive Options for your patient
- Best IOL option for your patient
- Corneal Inlays
- How to talk to your patient

Participated in the following clinical trials:

- Zyoptix Canadian trials
- Wavelight Allegretto Canadian custom trials
- RestorVision reading implants
- Visx Presbyopia trials
- AMO Symfony/Low Add

Articles written for most industry journals including:

- Optometric Management
- Vision Voice
- TLC E Vision
- Review of Optometry (including COPE articles)
- OSN
- Primary Care Optometry News
- Refractive Eye Care

Educational Videos completed for:

- Eyetube OD

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Amarpreet Brar, MD

A local Southern California native, Dr. Brar grew up skiing, playing basketball, swimming and he always knew he wanted to be a doctor. He found his true calling in Ophthalmology, and today, Dr. Brar is devoted to doing the most advanced types of cataract and LASIK surgeries. After graduating from Baylor College of Medicine in Houston, Texas, Dr. Brar completed his residency in ophthalmology at the University of Oklahoma's Dean McGee Eye Institute in Oklahoma City, then he decided to come home to his beloved Southern California.

Board certified for more than 10 years, Dr. Brar has performed more than 4,000 eye surgeries. He specializes in LASIK, PRK, LASEK, Cataracts, intraocular lenses, Custom LASIK and Wavefront technology. He is also an expert in implanting multifocal, accommodating, TORIC and monofocal intraocular lenses.

Dr. Brar is a member of respected professional societies, including the American Academy of Ophthalmology and the American Society of Cataract and Refractive Surgery. He has also been published in respected medical journals on topics related to Optic Neuritis in Children and Subfoveal Surgery for Removal of Choroidal Neovascular Membranes in submission to Ophthalmology. In addition, Dr. Brar is a frequent lecturer on topics related to refractive surgeries.

In his spare time, Dr. Brar likes to spend time with his wife and two children.

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Richard Burns, MD

Dr. Burns has performed more than 20,000 refractive and cataract procedures and takes particular interest in helping patients achieve their best personal vision through advanced refractive cataract and laser vision correction. His practice has been exclusively limited to cataract and refractive surgery for more than 25 years. Other ophthalmologists often refer the most challenging and complicated cases to Dr. Burns.

Prior to joining NVISION, Dr. Burns was the Chairman of the Department of Surgery as well as the Chairman of the Department of Ophthalmology at the largest multi-specialty group in San Diego. He also has a private practice in San Diego as well as serves as the Director of Refractive Surgical Services for California Eye Professionals in Temecula. He has served as the clinical instructor of ophthalmology for the University of California, San Diego, where he previously completed his residency and served as chief resident. He was also the chief of ophthalmology at Sharp Cabrillo Hospital, where he treated patients for more than eight years.

Dr. Burns is renowned for his success working with other ophthalmologists as well as optometrists, always with the goal of helping patients attain their best vision possible through laser procedures. A frequent lecturer on refractive and cataract procedures, Dr. Burns has also appeared on many television and radio programs sharing information about laser vision correction.

In his spare time, Dr. Burns enjoys golfing, hiking, and traveling. He especially enjoys spending time with his family as well as reading, particularly about history. He is involved in various local charitable works and enjoys participating in an annual work mission to Fiji. Dr. Burns chose the field of ophthalmology stating that "vision is awe inspiring to me."

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Paul Casey, MD

BIOGRAPHICAL DATA:
Date of Birth: January 27, 1962 Birthplace: Glen Ridge, NJ
Wife: Annemarie Children: Emily (23), Olivia (20)

EDUCATION:
1988-90 Florida Atlantic University
Bachelor of Arts, Chemistry
Bachelor of Science, Microbiology

1990-94 University of Miami School of Medicine
Doctor of Medicine

1994-95 David Grant Medical Center
Transitional Internship

1995-98 San Antonio Uniformed Services
Health Education Consortium
Residency in Ophthalmology

HONORS and AWARDS:
1988-90 Dean's List, Florida Atlantic University
1993 Alpha Omega Alpha, University of Miami

PRIVATE PRACTICE: 2002- Nevada Eye Care Professionals

CERTIFICATION:
United States Medical Licensing Examination
Step I- June 1992- 99th percentile
Step II- September 1993- 99th percentile
Step III- December 1995- 98th percentile

Nevada Medical License #10003
Ophthalmology Knowledge Assessment Program
Step I- April 1996- 97th percentile
Step II - April 1997 - 94th percentile
Step III- April 1998 - 93rd percentile

American Board of Ophthalmology Qualifying Exams
Written- April 1999- Passed
Oral- November 1999- Passed
Fellow of the American Board of Ophthalmology

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MIILITARY EXPERIENCE:
1990-1991 HPOIC/SAM
1998-2001 Ophthalmology Element Chief, RAF Lakenheath
2001-2002 Chief, Ophthalmology Service, Nellis AFB

PROFESSIONAL AFFILIATIONS:
1994- American Academy of Ophthalmology
2001- Nevada Ophthalmological Society

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PUBLICATIONS:

Zwaan J, Casey P, Bybee L. Eye injuries during training exercises with paint pellets. Military Medicine 1996; 161:720-2.

Casey P et al. Outcome Measures in Diabetic Retinopathy Screening. IOVS 1996; 37:S217.

Casey P et al. Treatment of *Aspergillus* Endophthalmitis: A Prospective, Masked Trial of the Effect of Intravitreal Amphotericin and Dexamethasone in the Rabbit Model". IOVS 1997; 38:S1109.

Casey P et al. Long Term Alignment in Surgically Treated Intermittent Exotropia. IOVS 1998; 39:S555.

Croley J, Casey P, Bauman WC. Sterile Endophthalmitis Induced by Inactivated *Aspergillus* in the Rabbit Model. IOVS 1998; 39:S359.

Allen CS, Casey P, Bauman WC. A Prospective, Masked Trial Evaluating the Use of Intravitreal Dexamethasone Following Pars Plana Vitrectomy in Experimental *Aspergillus* Endophthalmitis. IOVS 1998; 39:S813.

Casey P et al. Treatment of *Aspergillus* Endophthalmitis: A Prospective Masked Trial of the Effect of Pars Plana Vitrectomy in the Rabbit Model. IOVS 1999; 40:S118.

PRESENTATIONS

1996 "Contact Lens Complications in Basic Military Trainees" (WHMC)
2nd Annual Uniformed Services Recruit and Trainee Symposium.

RESEARCH

1996 "Scanning Laser Ophthalmoscopy Before and After Focal Macular Laser Therapy for Clinically Significant Macular Edema"

1994 "A Double-Masked, Placebo-Controlled Trial of the Effect of Hyperbaric Oxygen on Visual Field Defects in Open Angle Glaucoma"

2007 "A Prospective Multicenter Clinical Study to Evaluate the Safety and Effectiveness of the Synchrony Dual Optic Intraocular Lens in Patients Undergoing Cataract Extraction"

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John Davidson, MD

As a board-certified ophthalmologist, Dr. Davidson has performed more than 17,000 refractive and cataract procedures. He is the second-highest Restor implanting surgeon in all of California and has more experience with Restor than any other surgeon in the greater Los Angeles area.

Dr. Davidson earned his M.D. with Highest Distinction in the top 1 percent of his class at Indiana University. After completing his ophthalmology residency, he won the Clinical Fellow Research Award at the Jules Stein Eye Institute at the University of California, Los Angeles.

Education remains a priority to Dr. Davidson, and he continues to train, teach and lecture on vision correction. He is an as sistant clinical professor at his alma mater, the Jules Stein Eye Institute at the University of California, Los Angeles.

Dr. Davidson is the recipient of many prestigious awards. He has been named one of America's Top Ophthalmologists by the Guide to America's Top Ophthalmologists in 2007, 2008 2009, and 2010. He was also named Ventura County's Best LASIK Surgeon of 2009 by Ventura County Reporter magazine.

A charitable person at heart, Dr. Davidson strives to bring the gift of sight to all his patients. Dr. Davidson spends his free time as a volunteer physician for SEE International, which is devoted to helping restore sight in blind individuals worldwide. With SEE International, he has traveled to developing countries worldwide, where he has participated in eye surgery missions. In this charitable work, Dr. Davidson has provided modern eye care to hundreds of people. He has also given the gift of medical training to local ophthalmologists in Albania, Mexico, Venezuela, and Vietnam.

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Loren Little, MD

DATE OF BIRTH:
OCTOBER 28,1941

PLACE OF BIRTH:
SIOUX FALLS, SOUTH DAKOTA

EDUCATION:
1959 - 1963 - BA: MACALESTER COLLEGE, ST. PAUL, MN
1963 - 1965 - BS: UNIV. of S. DAKOTA, VERMILLION, SD
1965 - 1967 - MD: UNIV. of WASHINGTON, SEATTLE, WA

SCHOLARSHIPS: DEWITT-WALLACE ~ GRADUATE SCHOLARSHIP

INTERNSHIP: 1968 - SIOUX VALLEY HOSPITAL, SIOUX FALLS, SD
ROTATING-O

MILITARY SERVICE: SEPT 1968 - ENTERED U.S. ARMY

AWARDS:
1969 - VIETNAM: SILVER STAR, PURPLE HEART,
BRONZE STAR w OLC, AIR MEDAL w OLC, COMBAT MB, PARACHUTIST BADGE, VSM, VTSM,VCM, NDM, VIETNAM CROSS of GALLANTRY w/PALM
1971 - JOINT CHIEF OF STAFF COMMENDATION MEDAL

RESIDENCY:
1971 - 1974 - OPHTHALMOLOGY
WALTER REED ARMY MEDICAL CENTER, WASHINGTON, DC

CHIEF RESIDENT:
1974 - WALTER REED ARMY HOSPITAL OPHTHALMOLOGY SERVICE

TEACHING:
1974 - 1976 - CHIEF OF OPHTHALMOLOGY SERVICE,
WILLIAM BEAUMONT ARMY MEDICAL CENTER,
EL PASO, TEXAS - SERVICE CONSISTED OF THREE OPHTHALMOLOGISTS, EIGHT OPTOMETRISTS. RESPONSIBILITY TO RESIDENTS AND STAFF OF OTHER SERVICES,
INCLUDING ROTATING INTERNS, MEDICAL STUDENTS, AND RESIDENTS/RESERVE DUTY

FELLOWSHIP: JAN - APRIL - INTERNATIONAL EYE FOUNDATION TO PERU
1974

BOARD CERTIFICATIONS:
1968 - DIPLOMATE NATIONAL BOARD OF MEDICAL
EXAMINERS
OCT 1976 - AMERICAN BOARD OF OPHTHALMOLOGY

PRIVATE PRACTICE:
JUL - SEP 1968 - LOCUM TENENS - GENERAL PRACTICE, VIBORG, SD
MAR 1976 - TO PRESENT LAS VEGAS, NEVADA

MEDICAL ORGANIZATIONS:
FELLOW: AMERICAN ACADEMY OF OPHTHALMOLOGY
FELLOW: AMERICAN COLLEGE OF SURGEONS CLARK COUNTY AND NEVADA STATE MEDICAL ASSOCIATION
INTERNATIONAL SOCIETY of REFRACTIVE SURGERY
of the AMERICAN ACADEMY of OPHTHALMOLOGY

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MEDICAL LICENSES: SOUTH DAKOTA #0799 NEVADA #2972

RESEARCH AND PUBLICATIONS:
1) APLASIA OF THE OPTIC NERVES JOURNAL OF
PED. OPHTHALMOLOGY VOL.13 (2) 84-88 1976

2) LOCALIZATION OF INTRAORBITAL FOREIGN
BODIES
ANNUALS of OPHTHALMOLOGY Vol. 8 #5 1976

3) ANTERIOR SEGMENT COMPLICATIONS AND
NEOVASCULAR GLAUCOMA FOLLOWING IMPLANTATION OF A POSTERIOR CHAMBER
INTRAOCULAR LENS
OPHTHALMOLOGY Vol. 91 ISSUE #4 Pg. 403-419 1984

SUBMITTED: 1) FACTORS AFFECTING ARMY MEDICAL
TRAINING FACILITIES

PAPERS PRESENTED: WALTER REED ARMY MEDICAL CENTER BIANNUAL OPHTHALMOLOGY MEETING - "CONGENITAL ABSENCE
OF RETINAL VESSELS AND OPTIC NERVE" 1974

SUMMARY REPORTS: LOCALIZATION OF INTRAORBITAL FOREIGN BODIES,
IN:
1) THE DOCTORS DIGEST
2) OPHTHALMOLOGY DIGEST

ADMINISTRATIVE:
1) EMERGENCY ROOM COMMITTEE - DESERT
SPRINGS HOSPITAL - 1989
2) SEC'Y & TREASURER MEDICAL STAFF, DESERT SPRINGS HOSPITAL - 1986
3) PRESIDENT OF SOUTHERN NEVADA EYE CARE OPHTHALMOLOGY SOCIETY - 1984
4) CHIEF OF SURGERY, DESERT SPRINGS HOSPITAL - 1982
5) EXECUTIVE COMMITTEE, DESERT SPRINGS
HOSPITAL - 1982 & 1986
6) CHAIRMAN, EMERGENCY ROOM COMMITTEE -
1981
7) CHAIRMAN, TISSUE COMMITTEE, DESERT
SPRINGS HOSPITAL - 1980
8) CHIEF OF OPHTHALMOLOGY, DESERT SPRINGS HOSPITAL - 1976 – 1991

DISABILITY CLAIMS EXAMINER for NEVADA STATE 1977 - Present

COMMUNITY: TRUSTEE, NEVADA SCHOOL OF THE ARTS
1983 - 2008

LISTED:
WHO'S WHO IN AMERICA
WHO'S WHO IN ENTERTAINMENT
WHO'S WHO IN MEDICINE AND HEALTH CARE
WHO'S WHO IN HEALTH AND MEDICAL SERVICES
WHO'S WHO IN THE WEST
WHO'S WHO IN THE WORLD

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Franklin Lusby, MD

Home Address: 238 Pacific Avenue, Solana Beach, California 92075

Business Address: 9850 Genesee Avenue, Suite 220
La Jolla, CA 92037
(858) 459-6200

Web address: www.drlusby.com

Date of Birth: November 14, 1953

Medical License: G-41830 (California)

UPIN: A48707

DEA: AL9233634

Education:

High School: High Point High School
Beltsville, Maryland (1971)

College: Columbia Union College
Takoma Park, Maryland (1974)
B.A. – Chemistry – Magna cum Laude

Medical School: Loma Linda University
School of Medicine
Loma Linda, California (1978)
M.D.

Internship: Flexible
Malden Hospital
Malden, Massachusetts
Boston University School of Medicine
(1978-1979)

Pre-Residency Study: Basic and Clinical Sciences for Ophthalmology
Massachusetts Eye and Ear Infirmary
Harvard Medical School
(September-December 1979)

Residency: White Memorial Medical Center
Los Angeles, California

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Ophthalmology (1980-1983)

Fellowship: Extracapsular Cataract Extraction and
Intraocular Lens Implantation
James M. McCaffery, M.D.
Glendale Eye Medical Group (1983-1984)

Examinations: National Board of Medical Examiners (1979)

Board Certification: American Board of Ophthalmology (1985)

Certifications:

Refractive Surgery: -A System of Precise, Predictable Keratorefractive Surgery: J. Charles Casebeer, M.D., May, 1992
-Fellowship in Advanced Incisional Keratotomy: Lee Nordan, M.D., June-August, 1995
-ExciMed UV200 Certfication, Summit Technology, October, 1995
-Automated Lamellar Keratoplasty: J. Charles Casebeer, M.D., Stephen G. Slade, M.D., November, 1995
-Mini Fellowship in Lamellar Refractive Surgery: Stephen G. Slade, M.D., January, 1996
-CHIRON VISION Advanced Mini Fellowship in C-LASIK: Shanghai, China, January, 1996
-VISX Excimer Laser System PRK Training Course: VISX, July, 1996
-VISX Excimer Laser System Astigmatism Training Course: VISX, May, 1997
-VISX Excimer Laser System PRK with Astigmatism & High Myopia Training Course: VISX, March, 1998
-VISX Excimer Laser System Hyperopia Training Course: VISX, November, 1998
-VISX Excimer Laser System LASIK Training Course: VISX, January, 2000
-VISX Excimer Laser System Blend Zone with Variable Spot Scanning Training Course: VISX, April, 2001
-LADARVision Excimer Laser Workstation Certification: Alcon, October, 2001
-VISX Excimer Laser System LASIK for the Treatment of Mixed Astigmatism Training Course: VISX, March, 2002
-VISX Excimer Laser System Custom CAP Training Course: VISX, June, 2002
-LADARVision Ladarwave Customcornea Certification: Alcon, February, 2003

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-VISX Excimer Laser System CustomVue Training Course: VISX, June 2003
-IntraLASIK Training Course: Intralase, January, 2004
- VISX Excimer Laser System Fourier Algorithm Training Course: VISX, November, 2004
-Allegretto Excimer Laser Certification: Wavelight, November, 2004
- VISX Excimer Laser System CustomVue Hyperopia and Hyperopic Astigmatism: VISX, December, 2004
- VISX Excimer Laser System CustomVue Mixed Astigmatism: VISX, March, 2005
- VISX Excimer Laser System Iris Registration: VISX, March, 2005
- VISX Excimer Laser System CustomVue High Myopia: VISX, October, 2005
- VISX Excimer Laser System CustomVue Treatments for Monovision in Presbyopic Patients with Low to Moderate Myopia and Myopic Astigmatism: VISX, March, 2008

Professional Activity:

Private Practice:

Glendale Eye Medical Group
607 North Central Avenue, Suite 105
Glendale, California 91203
(818) 956-1010
(1984-1989)
(1991-1997)

Franklin W. Lusby, M.D., Inc.
655 North Central Avenue, Suite 209
Glendale, California 91203
(818) 546-2020
(1989-1990)

Franklin W. Lusby, M.D., Inc.
(dba Lusby Eye Medical Group)
205 W. Mission Avenue, Suite M
Escondido, California 92025
(760) 746-6900
(1991-1993)
700 West El Norte Parkway
Escondido, California 92026
(760) 738-7800
(1993-1997)

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Franklin W. Lusby, M.D., Inc.
(dba La Jolla Eye and Laser Surgery Medical Center, Inc.)
6523 La Jolla Boulevard
La Jolla, California 92037
(858) 459-6200
(1994-1996)
7825 Fay Avenue, Suite 140
La Jolla, California 92037
(858) 459-6200
(1996-2006)
(dba Lusby Vision Institute)
9850 Genesee Avenue, Suite 220
La Jolla, California 92037
(858) 459-6200
(2006-current)

Franklin W. Lusby, M.D., Inc.
330 North Brand Boulevard, Suite 110
Glendale, California 91203
(818) 409-0900
(1997-2002)

TLC Laser Eye Center - Newport Beach
3501 Jamboree Road, Suite 1100
Newport Beach, California 92660
(949) 854-7400
(2001-2008)

Medical Directorships:

Pacific Laser Eye Center
Medical Director
4330 Barranca Parkway, Suite 101
Irvine, California 92604
(949) 733-3937
(1998-2000)

Maloney-Lusby Vision Institute
Medical Director
4330 Barranca Parkway , Suite 101
Irvine, California 92604
(949) 733-3937
(2000)

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F. W. Lusby, M.D., Inc.
(dba Lusby Vision Institute-Irvine)
Medical Director
4330 Barranca Parkway , Suite 101
Irvine, California 92604
(949) 733-3937
(2000-2001)
910 East Birch Street, Suite 350
Brea, California 92821
(949) 733-3937
(2001-2005)
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

TLC Laser Eye Centers – Brea
Medical Director
910 East Birch Street, Suite 350
Brea, California 92821
(714) 257-0560
(2001-2005)

TLC Laser Eye Centers – Fullerton @ SCCO
Medical Director
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

ClearSight Laser Center
Medical Director
2121 E. Coast Highway, Suite 200
Corona del Mar, California 92625
(949) 600-4668
(2008-2011)
10 Pointe Dr., Suite 310
Brea, California 92821
(714) 880-8808
(2008-2011)
1680 E. Herndon Ave., Suite 101
Fresno, California 93720
(559) 473-4053
(2008-current)

9850 Genesee Ave. Suite 220
La Jolla, California 92037
(858) 926-4664
(2008 – 2011)
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Fullerton
Medical Director
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Torrance
Medical Director
23550 Hawthorne Blvd., Suite 220
Torrance, CA 90505
(310) 784-2020
(2011- current)

Society Memberships:
- Member - San Diego County Medical Society
- Fellow- American Academy of Ophthalmology
- Member- American Society of Cataract and Refractive Surgery
- Member- International Society of Refractive Surgery
- Charter Member- American College of Eye Surgeons
- Member- David Paton Society
- Member- Research to Prevent Blindness Ophthalmological Soc.

Hospital Affiliations: Scripps Memorial Hospital-La Jolla (1994-Current)
- Cedars Sinai Medical Center (1999-2001)
- Glendale Adventist Medical Center (1984-2002)
- Memorial Hospital of Glendale (1984-2002)
- Verdugo Hills Hospital (1984-2002)
- Arcadia Outpatient Surgery Center (1984-1988)
- Victor Valley Community Hospital (1989-1997)
- Palomar Medical Center (1991-1994)
- Pomerado Hospital (1991-1997)
- Escondido Surgery Center (1991-1997)

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Premiere Surgery Center (1993-2001)
Healthsouth Surgery Center (1994-Current)
Glendale Eye Surgery Center (1989-2002)

Section Chief
Division of Ophthalmology
Department of Surgery
Glendale Adventist Medical Center
(1990-1996)

Laser Center
Affiliations: Mericos Eye Institute
San Diego Excimer Laser Center
TLC Laser Eye Centers

Publications:

1. Oyakawa, R.T., Lusby, F.W., Schachat, A.P., Brown, R.H.: An Irrigating Endo-illuminator for Anterior Vitrectomy. Am. Journal of Ophthalmology (submitted)

2. Byer, L.V., Oyakawa, R.T., Lusby, F.W.: Vitrectomy Instrumentation in Failed Trabeculectomy. Am. Journal of Ophthalmology (submitted)

3. McCaffery, J.M., Lusby, F.W.: A Review of 584 3M Style 30 Intraocular Lens Implants. American Journal of Cataract and Refractive Surgery, 12: 278-280, 1986

4. Lusby, F.W., Franke, J.W., McCaffery, J.M.: Clinical Comparison of Manual and Automated Keratometry in a Geriatric Population. Contact Lens Association of Ophthalmology Journal, Vol 15 #2, 119-121, March, 1987

5. Nordan, L.T., Lusby, F.W.: Refractive Aspects of Cataract Surgery. Current Opinion in Ophthalmology Vol. 6 #1, 36-40, February, 1995

Scientific Presentations:

1. "A Statistical Review of 584 3M Style 30 Intraocular Lens Implants," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

2. "Review of 838 Office-Based Posterior Capsulotomies," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

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3. "The Accuracy of the Assumed Anterior Chamber Depth in the Binkhorst Formula," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

4. "Pre-operative Axial Length vs. Post-operative Axial Length," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

5. "Comparison of the Enhancement Rates of the Casebeer and the Nordan/Maxwell Refractive Surgery Methods," Lusby, F.W., ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

6. "Incisional Keratotomy: Current Status," Lusby, F.W., Mericos Eye Institute Visions in Ophthalmology, La Jolla, CA, March, 1996

Scientific Exhibits:

"An Irrigating Endo-illuminator for Anterior Vitrectomy." Lusby, F.W., Oyakawa, R.T., Schachat, A.P., Brown, R.H. Contact Lens Association of Ophthalmology and the Combined Meeting of the Anterior Segment Societies, Las Vegas, Nevada, 1982

Teaching Appointments:

Faculty: Residents Skills Training Course in Radial Keratotomy, ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

Mentor: Health Professions Preparation Program, UCSD, 1998-Current

Academic Appointment:

Adjunct Clinical Professor
Southern California College of Optometry
Fullerton, California
(2006-2012)

Part-time Clinical Professor
Southern California College of Optometry
Fullerton, California
(2012-current)

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Patrick Lydon, OD

Clinical Research Optometrist –
Manager and Director of Clinical Affairs

Primary Residence:
77-251 Tribecca St. Indian Wells, CA 92210
Home: 760-360-5245
Email: pjlwolf@earthlink.net
Cell: (949)-735-2766

STATEMENT OF PURPOSE

This resume is a condensed summary of my professional, educational, and personal background. It outlines my qualifications in the areas of patient care, training, business management, and clinical trials for medical devices and procedures. I believe that because of my familiarity with the certification processes, as well as my background in research, I am uniquely positioned for consideration in any role related to those fields.

WORK EXPERIENCE

Current:

1. **January 2016 – Consulting Optometrist – NVISION Center Palm Desert California**
   Responsible for Pre Op and Post Op Comanagement LASIK/Cataract

2. **March 2015 to present – Consulting Director of Optometric Services – S. Shah, MD Family Charitable Foundation for Health – Palm Desert , CA**

   Primary Eyecare - directing the clinical program at the Shah Foundation, with special emphasis on Glaucoma Patients, and disadvantaged students of the Coachella Valley, ensuring no student is left behind because of a vision problem.

3. **Nov. 2014 to present - Consulting Director of Clinical And Medical Affairs, Eye Therapies Inc. (Lutronic division)** - San Francisco-based ophthalmic laser medical devices

   - Surgical Trainer – AMD 10 Laser
   - Staff Trainer
   - Site Qualification, Initiation

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   - Study Protocol Development and Review
   - IRB Submission
   - Site Contract Review
   - Study Documentation Development and Review

4. **Nov. 2014 to present - Consultant to Refocus Group, Dallas TX – Clinical research –** Medical device company studying the surgical treatment of presbyopia

   - Surgical Trainer – VisAbility Implant System (Spain and Ireland)
   - Site Staff Training and Managing /Reviewing Subject Enrollment
   - Post Marketing Protocol Development and Review

Previous Work Experience: (full time – non consulting)

1. **Eye Therapies, San Francisco, CA – Director of Clinical and Medical Affairs** – Nov. 2014 to March 2015

   - Reported directly to the President and CEO
   - Credited with designing the clinical program and providing expertise in the Surgical Training for the AMD 10 Ophthalmic Laser
   - Co-developed clinical research strategic programs in line with global strategy and supported the local product registration and marketing.
   - Acted as a medical resource to the company as a whole and particularly to the clinical research department - protocol and CRF writing, adverse events reporting, discussions with investigators, and internal meetings.
   - Worked closely and cooperatively with research centers internationally
   - Initiated and Developed clinical trial programs to support product registration and marketing.
   - Provided medical and scientific input to global product development teams.
   - Provided medical expertise in the review of adverse experiences
   - Established ongoing liaison with key opinion leaders, government officials, CRO's and other healthcare organizations to ensure that significant developments in the field are identified and monitored.
   - Represented the company at professional worldwide meetings
   - Ensured that the interfaces between Medical/Clinical and other departments were managed optimally.

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-Formed informal networks with company senior management, updating them on a regular basis on developments within Medical and progress made with the clinical and regulatory program.

-Worked in conjunction Regulatory, Marketing and Financial people through cross-functional teams, to ensure timely entry of new device to the market

-Worked with company management to determine requirements for clinical programs - involved with the identification and selection of suitable candidates for positions.

-Ensured effective team communication throughout the department through the application of suitable reporting systems and structures and the identification and provision of appropriate training.

2. **Refocus Group, Dallas TX – Global Clinical Affairs Manager** – April, 2014 to Nov 2014.

- Primary responsibility for overseeing all clinical activities related to sites in Spain and England/Ireland.
- Managed trial exclusion and inclusion enrollment.
- Surgical Trainer for VisAbility Implant System
- Qualified clinical investigators and clinical sites on the VisAbility Implant System.
- Obtained and reviewed all required essential documents necessary for study initiation.
- Interacted with all levels of medical and scientific professionals.
- Assisted in the preparation and presentation of clinical training materials for investigator site staff.
- Provided scientific support to health care professionals at clinical sites.
- Independently handled various clinical study assignments including: conceptualizing, planning, designing, executing and monitoring
- Managed staff at site for company in regards to trial activities
- Summer 2014 Visiting Scholar at the University of Terraza, School of Optometry (Barcelona) Spain for the VisAbility Implant Trial
- Managed resource planning, project timelines and effective use of budget
- Managed project related professional meetings and presentations
- Established and maintained ties to Surgeons and Staff Globally
- Responsible for providing assistance in direction of overall corporate strategy and evaluating market potential
- Monitored clinical studies, ensuring site compliance with the clinical protocols; assuring subject rights, safety, and welfare are protected; ensured data integrity through completeness, accuracy, and legibility.
- Reviewed and monitored required corrective actions; conduct follow-up activities on required action items directly with investigator sites. .

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- Maintained professional, product, and market expertise via independent reading, networking, and training.

3. **AcuFocus Inc., Irvine, CA - CRA / Clinical Research Optometrist / Director of Training / Global Training Manager** (Feb 2012-2014 April)

- Clinical Research Optometrist: In this position I was responsible for monitoring sponsor-initiated clinical research studies for the KAMRA Inlay, 020A and 020B trials – conducted monitoring visits to confirm protocol compliance and to ensure sponsor/investigator obligations were met nationally as well as in Australia , New Zealand, Canada , Peru, and Chile.
- Verified that sites were compliant with applicable local requirements and FDA / ICH guidelines
- Monitored the trials to confirm protocol compliance. Included Surgeon (and staff) Training on femtosecond lasers, AcuFocus Home Office training and assessed qualifications of study personnel to ensure "Good Clinical Practice".
- Identified site issues and initiated correction plans based on monitoring reports (including study logs and device accountability) and performed necessary follow-up onsite training
- Verified the data in source documents (EDC) were in agreement with source, initiated data query resolutions, and confirmed resolutions in a timely manner
- Ensured subject safety and adverse event reporting to sponsor and IRB/IEC
- Promoted to Director of Training USA /Global Training Manager – Europe, India and Canada. Worked within the team environment to provide commercial training to team members such as project managers.
- Responsible for developing and training interactions for all trained surgeons and staff in use of the KAMRA inlay. Opened the commercial markets for KAMRA in India and Canada. Monitored the training guidelines and introduced surgeons and staff to the device.
- Initiated the Global Data Base Registry for KAMRA patients in Canada / ROW
- Credited with obtaining the highest volume of clinical KAMRA subjects for new sites in Canada
- Developed the Visiometric AcuFocus HD Acutarget project for site use

4. **NeoVista Inc., Fremont, CA – Clinical Affairs Specialist / CRA/ VA Trainer /Director of Clinical Marketing Training.** May 2006 – April 2012

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- Began at NeoVista as CAS with Retinal Surgeon Training, Monitoring (US And OUS), Radiation Oncologist Training, Medical Physicist Training , and Optometrist trainer.
- Performed IRB, and Protocol submission in the United States, Europe, and South America for multiple NeoVista clinical trials.
- In charge of VA Certification for worldwide trial CABERNET,
- London based Director of Clinical Marketing Training for the MERLOT Trial -23 NHS sites

Specific Job Functions in UK for NeoVista:

- Credited with completing enrollment of subjects on time for the MERLOT trial (373 subjects at 23 sites).
- During the CABERNET And MERLOT clinical studies, initiated frequent interactions with clinical investigators to ensure compliance with protocol and overall clinical project objectives.
- Trained surgeons on use of the VIDEON (radiation device). Trained nursing and radiation staff on use of VIDEON. Represented NeoVista in OR situations worldwide (USA, South America, Europe , Israel and South Africa.
- Responsible for training of medical staff in follow-up to cases performed (AE Reporting)
- Assured studies were conducted in compliance with UK NHS/NICE Good Clinical Practice and appropriate international, federal, state, and local regulations and guidance's.
- Provided assistance in the evaluation and analysis of clinical data.
- Responsible for regular updates to Senior Management on site status.
- Managed the Physics Project NeoVista. Ensuring the on time , replacement and exchange of expiring medical devices in the UK. Credited with "saving" the MERLOT Trial
- Organized and worked closely with an international team (Austria – Germany – UK) to initiate successful clinical trials enrollment strategies
- Audited sites in the United States, Europe, Middle East and South America.
- Maintained accurate and timely sponsor/site correspondence and communication.
- Prepared and presented project progress reports to keep NeoVista management and clinical staff informed
- Presented MERLOT Trial to the Royal College of Surgeons, London UK
- MERLOT Trial Specifics: Responsible for site qualification, initiation, surgeon/ radiation oncology training, data monitoring, adverse event reporting, IRB applications, protocol review, informed consent, and creating SOPs.
- I transferred to AcuFocus (a sister company of NeoVista) in March of 2012. As a Clinical Research Optometrist, I continued in monitoring and training sites worldwide. I worked with refractive surgeons, R & D and Marketing on developing the KAMRA inlay.

5. **Genentech Corporation Visual Acuity Evaluator/Trainer (August 2002 - May 2006) -**
   - VA Evaluator/Trainer for the Lucentis Series of Clinical Trials ---Focus, Anchor, Marina, Sailor, and Horizon
   - Trained and worked with site staff on VA requirements for Lucentis development.
   - Trained Protocol and Developed New Training Upgrades for Genentech Clinical Trial Managers
   - Extensive US travel – responsible for > 30 sites
   - Contributed to the success of Lucentis with VA results meeting endpoint

   Transferred to NeoVista to continue work in wAMD

Field-Related WORK EXPERIENCE:

- Prior to joining Genentech: Pearle VisionCare HMO of California
- November 1986 – 2002 Starting as a Staff OD in a single office in 1986, my career at Pearle saw my responsibilities expand to include the following positions:

Medical Director/VP Cole Managed Vision (parent company of Pearle)

- Staff OD, Managing OD
- Regional Optometric Coordinator
- 1996 Externship Binder Gordon Laser Vision Institute
- Quality Assurance Committee Chairman
- Director of Doctor Relations PVC California
- Medical Director PVC
- President Pearle Vision Care of California

During these transitional years, my responsibilities grew to include oversight, administration, and clinical decisions for approximately 50 California corporate locations. I was credited for contributing significantly to a business turnaround that reversed downsizing, leveled a financial slide and turned comp growth. During this period, Pearle's California offices improved efficiency dramatically (i.e., fewer offices saw more patients with higher quality). Creation and oversight of a network of over 100 providers. Monitoring performance of direct-reporting OD's, training, coaching, counseling, conducted performance reviews, and recommended merit increases where appropriate. During this tenure I also participated in my first clinical trials. We participated in contact lens development and the solutions used to treat them.

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EDUCATION

- Doctor of Optometry, University of California, Berkeley, School of Optometry
- BS Optometry, University of California , Berkeley
- Certificate in Clinical Research (CRA)
- Kaiser Hospital Staff, Cataract Lens Clinic
- Letterman Hospital , Presidio San Francisco Cataract Rotation and Internship
- Externship Binder and Gordon Laser Vision Institute
- Bachelor of Science, Combined Sciences, Minors in Biochemistry and History, University of Santa Clara - Captain Crew Team / Academic All American
- London School of Economics and Oxford, University of Freiburg, Germany, University of Santa Clara Studies Abroad Program
- Archbishop Mitty High School, Cupertino, California
  - recipient of Alumni Award for Constant Achievement
  - Spanish Award

OUTSIDE INTERESTS

- Athletics: Golf, tennis, bicycling, scuba diving, volleyball
- Hobbies: amateur musician - Currently member of two musical groups with interests in contemporary, traditional, folk, and Irish/folk music.

STATEMENT

Throughout my career, I've been able to work myself into positions of ever-increasing challenge and responsibility. My background includes clinical care/training and business management at the local, regional, state, national and international levels. I maintain a passion for oversight and training in the research environment, and commercial settings. At my core, I feel a strong dedication to pursuing answers to the question, "What is around the next corner".

It has been a unique journey, from local staff Optometrist, National Medical Director and Vice President at Pearle Vision, to my current positions as a consultant with multiple Global Clinical Research Companies.

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Jeffrey Machat, MD, FRCSC, DABO

13700 Marina Pointe Dr. Ste.#1822 Marina Del Rey, Ca. 90292
416-818-1747, jeff.machat@crystalclearvision.com

Education and Medical Training

Board certification by the American Board of Ophthalmology, November 24, 1991

Board Certification by the Royal College of Physicians & Surgeons of Canada November 16, 1990

Residency 7/1/1987—6/30/1990
University of Toronto, Toronto, On. Canada
Ophthalmology

Internship 7/1/1986—6/30/1990
University of Toronto, Toronto, On. Canada
Comprehensive Medical Internship, Toronto General Hospital

Doctor of Medicine 7/1/1982— 6/12/1986
University of Toronto, Toronto, On. Canada

Undergraduate Program, Life Science
9/1/1980-5/15/1982
University of Toronto, Scarborough, Ontario, Canada

Professional Work History

Founder and Medical Director 02/1/2009—present
Crystal Clear Vision, Toronto, On. Canada

- Crystal Clear Vision is a state of the art facility in downtown, Toronto.
- The clinic has a College approved full ophthalmic surgery operating suite and two laser suites.
- Clinic offers LASIK for the correction of hyperopia, myopia and astigmatism, KAMRA Vision for reading vision correction and premium Laser Cataract Surgery
- The clinic is not only a treatment facility, but a teaching and research facility as well, hosting and training surgeons from across North America.
- Equipped with the most advanced technology including:
  Schwind AMARIS 750s Excimer Laser system
  Sirius Corneal and Total Ocular Wavefront Diagnsotics system
  Specular Microscopy, RT VUE OCT system, Epic system, IOL Master
  AcuFocus AcuTarget HD and Tagaki microscope for KAMRA surgery
  Ziemer Z4 Femtosecond Laser for Corneal surgery
  Victus Femtosecond laser for Cataract surgery

Co-Founder/North American Medical Director 08/01/1993—01/01/2002
TLC Canadian National Medical Director 01/01/2002---02/01/2009
TLC Laser Eye Centers, Toronto, Canada

- Co-founded and developed the largest laser vison correction company in the world, with 83 fixed site clinic across North America, as well as 300 mobile sites.
- Provided clinical training, education and direction for over a 600 surgeons.
- Provided the clinical and operating guidelines for all surgeons, technicians and clinical staff
- Functioned as Chief surgeon at multiple clinics, performing thousands of vision correction surgeries and complication management and care to TLC and non-TLC patients
- Pioneered many techniques and developed surgical instrumentation for LASIK and PRK

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- Functioned as Researcher and Investigator for several excimer laser companies, including Summit, Visx, Technolas, LaserSight and WaveLight
- Primary FDA Investigator for Technolas 217 excimer laser system
- Health Canada Investigator for Summit, Visx, Technolas laser systems
- TLC became a publicly traded company on both the TSX and NASDAQ in 1996.
- After 2002, transitioned position and responsibilities, limiting oversight to 7 Canadian clinics and developing Custom LASIK Centre in 2000, working with Optical Express and helping develop RheoTherapeutics Macular Degeneration Clinics. During this entire period, continued to operate and function as TLC Medical Director for Canada.

Medical Director
Rheo Therapeutics, Toronto, Canada 09/01/2007—06/24/2008

- Instrumental in the development of Macular Degeneration Treatment Centers across Canada.
- Performed research and coordinated policies and procedures for the Retinal Surgeons and other physicians involved with the organization.

Chief Medical Officer/ Strategic Advisor 01/01/2005—06/16/2006
Optical Express, Glasgow, Scotland

- Provided key insights into their clinical and business issues and future development.
- Advised on laser technology, provided surgeon and technician training
- Developed clinical policies and procedures, the consultative approach, diagnostic testing, surgical and post-operative management of patients,
- Developed patient advocacy systems and complication management systems
- Developed training programs and provided a series of educational events for entire employee base of over 1000 employees, optometrists and surgeons.
- Instrumental in growing the company from 11 clinics to 55 clinics over a 2 year period, becoming the largest Laser Vision Correction provider in Europe, with clinics in Scotland, England, Ireland, Holland, Belgium, France and Germany.
- Responsible for the selection and Implementation of Wavefront laser technology.
- Responsible for the development of their International Medical Board.

Founder/Medical Director 03/01/2000—12/31/2004
Custom LASIK Centre, Toronto, Canada

- A treatment and research facility, pioneering Wavefront Technology in Laser Vision Correction.
- First clinic in Canada to utilize custom technology to improve qualitative visual outcomes, prevent night glare and manage complications for other clinics across North America.
- The clinic was equipped with several different laser technologies and Wavefront platforms, including Hartmann-Shack, Tscherning, and Ray Tracing technology

Licensure and Certifications

Board Certified, Royal College of Physicians & Surgeons of Canada, November 16, 1990
Diplomat of The American Board of Ophthalmology, November 24, 1991

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Professional Memberships

Canadian Society of Cataract and Refractive Surgery
Canadian Ophthalmological Society
International Society of Refractive Surgery
American Society of Cataract and Refractive Surgery
American Academy of Ophthalmology
American-European Congress of Ophthalmic Surgery
Member of *AcuFocus International Medical Advisory Board*

Publications

Author of two textbooks:
"Excimer Laser Refractive Surgery- Practice and Principles"
"The Art of LASIK"

Additional Accomplishments

- Early pioneer and innovator of LASIK, learned technique from Dr. Luis Ruiz in Bogota, Columbia over two decades ago, one of the first handful of surgeons in North America to perform LASIK.
- First surgeon in Canada to ultilize Wavefront technology in 2000, third worldwide
- First Surgeon in Canada to perform Custom LASIK in 2000.
- First surgeon in Canada to utilize Femtosecond laser technology in 2003.
- First surgeon to perform Bladeless Custom Lasik with the Intralase femtosecond laser.
- First surgeon in Canada to perform KAMRA Vision reading vision correction.
- First surgeon to perform AMARIS Custom LASIK with the Schwind AMARIS 750S Excimer laser system.
- One of the few Chiron ACS and Hansatome microkeratome certified trainers; Lectured and certified hundreds of physicians across North America, South America, Europe, South Africa, Australia, the Middle East and Asia.
- Investigator and instructor for 8 different laser manufacturers, utilizing 18 different Excimer laser platforms.
- Lectured in over 20 countries on 5 continents on Excimer laser and Femtosecond laser technology, Wavefront technology and other refractive techniques and innovations.
- Developed instrumentation and software for Photorefractive Keratectomy, Laser in situ Keratomileusis (LASIK), and the KAMRA Corneal Inlay procedure.
- Performed over 60,000 laser vision correction procedures, including more than 50,000 LASIK procedures.
- Treated over 600 Optometrists, Ophthalmologists and physicians.
- Has performed additional reading vision correction procedures including Sunrise Holmium Laser Thermokeratoplasty, Visx Multifocal Ablation and RestorVision Scleral Impants.

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Mihir Parikh, MD

As the San Diego Charger's Official Team Ophthalmologist and former medical director at Advanced Ophthalmology Institute, Dr. Parikh knows the importance of precision in LASIK procedures. And, having undergone LASIK surgery himself, he understands the process both as a surgeon and as a patient.

Board-certified for more than 10 years, Dr. Parikh has performed more than 12,000 LASIK procedures, including many patients who are San Diego Chargers players. He specializes in LASIK, PRK, LASEK, cataracts and intraocular lenses, custom LASIK and Wavefront technology. He was one of the first west-coast surgeons trained in custom Wavefront treatment technology.

Before dedicating his career to the field of medicine, ophthalmology and refractive eye surgery, Dr. Parikh was involved in laboratory research in molecular biology and biochemistry at the University of California, Irvine, and in clinical research at the University of California, San Diego Burn Center.

An award-winning surgeon, Dr. Parikh has been honored with the Laurence Mehlman Prize and was the recipient of the University of California Regents Scholar Award for four years in a row. His presentation on "the effects of intrastromal corneal lens implantation (Intacs) on nerve fiber layer thickness" was honored best paper at the ASCRS 2000 conference in Boston, Massachusetts.

In his spare time, Dr. Parikh teaches principles of ophthalmology and refractive surgery to fellow doctors and surgeons nationally and internationally and has been published in many notable medical journals.

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Steward Park, MD

Professional Experience

Private Practice	Nevada Eye Care July 2004 - Present	Las Vegas, NV

Postgraduate Training

Residency	University of Cincinnati Department of Ophthalmology July 2001 to June 2004	Cincinnati, OH
Internship	University of Illinois Department of Internal Medicine July 2000 to June 2001	Urbana, IL

Education

M.D.	University of Illinois August 1996 to May 2000	Urbana, IL
M.S.	University of Illinois Dept. of Cell and Structural Biology August 1993 to August 1996	Urbana, IL
B.S.	Pomona College Department of Molecular Biology August 1988 to May 1992	Claremont, CA

Board Certification Diplomate – American Board of Ophthalmology
October 2006

Licensure Nevada State Medical License #10937

Honors, Awards, and Achievements

2001	Intern of the Year, UIUC Internal Medicine Residency Program
1996-2000	Awarded UIUC College of Medicine Scholarship
1994-1996	University of Illinois List of Teachers Ranked Excellent by Students
1992	Elected Associate Member of Sigma Xi Research Society
1992	Passed Senior Research Exercise with Distinction
1992	Won F.S. Jennings Memorial Prize for Expository Writing

Memberships and Academic Appointments
American Academy of Ophthalmology, Diplomate
American Society of Cataract and Refractive Surgery
Fellow of the American College of Surgeons
Adjunct Instructor of Ophthalmology, Touro University Nevada College of Osteopathic Medicine

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Jonathan Pirnazar, MD

For Dr. Pirnazar, complexity is another word for "challenge." Finding solutions to complex eye issues is his specialty, and he has the experience and education to back it up.

Having performed more than 20,000 refractive and cataract surgeries, Dr. Pirnazar's specialties include LASIK, premium multifocal and accommodating intraocular lens implants, and implantable contact lens surgeries. He also specializes in treating glaucoma with laser eye surgery. In addition to his clinical experience, he involves himself in pharmaceutical studies and clinical trials in the treatment of ophthalmic diseases.

He received his M.D. with Honors from the University of Illinois, Chicago School of Medicine and completed his residency at the prestigious Washington University in St. Louis, where he also served as chief director of University Eye Service.

He continued his education with fellowship training in corneal and refractive surgery at the University of California, Irvine, where he also served as an assistant professor. He is a bo ard-certified ophthalmologist.

His extensive experience in both surgeries and pharmaceutical trials has made him a sought-after expert among doctors in the ophthalmology field. He has published articles in respected medical journals, including the American Journal of Ophthalmology and Ophthalmology Times.

When he isn't working on complex eye surgeries or helping other doctors manage complex eye surgeries and ophthalmic emergencies, Dr. Pirnazar enjoys spending time with his wife and two sons, playing tennis and watching Chicago Bears games.

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Archana Reddy, MD

Archana V. Reddy, M.D. is a board certified ophthalmologist. She grew up in Kansas, attended college at Washington University in St. Louis, and completed medical school at the University of Kansas. She did an internship at Kern Medical Center in Bakersfield, CA, and completed her ophthalmology residency at Ohio State University in Columbus, OH.

Dr. Reddy has practiced ophthalmology in Columbus, OH and Seattle, WA prior to moving to Las Vegas. She now happily resides in Las Vegas with her husband and two young children.

EDUCATION & TRAINING

Ohio State University Hospital
Kern Medical Center
University of Kansas School of Medicine

CERTIFICATIONS & LICENSURE

NV State Medical License
2010 - 2015

American Board of Ophthalmology
Ophthalmology

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Sheri Rowen, MD

Office Address:
Mercy Medical Center Office - (410) 332-9500
Eye & Cosmetic Surgery Center Direct - (410) 332-9733
301 St.Paul Place, Suite #514 Fax- (410) 545-5161
Baltimore, Maryland 21202 E-Mail- Srowen10@gmail.com

Education:

- University of Maryland, College Park, Maryland
  B.S., May 1976
- University of Maryland, School of Medicine, Baltimore, Maryland
  M.D, May 28, 1982
- Internship, General Surgery, Johns Hopkins Hospital, Baltimore, Maryland
  July 1, 1982 - June 30, 1983
- General Surgery Fellow, Johns Hopkins, Department of General Surgery, Baltimore, Maryland
  July 1, 1983 - June 30, 1985
- Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1985 - June 30, 1987
- Chief Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1987 - June 30, 1988

Work History:

- Hirsch Eye Group, Fallston, MD 21047
  July 1988 - June 1989
- Katzen Eye Group, Dulaney Valley Rd. . Towson Md. 21204
  June 1989 - December 1996
- Eye & Cosmetic Surgery Ctr. St.Paul Place, Baltimore Md 21202
  Dec 1996 - Present

Honors:
Phi Kappa Phi
Phi Beta Kappa
Eta Beta Rho Honors Society
Cum Laude Graduate, University of Maryland, College Park
Dean's List, 1971-1976, University of Maryland, College Park

Board Certification:
Diplomat & Fellow, American Board of Ophthalmology

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Research Appointment:

- Research Assistant, National Institute of Health / National Cancer Institute, Bethesda, Maryland
  1976-1978
- Research Assistant, Baltimore Cancer Research Center, Baltimore, Maryland
  1978-1980
- Research Fellow, Johns Hopkins University School of Medicine, Center for Vitreoretinal Research, Baltimore, Maryland
  1983-1985
- Clinical Investigator, for FDA approved study Staar Collamer Lens
  1996
- Clinical Investigator, for FDA approved study Visian ICL
  1997 - 2006

Academic Appointment:

- Clinical Instructor, University of Maryland School of Medicine, Baltimore, Maryland
  1989 – 1990
- Assistant Clinical Professor of Ophthalmology, University of Maryland School of Medicine, Baltimore, Maryland
  1990- Present
- Clinical Instructor, Johns Hopkins Hospital, Baltimore, Maryland
  1991- Present
- Director: Mercy Medical Center for: Eye & Cosmetic Surgery
  1996- Present
  1996- Investigator: Staar Surgical, FDA Study (Collamer Lens)
  1997- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens)

Professional Memberships:
Member, American Medical Association
Member, Association for Research and Vision in Ophthalmology (1982- 1988)
Member, Maryland Eye Physician and Surgeons
Member, MED CHI of Maryland
Committee Member, Research to Prevent Blindness, Inc.
Member, Universal Scleroderma Foundation
Member, Wilmer Resident's Association
Member, American Society of Cataract & Refractive Surgery
Member, American Diabetes Association
Member, American Society for Laser Medicine and Surgery
Board Member, International Society of Cosmetic Laser Surgeons
Vice President, International Association of Women Eye Surgeons

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Medical Licenses:
Maryland
District Of Columbia
Virginia
North Carolina
New York

Community & Volunteer services:

- Health Mission, "Project Dawn" Guyana
  March 1988
- Free Screening, Mercy Medical Center, and Department of Aging
  1997, 1998
- Son's Of Italy – Current Techniques in Eye Surgery
  1999
- Baltimore County Department of Aging
  1990- 1996
- Health Mission - Cali, Columbia
  February 2008

Television:
The Women's Doctor:
1994- "Topical Anesthesia for Cataract Surgery"
1995- "Topical Anesthesia & Clear Corneal Incisions & Foldable Lens"
1996- "First Use Of C02 laser in Baltimore for Eyelid Surgery & Facial Resurfacing"
1997- " Implantable Lens Correcting Hyperopia & Myopia"
1998 " Laser Resurfacing with Co2 & Erbuim Lasers" For Pre Mature Aging
1999- " Implantable Contact Lens" Lasik Surgery
2000- " Toric Lens" Correcting Astigmatisim

1997- National Television: " Implantable Contact Lens"
1998- Ivanhoe Broadcast: " Implantable Contact Lens"
1998- National Television: " Topical, Clear Corneal Cataract Surgery"

Publication:

- Rowen, S.L. & Glaser, B.M. (1985). "Retinal Pigment Epithelial Cells Release a Chemoattractant For Astrocytes, "ARCHIVES OF OPHTHALMOLOGY, 103 (5), 704-707.
- McDonnell, P.J., Rowen, S.R., Glaser, B.M. & Sato, M. (1985). "Posterior Capsule Opacification." ARCHIVES OF OPHTHALMOLOGY, 103 (9), 1378-1381.
- Rowen, S.L. (1994). "Advanced Phacomachine & New Kelman Tip". PHACO AND FOLDABLES, Vol 7 No. 1.
- OCULAR SURGERY NEWS. (1994) "Leaders in Clear Corneal Incisions"

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- Rowen, S.L. (1996). "Topical Anesthesia in Cataract Surgery". REVIEW OF OPHTHALMOLOGY, Supplement to VOL. 2, No. 6
- OPHTHALMOLOGY TIMES. (1995). "Miochol-E with Topical Anesthesia"
- EYE TECHNOLOGY (1996). "Current Trends in Cataract Surgery".
- Rowen, S.L. (1996) "Yes, You Can Convert To Clear Corneal Incisions". REVIEW OF OPHTHALMOLOGY, Vol. 3 No. 5, 110-115
- OCULAR SURGERY, News Symposium Supplement, Feb. 1996
- OCULAR SURGERY, News Symposium Supplement, Feb. 1997
- Rowen, S.L. (1997) "Understanding the Benefits of Plate Haptic Lenses" REVIEW OF OPHTHALMOLOGY, Vol. IV., and No.7 4B- 6B
- Rowen. S.L. (1999) " Why & How to Convert to Injectable Lens" REVIEW OF OPHTHALMOLOGY, VOL 8, and page87
- Rowen S.L. 9 (1999) "Pre-Operative & Post- Operative Medications used for Cataract Surgery" CURRENT OPINIONS IN OPHTHALMOLOGY, VOL 10, PAGES 29-35

American Academy of Ophthalmology - Annual Meeting:
1994 – 2009: 40 Credits Each Calendar Year

American Society of Cataracts and Refractive Surgery - Annual Meeting:
1995 – 1996, 1998 – 2010: 40 Credits Each Calendar Year

American Meeting International Society of Cosmetic Laser - Surgeons:
1996 - 24 Credits 1999 –24 Credits
1998 - 29 Credits 2000 – 24 Credits

International Society of Refractive Surgeons:
1995, 1998 – 2002, 2004: 16 Credits Each Calendar Year

Maryland Optometric Association
1998- 6 Credits

Baltimore Refractive Surgery Society
1999- 6 Credits

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Greater Baltimore Medical Center
1999- 6 Credits

Visual FreedomCenter
1998- 12 Credits

Preceptorships - Ultrapulse CO2 Laser:
1995 - January - Dr. Robert Adrian, Washington, D.C.
Facial Resurfacing Technique

1995 - February - Dr. Sterling Baker, Oklahoma City, OK.

Preceptor: Coherent Medical:
1996- Present Supervise use of C02 & Erbium Laser

Laser Education Foundation - I.S.C.L.S.
1996- October- Sterling S. Baker MD. ,Chicago, IL.
Pre- AAO Cosmetic Symposium

Coherent / Ultra FineErbium
1998- January, Maureen A. Foley, RN, BSN, CNOR
Mercy Hospital

The International Society of Cosmetic Laser Symposium
1998- February – C.William Hanke, MD. , Orlando, FL.

Eyelid Incision Techniques International Workshop on Anesthetic Surgery:
1996 April - Dr. Oscar Remirez, Course Director
Rejuvenation of the Centra Oval of the Face, Perioral Area and Lips

Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course
1992 - August - Dr. Charles Williamson , Course Director

Lamellar Refractive Surgery Course
1997 – May, Dr.Stephan G. Slade, Baltimore, MD.

Visual Freedom Center
1998- February – Dr. Charles Casebeer, Course Director
Introduction / Visx Certification Course, Transition to Lasik/ Wet Lab

VISX University
1998- November – Visx Excimer Laser System
Hyperopia Training Course

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Johns Hopkins Hospital, Wilmer Eye
1998- Preceptorship for PRK, Course Director, Terrance O'Brian MD.

Presentations: Cataracts, Glaucoma, Foldable Lens & Topical Anesthesia

- 1984- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
- 1989- ARVO, Wilmer Eye Meeting, Sarasota, FL.
  "Endothelial Cell Produce a Chemoattractant for Astrocytes".
- 1985- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
  "Retinal Pigment Epithelial Cells Release a Chemoattractant for Astrocytes"
- 1992- Greater Baltimore Medical Center Symposium, Baltimore, MD.
  "The Use of Foldable Lenses in Cataract Surgery"
- 1993- Maryland Eye Physicians and Surgeons
  "No Stitch Incision, Capsulorhexis, and Foldable Lenses" Invited Paper
- 1993-American Academy of Ophthalmology
  IOLAB BOOTH " Perilimbal Incisions and Topical Anesthesia"
- 1994- American Society of Cataract and Refractive Surgeons, Boston, Mass.
  "Perilimbal Incisions Using Topical Anesthesia "
- 1994- American Academy of Ophthalmology , San Francisco, CA
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clinical Decisions in Management of Complications"
  "What I'm Doing Differently This Year".
  "Techniques and Variation of the I. Howard Fine Clear Corneal Incision Course"
- 1995- Staar Surgical: Course Director: Baltimore, MD.
  "Techniques and Variation of the I.Howard Fine Clear Corneal Incision Course"
- 1995- American Society of Cataract and Refractive Surgery, San Diego, CA.
  "The use of Miochol- E for Cataract Surgery and Topical Anesthesia"
  "Advances in Topical Anesthesia and Clear Corneal Incisions"
  "Topical Anesthesia and Clear Corneal Incisions" Staar Booth ASCRS.
- 1995 - American Academy of Ophthalmology: Atlanta, GA.
  "Clinical Decision in Management of Complications"
  "What I Am Doing Differently This Year"
  "Advance Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clear Corneal Incisions" Invited: ASCRS Symposium
- 1996- Techniques and Variations of the I.Howard Fine Clear Corneal Incision Course: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"
- 1996-The New Jersey Academy of Ophthalmology: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"
- 1996-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Cataract Surgery for the 90's" Staar and Chiron
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"

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- 1999- American Society of Cataract and Refractive Surgery: Seattle Washington Round Table Discussion Group: Starr Surgical: ICL
  "Latest Technique and variations of Refractive Surgery and the Benefits of using the Implantable Contact lens"
- 2000- Hawaii Eye Meeting / Slack Incorp. Hawaii
  "Current Trends in Refractive Surgery"
  "The Implantable Contact Lens FDA update, for Personal Experience & Techniques"
- 2002- New England Ophthalmological Society Inc,
  " Implantable Contact Lens , Personal Experiences"
  " FDA Update" " Toric & IOL "

International Presentation:

1994- Starr Surgical: Australia
Five City Lectures: Sidney, Perth, Melbourne, Adelaide, and Brisbane
"Clear Corneal Incisions Using Topical Anesthesia"

1995- Live Cataract Surgery: Toulouse, France
"Topical Anesthesia and Clear Corneal Incisions"

1995- Live Cataract Surgery: Juan De Pain, France
"Topical Anesthesia and Clear Corneal Incisions"

1997- Live Cataract Surgery: Clinique Sourdille, France
"From Phaco to CO2"
"Topical Anesthesia for Cataract Surgery"

1997- Live Cataract Surgery: University of Bologna, Italy
"Live Cataract Surgery and Discussion"

1998- IV Congresso International DE-Cataract: Rio de Janeiro, Brazil
"Toric Update & Foldable Lens"
"Implantable Contact Lens"
"Advanced Cataract Techniques"

1999- European Society of Ophthalmology
" Live Cataract Surgery" International Society of Women Eye Surgeons

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Richard Meister, MD

Dr. Richard Meister is the Medical Director at NVISION Sacramento. He is a board-certified ophthalmologist who started specializing in refractive surgery as a sub-specialty in 1981, under the tutelage of Ralph Berkeley, MD.

Dr. Meister has performed over 40,000 refractive corneal and cataract procedures and, with the approval of the excimer laser in the United States, he was the first in Sacramento to perform laser refractive surgery on patients in 1995. Dr. Meister has excellent LASIK surgical outcomes with less than a 0.2% enhancement rate. He has also been performing premium intraocular lens surgery with multi-focal lens implants since 1998.

Born and raised in Oklahoma City, Dr. Meister graduated from the University of Oklahoma. He focused his residency training on refractive corneal and cataract surgery under worldrenowned expert, Jack Holiday, MD, at the prestigious Hermann Eye Center at the University of Texas, Houston Medical Eye Center.

Dr. Meister established his practice in 1984 in Sacramento specializing in refractive, corneal and cataract surgery. He was the first to introduce the Russian technique of radial keratotomy to Northern California. He was named the proctor of Sutter Hospital and quickly became the leading expert in the area for other ophthalmologists referring patients for refractive and corneal surgery, including transplants. Dr. Meister trained other ophthalmologists in his area in the use of the operating microscope and extracapsular cataract surgery, and phacoemulsification techniques.

Dr. Meister is frequently invited as a guest lecturer. He received the Visx Star award, after approval of the excimer laser, for being among the top 15 refractive surgeons in the United States. He has served as part of the mentor program for new surgeons as they develop their refractive surgery techniques. Dr. Meister has been the Medical Director of the Eye Surgery Center of Northern California from 2000 until present. He is the owner and was one of the initial planners of the first eye surgery center in the Sacramento area. He has also been an FDA investigator for approval of innovative laser techniques and wavefront technology, and has published several articles.

"It is very gratifying to restore people's vision to achieve their goals for recreational, occupational or functional needs. It is such a compliment to hear from patients on a daily basis how their new vision has improved their quality of life, and how they wish they had done it years before."

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- 1996-Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course; Minneapolis
  "Cataract Surgery for the 90's" Course Director Invited Presentation
- 1996- American Academy of Ophthalmology": Chicago, IL.
  "Clinical Decisions in Management of Complication in Cataract Surgery"
  "Cataract Surgery of the 90's" Staar & Chiron
  "Advanced Phacoemulsification and Combined Glaucoma – Phaco Surgery"
- 1996- Tarrand County Medical Society: Fort Worth, TX.
  " Cataract Surgery for the 90's"
- 1997- Ophthalmology Society: Bethlehem, PA.
  "Cataract Surgery for the 90's"
- 1998- The Virginia Society of Ophthalmology: Williamsburg, VA.
  "Posterior Chamber Phakic IOLS"
  "Clear Cornea Cataract Surgery"
  " Co2 Laser for Blepharoplasty & Resurfacing"
- 1998- American Academy of Ophthalmology: New Orleans, LA.
  "Clinical Decisions in the Management of Complication in Cataract and IOL Surgery"
  Preceptor for ICL – Staar Booth
- 1998-Hawaii Eye Meeting / Slack Incorp: Hawaii
  "Topical Clear Corneal Cataract with Diclofenc Sodium"
- 1998-Women in Ophthalmology: Aspen, CO.
  "Cataract Surgery for the Millenium"
- 1998- Maryland Physicians & Eye Surgeons: Maryland
  " Cataract Surgery for the 90's"
  " ICL Update"
  " Toric IOL'S"
- 1999-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Advanced Techniques for Cataract Surgery using Topical Anestheia and Clear Corneal Incisions"
  "Pre & Post Op Medications for the ICL"
  Course Instructor – 2 hrs. " Advance Techniques for Cataract Surgery, ICL's & Toric Lenses"
- 1999- Greater Baltimore Medical Center Baltimore, MD.
  "ICL Update"
- 1999-Society of Ophthalmology: Puerto Rico
  "Cataract Surgery for the Millenium"
  "ICL Update" " Toric IOL'S for Cataract Surgery"
- 1999-Los Angeles Society of Ophthalmology: Los Angeles, CA.
  "Cataract Surgery for the Millenium"
- 2000- American Society of Cataract and Refractive Surgery : Boston Mass.
  " International Challenges & Techniques in Advanced Cataract Surgery'

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- 2002- American Academy Of Ophthalmology - Florida
  " Clinical Decision & Management of Complication 2002"
  " Prevention & Management of Iris Prolapse During Cataract Surgery"

Presentations: Cosmetic - Techniques using CO2 & Erbium Lasers:

- 1996- International Society of Cosmetic Laser Surgery: Chicago IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- Coherent / Pre- AAO, Chicago, IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- International Society of Cosmetic Laser Surgery: Washington, DC.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1998- The Virginia Society of Ophthalmology, Williamsburg, VA.
  "Skin Resurfacing with the CO2 & Erbium laser"
- 1998- Maryland Optometric Association: Baltimore, MD.
  "Cosmetic Laser Surgery using the CO2 & Erbium Lasers"
- 1998- 7th. International Society of Cosmetic Laser Surgeons: Orlando, FL.
  "Great Marketing – Minimal Expense – Coordinated Skin care"
- 1999-International Society of Cosmetic Laser Surgeons: New Orleans, LA.
  "Erbium Resurfacing for Xanthelasma"
  " CO2 Laser Blepharoplasty"
- 2002 – International Society of Cosmetic Laser Surgeons : New York
  "Lower Lid Blepharoplasty Multi-Modal approved"
  Presentations: Toric & Implantable Contact Lens:
- 1997- Taustin Eye Center: Louisville, KY.
  " Implantable contact lenses"
  " Toric IOL Update"
- 1998- Maryland Society of Eye Physicians & Surgeons: Baltimore, MD.
  "Intraocular Contact Lens"
- 1998- Sixth Annual Ophthalmic Allied Health Symposium: Wilmington, DE.
  "Implantable Contact Lens, My Personal Experience"
  "Update: Phase 1 & 2"
- 1998- Women in Ophthalmology: Colorado
  "Correction of High Myopia & Hyperopia with Intraocular contacts"
- 1998- American Society of Cataract and Refractive Surgery: San Diego, CA.
  Staar Surgical: ICL
  "Implantable Contact Lenses, My Personal Experience"
  "Phase 1 & 2" " ICL Update"
- 1998- Hoover Naquian Conference: Baltimore, Md.
  "Implantable Contact Lenses for Myopia and Hyperopia"
- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"
  "Implantacle Contact Lens For Myopia & Hyperopia"

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Stanley Teplick, MD

BIO

Dr. Stanley Teplick is the founder and Medical Director of Teplick Custom Vision, a regional Optometric Referral Center with offices throughout Oregon, specializing in refractive surgery. He was involved in the original FDA studies leading to the approval of the Excimer laser in 1995 and has performed over 45,000 refractive surgery procedures.

PERSONAL

Resides: 1930 Egan Way, Lake Oswego, OR 97034

EDUCATION

High School:	Cheltenham High School Wyncote, PA	1965
College	University of Chicago	1965 - 1967
	American Conservatory of Music	1968
	California State University San Francisco	1970 - 1973
	BA Degree Philosophy and Religion	1973
Medical School:	Hahnemann Medical College of Philadelphia	1973 - 1977
	Doctor of Medicine	1977
	Alpha Omega Alpha	1977

TRAINING

Internship:	Mayo Clinic Internal Medicine	1977 - 1978
Residency;	Mayo Clinic Ophthalmology	1979 - 1981
	Chief Resident in Ophthalmology	1981

PROFESSIONAL ACTIVITIES

Jazz Pianist		1968 - 1970
General Medicine	St. Charles, Minnesota	1978
Ophthalmology	Founder and Medical Director The Eye Foundation of Utah	1982 - 1990
Ophthalmology	Stahl Eye Associates Garden City, New York	1990 - 1992
Ophthalmology	Eye Surgery Center of Louisiana New Orleans, Louisiana	1992 - 1995
Laser Vision Correction	President and Medical Director Center for Sight Teplick Vision	1995 - Present

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CERTIFICATION

Diplomat, National Board of Medical Examiners	1978-
Diplomat, American Board of Ophthalmology	1983-
Fellow, American Academy of Ophthalmology	1984-
Member, International Society of Refractive Surgery	1990-
Member, American Society of Cataract and Refractive Surgery	1990-

APPOINTMENTS

Clinical Assistant Professor of Ophthalmology University Medical Center, Salt Lake City, Utah	1982 – 1990
Chairman, Department of Ophthalmology Cottonwood Hospital, Salt Lake City, Utah	1983 – 1985
Member, National Board of Examiners in Optometry	1989 – 1992
Member, National Advisory Council, Better Vision Institute	1989 – 1995
Member, Educational Advisory Board, Vision Expo	1994 – 1995
Chairman, Comanagement Task Force, Vision Council of America	1993 – 1995
Adjunct Associate Clinical Professor State University of New York College of Optometry	1993 –
Adjunct Associate Clinical Professor University of Houston College Optometry	1994 –
Member, National Medical Advisory Board, Equivison, Inc.	1994 – 1997
Adjunct Professor of Ophthalmology, Pacific University	1995-

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Presentations

Starr Surgical Intraocular Lens Implantation Course Sidney, Australia	June, 1993
Glaucoma and Therapeutic Update (Course Director) New Orleans, Louisiana	Nov 1993
SUNY Comprehensive Therapeutic Update Course (Preceptor New Orleans, Louisiana	Dec 1993
National Comanagement Conference (Course Director) Vision Expo East, New York	1994-2001
Optometric Therapeutics Course Brisbane and Melbourne, Australia	April 1994
Western Comanagement Conference (Course Director) Vision Expo West, Anaheim, California	1994-1999
Cataract and Refractive Surgery Update (Course Director) Vision Expo West, Las Vegas, Nevada	1999-2001
Pacific University College of Optometry 3rd Year Refractive Surgery Course	2000-present
Oregon Optometric Physicians Association Invited Speaker	1998-present
Great Western Council of Optometry Invited Speaker	2000-2010
Pacific University College of Optometry Hawaii Course Invited Speaker	2000-2014
Teplick Vision Annual Optometric CE Seminar Speaker	1995-2015

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Thomas Tooma, MD

Dr. Tooma has performed more than 100,000 LASIK procedures and believes that laser vision correction at NVISION is as safe as it can be. In fact, he has performed LASIK surgery on hundreds of doctors, including 250 eye doctors. That's why NVISION and Dr. Tooma are The Eye Doctors' #1 Choice for their eyes and their patients' eyes. Dr. Tooma believes that the combination of experience and technology gives NVISIONS's patients the highest possible likelihood of achieving 20/20 or better vision through LASIK procedures.

A pioneer in the world of LASIK surgery, Dr. Tooma has been a principal investigator in the field of laser vision correction since 1993. He helped several excimer laser manufacturers obtain FDA approvals for their lasers in the United States. He holds the record for many firsts: he was the first doctor in California to perform LASIK surgery and was the first to perform custom Wavefront-guided LASIK. He was also the first in the U.S. to use the FemtoSecond Laser (IntraLase FS30 — bladeless all laser LASIK), which is safer and more precise than a traditional blade.

In 2010, Dr. Tooma purchased TLC's interest in the 8 Southern California locations and formed NVISION Laser Eye Centers. At NVISION, Dr. Tooma provides his patients with a lifetime commitment, giving them the assurance that if they need any enhancement surgeries in the future, they can be performed at any NVISION center, for life and at no cost.

Dr. Tooma received his M.D. from Loma Linda University School of Medicine, where he also completed his internship in internal medicine and residency in ophthalmology. He completed his fellowship in Corneal and Refractive Surgery at the Emory University Department of Ophthalmology in Atlanta, Georgia. He has been board certified in ophthalmology for more than 25 years.

For Dr. Tooma, helping patients achieve their vision goals is his passion. "I feel privileged and blessed to participate in what is a life-changing experience for my patients," he said.

In his spare time, Dr. Tooma has served on medical teaching missions to Romania, Bulgaria, China and Fiji, helping teach local ophthalmology doctors new surgical techniques. In 2008, he and his wife, Marta Tooma, D.D.S., founded the Mission at Natuvu Creek in Fiji. The Mission serves the 250,000 people living on the island, with medical, dental and eye care provided by visiting physicians, including the Toomas.

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Emil Stein, MD

Emil A. Stein, M.D., F.A.C.S. is a board-certified ophthalmologist and a fellow of the American College of Surgeons. He graduated from Rancho High School prior to attending college at the University of Arizona, where he received the outstanding senior award at graduation. His medical training began at the UCLA School of Medicine, where he became interested in ophthalmology at the Jules Stein Eye Institute.

He completed his residency in ophthalmology at the University of Colorado, in Denver. Subsequently, he served as Chief of Ophthalmology at Fort Campbell, Kentucky, home of the 101st Airbourne Division. His tours included Saudi Arabia (Desert Storm) and Somalia. His clinical practice includes most aspects of medical and surgical ophthalmology, including ongoing clinical research. His patients appreciate his individualized approach to educating them on their conditions.

MEDICAL SCHOOL
David Geffen School Of Medicine At UCLA, University Of California, Los Angeles
Graduated in 1985

INTERNSHIP HOSPITAL
St Joseph Hospital
Complete in 1986

RESIDENCY HOSPITAL
University Of Colorado
Complete in 1989

CERTIFICATIONS & LICENSURE
- American Board of Ophthalmology
  Certified in Ophthalmology
- AZ State Medical License
  Active through 2017
- NV State Medical License
  Active through 2017

AWARDS, HONORS & RECOGNITION
Fellow (FAAO), American Academy of Ophthalmology 2012
Fellow (FACS), American College of Surgeons 2013
Top MD, Consumers Checkbook 2014

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PUBLICATIONS & PRESENTATIONS

Stein, E. A., Cho, K., Higgs, P. I., Zusman, D. R. "Two Ser/Thr protein kinases essential for efficient aggregation and spore morphogenesis in Myxococcus xanthus." Mol Microbiol

Paniagua, R. T., Chang, A., Mariano, M. M., Stein, E. A., Wang, Q., Lindstrom, T. M., Sharpe, O., Roscow, C., Ho, P. P., Lee, D. M., Robinson, W. H. "c-Fms-mediated differentiation and priming of monocyte lineage cells play a central role in autoimmune arthritis." Arthritis Res Ther

Lin, J. T., Stein, E. A., Wong, M. T., Kalpathy, K. J., Su, L. L., Utz, P. J., Robinson, W. H., Fathman, C. G. "Differential mTOR and ERK pathway utilization by effector CD4 T cells suggests combinatorial drug therapy of arthritis." Clin Immunol

Söderström, K., Stein, E., Colmenero, P., Purath, U., Müller-Ladner, U., de Matos, C. T., Tarner, I. H., Robinson, W. H., Engleman, E. G. "Natural killer cells trigger osteoclastogenesis and bone destruction in arthritis." Proc Natl Acad Sci U S A

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Jon-Marc Weston, MD

SPECIALTY

Anterior Segment (Cataract, Glaucoma, Refractive and Laser Surgery)

CURRENT POSITIONS

Medical Director
Vision Surgery & Laser Center, LLC
2435 N.W. Kline Street
Roseburg, OR 97471

Medical Director
Weston Eye Center, PC
2435 NW Kline Street
Roseburg, OR 97471

Principal Investigator
Roseburg Research Associates, LLC
2435 NW Kline Street
Roseburg, OR 97471

EDUCATION

High school:

Long Beach Memorial High School, Long Beach, New York
Regents Honors in Science and Language, 1969.

College:

State University of New York at Binghamton
(Regents Scholar, Harpur College-Bachelor of Arts Degree, 1973.)

Medical School:

Hahnemann Medical College, M.D., 1977-1978, Philadelphia, PA
Flexible PGY-1 Wilmington Medical Center, Wilmington, DE

Ophthalmology Residency:

Hahnemann University, 1978-1981

BOARDS AND CERTIFICATION:

National Boards completed: 1978, certificate number 193-183.
American Board of Ophthalmology April 21, 1982.
Certified in cataract surgery : American Board of Eye Surgery April 30, 2007.

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STATE LICENSURES	ORIGINAL DATE OF ISSUE
Oregon (17072)	04-12-1991
Washington (36609)	08-20-1998

HOSPITAL APPOINTMENTS

1981-1989	Hahnemann University & Hospital Ophthalmology Department of Ophthalmology Board & Vine Street Philadelphia, PA 19105	Attending in Asst. Clinical Professor
1981-1989	Rolling Hill Hospital & Diagnostic Center Ophthalmology Department of Ophthalmology Elkns Park, PA 19117	Attending in
1971-1987	Frankford Hospital Frankford & Wakling St. Philadelphia, PA 19125	Attending in Ophthalmology
1985-1986	Cooper Hospital University Medical Center Ophthalmology One Cooper Plaza Camden, NJ 08103	Attending in
1986-1989	St. Mary Hospital Ophthalmology Frankford & Palmer St. Department of Surgery Philadelphia, PA 19125	Attending in
1986-1989	The Osteopathic Medical Center Ophthalmology City Line Avenue Philadelphia, PA 19131	Attending in

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1988-1989	Suburban General Hospital Ophthalmology Norristown, PA 19401	Attending in
1988-1991	Marion Memorial Hospital Ophthalmology 917 West Main Street Marion, IL 62959	Attending in
1988-1991	American Eye Institute Surgery Center of S. Illinois Marion, IL 62959	Attending Surgeon
1991-2000	Douglas Community Hospital 738 W. Harvard Blvd. Roseburg, OR 97470	Active Medical Staff
1991-PRESENT	Mercy Medical Center 2700 Stewart Parkway Roseburg, OR 97470	Active Medical Staff
1991-1999	Coquille Valley Hospital 940 E. 5th Coquille, OR 97423	Consultant Staff
1992-PRESENT	Roseburg VA Hospital NW Garden Valley Blvd. Roseburg, OR 97470	Consultant Staff
1992-1999	Blue Mountain Hospital John Day, OR 97470	Consultant Staff
1991-2000	Roseburg SurgiCenter 631 W. Stanton Roseburg, OR 97470	Attending Surgeon
1993-1998	2003 re-opened as Oregon Surgery Center 2700 Stewart Parkway Roseburg, OR 97470	
2001-PRESENT	Ocean Beach Hospital	Consultant Staff

NVISION EYE CENTERS

	Ilwaco, WA	
2011-PRESENT	Vision Surgery & Laser Center Roseburg, OR 97470	Medical Director & Chief Surgeon
	Western University of Health Sciences/College of Osteopathic Medicine of the Pacific professor of Surgery	Clinical Assistant

PREVIOUS PRACTICE EXPERIENCE

1981-1986	Hahnemann Eye Associates, Hahnemann University Hospital Residency Training Coordinator, member private practice group.
1981-1988	Assistant Clinical Professor Department of Ophthalmology Hahnemann University 230 N. Broad St. Philadelphia, PA 19102

PUBLICATIONS, PAPERS AND INSTRUCTION COURSES

APRIL 1979	"Ophthalmic Fixed-Ratio Drug Combinations", David B. Soll, M.D. and Jon-Marc Weston, M.D. American Family Physician, April 1979.
1980	"A New Computerized Ultrasound Technique for Evaluation of Ocular Blood Flow", Zarko M. Vucicevic, M.D., Robert Webb, Ph. D., Jon-Marc Weston, M.D.; Presented at the 1980 American Academy of Ophthalmology Scientific Session, Chicago, IL.
1980-1981	"Visual Toxicity of Digoxin", Jonathan S. Moulton, M.D., Jon-Marc Weston, M.D., David A. Major, M.D. Submitted to Annuals of Medicine.
1982	
1983	Evaluation of Ocular Blood Flow, Z. Vucicevic and J. Weston, 1980. Presented Innovation in Ophthalmology conference. Boca Raton, Florida,

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1981.

1983

"Anatomic Variations in the Anophthalmic Orbit", Jon-Marc Weston, M.D.,
David B. Soll, M.D. Presented at the Annuals Ptosis Society Meeting, San Francisco, CA November, 1982.

1983

"Experience with Argon Laser Trabeculoplasty", Jon-Marc Weston, M.D., Zarko M. Vucicevic, M.D. Presented at the International Glaucoma Congress,
Bal Harbor, FL March, 1983.

1984

"Experimental Evaluation of the Anophthalmic Socket", Jon-Marc Weston, M.D.,
and David B. Soll, M.D. Presented at the Annual American Society of Ophthalmic Plastic and Reconstructive Surgery Conference, Chicago, IL. November, 1983.

1984

Editorial: Issues in Glaucoma "Early Detection of Open Angle Glaucoma",
Clinical Decisions in Ophthalmology, Vol. 7, No. 2, page 3, 1983.

1984

"Introduction to Clinical Medicine-Ophthalmology", Hahnemann University
Television Network. 1984.

1988-1991

"Athletic Eye Injuries: Prevention, Diagnosis and Management" World Video Corp.
January, 1984.

1992

"Introduction to the Ophthalmic Examination", Hahnemann Television Network. January, 1984.

1993

Instructor-American Academy of Ophthalmology "Regional Update-Practical Laser Course". Philadelphia, PA. June, 1984.

1993

Hahnemann University Visiting Professor Program. Good Samaratin Hospital, Pottsville, PA. September, 1984. Doylestown Hospital, Doylestown, PA. October, 1984.

1994

1995

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1995

American Eye Institute Quarterly update course series, various anterior segment
topics 1988-1991.

1995

Glaucoma Therapeutics Course given for Pacific University at Ashland, OR,
July, 1992.

1996

1997

Hawaii Optometric Association, Medical Management of Glaucoma, Honolulu, Hawaii. January, 1993.

1999

Medical Management of Glaucoma; Victoria University, Victoria, B.C., July 1993.

2002

Hawaii Optometric Association, Medical and Surgical Management of Glaucoma Honolulu, Hawaii. February 1994.

2003

Co-Director, Management of the Photorefractive Laser Patient, December 1, 1995, Pacific University, Forest Grove, OR.

2002

Refractive Laser Procedures, LASIK and Other Refractive Surgery, PLEC, Vancouver, B.C., October 14, 1995.

2004

Photorefractive Keratectomy.

Co-Management of the Excimer Laser Patient, Co-Course Director, Pacific University, Forest Grove, OR. November 1996.

Update and Intensive Proctoring in Modern Phacoemulsification Cataract Extraction. Mednet Facilities; Shanghai, Wuxi and Kumming, China. April 1997

2005

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2005 Glaucoma – Update on Detection and Treatment, Hawaii Optometric Association, Honolulu, Hawaii, April, 1999.

2006 Director, First Endoscopic Cyclophotocoagulation Certification Course, Minneapolis, MN, August 2002.

2011 Endoscopic Ciliary Ablation for treatment of concurrent Cataract and Glaucoma
2003 Annual Meeting American Society Cataract & Refractive Surgery, San Francisco, April 2003.

Medtronic Solan ECP Course - Endoscopic Photocoagulation Didactic Training and Wet-lab Worskhop, Minneapolis, MN, August 24, 2002.

"Form and Function in the Diagnosis and Management of Glaucoma"; presented at the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Intacs and Keratoconus"; presented at the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Endoscopic Ciliary Process Ablation in the Management of Glaucoma"; presented at the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Knowing the Unknowable" World Religion Day, Roseburg Or.

"Final Results of the FDA Visco-Shield Clinical Trial"; presented at the ASCRS Annual Meeting. Washington, DC.

"Panelist, Session 2R: Cataract Complications and Results"; ASCRS Annual Meeting. Washington, DC.

PHP (Preferential Hyperacuity Perimetry) for Macular Degeneration Detection – Multiple locations

Macular Edema after Cataract Surgery in Diabetic vs. Non-Diabetic eyes, ASCRS, San Francisco, CA.

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Multicenter Results of Endoscopic Ciliary Ablation for various types of Glaucoma, ASCRS, San Diego, CA.

Point/Counterpoint: Are Brand-Name Agents Required for Cataract Surgery?, Advanced Ocular Care, March 2011.

RESEARCH:

1971 Clinical Application of the serial CPK Serum Enzyme Analysis. P. Lavine, D. Shirley, J. Weston, Hahnemann Hospital. Unpublished.

1972 Biologic Preparation for Experimental Heart Lung Bypass Studies, J. Weston, R. Trubore. Unpublished research, Hahnemann Cardiovascular Institute.

1973 The Histamine Wheel and Flare Response as a Biologic Assay for Antihistamine Effects of RM9981. J. Weston, I. Itkin. Unpublished research, Hahnemann Medical College.

APRIL 1979 "Ophthalmic Fixed-Ratio Drug Combinations", David B. Soll, M.D. and Jon-Marc Weston, M.D. American Family Physician.

1980-1981 Evaluation of Ocular Blood Flow, Z. Vucicevic and J. Weston. Presented Innovation in Ophthalmology conference. Boca Raton, Florida.

1982-1984 Experimental Evaluation of the Anophthalmic Socket, J. Weston and D. Soll Presented at ASOPRS Annual Conference, 1984.

1983-1986 Laser Technology Applications in Glaucoma Therapy, J. Weston and Z. Vucicevic.

DECEMBER 1995

1995-1996

1996

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1992-1995	Eye Health Services of Oregon, Vice President, Board of Directors.
1992-1993	Independent Practice Association of Douglas County Steering Committee.
1994-1997	Pacific Eye Centers, Board of Directors and Executive Committee.
1997-1998	Pacific Eye Centers, Chairman.
1996-1998	NWMG, Board of Directors and Executive Committee.
1996	NWMG Chairman
1998-	NWMG Medical Director.
1996-1999	Cobb Street Learning Center, Roseburg OR, Board of Directors.
1996-1997	Northwest Surgicenters, Executive Committee, Chairmen of the board.
1998-2000	Northwest Surgicenters, Board of Directors.
1996-1998	Oregon Laser Eye Center: Board of Directors and Medical Director.
1998-1999	Chairman, Credentials Committee, Douglas Community Medical Center.
1999-2000	Douglas Community Medical Center, Board of Trustees.
1998	Douglas County Medical Society, Vice President.
1999	Douglas County Medical Society, President.
2000	Chairman, Joint Mercy / Douglas Division of Surgery.
APRIL 2000	Douglas County Delegate to Oregon Medical Society annual meeting.
1999-2001	Roseburg Surgicenter: Board of Directors.
APRIL 27,2001-APRIL 27, 2006	Pacific University College of Optometry: Adjunct Assistant Clinical Professor, Forest Grove, Oregon.
2005-2006	President, Roseburg Lions Club.
2006-2009	Board of Directors, Oregon Lions Sight and Hearing Foundation and Member of Sight and hearing Committee
2005-2009	Board of Trustees, Oregon Lions Eye Bank.
2006-2009	Board of Directors, Outpatient Ophthalmic Surgery Society

PROFESSIONAL SOCIETIES:

FELLOW	American College of Surgeons
MEMBER	Oregon Medical Association Douglas County Medical Assoc. American Society of Cataract and Refractive Surgeons American Academy of Ophthalmology

COMMUNITY ACTIVITIES

2005-2008	UACT Betty Long Theatre Board of Directors
2005-2006	Roseburg Lions Club – President
1996-1999	Hospital Facility Authority of Douglas County
1993-1996	Assistant Instructor, Roseburg YMCA Judo Club
1993-PRESENT	Director, Douglas County Mission Cataract

HONORS:

1999	Helen Keller Benefactors Award
2001	Melvin Jones Fellowship of Lions International
2003	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2004	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2005	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2006	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2007	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2008	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County

FAMILY:

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WIFE	Susan Walton-Weston BFA in Fine Arts, Moore College of Art, Philadelphia, PA Interests: Painting, Tapestry, Weaving, Horse Riding and Jumping
CHILDREN	Whitney, Christine, Alexandra

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San Leandro, March 23, 2016

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105
SACRAMENTO, CA 95834

RE: State Board of Optometry Guidelines Compliance.

Dear Sir or Madam,

The proposed course is open to all optometrists licensed in this State of CA.

We agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation.

Should you need further information please do not hesitate to contact us.

Sincerely,

Tony Gomes
Executive Director

San Leandro • Concord • Castro Valley
Chirag R. Patel, MD
Schonmei H. Wu, MD
Anney Han, OD
(800) 339-2733 • www.turnereye.com • www.helpkeratoconus.com

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY

EDMUND G. BROWN JR., GOVERNOR

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

OPTOMETRY

2016 MAR -1 PM 12:

Request for Approval of Continuing Education Course(s)

800.339.2733
www.turnereye.com

TURNER EYE INSTITUTE
420 Estudillo Ave.
San Leandro, CA 94577

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1538	6214728	6163779	50

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
TURNER EYE INSTITUTE	4/22/16	CHIRAG R. PATEL, M.D.	3			
	4/28/16	SCHONMEI H. WU, M.D				
		SORAYA ROFAGHA, M.D				
		JESSE J. JUNG, M.D.				

COMMITTEE COMMENTS:

TURNER EYE INSTITUTE

www.turnereye.com • 800.339.2733

3 hours Free CE: 06:30-09:30 PM – Two locations

Check in at 06:00 PM (Dinner will be served)

1st Meeting San Leandro: Friday April 22nd, 2016

Horizon Vision Centers

1401 Willow Pass Road, Suite 100, Concord, CA 94520

2nd Meeting Concord: Thursday April 28th, 2016

San Leandro Surgery Center

15035 E. 14th St., San Leandro, CA 94578

Chirag R. Patel, MD
Cornea, Refractive & Cataract Surgeon
Eye Banking: The Basis and the Evolution

Soraya Rofagha, MD
Vitreoretinal Specialist
Geographic Atrophy: What we know and we don't

Schonmei H. Wu, MD
Glaucoma & Cataract Surgeon
Glaucoma: Rho Kinase Inhibitors; Neuroprotection in Glaucoma

Jesse J Jung, MD
Vitreoretinal Specialist
Untra-Widefield Imaging in Central Serous Chorioretinopathy

RSVP by email to tgomes@tunereye.com or fax to: 510-357- 6330

Sign me up for: San Leandro □ 04/22 or □ Concord 04/28 (check one)

Name: _____ Ph #: _____

Email: _____

Seating is limited. Please RSVP no later than 1 week prior to each meeting.

800-339-2733 www.turnereye.com Fax 510-357-6330

San Leandro • Castro Valley • Concord

Schonmei H. Wu, MD

1. Rho kinase inhibitors
    a. Why it works
    b. Ongoing studies

2. Neuroprotection in glaucoma
    a. Theories behind neuroprotection
    b. Possible agents

3. Brief primer on SLTs

Curriculum Vitae

Schonmei Hsun-mei Wu, MD
420 Estudillo Ave
San Leandro, CA 94577

Pertinent Work Experience:

- **Turner Eye Insitute, San Leandro, CA**
  - Glaucoma & Cataract surgery – Associate (Aug. 2015 – Present)

Education:

- High School:
  - **St. John's School**: 2401 Claremont Lane, Houston, TX 77019 (August 1995-May 2002)
- AB degree Cum Laude in Field (Biology), Recommended for Honors in Field:
  - **Harvard College**: University Hall, Cambridge, MA 02138 (September 2002-June 2006)
- Doctorate of Medicine:
  - **Columbia University College of Physicians and Surgeons**: 630 West 168th Street, New York, NY 10032 (August 2006-May 2010)
- Resident in Medicine I:
  - **New York Hospital Queens:** 56-45 Main Street, Flushing, NY 11355 (July 2010-June 2011)
- Resident in Ophthalmology:
  - **Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye Institute:** One Baylor Plaza, Mail Stop NC - 205, Houston, Texas 77030 (July 2011-June 2014)
- Glaucoma Clinical Fellow:
  - **University of California San Francisco:** 533 Parnassus Avenue, San Francisco, California 94122 (July 2014-present)

Peer reviewed publications:

Pennesi ME, Cho JH, Yang Z, **Wu SH**, Zhang J, Wu SM, Tsai MJ. BETA2/NeuroD1 null mice: a new model for transcription factor-dependent photoreceptor degeneration. The Journal of Neuroscience. 2003 Jan 15. 23(2): 453-61.

Barile GR, **Wu SH**, Armiger DA, Dhrami-Gavazi E, Paccione JC. Autofluorescence in acute idiopathic maculopathy. Retinal Cases & Brief Reports. Spring 2009. 3(2): 133-136.

Book chapters:

Wu SH, Margolis R, Chang S. "Basic vitreoretinal surgery techniques." Clinical Atlas of Procedures in Ophthalmic and Oculofacial Surgery, 2nd edition. Ed. Daniel M Albert and Mark J Lucarelli. New York, NY: Oxford University Press, 2012. 414-421.

Standardized Test Scores:

- SATI: 1590
- MCAT: 36
- USMLE Step I: 233 (6/6/08)
- USMLE Step II CK: 225 (10/7/09)
- USMLE Step II CS: pass
- USMLE Step III: 232 (2/17/11)

Research:

Research Assistant: **Department of Ophthalmology, Baylor College of Medicine**: Worked on an independent study project characterizing mice lacking the NeuroD transcription factor using electroretinograms and immunohistochemical staining of retina sections with Scott Basinger, PhD (August 2000 to May 2001)

Research Assistant: **Carl B. & Florence E. King Foundation Summer Program in Biomedical Sciences at MD Anderson Cancer Center.** Synthesized a β-lactam compound suspected of having anti-cancer properties with Bimal Banik, PhD. (Summer 2002)

Research Assistant: **Summer Medical and Research Training Program at Baylor College of Medicine.** Studied the development of *Dictyostelium* by knocking out a protein suspected to be a necessary component of a protein cascade with Gad Shaulsky, PhD. (Summer 2003)

Research Assistant: **Beth Israel Deaconess Medical Center:** Worked on a project investigating the effects of air pollution on stroke incidence and another project looking at possible behaviors linked to the immediate onset of stroke with Murray Mittleman, MD, DrPH. (Summer 2005)

Research Assistant: **Massachusetts General Hospital**: Studied the role of various

proteins involved in NFκB activation with Shiv Pillai, MD, PhD. (Summer 2006)

Research Assistant: **Columbia University College of Physicians and Surgeons: Edward S. Harkness Eye Institute**: With Gaetano Barile, MD, I graded fundus photographs of patients with age related macular degeneration in order to find associated genes, wrote a case report showing acute idiopathic maculopathy to be a self-limited inflammatory disruption of the retinal pigment epithelium through the use of autofluorescent imaging, and observed Dr. Barile in clinic and in the operating room. (Summer 2007)

Residents Day Project: **Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye Institute:** Analyzed cataract surgery data from the Michael E. DeBakey Veterans Affairs Medical Center and examined the visual outcomes in patients with zonular laxity. Determined that while patients with zonular laxity tended to have more complications, these patients ultimately had similar visual outcomes as those without zonular laxity. (2011-2012)

Residents Day Project: **Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye Institute:** Analyzed the effect of elevated postoperative intraocular pressure (IOP) on visual outcomes after cataract surgery on 4,208 eyes from 5 Veterans Affairs Medical Centers. Found that while patients with glaucoma tended to have more IOP spikes, IOP spikes did not have an effect on final visual outcomes. Received second place Goar Award for best resident research project. (2012-2013)

Residents Day Project: **Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye Institute:** Analyzed visual outcomes in eyes receiving capsular tension rings at 5 Veterans Affairs Medical Centers for zonular dehiscence secondary to trauma, pseudoexfoliation, or previous surgery. Discovered that eyes needing a capsular tension ring tended to have similar post-operative visual acuities, but these surgeries had higher complication rates. (2013-2014)

Awards and Honors:

Graduated Cum Laude in Biology from Harvard College. (2006)

Second place Goar Award for best resident research at Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye Institute for project titled "The effect of post-operative intraocular pressure on surgical outcomes in patients after cataract surgery in the Ophthalmic Surgical Outcomes Database (OSOD)" (2013)

Teaching Experience:

On-Call Peer Tutor: **Bureau of Study Counsel, Harvard University.** Tutored students in introductory inorganic chemistry. (September 2003 to January 2004)

Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye

Institute: Initiated and organized a workshop to teach Baylor College of Medicine medical students various ophthalmic exam techniques, including refraction, slit lamp exam, applanation, and dilated fundus exam. (August 2012)

Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye Institute: Supervised and taught third and fourth year Baylor College of Medicine medical students on their ophthalmology clerkship and ophthalmology sub-internships. (July 2011 to June 2014)

Baylor College of Medicine: Department of Ophthalmology and the Cullen Eye Institute: Gave orientation lecture to first year residents on proper post-operative management of various ophthalmic surgeries, including cataract and glaucoma surgeries. (July 2013)

Extracurricular Activities:

Hippocratic Society Logistics Committee: Helped arrange hotels and rental cars for speakers at a yearly conference about various health topics. (2002)

Public Relations Co-chair: **Harvard-Radcliffe Chinese Students Association.** Distributed a weekly email newsletter to 600 students and faculty advertising events, initiated an email discussion list about China and Asian American issues, negotiated co-sponsorship details with other organizations, and received the CSA Most Sprit Award in 2003. (September 2002 to December 2003)

Chair: **Boston Asian Students Alliance.** Led a Boston-wide intercollegiate organization to unify and mobilize Asian American college students by coordinating fundraising activities, intercollegiate mixers, and election exit polling. (December 2003 to May 2005)

Asian American Studies Seminar Series Committee. Initiated a seminar series to explore Asian Americans from academic standpoint, to encourage student interest, and to support the creation of an Asian American Studies Program. (October 2003 to May 2006)

Logistics Chair: **Boston Asian Students Intercollegiate Conference.** Ran logistics for a day-long conference on Asian American issues which drew over 400 students and organized rooming, the conference schedule, food, conference setup, board member duties, and other logistical details. (Summer 2004)

Volunteer: **Hepatitis B Initiative.** Worked at a volunteer clinic distributing free Hepatitis B screening and vaccines and translated for patients who only spoke Mandarin Chinese. (Summer to Fall 2004)

Intern: **American Friends Service Committee: Criminal Justice Department.** Worked for a campaign to end solitary confinement in Massachusetts state prisons. (Summer

2004)

Performer: **Bard Hall Players.** Played a Hot Box Girl in Columbia Medical Center's annual musical, *Guys and Dolls*. (August 2006 to November 2006)

Performer: **The Ultrasounds.** Sang alto for the Columbia Medical Center's acapella group. (January 2007 to June 2007)

Performance Chair: **Columbia University Medical Center's First Annual Multicultural Show.** Organized a 10 act show featuring members of Columbia Medical Center representative of different cultures from around the world including Bhangra, Chinese fan dance, merengue, and hip-hop. (August 2007 to November 2007)

President: **Asian Pacific American Medical Student Association, Columbia Chapter.** Helped found a hepatitis B screening and vaccination initiative in conjunction with a community health center in Chinatown and other New York area medical schools and organized networking events among the New York medical schools. (August 2007 to May 2008)

Chinese American Doctors Association of Houston (CADAH). CADAH is an organization aimed at promoting Chinese American physicians' rights and welfare and organizes many educational, social, and community outreach events. Personally initiated multiple networking events to introduce younger physicians, residents, and medical students to CADAH. (2011-2014)

Hobbies, Interests, and Personal:

- Ballet, modern dance
- Musicals and signing
- Soccer and figure skating
- Fluent in Mandarin Chinese
- Conversational Spanish

Eye Banking: The Basics and the Evolution

1. History of eye banking
2. Eye banking evolution
3. Tissue donation process
4. Cornea evaluation process
5. Donor evaluation process
6. Quality assurance process
7. Cornea distribution process
8. Corneal preparation
    a. PKP
    b. DSEK
    c. DMEK
9. Sterile cornea grafts (VisionGraft)

CHIRAG R. PATEL, M.D.

Turner Eye Institute
420 Estudillo Avenue, San Leandro, CA 94577
Phone: (510) 614---1515
Fax: (510) 357-6330
Email: cpatel@turnereye.com

WORK/EDUCATION:

2012-present **Turner Eye Institute (San Leandro, CA)**
Medical Director
Cornea, Anterior Segment, and Refractive Surgeon

2015-present **Tissue Banks International San Francisco Eye Bank (Richmond, CA)**
Medical Director

2011-2012 **The New York Eye and Ear Infirmary (New York, NY)**
Cornea, External Disease, and Refractive Surgery Fellowship

2008---2011 **Vanderbilt Eye Institute (Nashville, TN)**
Ophthalmology Resident Physician Chief
Resident 2010---2011

2007-2008 **St. Mary's Medical Center (San Francisco, CA)**
Preliminary Internal Medicine Internship

2002-2007 **University of California, San Diego (UCSD) School of Medicine (La Jolla, CA)**
M.D.

1997-2001 **University of California, Berkeley (Berkeley, CA)**
B.A. Molecular and Cell Biology (with Emphasis in Immunology)

HONORS, AWARDS, & DISTINCTIONS:

2010-2011 **Chief Resident, Vanderbilt Eye Institute**

2009-2010 **Outstanding Oculoplastics Award, Vanderbilt Eye Institute**

2009---2011 **Organizer, Vanderbilt Eye Institute/Tilganga Eye Center (Kathmandu, Nepal) International Elective**

2008-2011 **Resident Representative, Haiti Outreach Program, Vanderbilt Eye Institute**

2007---2008 **Outstanding Clinical Intern Award, St. Mary's Medical Center (San Francisco, CA)**

2003 **NIH Research Training Grant, University of California, San Diego**

2002---2007 **President, American Association of Physicians of Indian Origin (AAPI), UCSD Chapter**

2002-2007 **UCSD School of Medicine**
- Honors in Pharmacology course, Laboratory Medicine course, & Family Medicine Clerkship
- Academic Distinction in Anatomy course and in Medicine, Pediatrics, Neurology, Psychiatry, & OB/GYN clerkships

2001 **Phi Beta Kappa Honor Society**

1997-2001 **High Honors, University of California, Berkeley**

1997-2001	**Dean's List, University of California, Berkeley**
1997---2001	**Pre---Medical Honor Society, University of California, Berkeley**
1997	**Regents Scholarship Nominee, University of California**

RESEARCH:

2014-present **Reduction in the Bacterial Load on the Skin in a Clincal Setting**
Co-Authors: David W. Stroman, OD, Keri Mintun, OD, Arthur B. Epstein, OD, Crystal Brimer, OD, James D. Branch, M.D., Katy Najafi-Tagol, M.D.

2011-present **Long-Term Graft Survival Rates in Descemet's Stripping Endothelial Keratoplasty**
The New York Eye and Ear Infirmary (New York, NY)
Co-Authors: John A. Seedor, M.D., David C. Ritterband, M.D., & Elaine Wu, M.D.

2011-present **Outcomes with Deep Anterior Lamellar Keratoplasty (DALK)**
The New York Eye and Ear Infirmary (New York, NY)
Co-Authors: John A. Seedor, M.D., David C. Ritterband, M.D., & Elaine Wu, M.D.

2010-2011 **Incidence of and Risk Factors for Chronic Uveitis Following Cataract Surgery**
Vanderbilt Eye Institute (Nashville, TN)
Department of Veterans Affairs Medical Center (Nashville, TN) Co-Authors: Stephen J. Kim, M.D. & Amy Chomsky, M.D.

2009---2011 **Endophthalmitis Rates Following Anti---VEGF Intravitreal Injection**
Department of Veterans Affairs Medical Center (Nashville, TN)
Vanderbilt Eye Institute (Nashville, TN)
Co-Authors: Amy Chomsky, M.D. & Janice C. Law, M.D.

2006-2007 **Detection of Glaucoma Using Scanning Laser Polarimetry**
Long-term Predictive Value of a Glaucoma Risk Calculator
UCSD School of Medicine Department of Ophthalmology (La Jolla, CA) Co-Authors: Robert N. Weinreb, M.D. & Felipe Medeiros, M.D., Ph.D.

2002-2007 **Association of Peripheral Arterial Disease with Mortality**
UCSD School of Medicine Dept. of Family & Preventative Medicine (La Jolla, CA)
Co-Authors: Michael H. Criqui, M.D., MPH
Supported by National Institute of Health (NIH) Research Training Grant

1999-2001 **The Role of TRAIL in Apoptosis of Neoplastic Cells**
University of California, Berkeley Dept. of Molecular & Cell Biology (Berkeley, CA)
Co-Authors: Astar Winoto, Ph.D.

PRESENTATIONS:

Patel C. Monday Morning Quarterback: Anterior Segment Triage and Treatments. (*Presented at 2014 UCBSO Berkeley Practicum, Berkeley, CA*)

Patel C. Corneal Surgery: Past, Present, and Future. (*Presented at 2013 ACCCOS Annual Meeting, Walnut Creek, CA*)

Patel C, Chomsky A, Kim SJ. Incidence of and Risk Factors for Chronic Uveitis Following Cataract Surgery. (*Presented at 2011 Vanderbilt Eye Institute Resident Day Research Symposium*)

Patel C, Law JC, Chomsky A. Retrospective Review of Anti---Vascular Endothelial Growth Factor Intraocular Injection Use and Post---Injection Endophthalmitis Rates Within the Medical Facilities of the United States Department of Veterans Affairs. (*Presented at 2010 Vanderbilt Eye Institute Resident Day Research Symposium*)

Patel C. Cataract Surgery in the Developing World. (*Presented at 2007 Sankara Eye Foundation Gift of Vision Banquet, Santa Clara, CA*)

Patel C, Yue HH, Diehl G, Chang A, Winoto A. The Role of TRAIL in Apoptosis of Neoplastic Cells. (*Presented at 2001 University of California, Berkeley Department of Molecular and Cell Biology Honors Thesis Symposium*)

ABSTRACTS:

Stroman DW, Mintun K, Epstein AB, **Patel C**, Brimer C, Branch JD, Najafi-Tagol K. Reduction in the Bacterial Load on the Skin in a Clinical Setting. (To be *presented at 2016 ARVO Annual Meeting*)

Patel C, Chomsky A, Kim SJ. Incidence of and Risk Factors for Chronic Uveitis Following Cataract Surgery. (*Presented at 2011 Association for Research in Vision and Ophthalmology Annual Meeting*)

Patel C, Law JC, Chomsky A. Retrospective Review of Anti---Vascular Endothelial Growth Factor Intraocular Injection Use and Post---Injection Endophthalmitis Rates Within the Medical Facilities of the United States Department of Veterans Affairs. (*Presented at 2010 Association for Research in Vision and Ophthalmology Annual Meeting*)

Patel C, Denenberg JO, Langer RD, Criqui MH. Twenty---year Mortality Rates in Patients with Isolated Small Vessel Peripheral Arterial Disease. (*Presented at 2003 NIH Research Training Grant Poster Session)*

PUBLICATIONS:

Patel C, Kim SJ, Chomsky A, Saboori M. Incidence and Risk Factors for Chronic Uveitis Following Cataract Surgery. (*accepted for publication in Ocular Immunology & Inflammation*)

Patel C, Law JC, Chomsky A. Retrospective Review of Anti---Vascular Endothelial Growth Factor Intraocular Injection Use and Post---Injection Endophthalmitis Rates Within the Medical Facilities of the United States Department of Veterans Affairs. (*Manuscript in preparation*)

Medeiros FA, Bowd C, Zangwill LM, **Patel C**, Weinreb RN (2007). Detection of glaucoma using scanning laser polarimetry with enhanced corneal compensation. Investigative ophthalmology & visual science, 48(7), 3146---3153.

COMMUNITY INVOLVEMENT:

2002-2006 **UCSD Student-Run Free Clinic Project (San Diego, CA)**
Diabetes Clinic Director
Medical Student Volunteer

2002-2003 **UCSD Doc for a Day (La Jolla, CA)**
Medical Student Mentor

1999-2001 **University of California, San Francisco Medical Center (San Francisco, CA)**
Melanoma Clinic Volunteer

INTERNATIONAL WORK:

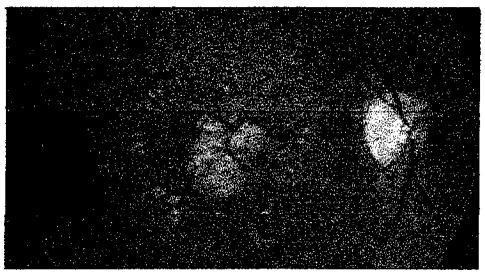
2011 **Tilganga Eye Center (Kathmandu, Nepal)**
Clinical Rotation
- Provided free care to underserved patients and performed small incision extracapsular cataract surgery

2005-2006 **Sankara Eye Centre (Coimbatore, Tamil Nadu, India)**
Clinical Internship
- Aided with rural eye camp administration and with screening of patients

PROFESSIONAL ASSOCIATIONS:

American Board of Ophthalmology (Board Certified Ophthalmologist)
American Academy of Ophthalmology (AAO)
Association for Research in Vision and Ophthalmology (ARVO)
The American Society of Cataract and Refractive Surgery (ASCRS)
The Cornea Society

Geographic atrophy: What we know and what we don't

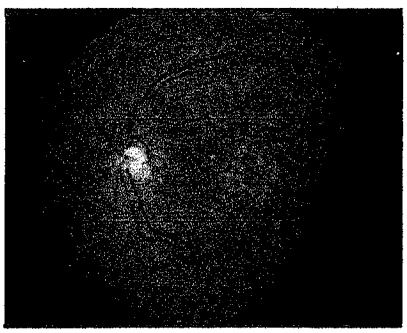


Soraya Rofagha, MD, MPH East Bay Retina Consultants, Inc.

Disclosures

- Roche-Genentech, Principal Investigator, East Bay Retina Consultants, Lampalizumab Phase 3 trial

Fundus photography



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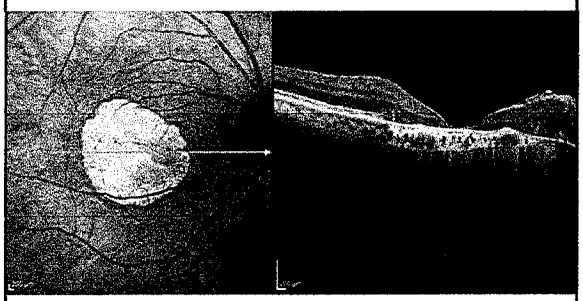
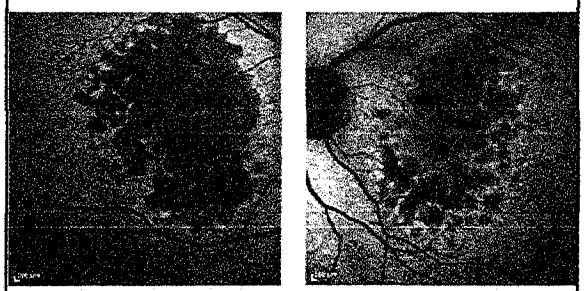


Fundus Autofluorescence



Epidemiology of GA

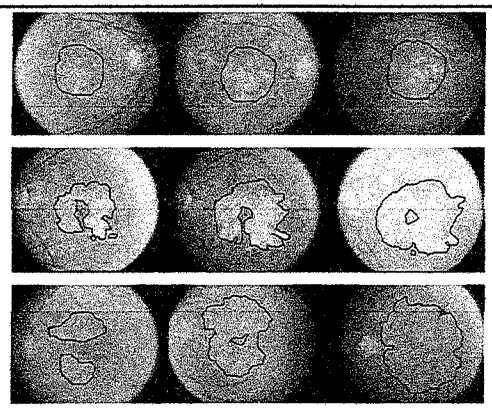
- 8 million people worldwide are affected
- Accounts for 20% of blindness among individuals with advanced AMD
- Usually bilateral but can be asymmetric
- Prevalence 3% in age 75 and above
- 22% among those age 90 and above

Lessons from Natural History of GA

- VA can underestimate progression of disease since fovea is often involved late in the disease
- *Growth of GA related to size of GA*
  - Very little growth over 5 years if GA is small (0.5DA)
  - The larger the GA the greater the growth
- Enlargement rate
- Enlargement pattern

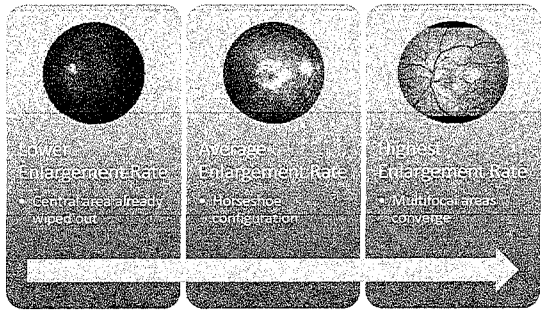
Natural history of VA loss

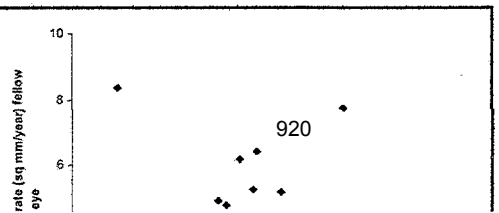
- 20/80
- 20/100
- 20/200
- 20/400

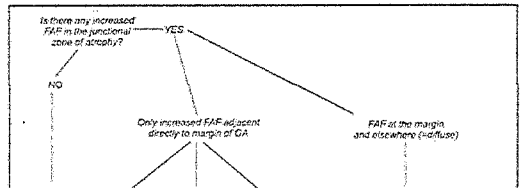


Sunness JS, et al. *Ophthalmology*. 2007;114(2):271-277.

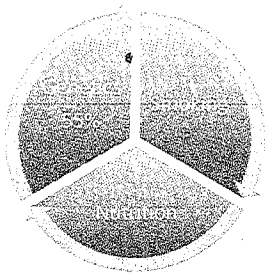
Enlargement Rate







Risk Factors for GA



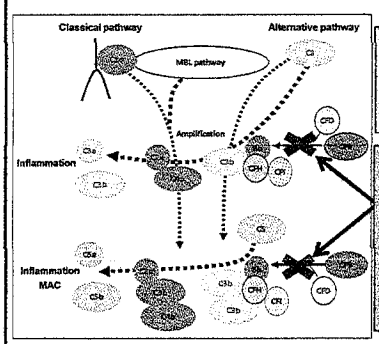
Genetics

- Humans have 72% of common genome
- SNPs=variations at single bases within the genome, 10 million SNPs have been identified
- SNPs can be tagged to study disease associations "SNP CHIPS" (2.5 million)
- Genome-wide association studies (2005) identified 19 genes for AMD
  - 4 involving alternate complement pathway

Alternative Complement Pathway

- Complement hyperactivity has been implicated in dry AMD
  - Part of innate immune system (like phagocytosis, not adaptive)
  - Activated at some low level in the serum component of blood
- Genetic polymorphisms in multiple alternative complement pathway loci are associated with the risk of advanced AMD
  - Retina not usually exposed to aberrant complement activation
  - loss of complement regulation leads to loss of blood retina barrier→complement dysregulation into retinal tissue
- Ideal intervention would target alternative complement pathway, leaving other pathways intact

Lampalizumab: Selective Inhibitor of Complement Factor D and the Alternative Complement Pathway



Complement factor D
- ACCELERATING enzyme in the alternative complement pathway
- Activates C3 & C5 convertases
- A catalyst of alternative complement pathway activation

Lampalizumab
- Fab of a humanized monoclonal antibody
- Inhibits complement factor D, blocking activation of the alternative complement pathway while preserving classical and MBL complement pathway mediated host-defense response

MAC = membrane attack complex.

Slide courtesy of Genentech

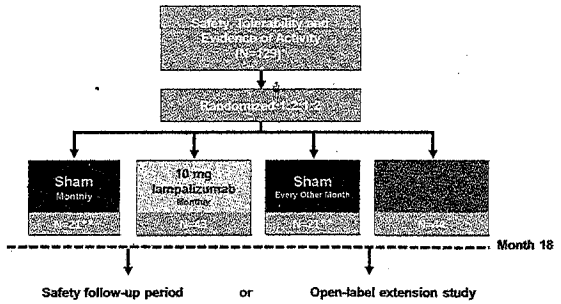
MAHALO Study

- Phase 2 study evaluating the safety, tolerability and evidence of activity of lampalizumab in patients with geographic atrophy (GA)
- Also evaluated the relationship between specific single nucleotide polymorphisms (SNPs) associated with GA disease characteristics and response to lampalizumab
  - While it is well documented that SNPs in specific alternative complement pathway loci are strongly associated with AMD risk,[1-3] prognostic SNPs for GA progression are not as well understood

Slide courtesy of Genentech

1. Prosser et al., *J Exp Med* 2007;204:2277-2283; 2. Scholl HP et al, *PLoS One* 2009; 4:e7418; 3. Fritsche LG, et al. *Nat Genet*, 2013;45:433-9, 439e1-2.

MAHALO Phase II Study Design



Slide courtesy of Genentech

*N=123 for pre-specified modified intent-to-treat (mITT) population, which is the primary efficacy analysis population. This population included all randomized patients who had at ≥1 treatment injection and ≥1 post-baseline GA measurement. **Sham arms were pooled for analyses.

Key Inclusion and Exclusion Criteria

Inclusion

- Bilateral GA secondary to AMD in the absence of CNV
- Study eye:
  - ETDRS BCVA 20/50 to 20/400 (Snellen equivalent)
  - GA ≥1 disc area (DA, 2.5 mm²) and ≤7 DA (17.5 mm²)
  - If GA is multifocal, at least one focal lesion must be ≥0.5 DA
  - Presence of hyperautofluorescence adjacent to GA lesion

Exclusion

- Previous intravitreal treatment, history of retinal surgery or other retinal therapeutic procedures in the study eye
- GA in either eye due to causes other than AMD

Slide courtesy of Genentech

CNV = choroidal neovascularization.

MAHALO Efficacy Endpoints

Primary Endpoint

- Mean change in GA area from baseline to Month 18 assessed by FAF

Holz FG et al. *Am J Ophthalmol.* 2007;143:463-72.

Key Secondary Endpoints

- Mean change in GA area from baseline to Month 18 assessed by CFP
- Mean change from baseline in ETDRS BCVA at Month 18

Safety Endpoints

- Ocular and systemic safety events through Month 18

Slide courtesy of Genentech

CFP = color fundus photographs; FAF = fundus autofluorescence.
The pre-specified type I error rate for this study is 0.2; this study was not specifically powered to assess secondary endpoints. All efficacy analyses were analyzed using the pre-specified modified intent-to-treat population, including all randomized patients who had at least one injection of treatment and at least one post-baseline GA measurement. For all efficacy analyses, comparisons are made between the pooled sham and each of lampalizumab treatment groups.

Patient Demographics

Characteristic	Sham Pooled (n=40)	Lampalizumab Monthly (n=42)	Lampalizumab Every Other Month (n=41)	All mITT Patients (n=123)
Age, mean (SD)	78.5 (7.3)	80.4 (7.2)	77.2 (7.3)	78.7 (7.3)
Sex – Female, n (%)	24 (60.0)	28 (66.7)	18 (43.9)	70 (56.9)
Race – Caucasian, n (%)	40 (100.0)	40 (95.2)	41 (100.0)	121 (98.4)

Slide courtesy of Genentech

mITT = modified intent-to-treat.

Study Eye Baseline Characteristics

Characteristic	Sham Pooled (n=40)	Lampalizumab Monthly (n=42)	Lampalizumab Every Other Month (n=41)	All mITT Patients (n=123)
VA letters, mean (SD)	45.9 (13.4)	47.6 (12.8)	49.5 (11.0)	47.7 (12.4)
Snellen equivalent, median	20/125	20/100	20/100	20/100
Total area of GA, DA (SD)	3.48 (1.65)	3.37 (1.52)	3.37 (1.93)	3.41 (1.69)
Total area of GA, mm² (SD)	8.85 (4.18)	8.56 (3.86)	8.56 (4.90)	8.65 (4.30)

Slide courtesy of Genentech

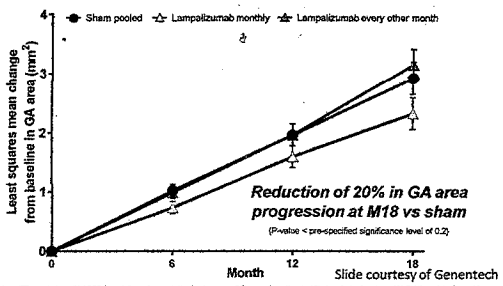
VA = visual acuity; GA = geographic atrophy; DA = disc area (1 DA = 2.5 mm²); mITT = modified intent-to-treat.

MAHALO Efficacy Outcomes

Primary Efficacy Endpoint Results

*Adjusted Mean Change in GA Area from Baseline to Month 18**

Positive treatment effect observed in the lampalizumab monthly group beginning at Month 6 through Month 18



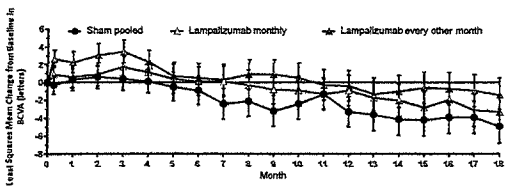
Slide courtesy of Genentech

*Based on the mITT population with LOCF data. Adjusted mean is the least squares (LS) mean from the stratified analysis of variance (ANOVA) model adjusted for baseline GA. Vertical bars are ±1 standard error of the LS mean.

All Patients

*Adjusted Mean Change in BCVA from Baseline to Month 18**

No BCVA safety concerns with lampalizumab treatment



Slide courtesy of Genentech

*The trial was not designed to show efficacy based on BCVA. Based on the mITT population with the LOCF data. Adjusted mean is least squares (LS) mean from the stratified analysis of covariance (ANCOVA) model adjusted for the baseline GA and baseline BCVA. Vertical bars are +/-1 standard error of the LS mean.

MAHALO Safety Outcomes

Overall Phase II Adverse Event Profile

Adverse event N (%) of patients with at least one event	Sham Pooled (n=42)	Lampalizumab Monthly (n=43)	Lampalizumab Every Other Month (n=44)
Ocular SAEs in study eye	1 (2.4)	(0.0)	3 (6.8)
Ocular SAEs in fellow eye	1 (2.4)	(0.0)	2 (4.5)
Systemic (non-ocular) SAEs	15 (35.7)	11 (25.6)	10 (22.7)
Ocular AE in the study eye suspected to be caused by study drug	(0.0)	4 (9.3)	3 (6.8)
Non-ocular AE suspected to be caused by study drug	(0.0)	1 (2.3)	1 (2.3)

- No endophthalmitis, and intraocular inflammation and IOP elevation rates were consistent with ranibizumab rates for these AEs in wet AMD
- No unanticipated or unmanageable SAEs
- No deaths or ocular SAEs suspected to be caused by study drug
- No ocular SAEs in study eye leading to treatment discontinuation

Slide courtesy of Genentech

SAE = serious adverse event.

Ocular AEs in Study Eye

Occurring in ≥3 of Patients in Any Group

MedDRA Preferred Term	Sham Pooled, n=42 (%)	Lampalizumab Monthly, n=43 (%)	Lampalizumab Every Other Month, n=44 (%)
- Any adverse events -	24 (57.1)	36 (83.7)	30 (68.2)
Age-related macular degeneration	(0.0)	2 (4.7)	3 (6.8)
Blepharitis	2 (4.8)	1 (2.3)	5 (11.4)
Cataract	3 (7.1)	2 (4.7)	3 (6.8)
Conjunctival Hemorrhage	9 (21.4)	21 (48.8)	15 (34.1)
Conjunctival edema	(0.0)	1 (2.3)	3 (6.8)
Dry eye	(0.0)	2 (4.7)	3 (6.8)
Eye irritation	1 (2.4)	4 (9.3)	4 (9.1)
Eye pain	4 (9.5)	10 (23.3)	6 (13.6)
Eye pruritus	3 (7.1)	1 (2.3)	3 (6.8)
Foreign body sensation in eyes	1 (2.4)	4 (9.3)	2 (4.5)
Intraocular pressure increased	(0.0)	6 (14.0)	7 (15.9)
Lacrimation increased	1 (2.4)	3 (7.0)	4 (9.1)
Ocular hyperemia	2 (4.8)	3 (7.0)	5 (11.4)
Punctate keratitis	1 (2.4)	4 (9.3)	2 (4.5)
Retinal hemorrhage	3 (7.1)	1 (2.3)	3 (6.8)
Vision blurred	1 (2.4)	2 (4.7)	3 (6.8)
Vitreous detachment	3 (7.1)	2 (4.7)	4 (9.1)
Vitreous floaters	1 (2.4)	3 (7.0)	2 (4.5)

Slide courtesy of Genentech

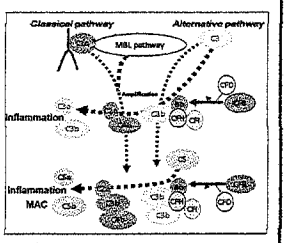
Systemic Safety

- Complement is produced in adipose tissue and the liver and circulated in the serum component of blood
- Factor D is very rapidly turned over in the body, therefore systemic toxicity from antiFactor D fragment (lampalizumab) is thought to be very limited

MAHALO Genetic Biomarker Exploratory Analysis

Biomarker Analysis Methodology

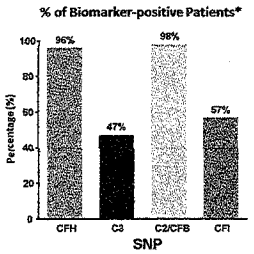
- Based on results from the AMD Gene consortium genome-wide association study,[1] we evaluated 4 SNPs tagging loci containing genes in the alternative complement pathway
- Risk alleles assessed included:
  - Complement factor H (CFH)
  - C3
  - C2/CFB (joint SNP tag)
  - **Complement factor I (CFI)**



Slide courtesy of Genentech

1. Fritsche LG, et al. *Nat Genet*. 2013;45:433-9, 439e1-2.

Biomarker Prevalence in MAHALO

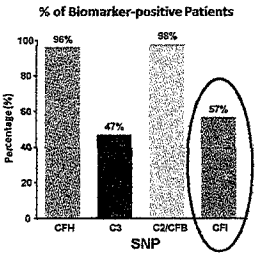


- High prevalence rates for the CFH and C2/CFB SNPs restricted our ability to evaluate differential treatment response by these SNPs
- There was no apparent relationship between C3 and treatment response in lampalizumab-treated patients

Slide courtesy of Genentech

The denominator of % is MAHALO patients assayed.
*Biomarker-positive patients are patients with genotypes heterozygous or homozygous risk.

Biomarker Prevalence in MAHALO

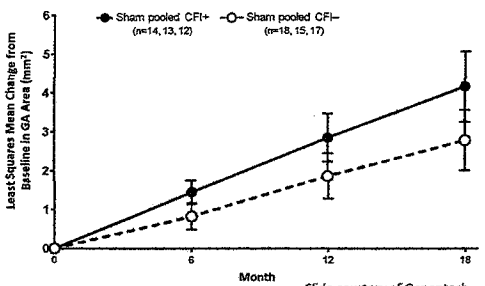


- 57% of samples collected were positive for the CFI biomarker
  - Combined heterozygotes and homozygous risk individuals
  - Minor allele frequency = 0.33 in MAHALO genotyped samples

Slide courtesy of Genentech

Differential GA Progression in Sham Arms: CFI+ vs CFI–

The CFI+ group progress more rapidly than the CFI– group
- CFI biomarker is prognostic for GA progression

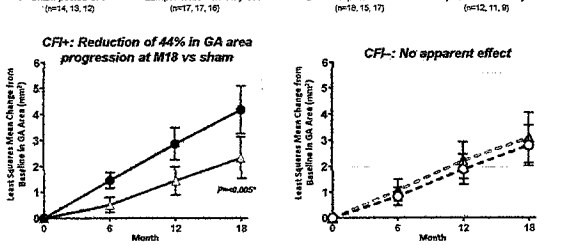


Slide courtesy of Genentech

Vertical bars are 95% CI of the LS mean.

Differential Treatment Response: CFI+ vs CFI– Monthly Groups

Response to lampalizumab observed in the CFI+ group but not in the CFI– group
- The CFI biomarker is also predictive of lampalizumab treatment response

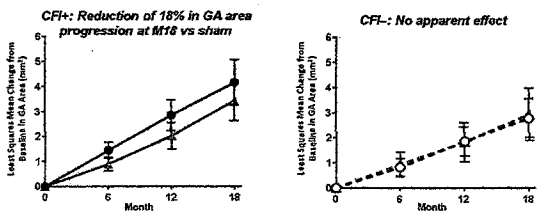


*Not adjusted for multiplicity.
Vertical bars are 95% CI of the LS mean.

Slide courtesy of Genentech

Differential Treatment Response: CFI+ vs CFI– Every Other Month Groups

The CFI biomarker again shows:
- Prognostic for GA progression
- Predictive of lampalizumab treatment response



EOM = every other month.
Vertical bars are 95% CI of the LS mean.

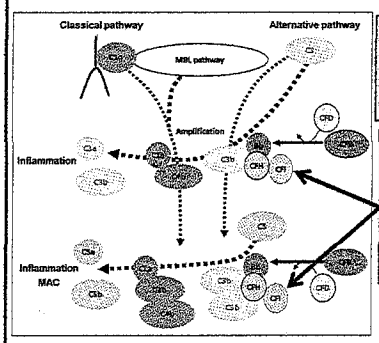
Slide courtesy of Genentech

Importance of CFI

- Prognostic
  - Among sham treated eyes, there was more rapid progression in the CFI positive than the CFI negative patients, which suggests the CFI biomarker is prognostic for GA progression
- Predictive
  - Response to lampalizumab was observed in the CFI+ group but not in the CFI– group

Slide courtesy of Genentech

Complement Factor I is a Negative Regulator of the Alternative Complement Pathway



Complement factor D
- ACCELERATING enzyme in the alternative complement pathway
- Activates C3 & C5 convertases
- A catalyst of alternative complement pathway activation

Complement factor I
- Negative regulator primarily of the alternative complement pathway
- Serine protease that works with CFH to deactivate C3b
- *CFH and CFI can be thought of as the pathway "braking system"*

MAC = Membrane attack complex.

Modified Slide courtesy of Genentech

Study Limitations

- Caveats to the biomarker results:
  - Small sample size
  - CFI SNP function remains to be determined
  - An independent patient population is required to confirm this association with GA progression
- MAHALO results will require further validation in larger *trials*

Slide courtesy of Genentech

MAHALO Conclusions

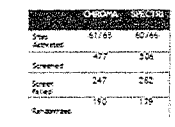
- MAHALO was the first study to demonstrate a positive treatment effect in GA
- At the Month 18 endpoint:
  - Lampalizumab monthly all-comers population: 20% reduction rate vs sham
  - Monthly lampalizumab CFI+ subpopulation: 44% reduction rate vs sham
  - Every other month lampalizumab CFI+ subpopulation: 18% reduction rate vs sham
- Risk but not prognostic alleles for AMD have been well documented[1]
  - CFI appears to be predictive of lampalizumab treatment response
- Lampalizumab was found to have an acceptable safety profile through Month 18

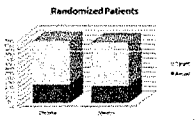
Slide courtesy of Genentech

1. Fritsche LG, et al. Nat Genet. 2013 Apr;45(4):433-9, 439e1-2.

Phase 3 is underway

- Phase III studies are currently underway based on the results from the MAHALO phase II study; Currently enrolling patients
- CHROMA/SPECTRI
  - 300 sites
  - 25 countries
- Patient is randomized 2:1 Drug: Sham
- Both eyes followed: FP, FAF, VA
- Genetic analysis: CFI+ versus CFI-
- Inclusion Criteria
  - Geographic atrophy involving both eyes
  - No CNV
  - Well demarcated
  - Minimum 1 DA (or 0.5 DA if multifocal GA)





THANK YOU!

(Updated 10/28/2015)

CURRICULUM VITAE

Name: **Soraya Rofagha, MD, MPH**
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EDUCATION:

1996-2000	The Ohio State University Summa Cum Laude with Honors in the Liberal Arts	B.A.	Political Science
2000-2005	The Ohio State University	M.D.	Magna Cum Laude
2003-2004	Johns Hopkins School of Public Health	MPH	
2005-2006	Riverside Methodist Hospital	Intern	Medicine
2006-2009	University of California, San Francisco	Resident	Ophthalmology
2010-2012	University of California, San Francisco	Fellow	Retina

LICENSES, CERTIFICATION:

2006	Medical licensure, California, A97120
2010	Diplomat, American Board of Ophthalmology

PRINCIPAL POSITIONS HELD:

07/09-07/12	University of California, San Francisco	Clinical Instructor
07/12-present	University of California, San Francisco	Assistant Clinical Professor

OTHER POSITIONS HELD CONCURRENTLY:

07/09-03/13	San Francisco General Hospital	Associate Physician
07/10- 06/12	University of California, San Francisco	Retina Fellow

HONORS AND AWARDS:

2012 William F. Hoyt, Outstanding Resident Teaching Award on behalf of a Clinical Fellow, UCSF, Department of Ophthalmology

2010 Heed Fellow, Society of Heed Fellows

2005 Alpha Omega Alpha

2005 William J. Means Award, Ohio State University
for the medical school graduate who best demonstrates outstanding scholarship and professional attributes

2003 Johns Hopkins School of Public Health Capstone Award
for the best research paper among the graduating class

2003 Merit Scholarship, Johns Hopkins School of Public Health

2000 USA Today Second Team All-American

1999 Harry S. Truman Scholarship

1999 Phi Beta Kappa

1999 The Lawrence JR Herson Award for Academic Excellence, Department of Political Science, Ohio State University

1999 Francis R. Aumann Award for Distinguished Senior Achievement, Department of Political Science, Ohio State University

PROFESSIONAL ORGANIZATIONS

Memberships

2006- present	American Academy of Ophthalmology
2007- present	Frederick C. Cordes Eye Society
2010- present	Society of Heed Fellows
2012- present	American Society of Retina Specialists
2015-present	Club Vit

Service to Professional Organizations

2009	American Academy of Ophthalmology	Academy Ambassador

PRESENTATIONS

1. Moderator, Retina Subsection, Frederick C Cordes Society Scientific Meeting (UCSF), April 24, 2015.

2. Anatomic correlates of long-term visual outcomes in the ANCHOR/MARINA cohort of ranibizumab-treated AMD patients. Joint meeting of the American Academy of

Ophthalmology and the Asia –Pacific Academy of Ophthalmology. Chicago, IL. November 12, 2012.

3. SEVEN-Up Study: Long-term outcomes from ANCHOR/MARINA. Pacific Coast Oto-Ophthalmological Society, Lake Tahoe, NV. June 23, 2012.

4. Long -term outcomes of ranibizumab-treated subjects in ANCHOR/MARINA. Frederick C. Cordes Eye Society Scientific Meeting (UCSF). March 9, 2012

5. Review of clinical trial outcomes in exudative AMD. University of California, Davis, Department of Ophthalmology. January, 20. 2012.

6. Spontaneous retinal reattachment. Grand Rounds presentation at the University of California-San Francisco, Department of Ophthalmology. March 1, 2010.

7. Long term outcomes of gold eyelid load weights for facial paralysis. Frederick C. Cordes Eye Society Scientific Meeting, March 2010.

8. Deep Anterior Lamellar Keratoplasty. Grand Rounds presentation at the University of California-San Francisco, Department of Ophthalmology. March 5, 2009.

9. Resident preformed trabeculectomy versus Ex-PRESS shunt implantation: a consecutive comparative series. Alex R. Irvine Residents' Day Lecture, University of California-San Francisco, Department of Ophthalmology. February 26, 2009

10. Diagnosis without a gold standard: Ocular Tuberculosis. Grand Rounds presentation at the University of California-San Francisco, Department of Ophthalmology. December 5, 2008.

11. One chamber or two?: A case of malignant glaucoma. Grand Rounds presentation at the University of California-San Francisco, Department of Ophthalmology. November 20, 2008.

12. Novel treatment for degenerative myopia. Alex R. Irvine Residents' Day Lecture, University of California-San Francisco, Department of Ophthalmology. March 6, 2008.

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

2008-09 California Academy of Eye Physicians and Surgeons, Member, Board of Councilors

UNIVERSITY SERVICE

DEPARTMENTAL SERVICE

2006-2008 Department of Ophthalmology, UCSF, Grand Rounds Selection Committee

TEACHING AWARDS AND NOMINATIONS

2012 William F. Hoyt, Outstanding Resident Teaching Award on behalf of a Clinical Fellow, UCSF, Department of Ophthalmology

RESEARCH AND CREATIVE ACTIVITES

Sequoia: Phase III, Abicipar Pegol (AGN-150998) injections in subjects with neovascular age-related macular degeneration. September 2015 to present (Principal Investigator)

Hawk: Phase III, Comparing RTH258 and Aflibercept in subjects with neovascular age-related macular degeneration. May 2015 to present (Principal Investigator)

Diabetic Retinopathy Clinical Research Network: No active protocols at present. (Principal Investigator)

Chroma: Phase III, Lampalizumab injections in subjects with geographic atrophy secondary to AMD. July. 2014 to present (Principal Investigator)

SCORE2: Phase III, Comparing Aflibercept and Bevacizumab injections in subjects with retinal vein occlusion. Sept, 2014 to present (Sub-Investigator)

Vista: Phase III, VEGF-Trap injections in subjects with diabetic macular edema. Apr.2013 to Mar 2015. (Sub-Investigator)

Review: Phase IV, VEGF-Trap injections in subjects with neovascular age-related macular degeneration. Apr.2013 to present. (Sub-Investigator)

Telemedicine Project: San Francisco General Hospital, 2012-2013
Involved in the development and implementation of diabetic retinopathy screening throughout the City and County of San Francisco. I was awarded an intramural grant funding (30K) for a study comparing the reliability and validity of an iPhone-based fundus camera for the screening of diabetic retinopathy.

Seven-Up Study: Year 7 outcomes of ranibizumab-treated subjects in ANCHOR/MARINA. UCSF. Investigator-sponsored trial (Genentech). 14 clinical sites, 2010-2012 (Co-Principal Investigator)
A multicenter, cross-sectional study looking at the long-term outcomes of first cohort of patients initially treated with Ranibizumab.

PEER-REVIEWED PUBLICATIONS

1. Jung JJ, Chen MH, Sorenson AL, **Rofagha S**. Swept-Source Optical Coherence Tomography and Angiography of Minocycline-Induced Retinal and Systemic Hyperpigmentation. OSLI Retina (submitted)

2. Bhisitkul RB, Mendes TS and **Rofagha S**. Authors' Reply re: Macular atrophy progression and 7-year vision outcomes in subjects from the ANCHOR, MARINA and HORIZON studies (SEVEN-UP Study). Am J Ophthalmol 2015 (in press)

3. Kuehlewein L. Dustin MS, Sagong M, Hariri A, Mendes TS, **Rofagha S**, Bhisitkul RB, Sadda SR. Predictors of macular atrophy detected by fundus autofluorescence in patients with neovascular degeneration after long-term ranibizumab treatment. OSLI Retina (in press)

4. Bhisitkul R, Mendes T, **Rofagha S**, Enanoria W, Boyer DS, Sadda SV, Zhang K. Macular atrophy progression and 7-year vision outcomes in subjects from the ANCHOR, MARINA, HORIZON: a multicenter, cohort study (SEVEN-UP). American Journal of Ophthalmology. 2015 May; 159(5): 915-924.

5. **Rofagha S**, Bhisitkul RB, Boyer DS, Sadda SR, Zhang K. Seven year outcomes in ranibizumab-treated patients in ANCHOR, MARINA and HORIZON: a multicenter cohort study (SEVEN-UP). Ophthalmology. 2013 Nov; 120(11):2292-9.

6. **Rofagha S**, Perchanond T, Stewart JM. Late spontaneous dissociation of a fluocinolone acetonide implant (Retisert). Ocular Immunology and Inflammation. Accepted September 30, 2012.

7. Seider MI, **Rofagha S**, Lin S, Stamper RL. Resident-performed Ex-PRESS shunt implantation versus trabeculectomy. Journal of Glaucoma. 2012 Sep; 21(7): 469-74.

8. Hwang TN, **Rofagha S**, McDermott MW, Hoyt WF, Horton JC, McCulley TJ. Sunken Eyes, Sagging Brain Syndrome: Bilateral enophthalmos from chronic intracranial hypotension. Ophthalmology. 2011 Nov; 118(11): 2268-95.

9. **Rofagha S**, Bhisitkul RB. Management of retained lens fragments in complicated cataract surgery. Curr Opin Ophthal. 2011 March; 22(2): 137-140.

10. **Rofagha S**, Seiff S. Long-term results for the use of gold eyelid load weights in the management of facial paralysis. Journal of Plastic and Reconstructive Surgery. January 2010; 125(1): 142-9.

11. Soheilian M, Haghi AR, **Rofagha S,** Peyman GA. Simultaneous multiple branch retinal artery occlusions after diagnostic cardiac catheterization. Retina Cases and Brief Reports. 2009 Winter; 3: 15-17.

12. **Rofagha S**, Day S, Winn BJ, Ou J, Bhisitkul R, Chiu CS. Spontaneous resolution of a traumatic cataract caused by an intralenticular foreign body. J Cataract Refract Surg. 2008 Jun; 34(6): 1033-5.

13. Soheilian M, Rezaei Kanavi M, **Rofagha S,** Peyman GA. Histopathologic evaluation of optic neurotomy with microvitreoretinal blade or excimer laser in cadaver eyes. Ophthalmic Surg Lasers Imaging. 2008 Jan; 39: 35-39

14. Proca DM, Williams JD, **Rofagha S**, Tranovich VL, Keyhani-Rofagha S. Improved rate of high-grade cervical intraepithelial neoplasia detection in human papillomavirus DNA hybrid capture testing. Anal Quant Cytol Histol. 2007 Aug; 29(4): 264-70.

15. Proca DM, **Rofagha S**, Keyhani-Rofagha S. High grade squamous intraepithelial lesion in inmates from Ohio: cervical screening and biopsy follow-up. Cytojournal. 2006 May 10; 3:15.

16. Miller DM, Zhang Y, Rahill BM, Kazor K, **Rofagha S**, Eckel JJ, Sedmak DD. Human cytomegalovirus blocks interferon-gamma stimulated up-regulation of major histocompatibility complex class 1 expression and the class I antigen processing machinery. Transplantation. 2000 Feb 27; 69(4): 687-90.

OTHER CREATIVE ACTIVITIES

1. Layer, N. Bloomer MM, Stewart JM, Schwartz DM, **Rofagha S**. Algorithm for evaluation and management of the ruptured globe in an adult. International Council of Ophthalmology. http://www.icoph.org/dynamic/attachments/resources/rupturedglobeico.pdf

2. Video presentation: "Challenges in the Removal of Intravitreal Implants" Authors: Pongsachareonnot, Stewart JM, Mendes TS, Rofagha S, Afshar A, Prechanond T. ASRS 2013.

3. Video presentation: "Intravitreal Nail Removal" Authors: Stewart JM, Mendes TS, Rofagha S, Prechanond T. ASRS 2012.

4. Video presentation: "Masquerade Endogenous Candida Endophthalmitis" Stewart JM, Mendes TS, Rofagha S, Prechanond T, Schallhorn J. ASRS 2012.

ABSTRACTS

1. Mendes TS, Bhisitkul RB, **Rofagha S**, Wayne E, Boyer D, Sadda S, Zhang K (SEVEN-UP), Macular atrophy incidence and rate of progression over 5 yrs. among ranibizumab-treated subjects in the ANCHOR, MARINA and HORIZON trials (SEVEN-UP Study) Poster. ARVO. Orlando, May 2014.

2. Mendes TS, **Rofagha S**, Bhisitkul RB, Retinal and Choroidal thickness changes over time in patients with neovascular age-related macular degeneration treated with anti-VEGF. Poster. ARVO. Seattle, May 2013.

3. **Rofagha S**, Bhisitkul RB, Boyer D, Zhang K, Sadda S. Anatomic correlates of long-term visual outcomes in the ANCHOR/MARINA cohort of ranibizumab-treated AMD patients. Original paper presentation accepted for American Academy of Ophthalmology Meeting. Chicago, November 2012.

4. Bhisitkul RB, **Rofagha S.** Boyer DS, Sadda S, Zhang K. Year 7 outcomes for ranibizumab-treated subjects in ANCHOR/MARINA: a multicenter, prospective cohort study. Original paper. ARVO meeting abstracts. March 26, 2012; 53:3679.

5. **Rofagha S**, Seiff S. Long-term results for the use of gold eyelid load weights in the management of facial paralysis. Poster. ARVO meeting abstracts. April 11, 2011; 50:1488.

6. **Rofagha S**, Hwang TN, Hoyt WF, McCulley TJ. Progressive bilateral enophthalmos following cerebral spinal fluid shunting. Poster. ARVO meeting abstracts. April 11, 2008; 49:6022.

7. **Rofagha S**, Day S, Winn BJ, Ou J, Bhisitkul R, Chiu CS. Spontaneous resolution of a traumatic cataract caused by an intralenticular foreign body. Paper and poster presentation at the American Society of Cataract and Refractive Surgery Annual Meeting, Chicago, IL, April 2008.

8. **Rofagha S**, Katz J. Interpregnancy interval and the risk of maternal night blindness in rural Nepal. Poster presentation at the American Academy of Ophthalmology Annual Meeting, Las Vegas, NV, November 2006.

Jesse Jeno Jung, MD

Title: Ultra-Widefield Imaging in Central Serous Chorioretinopathy:

Purpose:

- Describe the spectrum of ***ultra-widefield fundus autofluorescence (UWFAF)*** imaging findings in patients with ***central serous chorioretinopathy (CSC)*** of varying durations
- Describe the angiographic findings of ***ultra-widefield fluorescein angiography (UWFA) and indocyanine green angiography (UWICGA)*** in patients with ***central serous chorioretinopathy (CSC)*** and ***pachychoroid pigment epitheliopathy (PPE)***
- Correlate these features with the results of clinical examination and spectral-domain optical coherence tomography (SD-OCT)

Conclusions:

- UWFAF enables us to see CSC disease in areas generally not detectable with conventional imaging
- UWFA and UWICGA enables us to visualize the pinpoint leakage and choroidal hyperpermeability in CSC
- UWICGA also visualizes increased choroidal and dilated vortex veins suggesting either increase choroidal or vortex vein outflow congestion in CSC and PPE.

JESSE JENO JUNG, M.D.

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Phone (510) 444-1600 Fax (510): 444-5117
jung.jesse@gmail.com

Date of Preparation: 2/1/2016

Personal Data:
Name: Jesse Jeno Jung
Date of Birth: September 22, 1982
Birthplace: Houston, Texas
Citizenship: USA

PERTINENT WORK EXPERIENCE

EAST BAY RETINA CONSULTANTS INC., Oakland, California
Vitreoretinal Surgeon – Associate - (August 2015 – present)

DEPT. of OPHTHALMOLOGY, BELLEVUE HOSPITAL CENTER, New York, New York
Clinical Instructor – (July 2013 – June 2015)

DEPT. of OPTHALMOLOGY, NEW YORK UNIVERSITY SCHOOL OF MEDICINE, New York, New York
Clinical Instructor – (July 2013 – June 2015)

DEPT. of OPHTHALMOLOGY, EDWARD S. HARKNESS EYE INSTITUTE, COLUMBIA COLLEGE OF PHYSICIANS and SURGEONS, New York, New York
Clinical Instructor – (July 2013 – June 2015)

DEPT. of GLAUCOMA, DOHENY EYE CENTER, KECK SCHOOL OF MEDICINE OF USC, Los Angeles, California
Research Assistant (Primary Investigators: Brian A Francis, MD; Vikas Chopra MD) – (October 2008 – November 2008)
-Spent 6 weeks in the Department of Glaucoma performing clinical research on Ab Interno Trabeculotomy utilizing the Trabectome® and repeatability of 360º Selective Laser Trabeculoplasty.

DIVISION OF GASTROENTEROLOGY, WASHINGTON UNIV. MEDICAL SCHOOL, St. Louis, Missouri
Research Assistant (Primary Investigators: Shrikant Anant Ph.D; Brian K. Dieckgraefe MD,Ph.D) – (June 2002 – May 2005)

- Employed cell lines and molecular techniques to show COX-2, an important regulator of apoptosis and neoplastic development, is inhibited by CUGBP2 protein and may be essential for radiation sensitivity in cancer treatment.

BIOLOGY DEPARTMENT, WASHINGTON UNIV. St. Louis, Missouri
Teaching Assistant – Undergrad. Genetics, Biochemistry and Vertebrate Structure – (August 2003 – June 2005)

POST GRADUATE TRAINING

EDWARD S. HARKNESS EYE INSTITUTE, COLUMBIA COLLEGE OF PHYSICANS and SURGEONS/VITREOUS RETINA MACULA CONSULTANTS/MANHATTAN EYE, EAR and THROAT HOSPITAL, NY, NY
Vitreoretinal Fellowship (Program Director: Stanley Chang/Tongalp Tezel, MD; Lawrence A. Yannuzzi, MD) – (July 2013 – June 2015)

NEW YORK UNIVERSITY SCHOOL of MEDICINE/MANHATTAN EYE, EAR AND THROAT HOSPITAL, NY, NY
Ophthalmology Residency (Program Director: Laurence T. Sperber, MD) – (July 2010 – June 2013)

- Chief Resident – 2012-2013

EMORY UNIVERSITY SCHOOL OF MEDICINE, Atlanta, GA
Transitional Internship (Program Director: Kimberly D. Manning, MD) – (July 2009 – June 2010)

EDUCATION

EMORY UNIVERSITY SCHOOL OF MEDICINE, Atlanta, GA – (July 2005 – May 2009)

- Medical Degree: Graduated Magna Cum Laude. Cumulative GPA: 3.95
- Alpha Omega Alpha – Elected 2008

WASHINGTON UNIVERSITY IN ST. LOUIS, St. Louis, MO – (August 2001 – May 2005)

- Bachelor of Arts: Double major in Biology and Psychology: Cumulative GPA: 3.81
- College Honors
- Dean's List: 2002, 2003, 2004

MEMORIAL SENIOR HIGH SCHOOL, Houston, TX – (August 1998 – July 2001)

- Class Salutatorian

LICENSURE/CERTIFICATION

New York State: 258700 – (August 2010 – September 2015)
California State: A135262 - (March 2015 - present)
American Board of Ophthalmology: (August 2015 – present)

- Diplomate

HONORS/AWARDS

- 2014 Association for Research in Vision and Ophthalmology Member in Training Outstanding Poster in Retina
- Chief Resident – New York University/Manhattan Eye Ear and Throat Hospital Dept. of Ophthalmology: 2012-2013
- Magna Cum Laude – Emory University School of Medicine: 2009
- Alpha Omega Alpha – Emory University School of Medicine, Beta Chapter of Georgia: 2008
- Arthur Wedekind Scholarship, Joseph B. Whitehead Scholarship – Emory University School of Medicine: 2008-2009
- Margaret Palmer Scholarship, Milton Ratner Scholarship, Alumni Medical School Scholarship – Emory University School of Medicine: 2007-2008
- C.W. Strickler Scholarship, James E. Paullin Scholarship, Harris Family Scholarship – Emory University School of Medicine: 2006-2007
- Dean's Scholarship; Alumni Medical School Scholarship – Emory University School of Medicine: 2005-2006
- Emory Reynolds Program Art and Aging Contest 2nd Place Winner: 2006
- College Honors – Washington University in St. Louis: 2004
- Dean's List - Washington University in St. Louis: 2002, 2003, 2004
- Morris B. Rettner Scholarship – Washington University in St. Louis: 2001-2004
- Aid Association for Lutherans Scholarship: 2001-2004
- Jesse Jones Houston Endowment Scholarship: 2001-2004
- Class Salutatorian – Memorial Senior High School: 2001
- Eagle Scout: 1995

PROFESSIONAL SOCIETIES

- American Society of Retina Specialists (ASRS): 2013 - present
- American Academy of Ophthalmology (AAO): 2010 - present
- Association of Research in Vision and Ophthalmology (ARVO): 2010 – present
- Alameda-Contra Costa Medical Association: 2015 – present
- California Medical Association: 2015 - present
- Association of Korean American Medical Graduates (AKAM): 2010 – 2015
- Alpha Epsilon Pi Fraternity (AEPi): 2002 - 2005

COMMITTEES/SERVICE ORGANIZATIONS

- CHILD FAMILY HEALTH INTERNATIONAL, Medical Volunteer, Mumbai, India (June 2006 – July 2006)
  - Infectious Disease and Public Health medical program in local clinics and hospitals of Mumbai
- Ophthalmology Interest Group, President, Emory Univ. School of Medicine, Atlanta, GA (2005 – 2009)
- Student Sight Savers, Chair, Emory Univ. School of Medicine, Atlanta, GA (2005 – 2009)
- Admissions Committee, Member, Emory Univ. School of Medicine, Atlanta, GA (2007 – 2009)
- LCME Self-Study Committee, Emory Univ. School of Medicine, Atlanta, GA (2007- 2008)
- Open Door Clinic, Clinic Coordinator, Emory Univ. School of Medicine, Atlanta, GA (2005 –2007)

- Alpha Epsilon Delta, Pre-Health Honorary Society, Public Relations Chair, St. Louis, MO (2003 –2005)
- Big Brothers Big Sisters, Mentor, St. Louis, MO (2003 –2004)
- Massachusetts General Hospital, Hospital Volunteer, Boston, MO (2004)

PEER REVIEWED JOURNAL PUBLICATIONS

Original/Peer Reviewed Articles

1. Chen KC, **Jung JJ**, Curcio CA, Balaratnasingam C, Gallego-Pinazo R, Dolz-Marco R, Freund KB, Yannuzzi LA. Intraretinal hyperreflective foci in acquired vitelliform lesions of the macula: Clinical and histologic study. *Am J Ophthalmol* [in press].
2. **Jung JJ**, Hoang QV, Ridley-Lane ML, Sebrow DB, Dhrami-Gavazi E, Chang S. Long-term retrospective analysis of visual acuity and optical coherence topographic changes after single versus double peeling during vitrectomy for macular epiretinal membranes. *Retina* [in press]
3. **Jung JJ**, Chae B, Tan ACS, Patel SN, Freund KB. Author Response: Use of Clopidogrel and Poor Visual Outcome. *Invest Ophthalmol Vis Sci* 2015 56(12):7052.
4. Jampol LM, Munk MR, **Jung JJ**, Biggee K, Tucker WR, Sen HN, Schmidt-Erfurth U, Fawzi AA. Reply. *Retina* 2015;35(11):e68-69.
5. **Jung JJ**, Hoang QV, Arain MZY, Chang S. Aflibercept anti-vascular endothelial growth factor therapy in vitrectomized eyes with neovascular age-related macular degeneration. *Acta Ophthalmol* [epub].
6. Naysan J, **Jung JJ**, Dansingani KK, Balaratnasingam C, Freund KB. Type 2 (sub-retinal) neovascularization in Age-Related Macular Degeneration associated with Pure Reticular Pseudodrusen Phenotype. *Retina* [epub].
7. Ghadiali Q, **Jung JJ**, Yu S, Patel SN, Yannuzzi LA. Central serous chorioretinopathy treated with mineralocorticoid antagonists: A one year pilot study. *Retina* [epub].
8. Mrejen S, **Jung JJ**, Chen C, Patel SN, Gallego-Pinazo, R, Yannuzzi N, Xu L, Marsiglia M, Boddu, S, Freund KB. Long-Term Visual Outcomes for a Treat and Extend Anti-VEGF Regimen in Eyes with Neovascular Age-Related Macular Degeneration. *J of Clin Med* 2015;4(7):1380-1402.
9. Chae B, **Jung JJ**, Chen CY, Mrejen S, Gallego-Pinazo, R, Xu, L, Marsiglia, M, Boddu, S, Freund KB. Baseline predictors of long-term visual outcomes in the treatment of neovascular AMD with intravitreal anti-VEGF therapy. *Invest Ophthalmol Vis Sci* 2015;56(9):5040-5047.
10. Marsiglia M, Boddu S, Chen CY, **Jung JJ**, Mrejen S, Gallego-Pinazo R, Freund KB. Correlation Between Neovascular Lesion Type and Clinical Characteristics of Non-Neovascular Fellow Eyes in Patients With Unilateral, Neovascular Age-Related Macular Degeneration. *Retina* 2015;35(5):966-974.
11. Nagiel A, Freund KB, Sadda SR, Spaide RF, **Jung JJ**, Bhavsar K, Ameri H, Querques G, Sarraf D. Type 3 Neovascularization: Evolution and Treatment Response as Revealed by Spectral-Domain Optical Coherence Tomography. *Retina* 2015;35(4):638-647.
12. Xu L, Mrejen S, **Jung JJ**, Gallego-Pinazo R, Thompson D, Marsiglia M, Freund KB. Geographic Atrophy in Patients Receiving Anti-Vascular Endothelial Growth Factor for Neovascular Age-Related Macular Degeneration. *Retina* 2015;35(2):176-186.
13. Munk MR, **Jung JJ**, Biggee K, Tucker WR, Sen HN, Schmidt-Erfurth U, Fawzi AA, Jampol LM. Idiopathic multifocal choroiditis/punctate inner choroidopathy with acute photoreceptor loss or dysfunction out of proportion to clinically visible lesions. *Retina* 2015;35(2):334-343.
14. **Jung JJ**, Chen CY, Mrejen S, Gallego-Pinazo R, Xu L, Marsiglia M, Boddu S, Freund KB. The Incidence of Neovascular Subtypes in Newly Diagnosed Neovascular Age-Related Macular Degeneration. *Am J Ophthalmol* 2014;158(4):769-779.
15. **Jung JJ**, Khan S, Mrejen S, Gallego-Pinazo R, Cunningham ET Jr., Freund KB, Jampol LM, Yannuzzi L. Idiopathic Multifocal Choroiditis with Outer Retinal or Chorioretinal Atrophy. *Retina* 2014;34(7):1439-1450.
16. Elkin ZP, Cohen EJ, Goldberg JD, Li X, Castano E, Gillespie C, Haberman I, **Jung JJ**, Zabar S, Park L, Perskin MH. Improving Adherence to National Recommendations for Zoster Vaccination Through Simple Interventions. *Eye Contact Lens* 2014;40(4)225-231.
17. Hoang QV, **Jung JJ**, Mrejen S, Freund KB. Influence of Axial Length and Degree of Injection Reflux on Sustained Intraocular Pressure Elevation Due to Intravitreal Anti-Vascular Endothelial Growth Factor Therapy. *Retina*. 2014:34(3):519-524.
18. **Jung JJ**, Elkin ZP, Li X, Goldberg JD, Edell AR, Cohen MN, Chen KC, Perskin MH, Park L, Cohen EJ. Increasing Use of Vaccine Against Zoster According to Current National Recommendations at a City Hospital. *Am J Ophthalmol* 2013;155(5):787-795.
19. Elkin ZP, Cohen EJ, Goldberg JD, Gillespie G, Li X, **Jung JJ**, Cohen MN, Park L, Perskin MH. Studying Physician Knowledge, Attitudes, and Practices Regarding the Herpes Zoster Vaccine to Address Perceived Barriers to Vaccination. *Cornea* 2013;32(7):976-981.
20. Hoang QV, Tsuang AJ, Gelman R, Mendonca LS, Della Torre KE, **Jung JJ**, Freund KB. Clinical Predictors of Sustained Intraocular Pressure Elevation Due to Intravitreal Anti-Vascular Endothelial Growth Factor Therapy. *Retina*. 2013; 33(1):179-187.
21. Hoang QV, Mendonca LS, Torre KE, **Jung JJ**, Tsuang AJ, Freund KB. Effect on Intraocular Pressure in Patients Receiving Unilateral Intravitreal Anti-Vascular Endothelial Growth Factor Injections. *Ophthalmology*. 2012; 119(2):321-326.

22. Liu J, **Jung J,** Francis BA. Ab Interno Trabeculectomy: Trabectome™ Surgical Treatment for Open-Angle Glaucoma. *Expert Reviews of Ophthalmology.* 2009 April; 4(2):119-128.
23. Murmu N, **Jung J,** et al. Dynamic antagonism between RNA-binding protein CUGBP2 and cyclooxygenase-2-mediated prostaglandin E2 in radiation damage. *Proc Natl Acad Sci USA.* 2004;101(38):13873-13878.
24. Mukhopadhyay D, **Jung J,** et al. CUGBP2 plays a critical role in apoptosis of breast cancer cells in response to genotoxic injury. *Ann N Y Acad Sci.* 2003; 1010:504-509.
25. Mukhopadhyay D, **Jung J,** Anant S. Cyclooxgenase-2 and Colon Cancer. *Proc Indian Natn Sci Acad.* 2003; B69(4):569-586.

Case Reports/Series

1. **Jung JJ,** Chen MH, Chung PY, Lee SS. Swept-source optical coherence tomography angiography for choroidal neovascularization after Bevacizumab and Photodynamic Therapy. *American Journal of Ophthalmology Case Reports* [in press].
2. **Jung JJ,** Chen MH, Lee SS. Branch retinal artery occlusion imaged with spectral-domain optical coherence tomographic angiography. *JAMA Ophthalmology* [in press].
3. Chen KC, **Jung JJ,** Engelbert M. Single acquisition of the vitreous, retina and choroid with swept-source optical coherence tomography in acute toxoplasmosis. *Retin Cases Brief Rep* [epub]
4. Chen KC, **Jung JJ,** Engelbert M. Giant premacular bursa: A novel finding of the posterior vitreous in 2 patients with Stickler Syndrome Type 1 revealed by swept source optical coherence tomography. *Graefes Arch Clin Exp Ophthalmol* 2015 [epub].
5. Dansingani KK, **Jung JJ,** Belinsky I, Marr BP, Freund KB. Ischemic retinopathy in neurofibromatosis type 1. *Retin Cases Brief Rep* [epub].
6. Chen KC, **Jung JJ,** Engelbert M. Swept source optical coherence tomography of the posterior vitreous after pars plana vitrectromy. *Graefes Arch Clin Exp Ophthalmol* 2015 [epub]
7. Sebrow DB, **Jung JJ,** Dagi Glass LR, Horowitz J, Chang S. Long-term Follow-up of Astrocytic Hamartoma of the Optic Disc Associated with Gyrate Atrophy. *Ophthalmic Surg Lasers Imaging Retina* 2015;46(3):387-390.
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9. **Jung JJ,** Mrejen S, Freund KB, Yannuzzi LA. Idiopathic Multifocal Choroiditis with Peripapillary Zonal Inflammation: A Multimodal Imaging Analysis. *Retin Cases Brief Rep* 2014;8(2):141-144.
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11. **Jung JJ,** Gallego-Pinazo R, Lleo-Perez A, Huz JI, Barbazetto IA. NAVILAS Laser System Focal Laser Treatment for Diabetic Macular Edema – One Year Results of a Case Series. *Open Ophthalmol J.* 2013;6(7):48-53.
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13. **Jung JJ,** Milman T, Chin KJ, Finger PT, Aizman A, Johnson RN. Diagnostic and Therapeutic Challenges. *Retina.* 2013;33(9):1983-1988.
14. **Jung JJ,** Freund KB. Long-term Follow-up of Outer Retinal Tubulation Documented by Eye-tracked and *En Face* Spectral Domain Optical Coherence Tomography. *Arch Ophthalmol.* 2012;130(12):1618-1619.
15. Chen KC, **Jung JJ,** Aizman A. High Definition Spectral Domain Optical Coherence Tomography Findings in Three Patients with Solar Retinopathy and Review of the Literature. *Open Ophthalmol J.* 2012;6:29-35.
16. **Jung JJ,** Warren FA, Kahanowicz R. Bilateral visual loss due to a giant olfactory meningioma. *Clin Ophthalmol.* 2012;6:339-342.
17. **Jung JJ,** Della Torre K, Fell MR, Teng CC, Freund KB. Presumed Pyogenic Granuloma Associated with Intravitreal Anti-Vascular Endothelial Growth Factor Therapy. *Open Ophthalmol J.* 2011;5:59-62.
18. **Jung JJ,** Woo D, Law K, Higgins S. Recurrent *Staphyloccocus lugdunensis* infective endocarditis and Review of the Literature. *Infect Dis Clin Pract.* 2010;18(1):16-22.
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20. **Jung JJ,** Vu D, Clark B, Keller F, Spearman P. *Neisseria sicca/subflava* bacteremia presenting as cutaneous nodules in an immunocompromised host. *Pediatr Infect Dis J* 2009;28(7):662-663.

Books and Chapters

1. Rusu IM, **Jung JJ,** Mrejen S, Gallego-Pinazo R, Freund KB. *Pharmacotherapy for Neovascular Age-related Macular Degeneration.* Age-related Macular Degeneration. Chapter 9. www.futuremedicine.com.
2. **Jung JJ,** Hoang QV, Barbazetto IA, Slakter JS. *Role of Fluorescein Angiography in the treatment of age-related macular degeneration.* Age-Related Macular Degeneration, Third Edition. 2013. Ed: Jennifer I. Lim. Chapter 12:163-172. CRC Press. Boca Raton, FL.
3. **Jung JJ,** Ghadiali Q – Professional Proofreading Review. *OCT Atlas.* 1st edition. 2014. Ed: Nagahisa Yoshimura, Masanori Hangai. Springer, New York, NY.

Reviews and Editorials

1. Chen KC, **Jung JJ**, Aizman A. Solar Retinopathy: An overview of the current literature. *Retinal Physician*. 2013 October; 10:46-50.
2. Gallego-Pinazo R, Dolz-Marco R, **Jung JJ**, Freund KB. The ASRS X-Files: Case History: Leopard –Spot Pattern. *Retina Times*. Winter 2012;30(5)47:42&48.
3. **Jung JJ**, Freund KB. Identifying Choroidal Pathology with Enhanced Depth Imaging Optical Coherence Tomography. *Retinal Physician*. 2012 June; 9:40-44.
4. **Jung JJ**, Freund KB. Eye Present: Pyogenic Granuloma following anti-VEGF therapy. *Ocular Times*. 2012 July-Aug;2(4):16-17.
5. Kernt M, Barbazetto IA, **Jung JJ**. Update Retina: DME Treatment Novel Laser system improves treatment accuracy, efficiency, efficacy and safety. *Eurotimes*. 2012 17(11):32.

Abstracts

1. Zahid, S, **Jung JJ**, Chen KC, Kaden T, Balaratnasingam C, Rofagha S, Freund KB, Yannuzzi LA. Optical Coherence tomography angiography of choroidal neovascularization and inflammatory pigment epithelial detachments occurring in idiopathic multifocal choroiditis. [poster] Association for Research in Vision and Ophthalmology, 2016 May 1-5, Seattle, WA.
2. Yoo C, Chen MH, Durbin M, Zhongdi C, Wang Ruikang, Chieh-Li C, **Jung JJ**, Lee SS. Methods for quantification of image quality in OCT angiography images. [poster] Association for Research in Vision and Ophthalmology, 2016 May 1-5, Seattle, WA.
3. Kubach S, Chen MH, Durbin M, Zhongdi C, Wang R, Chieh-Li C, **Jung JJ**, Lee SS. Importance of sampling density in the analysis of optical coherence tomography angiography. [poster] Association for Research in Vision and Ophthalmology, 2016 May 1-5, Seattle, WA.
4. Chen MH, **Jung JJ**, Rofagha S, Chung P, Durbin M, Lee SS. Analysis with spectral-domain optical coherence tomography angiography after treatment for proliferative diabetic retinopathy. [poster] Association for Research in Vision and Ophthalmology, 2016 May 1-5, Seattle, WA.
5. Homayoun B, **Jung JJ**, Rofagha S, Chung PC, Lee SS, Chen MH. A novel approach to reducing decorrelation tail artifacts in OCT angiography. [poster] Association for Research in Vision and Ophthalmology, 2016 May 1-5, Seattle, WA.
6. Jones BP, Chen MH, **Jung JJ**, Hoang QV, Inoue M, Balaratnasingam C, Freund KB, Yannuzzi LA, Rofagha S, Lee SS. Comparison of OCT angiography and conventional fluorescein angiography in the evaluation of collateralization in acute versus chronic branch or hemi retinal vein occlusion. [poster] Association for Research in Vision and Ophthalmology, 2016 May 1-5, Seattle, WA.
7. **Jung JJ**, Hoang QV, Rofagha S, Sarraf D, Freund KB. Ultra-widefield indocyanine green angiography in central serous chorioretinopathy and pachychoroid pigment epitheliopathy. [poster] Association for Research in Vision and Ophthalmology, 2016 May 1-5, Seattle, WA.
8. Sebrow DB, **Jung JJ**, Hoang QV, Chang S. Characteristics of early versus late inner retinal dimpling following internal limiting membrane peeling for macular holes. [poster] Association for Research in Vision and Ophthalmology, 2015 May 3-7, Denver, CO.
9. Ridley-Lane M, **Jung JJ**, Hoang QV, Chang S. Long-term analysis of visual acuity and optical coherence topographic changes after single versus double peeling during vitrectomy for macular pucker. [poster] Association for Research in Vision and Ophthalmology, 2015 May 3-7, Denver, CO.
10. **Jung JJ**, Chen CY, Mrejen S, Gallego-Pinazo R, Xu L, Marsiglia M, Boddu S, Freund KB. The Incidence of Neovascular Subtypes in Newly Diagnosed Neovascular Age-Related Macular Degeneration. [poster] The 32nd Annual American Society of Retina Specialist Meeting, 2014 Aug. 9-13, San Diego, CA.
11. **Jung JJ**, Chen CY, Mrejen S, Gallego-Pinazo, R, Xu, L, Marsiglia, M, Boddu, S, Freund KB. Baseline predictors for good long-term visual outcomes in the treatment of neovascular AMD with intravitreal anti-VEGF therapy. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.
12. Nagiel, A, Freund KB, **Jung JJ**, Bhavsar K, Spaide RF, Sarraf D. Origin and behavior of Type 3 neovascularization revealed by spectral-domain optical coherence tomography. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.
13. Butler B, Hernandez-Martinez P, Pascual-Camps I, de Freytas A, Andreu-Fenoll M, Dolz-Marco, R, **Jung JJ**, Marsiglia M, Mrejen S, Gallego-Pinazo, R. Topographic Choroidal Thickness Analysis of the Macula by Swept Source Optical Coherence Tomography in Unilateral Multifocal Choroiditis. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.
14. Munk MR, **Jung JJ**, Biggee K, Schmidt-Erfurth UM, Tucker W, Sen N, Fawzi A, Jampol LM. Idiopathic multifocal choroiditis (MFC)/punctate inner choroidopathy (PIC) with acute photoreceptor loss out of proportion to clinically visible lesions. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.
15. Mrejen S, **Jung JJ**, Gallego-Pinazo, Roberto, Rusu I, Marsiglia M, Boddu, S, Freund KB. Long-Term Visual Outcomes for a Treat and Extend Anti-VEGF Regimen in Eyes with Neovascular Age-Related Macular Degeneration. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.

16. Ghadiali Q, **Jung JJ,** Yu Suqin, Yannuzzi LA. Central serous chorioretinopathy Treated with Mineralocorticoid Antagonists: a Retrospective Study Analyzing the Clinical and Multimodal Imaging Response to Therapy. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.
17. Xu L, Mrejen S, **Jung JJ,** Gallego-Pinazo R, Thompson D, Marsiglia M, Boddu S, Freund KB. Geographic atrophy in patients receiving anti-Vascular Endothelial Growth Factor for Neovascular Age-Related Macular Degeneration. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.
18. Chen KC, **Jung JJ,** Yannuzzi LA. A multimodal imaging analysis of the etiologies and visual outcomes of Pattern Dystrophy. [poster] Association for Research in Vision and Ophthalmology, 2014 May 4-8, Orlando, FL.
19. **Jung JJ,** Xu L, Gallego-Pinazo R, Mrejen S, Marsiglia M, Boddu S, Freund KB. The Incidence of Neovascular Subtypes in Newly Diagnosed Wet Age-Related Macular Degeneration. [poster]11th International Spectralis Symposium – Heidelberg. 2013 October 18-19, New York, New York.
20. Freund KB, **Jung JJ,** Xu L, Gallego-Pinazo R, Mrejen S, Marsiglia M, Boddu S. Correlation of Long-Term Visual Outcomes with Initial Lesion Composition in Eyes with Newly Diagnosed Neovascular Age-Related Macular Degeneration. [presentation] The 46th Annual Meeting of the Retina Society. 2013 September 26-29, Beverly Hills, California.
21. **Jung JJ,** Elkin ZP, Li X, Goldberg JD, Edell AR, Cohen MN, Chen KC, Perskin MH, Park L, Cohen EJ. Increasing Use of Vaccine Against Zoster According to Current National Recommendations at a City Hospital. [presentation] The 149th Annual Meeting of the American Ophthalmological Society, 2013 May 16-19, La Jolla, California.
22. Mendoca L, Hoang QV, **Jung JJ,** Mrejen S, Freund KB. Axial Length and Degree of Injection Reflux as Potential Mechanisms of Sustained Intraocular Pressure Elevation Due to Intravitreal Anti-Vascular Endothelial Growth Factor Therapy. [poster] Association for Research in Vision and Ophthalmology, 2013 May 5-9, Seattle, WA.
23. **Jung JJ,** Xu L, Gallego-Pinazo R, Mrejen S, Marsiglia M, Boddu S, Freund KB. The Incidence of Neovascular Subtypes in Newly Diagnosed Wet Age-Related Macular Degeneration. [poster] Association for Research in Vision and Ophthalmology, 2013 May 5-9, Seattle, WA.
24. Xu L, Mrejen S, **Jung JJ,** Gallego-Pinazo R, Thompson D, Marsiglia M, Boddu S, Freund KB. Retinal Pigment Epithelium Atrophy in Patients Receiving Intravitreal Anti-Vascular Endothelial Growth Factor Therapy for Neovascular Age-Related Macular Degeneration. [poster] Association for Research in Vision and Ophthalmology, 2013 May 5-9, Seattle, WA.
25. Hoang QV, **Jung JJ,** Mendonca LS, Della Torre KE, Tsuang AJ, Gelman R, Freund KB. Predictors and Potential Mechanisms of Sustained Intraocular Pressure Elevation Due to Intravitreal Anti-Vascular Endothelial Growth Factor Therapy. [poster] The 45th Annual Retina Society Meeting, 2012 Oct. 4-7, Washington DC.
26. **Jung JJ,** Hoang QV, Gallego-Pinazo R, Sherman J, Yannuzzi LA. Multifocal Choroiditis and Diffuse Multifocal Outer Zonal Atrophy. [poster] The 30th Annual American Society of Retina Specialist Meeting, 2012 Aug. 25-29, Las Vegas, NV.
27. **Jung JJ,** Huz J, Barbazetto IA. NAVILAS Laser System Focal Laser Treatment for Diabetic Macular Edema – One Year Results. [poster] The 30th Annual American Society of Retina Specialist Meeting, 2012 Aug. 25-29, Las Vegas, NV.
28. **Jung JJ,** Huz J, Barbazetto IA. Navilas Laser System Focal Laser Treatment for Diabetic Macular Edema – 1 year results of a pilot study. [poster]. Association for Research in Vision and Ophthalmology; 2012 May 5-10; Fort Lauderdale, FL.
29. Chan JE, **Jung JJ,** Cho MY, Yoon D, Sleem A, Howard D. Outcomes of Pterygium Surgery over 4 Years at an Academic Institution in New York. [poster]. Association for Research in Vision and Ophthalmology; 2012 May 5-10; Fort Lauderdale, FL.
30. Elkin Z, Cohen EJ, Goldberg JD, **Jung JJ,** Cohen M, Park L, Gillespie C. Increasing coverage of a vaccine against herpes zoster at New York University Langone Medical Center and Bellevue Hospital. [poster]. Association for Research in Vision and Ophthalmology; 2012 May 5-10; Fort Lauderdale, FL.
31. Hoang QV, Mendonca LS, Della Torre KE, **Jung JJ,** Tsuang AJ, Freund KB. Sustained IOP Elevation due to Intravitreal Antivascular Endothelial Growth Factor Therapy. [poster] American Academy of Ophthalmology; 2011 Oct. 22-25; Orlando, FL.
32. Hoang QV, Mendonca LS, Della Torre KE, **Jung JJ,** Tsuang AJ, Freund KB. Frequency and Clinical Predictors of Sustained Intraocular Pressure Elevation Due to Intravitreal Anti-Vascular Endothelial Growth Factor Therapy. [paper] The American Society of Retina Specialists, 2011 Aug. 22; Boston, MA.
33. **Jung JJ,** Tsuang AJ, Alevi D, Hoang QV, Wald KJ. Factors Associated with Optical Coherence Tomography Response to Focal Grid Laser Treatment in Branch Retinal Vein Occlusion. [poster]. Association for Research in Vision and Ophthalmology; 2011 May 1-5; Fort Lauderdale, FL.
34. Hoang QV, Mendonca LS, Della Torre KE, **Jung JJ,** Tsuang AJ, Freund KB. Sustained IOP Elevation due to Intravitreal Antivascular Endothelial Growth Factor Therapy. [poster]. Association for Research in Vision and Ophthalmology; 2011 May 1-5; Fort Lauderdale, FL.
35. Francis BA, Mahdaviani S, Liu J, **Jung J.** Repeatability of Selective Laser Trabeculoplasty (SLT) [poster]. American Glaucoma Society 19th Annual Meeting; 2009 Mar 5-8; San Diego, CA.

36. Echt KV, Backscheider-Burridge A, **Jung J**, Rougeux A, Hawley KS, Whitbourne SB, Spiro III A. Longitudinal Change in Visual Acuity and Effects on Cognition: The VA Normative Aging Study [poster]. Gerontological Society of America 61st Annual Scientific Meeting; 2008 Nov 21-25; National Harbor, MD.
37. Rougeux A, **Jung J**, Hawley KS, Echt KV. Relating Longitudinal Change in Vision with Visual Function and Medication Management: The VA Normative Aging Study [poster]. Emory University School of Medicine; 2008 Jan 30, 2008; Atlanta, GA.
38. Anant S, Murmu, N, **Jung JJ**, Houchen CW, Dieckgraefe BK. Radiosensitizing effect of dietary curcumin in intestinal adenomas in APCmin/+ mice: Dynamic modulation of the Bcl-2 family genes [abstract]. In: Proceedings of the 96th Annual Meeting of the American Association for Cancer Research; 2005 April 16-20; Anaheim, CA: AACR. 2005. Abstract nr 2006.
39. Mukhopadhyay D, **Jung J**, Murmu N, Houchen CW, Dieckgraefe BK, Drebin J, Veeramachaneni N, Henderson J, Anant S. Prostaglandin Mediated Radioprotection of Colon Cancer Occurs by Inhibition of the RNA Binding Protein CUGB2 [abstract]. In: Digestive Disease Week and the 104th Annual Meeting of the American Gastroenterological Association; 2003 May 17-22; Orlando, FL: Gastroenterology. April 2003. 124 (4) suppl 1:A458.

PARTICIPATION IN CLINICAL TRIALS

1. CHROMA: Phase III Lampalizumab injections in subjects for the treatment of geographic atrophy secondary to age-related macular degeneration.
    - Sub-investigator – (August 2015 – present)
2. SCORE2: Phase III Bevacizumab vs. Aflibercept in subjects for the treatment of central vein occlusion. – (September 2014 – present)
    - Sub-investigator – (August 2015 – present)
3. SEQUOIA: Phase III Safety and Efficacy of Abicipar Pegol (AGN-150998) in Patients With Neovascular Age-Related Macular Degeneration. –
    - Sub-investigator - (October 2015 – present)
4. HAWK: Phase III Efficacy and Safety of RTH258 Versus Aflibercept.
    - Sub-investigator - (November 2015 – present)

CURRENT ONGOING PROJECTS

1. Inoue M, **Jung JJ**, Balaratnasingam C, Dansingani KK, Suzuki M, Dhrami-Gavazi E, de Carlo TE, Shahlaee A, Thomas F, Maftouhi A, Klufas M, Duker JS, Ho AC, Maftouhi Q, Sarraf D, Freund KB for COFT-1 study group. Comparing optical coherence tomography angiography to fluorescein angiography for the imaging of type 1 neovascularization (COFT-1 study). *Invest Ophthalmol Vis Sci* [under review]
2. Stein GE, **Jung JJ**, Bodine S, Trokel S, Chang S. Surgical repair of Nd: YAG laser-induced macular hole: Case report and review of the literature. *American Journal of Ophthalmology Case Reports* [in submission]
3. Balaratnasingam C, Yannuzzi LA, Querques G, Curcio CA, Morgan WH, Capuano V, Dansingani KK, **Jung JJ**, Naysan J, Souied EH, Freund KB. Quantitative evaluations of drusen volume and retinal pigment epithelium changes in the druse life cycle using SD-OCT. *Retina* [in submission]
4. Mrejen S, Gallego-Pinazo, Boon C, Rusu I, Chae B, Ghadiali Q, **Jung JJ**, Barbazetto IA, Freund KB. Clinical Applications of Fundus Autofluorescence Imaging (FAF). *Retina* [in submission].

AIS# 19960

STATE AND CONSUMER SERVICES AGENCY GOVERNOR EDMUND G. BROWN JR.

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUTIE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

OPTOMETRY

Request for Approval of Continuing Education Course(s)

Cynthia Adame
NVISION Eye Centers
75 Enterprise, Suite 200
Aliso Viejo, CA 92656

Cashiering and Board Use Only			
Receipt#	Payor ID#	Beneficiary ID#	Amount
1-536	6199013	6199017	50

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
CE Committee Member

NVISION
EYE CENTERS

STATE BOARD OF OPTOMETRY
2450 Del Paso Road, Suite 105
Sacramento, CA 95834

December 6, 2015

On behalf of NVISION Eye Centers, we are writing to request approval of 2 (two) hours Continuing Education to California doctors of optometry. The education will be delivered by Board Certified Ophthalmologists, clinical investigators and experts in technology and patient consultation.

Program Date: January 25, 2015, and additional dates thereafter.

Location: La Quinta Cliffhouse, 78250 CA-111 La Quinta, CA 92253
This course will be repeated by NVISION surgeons and affiliate surgeons at centers and venues located in and around Camarillo, Fullerton, Laguna Hills, Murrieta, Newport Beach, Ontario, Palm Desert, Sacramento, San Diego, San Francisco, San Luis Obispo, and Torrance.

Program Name and Description:

Advantages of the Latest Technology, Lens Surgery, and Managing Astigmatism in Cataract Surgery – 1 Hour
A comprehensive overview of advances and advantages of refractive and cataract surgeries and updated comparative technology. Includes variable types of surgeries (cataract, LASIK, PRK, ICL's, inlay, corneal cross linking), and associated pre and post op treatments, examination and thorough narrative of the imaging and surgical technology used and what occurs within the eye during surgery with each type of technology. The history and background, ground-breaking case studies, advantages and disadvantages, inclusion and exclusion criteria are also presented with each topic discussed.

Patient Selection for the Corneal Inlay – 1 Hour
This 1-hour CE is an overview on educating optometrist on patient selection and education. This overview includes patient selection criteria, choosing your first patients, assessment strategies, grand rounds summary, and managing expectations.

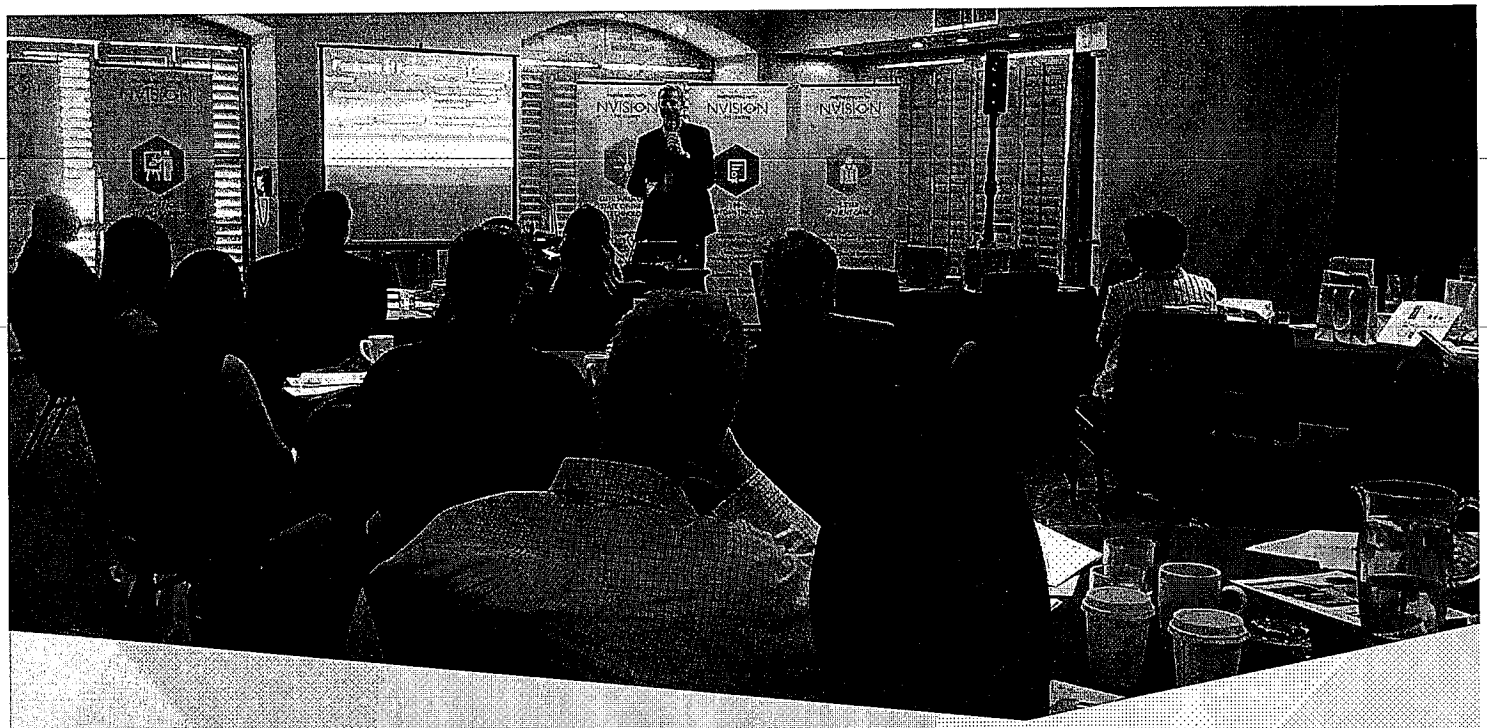
We are seeking a total of 2 hours of continuing education credit for these courses. The contact person for this program is myself, and I can be reached at 949.243.7482 or cynthia.adame@nvisioncenters.com.

Sincerely,

Cynthia Adame
NVISION Laser Eye Centers
Continuing Education and Special Projects Coordinator

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
p: 949.274.4652 • *f:* 949.509.4858 • *e:* info@nvisioncenters.com • *w:* www.nvisioncenters.com

NVISION EYE CENTERS				FOR BOARD USE ONLY		
Course Title	Date(s) of Course	Instructor(s)/ Lecturer(s)	CE Hours Requested	Approved	Disapproved	ID#
Advantages of the Latest Technology, Lens Surgery, and Managing Astigmatism in Cataract Surgery	1/25/16 and ongoing	Mitra Ayazifar, MD George Baerveldt, MD Amarpreet Brar, MD Richard Burns, MD Paul Casey, MD John Davidson, MD Loren Little, MD Franklin Lusby, MD Patrick Lydon, OD Jeff Machat, MD Mihir Parikh, MD Steward Park, MD Jonathan Pirnazar, MD Archana Reddy, MD Sheri Rowen, MD Richard Meister, MD Stanley Teplick, MD Thomas Tooma, MD Emil Stein, MD Jon-Marc Weston, MD	1			
Patient Selection for KAMRA Inlay			1			
		TOTAL TIME	2			
COMMITTEE COMMENTS:						



NVISION PALM DESERT INVITES YOU TO

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MONDAY, JANUARY 25, 2016

LA QUINTA CLIFFHOUSE
78250 CA-111 La Quinta, CA 92253

6:00 - 8:30 PM

6:00 - 6:15 PM Registration
6:15 - 8: 15 PM Continuing Education

SPEAKERS

Richard Burns, MD - Latest in Premium IOLs
Patrick Lydon, MD - Treating Presbyopia with Kamra® Inlay

DINNER INCLUDED.
RSVP: nvision-palmdesert-ce.eventbrite.com

WE LOOK FORWARD TO SEEING YOU THERE

NVISION
EYE CENTERS

*CE pending California State Board of Optometry approval.

NVISION EYE CENTERS

Medical Doctor Curriculum Vitae

As of January 13, 2016

Mitra Ayazifar, MD

5959 Greenback Lane#310 Mobile: (916) 960-9176
Citrus Heights, CA 95621 Tel: (916)723-7400
E-mail: mayazifar@gmail.com Fax: (916)723-4449

EDUCATION

Undergraduate
University of California at Berkeley
B.A., Molecular and Cellular Biology
Emphasis: Cell and Developmental Biology
January 1988- December 1991

Medical School
George Washington University School of Medicine and Health Sciences
Washington, D.C.
Doctor of Medicine
August 1993- May 1997
Honors and Appointments:
Distinguished Service Award Nominee, 1994
Main Coordinator: Medical School Orientation for Class of 1998 (1994)
GWU Admissions Committee Member, 1996-1997
Coordinator, AMSA's STATS (Students Teaching AIDS To Students)
Community Outreach Program, 1993-1994
Treasurer, Medical School Student Council, 1993-1995
GWU Representative to Organization of Student Representatives (OSR)
at State and national conventions, 1994-1995

POSTGRADUATE TRAINING

Internship Washington Hospital Center
110 Irving Street, N.W.
Washington, D.C. 20010
July 1997- June 1998
Internal Medicine Preliminary Year

NVISION EYE CENTERS

Residency Rhode Island Hospital/ Brown University School of Medicine
Department of Ophthalmology
593 Eddy Street
APC 7th floor Eye Clinic
Providence, RI 02903
July 1998- June 2001

Fellowship Rhode Island Hospital/ Brown Medical School
Department of Ophthalmology
593 Eddy Street, Providence, RI 02903
Chief Resident/ Clinical Assistant Instructor in Surgery (Ophthalmology)
July 2001- June 2002

Rhode Island Hospital/ Brown University Program in Surgery
Department of Ophthalmology
Fellowship in Oculofacial Surgery
Program directors: Yoash Enzer, MD and R. Jeffrey Hofmann, MD
September 2003- August 31, 2004

PROFESSIONAL LICENSES/ BOARD CERTIFICATION

USMLE Step I: pass 6/95
Step II: pass 8/96
Step III: pass 11/01

Medical License Rhode Island State Medical License
Awarded: 2/13/02
Active Status to June 2006

California State Medical License
Awarded: 03/10/06
Active Status to 05/31/2015

American Board Eligible
of Ophthalmology Registered for 3/2015 Written Qualifying Examination

ACADEMIC APPOINTMENTS/ HOSPITAL APPOINTMENTS

Clinical Assistant Instructor of Surgery (Ophthalmology)
Brown Medical School/ Rhode Island Hospital
July 2001- June 2002

Clinical Assistant Professor of Surgery (Ophthalmology)

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NVISION EYE CENTERS

Brown Medical School/ Rhode Island Hospital
July 2002- July 2005

Clinical Assistant Professor of Surgery (Ophthalmology)
Veterans Administration Medical Center
Providence, Rhode Island
Staff Ophthalmologist
Comprehensive Ophthalmology and Oculoplastic Service
July 2002-2005

Interim Residency Program Director
Department of Ophthalmology
Rhode Island Hospital
July 2002- June 2003

SOCIETY MEMBERSHIPS

American Academy of Ophthalmology
American Society of Cataract and Refractive Surgery
American Medical Women Association (AMWA)
American Medical Association (AMA)
Roseville Chamber of Commerce

PUBLICATIONS

1- Murphy MA, Ayazifar M. Permanent visual deficits secondary to the HELLP syndrome. Journal of Neuro-Ophthalmology. 25(2): 122-127; June 2005.

2- Strauch M, Ayazifar M. Bent DNA is found in some but not all regions recognized by the Bacillus subtilis AbrB protein. Molecular and General Genetics 1995; 246(6):756-760.

BOOK CHAPTERS

Ayazifar M, Snady-McCoy L: Abnormal appearing Blood Vessels, In: Steidl SM, Hartnett ME eds. Clinical Pathways in Vitreoretinal Disease, New York: Thieme Medical Publishers, pp 183-202, 2002.

INVITED PRESENTATIONS

"Ophthalmology in the Hospital Setting" presented at Mercy San Juan Hospital Friday Grand Rounds (January 2015).

"Cosmetic and Functional Oculoplastic Procedures" presented at Nvision's Yearly CEjevent to Optometrists in Northern California (October 2014).

NVISION EYE CENTERS

"Maintaining Younger Looking Eyes" presented at Mercy's **Care Begins with Me** yearly Health Fair for Women (October 2013).

"Benign and Malignant Eyelid Lesions" presented at the Mercy San Juan Medical Center Grand Rounds (April 2012).

"Red Eye", presented quarterly to internal medicine housestaff at the Rhode Island Hospital and the Providence Veterans Administration Medical Center (1999-2001).

"CMV Retinitis", presented at the monthly Combined Retina Conference, Department of Ophthalmology, Rhode Island Hospital (October 1999).

"Ocular Manifestations of Systemic Disease", presented for the Lifespan community education series, Rhode Island Hospital, October 2000.

BCSC Review Lectures series: presented monthly to the ophthalmology residents, Department of Ophthalmology, Rhode Island Hospital (August 2001- 2003).

Oculoplastic surgery lecture series: "Thyroid Orbitopathy", presented to ophthalmology residents, Rhode Island Hospital, April 2002.

Oculoplastic surgery lecture series: "Ectropion, Entropion, and Trichiasis" presented to ophthalmology residents, October 2004.

Oculoplastic surgery lecture series: "The enophthalmic socket and late socket deformities", presented to ophthalmology residents, April 2004.

HOSPITAL TEACHING ROLES

Cataract surgical attending: Weekly cases with residents at Rhode Island Hospital Ambulatory Surgery Center (July 2001- 2005).

Cataract surgical attending: Weekly cases with residents at the Veterans Administration Medical Center (July 2001- 2005).

Clinical Assistant Instructor in Surgery: Department of Ophthalmology, management of the outpatient eye clinic and the inpatient Ophthalmology Consult Service at the Rhode Island Hospital (July 2001- June 2002).

Clinical Assistant Professor of Surgery (Ophthalmology): Management of the general ophthalmology and the oculoplastic service at the VAMC Providence. (July 2002- June 2005).

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Clinical Assistant Professor of Surgery (Ophthalmology): Call coverage for management of complex eyelid, orbital, facial trauma, and ruptured globe repairs, Rhode Island Hospital and the Providence Veterans Administration Medical Center (July 2002-2005).

EMPLOYMENT HISTORY)

December 2013-present
Nvision Sacramento

Capital Eye Medical Group joined Nvision sacramento. I continue to perform all of my previous procedures but have added cataract surgery to my list.

November 2011-December 2013
Capital Eye Medical Group:

Sole Practitioner in private practice in Carmichael, California
Providing comprehensive eye care and Oculoplastic services for the Sacramento area. Majority of my practice includes treatment of functional and cosmetic eyelid procedures including ptosis repair (eyelid and brow), blepharoplasty (upper and lower eyelids), ectropion, entropion, and various eyelid malpositions. The cosmetic procedures offered at my practice includes: Botox, Juvederm, Skin care regimen, and chemical peels. Also, I perform comprehensive eye examination for my patients.

September 2007- November 2011
Ophthalmology Associate Position at Sierra View Medical Eye:

Private Practice in Grass Valley, California including 3 Ophthalmologists and 1 Optometrist with its own optical department and accredited Ambulatory Surgery Center. My practice includes General Ophthalmology patients and all functional and cosmetic ophthalmic plastic procedures. This includes all the procedures mentioned below but expands to include the newer dermal fillers such as Juvederm Ultra and Juvederm Ultra Plus.

May 2006-August 2007

Ophthalmology Associate position at Martel Eye Medical Group: Majority of my practice included treatment of functional and cosmetic eyelid procedures including ptosis repair (eyelid and brow), blepharoplasty (upper and lower eyelids), ectropion, entropion, and various eyelid malpositions. I also performed post traumatic eyelid reconstructive surgery.
The **cosmetic procedures** offered at my clinic included: Botox, Restylane, Perlane, Laser hair removal, Laser Photorejuvenation, Skin care regimen, and chemical peels.

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George Baerveldt, MD

Dr. Baerveldt's international reputation is based on his glaucoma research and surgical innovations. Dr. Baerveldt developed the BaerveldtTM Glaucoma Implant and presently holds six patents related to this invention. He also invented Trabetome®, a minimally-invasive glaucoma surgical instrument for the treatment of adult and infantile open-angle glaucoma which is performed worldwide. In 2012, the American Glaucoma Society awarded Dr. Baerveldt with the Innovator Award for these contributions.

Born and educated in South Africa, Dr. Baerveldt obtained his medical degree from the University of Pretoria and his residency in ophthalmology at the University of the Witwatersrand. In 1980, Dr. Baerveldt, was head of St. John's Eye Hospital in Johannesburg when he was recruited as a fulltime faculty member at the Doheny Eye Institute, University of Southern California. In 1994, he accepted a faculty position as the Director of Glaucoma at the Cleveland Clinic Foundation where he remained until joining University of California at Irvine in 1999 as Director of Glaucoma. He was the Irving H. Leopold Professior and Chair of the Department of Ophthalmology, and Director of the Gavin Herbert Eye Institute from July 2003 - Novemeber 2008.

Dr. Baerveldt received the American Academy of Opthalmology's Senior Achievement Award in 2002 and was honored in Best Doctors in America (1996 - present). He was also named the Top Ophthalmologist by the International Association with the Distinguished Alumnus Award in 2000. He lectures internationally on glaucoma surgery and drugs.

Dr. Baerveldt's humanitarian endeavors have been recognized by the National Society to Prevent Blindness. He also received hte Teacher of the Year award in 1981 from the University of Southern California, and Staff of the Year from the Cleveland Clinic Foundation, 1997/1998 and 1998/1999.

Dr. Baerveldt performs surgery of several NVISION's Southern California locations and looks forward to meeting you and assisting with your glaucoma-related needs. In his spare time, he enjoys spending time with his wife, three children and four grandchildren.

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Amarpreet Brar, MD

A local Southern California native, Dr. Brar grew up skiing, playing basketball, swimming and he always knew he wanted to be a doctor. He found his true calling in Ophthalmology, and today, Dr. Brar is devoted to doing the most advanced types of cataract and LASIK surgeries. After graduating from Baylor College of Medicine in Houston, Texas, Dr. Brar completed his residency in ophthalmology at the University of Oklahoma's Dean McGee Eye Institute in Oklahoma City, then he decided to come home to his beloved Southern California.

Board certified for more than 10 years, Dr. Brar has performed more than 4,000 eye surgeries. He specializes in LASIK, PRK, LASEK, Cataracts, intraocular lenses, Custom LASIK and Wavefront technology. He is also an expert in implanting multifocal, accommodating, TORIC and monofocal intraocular lenses.

Dr. Brar is a member of respected professional societies, including the American Academy of Ophthalmology and the American Society of Cataract and Refractive Surgery. He has also been published in respected medical journals on topics related to Optic Neuritis in Children and Subfoveal Surgery for Removal of Choroidal Neovascular Membranes in submission to Ophthalmology. In addition, Dr. Brar is a frequent lecturer on topics related to refractive surgeries.

In his spare time, Dr. Brar likes to spend time with his wife and two children.

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Richard Burns, MD

Dr. Burns has performed more than 20,000 refractive and cataract procedures and takes particular interest in helping patients achieve their best personal vision through advanced refractive cataract and laser vision correction. His practice has been exclusively limited to cataract and refractive surgery for more than 25 years. Other ophthalmologists often refer the most challenging and complicated cases to Dr. Burns.

Prior to joining NVISION, Dr. Burns was the Chairman of the Department of Surgery as well as the Chairman of the Department of Ophthalmology at the largest multi-specialty group in San Diego. He also has a private practice in San Diego as well as serves as the Director of Refractive Surgical Services for California Eye Professionals in Temecula. He has served as the clinical instructor of ophthalmology for the University of California, San Diego, where he previously completed his residency and served as chief resident. He was also the chief of ophthalmology at Sharp Cabrillo Hospital, where he treated patients for more than eight years.

Dr. Burns is renowned for his success working with other ophthalmologists as well as optometrists, always with the goal of helping patients attain their best vision possible through laser procedures. A frequent lecturer on refractive and cataract procedures, Dr. Burns has also appeared on many television and radio programs sharing information about laser vision correction.

In his spare time, Dr. Burns enjoys golfing, hiking, and traveling. He especially enjoys spending time with his family as well as reading, particularly about history. He is involved in various local charitable works and enjoys participating in an annual work mission to Fiji. Dr. Burns chose the field of ophthalmology stating that "vision is awe inspiring to me."

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NVISION EYE CENTERS

Paul Casey, MD

BIOGRAPHICAL DATA:
Date of Birth: January 27, 1962 Birthplace: Glen Ridge, NJ
Wife: Annemarie Children: Emily (23), Olivia (20)

EDUCATION:
1988-90 Florida Atlantic University
Bachelor of Arts, Chemistry
Bachelor of Science, Microbiology

1990-94 University of Miami School of Medicine
Doctor of Medicine

1994-95 David Grant Medical Center
Transitional Internship

1995-98 San Antonio Uniformed Services
Health Education Consortium
Residency in Ophthalmology

HONORS and AWARDS:
1988-90 Dean's List, Florida Atlantic University
1993 Alpha Omega Alpha, University of Miami

PRIVATE PRACTICE: 2002- Nevada Eye Care Professionals

CERTIFICATION:
United States Medical Licensing Examination
Step I- June 1992- 99th percentile
Step II- September 1993- 99th percentile
Step III- December 1995- 98th percentile

Nevada Medical License #10003
Ophthalmology Knowledge Assessment Program
Step I- April 1996- 97th percentile
Step II - April 1997 - 94th percentile
Step III- April 1998 - 93rd percentile

American Board of Ophthalmology Qualifying Exams
Written- April 1999- Passed
Oral- November 1999- Passed
Fellow of the American Board of Ophthalmology

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MIILITARY EXPERIENCE:
1990-1991 HPOIC/SAM
1998-2001 Ophthalmology Element Chief, RAF Lakenheath
2001-2002 Chief, Ophthalmology Service, Nellis AFB

PROFESSIONAL AFFILIATIONS:
1994- American Academy of Ophthalmology
2001- Nevada Ophthalmological Society

PUBLICATIONS:
Zwaan J, Casey P, Bybee L. Eye injuries during training exercises with paint pellets. Military Medicine 1996; 161:720-2.

Casey P et al. Outcome Measures in Diabetic Retinopathy Screening. IOVS 1996; 37:S217.

Casey P et al. Treatment of *Aspergillus* Endophthalmitis: A Prospective, Masked Trial of the Effect of Intravitreal Amphotericin and Dexamethasone in the Rabbit Model". IOVS 1997; 38:S1109.

Casey P et al. Long Term Alignment in Surgically Treated Intermittent Exotropia. IOVS 1998; 39:S555.

Croley J, Casey P, Bauman WC. Sterile Endophthalmitis Induced by Inactivated *Aspergillus* in the Rabbit Model. IOVS 1998; 39:S359.

Allen CS, Casey P, Bauman WC. A Prospective, Masked Trial Evaluating the Use of Intravitreal Dexamethasone Following Pars Plana Vitrectomy in Experimental *Aspergillus* Endophthalmitis. IOVS 1998; 39:S813.

Casey P et al. Treatment of *Aspergillus* Endophthalmitis: A Prospective Masked Trial of the Effect of Pars Plana Vitrectomy in the Rabbit Model. IOVS 1999; 40:S118.

PRESENTATIONS
1996 "Contact Lens Complications in Basic Military Trainees" (WHMC)
2nd Annual Uniformed Services Recruit and Trainee Symposium.

RESEARCH
1996 "Scanning Laser Ophthalmoscopy Before and After Focal Macular Laser Therapy for Clinically Significant Macular Edema"

1994 "A Double-Masked, Placebo-Controlled Trial of the Effect of Hyperbaric Oxygen on Visual Field Defects in Open Angle Glaucoma"

2007 "A Prospective Multicenter Clinical Study to Evaluate the Safety and Effectiveness of the Synchrony Dual Optic Intraocular Lens in Patients Undergoing Cataract Extraction"

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John Davidson, MD

As a board-certified ophthalmologist, Dr. Davidson has performed more than 17,000 refractive and cataract procedures. He is the second-highest Restor implanting surgeon in all of California and has more experience with Restor than any other surgeon in the greater Los Angeles area.

Dr. Davidson earned his M.D. with Highest Distinction in the top 1 percent of his class at Indiana University. After completing his ophthalmology residency, he won the Clinical Fellow Research Award at the Jules Stein Eye Institute at the University of California, Los Angeles.

Education remains a priority to Dr. Davidson, and he continues to train, teach and lecture on vision correction. He is an as sistant clinical professor at his alma mater, the Jules Stein Eye Institute at the University of California, Los Angeles.

Dr. Davidson is the recipient of many prestigious awards. He has been named one of America's Top Ophthalmologists by the Guide to America's Top Ophthalmologists in 2007, 2008 2009, and 2010. He was also named Ventura County's Best LASIK Surgeon of 2009 by Ventura County Reporter magazine.

A charitable person at heart, Dr. Davidson strives to bring the gift of sight to all his patients. Dr. Davidson spends his free time as a volunteer physician for SEE International, which is devoted to helping restore sight in blind individuals worldwide. With SEE International, he has traveled to developing countries worldwide, where he has participated in eye surgery missions. In this charitable work, Dr. Davidson has provided modern eye care to hundreds of people. He has also given the gift of medical training to local ophthalmologists in Albania, Mexico, Venezuela, and Vietnam.

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Loren Little, MD

DATE OF BIRTH:
OCTOBER 28,1941

PLACE OF BIRTH:
SIOUX FALLS, SOUTH DAKOTA

EDUCATION:
1959 - 1963 - BA: MACALESTER COLLEGE, ST. PAUL, MN
1963 - 1965 - BS: UNIV. of S. DAKOTA, VERMILLION, SD
1965 - 1967 - MD: UNIV. of WASHINGTON, SEATTLE, WA

SCHOLARSHIPS: DEWITT-WALLACE GRADUATE SCHOLARSHIP

INTERNSHIP: 1968 - SIOUX VALLEY HOSPITAL, SIOUX FALLS, SD
ROTATING-O

MILITARY SERVICE: SEPT 1968 - ENTERED U.S. ARMY

AWARDS:
1969 - VIETNAM: SILVER STAR, PURPLE HEART,
BRONZE STAR w OLC, AIR MEDAL w OLC, COMBAT MB, PARACHUTIST BADGE, VSM, VTSM,VCM, NDM, VIETNAM CROSS of GALLANTRY w/PALM
1971 - JOINT CHIEF OF STAFF COMMENDATION MEDAL

RESIDENCY:
1971 - 1974 - OPHTHALMOLOGY
WALTER REED ARMY MEDICAL CENTER, WASHINGTON, DC

CHIEF RESIDENT:
1974 - WALTER REED ARMY HOSPITAL OPHTHALMOLOGY SERVICE

TEACHING:
1974 - 1976 - CHIEF OF OPHTHALMOLOGY SERVICE,
WILLIAM BEAUMONT ARMY MEDICAL CENTER,
EL PASO, TEXAS - SERVICE CONSISTED OF THREE OPHTHALMOLOGISTS, EIGHT OPTOMETRISTS. RESPONSIBILITY TO RESIDENTS AND STAFF OF OTHER SERVICES,
INCLUDING ROTATING INTERNS, MEDICAL STUDENTS, AND RESIDENTS/RESERVE DUTY

FELLOWSHIP: JAN - APRIL - INTERNATIONAL EYE FOUNDATION TO PERU
1974

BOARD CERTIFICATIONS:
1968 - DIPLOMATE NATIONAL BOARD OF MEDICAL
EXAMINERS
OCT 1976 - AMERICAN BOARD OF OPHTHALMOLOGY

PRIVATE PRACTICE:
JUL - SEP 1968 - LOCUM TENENS - GENERAL PRACTICE, VIBORG, SD
MAR 1976 - TO PRESENT LAS VEGAS, NEVADA

MEDICAL ORGANIZATIONS:
FELLOW: AMERICAN ACADEMY OF OPHTHALMOLOGY
FELLOW: AMERICAN COLLEGE OF SURGEONS CLARK COUNTY AND NEVADA STATE MEDICAL ASSOCIATION
INTERNATIONAL SOCIETY of REFRACTIVE SURGERY
of the AMERICAN ACADEMY of OPHTHALMOLOGY

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MEDICAL LICENSES: SOUTH DAKOTA #0799 NEVADA #2972

RESEARCH AND PUBLICATIONS:
1) APLASIA OF THE OPTIC NERVES JOURNAL OF
PED. OPHTHALMOLOGY VOL.13 (2) 84-88 1976

2) LOCALIZATION OF INTRAORBITAL FOREIGN
BODIES
ANNUALS of OPHTHALMOLOGY Vol. 8 #5 1976

3) ANTERIOR SEGMENT COMPLICATIONS AND
NEOVASCULAR GLAUCOMA FOLLOWING
IMPLANTATION OF A POSTERIOR CHAMBER
INTRAOCULAR LENS
OPHTHALMOLOGY Vol. 91 ISSUE #4 Pg. 403-419 1984

SUBMITTED: 1) FACTORS AFFECTING ARMY MEDICAL
TRAINING FACILITIES

PAPERS PRESENTED: WALTER REED ARMY MEDICAL CENTER BIANNUAL
OPHTHALMOLOGY MEETING - "CONGENITAL ABSENCE
OF RETINAL VESSELS AND OPTIC NERVE" 1974

SUMMARY REPORTS: LOCALIZATION OF INTRAORBITAL FOREIGN BODIES, IN:
1) THE DOCTORS DIGEST
2) OPHTHALMOLOGY DIGEST

ADMINISTRATIVE:
1) EMERGENCY ROOM COMMITTEE - DESERT
SPRINGS HOSPITAL - 1989
2) SEC'Y & TREASURER MEDICAL STAFF, DESERT SPRINGS HOSPITAL - 1986
3) PRESIDENT OF SOUTHERN NEVADA EYE CARE OPHTHALMOLOGY SOCIETY - 1984
4) CHIEF OF SURGERY, DESERT SPRINGS HOSPITAL - 1982
5) EXECUTIVE COMMITTEE, DESERT SPRINGS
HOSPITAL - 1982 & 1986
6) CHAIRMAN, EMERGENCY ROOM COMMITTEE -
1981
7) CHAIRMAN, TISSUE COMMITTEE, DESERT
SPRINGS HOSPITAL - 1980
8) CHIEF OF OPHTHALMOLOGY, DESERT SPRINGS HOSPITAL - 1976 – 1991

DISABILITY CLAIMS EXAMINER for NEVADA STATE 1977 - Present

COMMUNITY: TRUSTEE, NEVADA SCHOOL OF THE ARTS
1983 - 2008

LISTED:
WHO'S WHO IN AMERICA
WHO'S WHO IN ENTERTAINMENT
WHO'S WHO IN MEDICINE AND HEALTH CARE
WHO'S WHO IN HEALTH AND MEDICAL SERVICES
WHO'S WHO IN THE WEST
WHO'S WHO IN THE WORLD

NVISION EYE CENTERS

Franklin Lusby, MD

Home Address:	238 Pacific Avenue, Solana Beach, California 92075
Business Address:	9850 Genesee Avenue, Suite 220 La Jolla, CA 92037 (858) 459-6200
Web address:	www.drlusby.com
Date of Birth:	November 14, 1953
Medical License:	G-41830 (California)
UPIN:	A48707
DEA:	AL9233634
Education:	
High School:	High Point High School Beltsville, Maryland (1971)
College:	Columbia Union College Takoma Park, Maryland (1974) B.A. – Chemistry – Magna cum Laude
Medical School:	Loma Linda University School of Medicine Loma Linda, California (1978) M.D.
Internship:	Flexible Malden Hospital Malden, Massachusetts Boston University School of Medicine (1978-1979)
Pre-Residency Study:	Basic and Clinical Sciences for Ophthalmology Massachusetts Eye and Ear Infirmary Harvard Medical School (September-December 1979)
Residency:	White Memorial Medical Center Los Angeles, California

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Ophthalmology (1980-1983)

Fellowship: Extracapsular Cataract Extraction and Intraocular Lens Implantation
James M. McCaffery, M.D.
Glendale Eye Medical Group (1983-1984)

Examinations: National Board of Medical Examiners (1979)

Board Certification: American Board of Ophthalmology (1985)

Certifications:

Refractive Surgery:
-A System of Precise, Predictable Keratorefractive Surgery: J. Charles Casebeer, M.D., May, 1992
-Fellowship in Advanced Incisional Keratotomy: Lee Nordan, M.D., June-August, 1995
-ExciMed UV200 Certfication, Summit Technology, October, 1995
-Automated Lamellar Keratoplasty: J. Charles Casebeer, M.D., Stephen G. Slade, M.D., November, 1995
-Mini Fellowship in Lamellar Refractive Surgery: Stephen G. Slade, M.D., January, 1996
-CHIRON VISION Advanced Mini Fellowship in C-LASIK: Shanghai, China, January, 1996
-VISX Excimer Laser System PRK Training Course: VISX, July, 1996
-VISX Excimer Laser System Astigmatism Training Course: VISX, May, 1997
-VISX Excimer Laser System PRK with Astigmatism & High Myopia Training Course: VISX, March, 1998
-VISX Excimer Laser System Hyperopia Training Course: VISX, November, 1998
-VISX Excimer Laser System LASIK Training Course: VISX, January, 2000
-VISX Excimer Laser System Blend Zone with Variable Spot Scanning Training Course: VISX, April, 2001
-LADARVision Excimer Laser Workstation Certification: Alcon, October, 2001
-VISX Excimer Laser System LASIK for the Treatment of Mixed Astigmatism Training Course: VISX, March, 2002
-VISX Excimer Laser System Custom CAP Training Course: VISX, June, 2002
-LADARVision Ladarwave Customcornea Certification: Alcon, February, 2003

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-VISX Excimer Laser System CustomVue Training Course: VISX, June 2003
-IntraLASIK Training Course: Intralase, January, 2004
- VISX Excimer Laser System Fourier Algorithm Training Course: VISX, November, 2004
-Allegretto Excimer Laser Certification: Wavelight, November, 2004
- VISX Excimer Laser System CustomVue Hyperopia and Hyperopic Astigmatism: VISX, December, 2004
- VISX Excimer Laser System CustomVue Mixed Astigmatism: VISX, March, 2005
- VISX Excimer Laser System Iris Registration: VISX, March, 2005
- VISX Excimer Laser System CustomVue High Myopia: VISX, October, 2005
- VISX Excimer Laser System CustomVue Treatments for Monovision in Presbyopic Patients with Low to Moderate Myopia and Myopic Astigmatism: VISX, March, 2008

Professional Activity:

Private Practice:

Glendale Eye Medical Group
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(1984-1989)
(1991-1997)

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Ophthalmology (1980-1983)

Fellowship: Extracapsular Cataract Extraction and Intraocular Lens Implantation
James M. McCaffery, M.D.
Glendale Eye Medical Group (1983-1984)

Examinations: National Board of Medical Examiners (1979)

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Refractive Surgery:
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-Fellowship in Advanced Incisional Keratotomy: Lee Nordan, M.D., June-August, 1995
-ExciMed UV200 Certfication, Summit Technology, October, 1995
-Automated Lamellar Keratoplasty: J. Charles Casebeer, M.D., Stephen G. Slade, M.D., November, 1995
-Mini Fellowship in Lamellar Refractive Surgery: Stephen G. Slade, M.D., January, 1996
-CHIRON VISION Advanced Mini Fellowship in C-LASIK: Shanghai, China, January, 1996
-VISX Excimer Laser System PRK Training Course: VISX, July, 1996
-VISX Excimer Laser System Astigmatism Training Course: VISX, May, 1997
-VISX Excimer Laser System PRK with Astigmatism & High Myopia Training Course: VISX, March, 1998
-VISX Excimer Laser System Hyperopia Training Course: VISX, November, 1998
-VISX Excimer Laser System LASIK Training Course: VISX, January, 2000
-VISX Excimer Laser System Blend Zone with Variable Spot Scanning Training Course: VISX, April, 2001
-LADARVision Excimer Laser Workstation Certification: Alcon, October, 2001
-VISX Excimer Laser System LASIK for the Treatment of Mixed Astigmatism Training Course: VISX, March, 2002
-VISX Excimer Laser System Custom CAP Training Course: VISX, June, 2002
-LADARVision Ladarwave Customcornea Certification: Alcon, February, 2003

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-VISX Excimer Laser System CustomVue Training Course: VISX, June 2003
-IntraLASIK Training Course: Intralase, January, 2004
- VISX Excimer Laser System Fourier Algorithm Training Course: VISX, November, 2004
-Allegretto Excimer Laser Certification: Wavelight, November, 2004
- VISX Excimer Laser System CustomVue Hyperopia and Hyperopic Astigmatism: VISX, December, 2004
- VISX Excimer Laser System CustomVue Mixed Astigmatism: VISX, March, 2005
- VISX Excimer Laser System Iris Registration: VISX, March, 2005
- VISX Excimer Laser System CustomVue High Myopia: VISX, October, 2005
- VISX Excimer Laser System CustomVue Treatments for Monovision in Presbyopic Patients with Low to Moderate Myopia and Myopic Astigmatism: VISX, March, 2008

Professional Activity:

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(1991-1997)

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(1994-1996)
7825 Fay Avenue, Suite 140
La Jolla, California 92037
(858) 459-6200
(1996-2006)
(dba Lusby Vision Institute)
9850 Genesee Avenue, Suite 220
La Jolla, California 92037
(858) 459-6200
(2006-current)

Franklin W. Lusby, M.D., Inc.
330 North Brand Boulevard, Suite 110
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(818) 409-0900
(1997-2002)

TLC Laser Eye Center – Newport Beach
3501 Jamboree Road, Suite 1100
Newport Beach, California 92660
(949) 854-7400
(2001-2008)

Medical Directorships:

Pacific Laser Eye Center
Medical Director
4330 Barranca Parkway, Suite 101
Irvine, California 92604
(949) 733-3937
(1998-2000)

Maloney-Lusby Vision Institute
Medical Director
4330 Barranca Parkway, Suite 101
Irvine, California 92604
(949) 733-3937
(2000)

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(dba Lusby Vision Institute-Irvine)
Medical Director
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(2000-2001)
910 East Birch Street, Suite 350
Brea, California 92821
(949) 733-3937
(2001-2005)
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

TLC Laser Eye Centers – Brea
Medical Director
910 East Birch Street, Suite 350
Brea, California 92821
(714) 257-0560
(2001-2005)

TLC Laser Eye Centers – Fullerton @ SCCO
Medical Director
2575 Yorba Linda Blvd.
Fullerton, California 92831
(714) 257-0560
(2005-2008)

ClearSight Laser Center
Medical Director
2121 E. Coast Highway, Suite 200
Corona del Mar, California 92625
(949) 600-4668
(2008-2011)
10 Pointe Dr., Suite 310
Brea, California 92821
(714) 880-8808
(2008-2011)
1680 E. Herndon Ave., Suite 101
Fresno, California 93720
(559) 473-4053
(2008-current)

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9850 Genesee Ave. Suite 220
La Jolla, California 92037
(858) 926-4664
(2008 – 2011)
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Fullerton
Medical Director
2575 Yorba Linda Blvd
Fullerton, CA 92831
(714) 257-0560
(2011-current)

NVISION Laser Eye Centers Torrance
Medical Director
23550 Hawthorne Blvd., Suite 220
Torrance, CA 90505
(310) 784-2020
(2011- current)

Society Memberships:

Member - San Diego County Medical Society
Fellow- American Academy of Ophthalmology
Member- American Society of Cataract and Refractive Surgery
Member- International Society of Refractive Surgery
Charter Member- American College of Eye Surgeons
Member- David Paton Society
Member- Research to Prevent Blindness Ophthalmological Soc.

Hospital Affiliations: Scripps Memorial Hospital-La Jolla (1994-Current)
Cedars Sinai Medical Center (1999-2001)
Glendale Adventist Medical Center (1984-2002)
Memorial Hospital of Glendale (1984-2002)
Verdugo Hills Hospital (1984-2002)
Arcadia Outpatient Surgery Center (1984-1988)
Victor Valley Community Hospital (1989-1997)
Palomar Medical Center (1991-1994)
Pomerado Hospital (1991-1997)
Escondido Surgery Center (1991-1997)

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Premiere Surgery Center (1993-2001)
Healthsouth Surgery Center (1994-Current)
Glendale Eye Surgery Center (1989-2002)

Section Chief
Division of Ophthalmology
Department of Surgery
Glendale Adventist Medical Center
(1990-1996)

Laser Center
Affiliations: Mericos Eye Institute
San Diego Excimer Laser Center
TLC Laser Eye Centers

Publications:

1. Oyakawa, R.T., Lusby, F.W., Schachat, A.P., Brown, R.H.: An Irrigating Endo-illuminator for Anterior Vitrectomy. Am. Journal of Ophthalmology (submitted)

2. Byer, L.V., Oyakawa, R.T., Lusby, F.W.: Vitrectomy Instrumentation in Failed Trabeculectomy. Am. Journal of Ophthalmology (submitted)

3. McCaffery, J.M., Lusby, F.W.: A Review of 584 3M Style 30 Intraocular Lens Implants. American Journal of Cataract and Refractive Surgery, 12: 278-280, 1986

4. Lusby, F.W., Franke, J.W., McCaffery, J.M.: Clinical Comparison of Manual and Automated Keratometry in a Geriatric Population. Contact Lens Association of Ophthalmology Journal, Vol 15 #2, 119-121, March, 1987

5. Nordan, L.T., Lusby, F.W.: Refractive Aspects of Cataract Surgery. Current Opinion in Ophthalmology Vol. 6 #1, 36-40, February, 1995

Scientific Presentations:

1. "A Statistical Review of 584 3M Style 30 Intraocular Lens Implants," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

2. "Review of 838 Office-Based Posterior Capsulotomies," McCaffery, J.M., Lusby, F.W.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

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3. "The Accuracy of the Assumed Anterior Chamber Depth in the Binkhorst Formula," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

4. "Pre-operative Axial Length vs. Post-operative Axial Length," Lusby, F.W., McCaffery, J.M.: American Intraocular Implant Society, Los Angeles, CA, April, 1983

5. "Comparison of the Enhancement Rates of the Casebeer and the Nordan/Maxwell Refractive Surgery Methods," Lusby, F.W., ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

6. "Incisional Keratotomy: Current Status," Lusby, F.W., Mericos Eye Institute Visions in Ophthalmology, La Jolla, CA, March, 1996

Scientific Exhibits:

"An Irrigating Endo-illuminator for Anterior Vitrectomy." Lusby, F.W., Oyakawa, R.T., Schachat, A.P., Brown, R.H. Contact Lens Association of Ophthalmology and the Combined Meeting of the Anterior Segment Societies, Las Vegas, Nevada, 1982

Teaching Appointments:

Faculty: Residents Skills Training Course in Radial Keratotomy, ASCRS Symposium on Cataract, IOL, and Refractive Surgery, San Diego, CA, April, 1995

Mentor: Health Professions Preparation Program, UCSD, 1998-Current

Academic Appointment:

Adjunct Clinical Professor
Southern California College of Optometry
Fullerton, California
(2006-2012)

Part-time Clinical Professor
Southern California College of Optometry
Fullerton, California
(2012-current)

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Patrick Lydon, OD

Clinical Research Optometrist –
Manager and Director of Clinical Affairs

Primary Residence:
77-251 Tribecca St. Indian Wells, CA 92210
Home: 760-360-5245
Email: pjlwolf@earthlink.net
Cell: (949)-735-2766

STATEMENT OF PURPOSE

This resume is a condensed summary of my professional, educational, and personal background. It outlines my qualifications in the areas of patient care, training, business management, and clinical trials for medical devices and procedures. I believe that because of my familiarity with the certification processes, as well as my background in research, I am uniquely positioned for consideration in any role related to those fields.

WORK EXPERIENCE

Current:

1. **January 2016 – Consulting Optometrist – NVISION Center Palm Desert California**
   Responsible for Pre Op and Post Op Comanagement LASIK/Cataract

2. **March 2015 to present – Consulting Director of Optometric Services – S. Shah, MD Family Charitable Foundation for Health – Palm Desert , CA**

   Primary Eyecare - directing the clinical program at the Shah Foundation, with special emphasis on Glaucoma Patients, and disadvantaged students of the Coachella Valley, ensuring no student is left behind because of a vision problem.

3. **Nov. 2014 to present - Consulting Director of Clinical And Medical Affairs, Eye Therapies Inc. (Lutronic division)** - San Francisco-based ophthalmic laser medical devices

   - Surgical Trainer – AMD 10 Laser
   - Staff Trainer
   - Site Qualification, Initiation

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- Study Protocol Development and Review
- IRB Submission
- Site Contract Review
- Study Documentation Development and Review

4. **Nov. 2014 to present - Consultant to Refocus Group, Dallas TX – Clinical research –** Medical device company studying the surgical treatment of presbyopia

- Surgical Trainer – VisAbility Implant System (Spain and Ireland)
- Site Staff Training and Managing /Reviewing Subject Enrollment
- Post Marketing Protocol Development and Review

Previous Work Experience: (full time – non consulting)

1. **Eye Therapies, San Francisco, CA – Director of Clinical and Medical Affairs –** Nov. 2014 to March 2015

-Reported directly to the President and CEO

-Credited with designing the clinical program and providing expertise in the Surgical Training for the AMD 10 Ophthalmic Laser

-Co-developed clinical research strategic programs in line with global strategy and supported the local product registration and marketing.

-Acted as a medical resource to the company as a whole and particularly to the clinical research department - protocol and CRF writing, adverse events reporting, discussions with investigators, and internal meetings.

-Worked closely and cooperatively with research centers internationally

-Initiated and Developed clinical trial programs to support product registration and marketing.

-Provided medical and scientific input to global product development teams.

-Provided medical expertise in the review of adverse experiences

-Established ongoing liaison with key opinion leaders, government officials, CRO's and other healthcare organizations to ensure that significant developments in the field are identified and monitored.

-Represented the company at professional worldwide meetings

-Ensured that the interfaces between Medical/Clinical and other departments were managed optimally.

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-Formed informal networks with company senior management, updating them on a regular basis on developments within Medical and progress made with the clinical and regulatory program.

-Worked in conjunction Regulatory, Marketing and Financial people through cross-functional teams, to ensure timely entry of new device to the market

-Worked with company management to determine requirements for clinical programs - involved with the identification and selection of suitable candidates for positions.

-Ensured effective team communication throughout the department through the application of suitable reporting systems and structures and the identification and provision of appropriate training.

2. **Refocus Group, Dallas TX – Global Clinical Affairs Manager** – April, 2014 to Nov 2014.

- Primary responsibility for overseeing all clinical activities related to sites in Spain and England/Ireland.
- Managed trial exclusion and inclusion enrollment.
- Surgical Trainer for VisAbility Implant System
- Qualified clinical investigators and clinical sites on the VisAbility Implant System.
- Obtained and reviewed all required essential documents necessary for study initiation.
- Interacted with all levels of medical and scientific professionals.
- Assisted in the preparation and presentation of clinical training materials for investigator site staff.
- Provided scientific support to health care professionals at clinical sites.
- Independently handled various clinical study assignments including: conceptualizing, planning, designing, executing and monitoring
- Managed staff at site for company in regards to trial activities
- Summer 2014 Visiting Scholar at the University of Terraza, School of Optometry (Barcelona) Spain for the VisAbility Implant Trial
- Managed resource planning, project timelines and effective use of budget
- Managed project related professional meetings and presentations
- Established and maintained ties to Surgeons and Staff Globally
- Responsible for providing assistance in direction of overall corporate strategy and evaluating market potential
- Monitored clinical studies, ensuring site compliance with the clinical protocols; assuring subject rights, safety, and welfare are protected; ensured data integrity through completeness, accuracy, and legibility.
- Reviewed and monitored required corrective actions; conduct follow-up activities on required action items directly with investigator sites. .

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- Maintained professional, product, and market expertise via independent reading, networking, and training.

3. **AcuFocus Inc., Irvine, CA - CRA / Clinical Research Optometrist / Director of Training / Global Training Manager** (Feb 2012-2014 April)

- Clinical Research Optometrist: In this position I was responsible for monitoring sponsor-initiated clinical research studies for the KAMRA Inlay, 020A and 020B trials – conducted monitoring visits to confirm protocol compliance and to ensure sponsor/investigator obligations were met nationally as well as in Australia , New Zealand, Canada , Peru, and Chile.
- Verified that sites were compliant with applicable local requirements and FDA / ICH guidelines
- Monitored the trials to confirm protocol compliance. Included Surgeon (and staff) Training on femtosecond lasers, AcuFocus Home Office training and assessed qualifications of study personnel to ensure "Good Clinical Practice".
- Identified site issues and initiated correction plans based on monitoring reports (including study logs and device accountability) and performed necessary follow-up onsite training
- Verified the data in source documents (EDC) were in agreement with source, initiated data query resolutions, and confirmed resolutions in a timely manner
- Ensured subject safety and adverse event reporting to sponsor and IRB/IEC
- Promoted to Director of Training USA /Global Training Manager – Europe, India and Canada. Worked within the team environment to provide commercial training to team members such as project managers.
- Responsible for developing and training interactions for all trained surgeons and staff in use of the KAMRA inlay. Opened the commercial markets for KAMRA in India and Canada. Monitored the training guidelines and introduced surgeons and staff to the device.
- Initiated the Global Data Base Registry for KAMRA patients in Canada / ROW
- Credited with obtaining the highest volume of clinical KAMRA subjects for new sites in Canada
- Developed the Visiometric AcuFocus HD Acutarget project for site use

4. **NeoVista Inc., Fremont, CA – Clinical Affairs Specialist / CRA/ VA Trainer /Director of Clinical Marketing Training.** May 2006 – April 2012

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- Began at NeoVista as CAS with Retinal Surgeon Training, Monitoring (US And OUS), Radiation Oncologist Training, Medical Physicist Training , and Optometrist trainer.
- Performed IRB, and Protocol submission in the United States, Europe, and South America for multiple NeoVista clinical trials.
- In charge of VA Certification for worldwide trial CABERNET,
- London based Director of Clinical Marketing Training for the MERLOT Trial -23 NHS sites

Specific Job Functions in UK for NeoVista:

- Credited with completing enrollment of subjects on time for the MERLOT trial (373 subjects at 23 sites).
- During the CABERNET And MERLOT clinical studies, initiated frequent interactions with clinical investigators to ensure compliance with protocol and overall clinical project objectives.
- Trained surgeons on use of the VIDEON (radiation device). Trained nursing and radiation staff on use of VIDEON. Represented NeoVista in OR situations worldwide (USA, South America, Europe , Israel and South Africa.
- Responsible for training of medical staff in follow-up to cases performed (AE Reporting)
- Assured studies were conducted in compliance with UK NHS/NICE Good Clinical Practice and appropriate international, federal, state, and local regulations and guidance's.
- Provided assistance in the evaluation and analysis of clinical data.
- Responsible for regular updates to Senior Management on site status.
- Managed the Physics Project NeoVista. Ensuring the on time , replacement and exchange of expiring medical devices in the UK. Credited with "saving" the MERLOT Trial
- Organized and worked closely with an international team (Austria – Germany – UK) to initiate successful clinical trials enrollment strategies
- Audited sites in the United States, Europe, Middle East and South America.
- Maintained accurate and timely sponsor/site correspondence and communication.
- Prepared and presented project progress reports to keep NeoVista management and clinical staff informed
- Presented MERLOT Trial to the Royal College of Surgeons, London UK
- MERLOT Trial Specifics: Responsible for site qualification, initiation, surgeon/ radiation oncology training, data monitoring, adverse event reporting, IRB applications, protocol review, informed consent, and creating SOPs.
- I transferred to AcuFocus (a sister company of NeoVista) in March of 2012. As a Clinical Research Optometrist, I continued in monitoring and training sites worldwide. I worked with refractive surgeons, R & D and Marketing on developing the KAMRA inlay.

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5. **Genentech Corporation Visual Acuity Evaluator/Trainer (August 2002 - May 2006) -**
   - VA Evaluator/Trainer for the Lucentis Series of Clinical Trials ---Focus, Anchor, Marina, Sailor, and Horizon
   - Trained and worked with site staff on VA requirements for Lucentis development.
   - Trained Protocol and Developed New Training Upgrades for Genentech Clinical Trial Managers
   - Extensive US travel – responsible for > 30 sites
   - Contributed to the success of Lucentis with VA results meeting endpoint

   Transferred to NeoVista to continue work in wAMD

Field-Related WORK EXPERIENCE:

- Prior to joining Genentech: Pearle VisionCare HMO of California
- November 1986 – 2002 Starting as a Staff OD in a single office in 1986, my career at Pearle saw my responsibilities expand to include the following positions:

Medical Director/VP Cole Managed Vision (parent company of Pearle)

- Staff OD, Managing OD
- Regional Optometric Coordinator
- 1996 Externship Binder Gordon Laser Vision Institute
- Quality Assurance Committee Chairman
- Director of Doctor Relations PVC California
- Medical Director PVC
- President Pearle Vision Care of California

During these transitional years, my responsibilities grew to include oversight, administration, and clinical decisions for approximately 50 California corporate locations. I was credited for contributing significantly to a business turnaround that reversed downsizing, leveled a financial slide and turned comp growth. During this period, Pearle's California offices improved efficiency dramatically (i.e., fewer offices saw more patients with higher quality). Creation and oversight of a network of over 100 providers. Monitoring performance of direct-reporting OD's, training, coaching, counseling, conducted performance reviews, and recommended merit increases where appropriate. During this tenure I also participated in my first clinical trials. We participated in contact lens development and the solutions used to treat them.

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EDUCATION

- Doctor of Optometry, University of California, Berkeley, School of Optometry
- BS Optometry, University of California , Berkeley
- Certificate in Clinical Research (CRA)
- Kaiser Hospital Staff, Cataract Lens Clinic
- Letterman Hospital , Presidio San Francisco Cataract Rotation and Internship
- Externship Binder and Gordon Laser Vision Institute
- Bachelor of Science, Combined Sciences, Minors in Biochemistry and History, University of Santa Clara - Captain Crew Team / Academic All American
- London School of Economics and Oxford, University of Freiburg, Germany, University of Santa Clara Studies Abroad Program
- Archbishop Mitty High School, Cupertino, California
  - recipient of Alumni Award for Constant Achievement
  - Spanish Award

OUTSIDE INTERESTS

- Athletics: Golf, tennis, bicycling, scuba diving, volleyball
- Hobbies: amateur musician - Currently member of two musical groups with interests in contemporary, traditional, folk, and Irish/folk music.

STATEMENT

Throughout my career, I've been able to work myself into positions of ever-increasing challenge and responsibility. My background includes clinical care/training and business management at the local, regional, state, national and international levels. I maintain a passion for oversight and training in the research environment, and commercial settings. At my core, I feel a strong dedication to pursuing answers to the question, "What is around the next corner".

It has been a unique journey, from local staff Optometrist, National Medical Director and Vice President at Pearle Vision, to my current positions as a consultant with multiple Global Clinical Research Companies.

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Jeffrey Machat, MD, FRCSC, DABO

13700 Marina Pointe Dr. Ste.#1822 Marina Del Rey, Ca. 90292
416-818-1747, jeff.machat@crystalclearvision.com

Education and Medical Training

Board certification by the American Board of Ophthalmology, November 24, 1991

Board Certification by the Royal College of Physicians & Surgeons of Canada November 16, 1990

Residency 7/1/1987—6/30/1990
University of Toronto, Toronto, On. Canada
Ophthalmology

Internship 7/1/1986—6/30/1990
University of Toronto, Toronto, On. Canada
Comprehensive Medical Internship, Toronto General Hospital

Doctor of Medicine 7/1/1982— 6/12/1986
University of Toronto, Toronto, On. Canada

Undergraduate Program, Life Science
9/1/1980-5/15/1982
University of Toronto, Scarborough, Ontario, Canada

Professional Work History

Founder and Medical Director 02/1/2009—present
Crystal Clear Vision, Toronto, On. Canada

- Crystal Clear Vision is a state of the art facility in downtown, Toronto.
- The clinic has a College approved full ophthalmic surgery operating suite and two laser suites.
- Clinic offers LASIK for the correction of hyperopia, myopia and astigmatism, KAMRA Vision for reading vision correction and premium Laser Cataract Surgery
- The clinic is not only a treatment facility, but a teaching and research facility as well, hosting and training surgeons from across North America.
- Equipped with the most advanced technology including:
  - Schwind AMARIS 750s Excimer Laser system
  - Sirius Corneal and Total Ocular Wavefront Diagnsotics system
  - Specular Microscopy, RT VUE OCT system, Epic system, IOL Master
  - AcuFocus AcuTarget HD and Tagaki microscope for KAMRA surgery
  - Ziemer Z4 Femtosecond Laser for Corneal surgery
  - Victus Femtosecond laser for Cataract surgery

Co-Founder/North American Medical Director 08/01/1993—01/01/2002
TLC Canadian National Medical Director 01/01/2002---02/01/2009
TLC Laser Eye Centers, Toronto, Canada

- Co-founded and developed the largest laser vison correction company in the world, with 83 fixed site clinic across North America, as well as 300 mobile sites.
- Provided clinical training, education and direction for over a 600 surgeons.
- Provided the clinical and operating guidelines for all surgeons, technicians and clinical staff
- Functioned as Chief surgeon at multiple clinics, performing thousands of vision correction surgeries and complication management and care to TLC and non-TLC patients
- Pioneered many techniques and developed surgical instrumentation for LASIK and PRK

- Functioned as Researcher and Investigator for several excimer laser companies, including Summit, Visx, Technolas, LaserSight and WaveLight
- Primary FDA Investigator for Technolas 217 excimer laser system
- Health Canada Investigator for Summit, Visx, Technolas laser systems
- TLC became a publicly traded company on both the TSX and NASDAQ in 1996.
- After 2002, transitioned position and responsibilities, limiting oversight to 7 Canadian clinics and developing Custom LASIK Centre in 2000, working with Optical Express and helping develop RheoTherapeutics Macular Degeneration Clinics. During this entire period, continued to operate and function as TLC Medical Director for Canada.

Medical Director
Rheo Therapeutics, Toronto, Canada 09/01/2007—06/24/2008

- Instrumental in the development of Macular Degeneration Treatment Centers across Canada.
- Performed research and coordinated policies and procedures for the Retinal Surgeons and other physicians involved with the organization.

Chief Medical Officer/ Strategic Advisor 01/01/2005—06/16/2006
Optical Express, Glasgow, Scotland

- Provided key insights into their clinical and business issues and future development.
- Advised on laser technology, provided surgeon and technician training
- Developed clinical policies and procedures, the consultative approach, diagnostic testing, surgical and post-operative management of patients,
- Developed patient advocacy systems and complication management systems
- Developed training programs and provided a series of educational events for entire employee base of over 1000 employees, optometrists and surgeons.
- Instrumental in growing the company from 11 clinics to 55 clinics over a 2 year period, becoming the largest Laser Vision Correction provider in Europe, with clinics in Scotland, England, Ireland, Holland, Belgium, France and Germany.
- Responsible for the selection and Implementation of Wavefront laser technology.
- Responsible for the development of their International Medical Board.

Founder/Medical Director 03/01/2000—12/31/2004
Custom LASIK Centre, Toronto, Canada

- A treatment and research facility, pioneering Wavefront Technology in Laser Vision Correction.
- First clinic in Canada to utilize custom technology to improve qualitative visual outcomes, prevent night glare and manage complications for other clinics across North America.
- The clinic was equipped with several different laser technologies and Wavefront platforms, including Hartmann-Shack, Tscherning, and Ray Tracing technology

Licensure and Certifications

Board Certified, Royal College of Physicians & Surgeons of Canada, November 16, 1990
Diplomat of The American Board of Ophthalmology, November 24, 1991

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Professional Memberships

Canadian Society of Cataract and Refractive Surgery
Canadian Ophthalmological Society
International Society of Refractive Surgery
American Society of Cataract and Refractive Surgery
American Academy of Ophthalmology
American-European Congress of Ophthalmic Surgery
Member of *AcuFocus International Medical Advisory Board*

Publications

Author of two textbooks:
"Excimer Laser Refractive Surgery- Practice and Principles"
"The Art of LASIK"

Additional Accomplishments

- Early pioneer and innovator of LASIK, learned technique from Dr. Luis Ruiz in Bogota, Columbia over two decades ago, one of the first handful of surgeons in North America to perform LASIK.
- First surgeon in Canada to ultilize Wavefront technology in 2000, third worldwide
- First Surgeon in Canada to perform Custom LASIK in 2000.
- First surgeon in Canada to utilize Femtosecond laser technology in 2003.
- First surgeon to perform Bladeless Custom Lasik with the Intralase femtosecond laser.
- First surgeon in Canada to perform KAMRA Vision reading vision correction.
- First surgeon to perform AMARIS Custom LASIK with the Schwind AMARIS 750S Excimer laser system.
- One of the few Chiron ACS and Hansatome microkeratome certified trainers; Lectured and certified hundreds of physicians across North America, South America, Europe, South Africa, Australia, the Middle East and Asia.
- Investigator and instructor for 8 different laser manufacturers, utilizing 18 different Excimer laser platforms.
- Lectured in over 20 countries on 5 continents on Excimer laser and Femtosecond laser technology, Wavefront technology and other refractive techniques and innovations.
- Developed instrumentation and software for Photorefractive Keratectomy, Laser in situ Keratomileusis (LASIK), and the KAMRA Corneal Inlay procedure.
- Performed over 60,000 laser vision correction procedures, including more than 50,000 LASIK procedures.
- Treated over 600 Optometrists, Ophthalmologists and physicians.
- Has performed additional reading vision correction procedures including Sunrise Holmium Laser Thermokeratoplasty, Visx Multifocal Ablation and RestorVision Scleral Impants.

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Mihir Parikh, MD

As the San Diego Charger's Official Team Ophthalmologist and former medical director at Advanced Ophthalmology Institute, Dr. Parikh knows the importance of precision in LASIK procedures. And, having undergone LASIK surgery himself, he understands the process both as a surgeon and as a patient.

Board-certified for more than 10 years, Dr. Parikh has performed more than 12,000 LASIK procedures, including many patients who are San Diego Chargers players. He specializes in LASIK, PRK, LASEK, cataracts and intraocular lenses, custom LASIK and Wavefront technology. He was one of the first west-coast surgeons trained in custom Wavefront treatment technology.

Before dedicating his career to the field of medicine, ophthalmology and refractive eye surgery, Dr. Parikh was involved in laboratory research in molecular biology and biochemistry at the University of California, Irvine, and in clinical research at the University of California, San Diego Burn Center.

An award-winning surgeon, Dr. Parikh has been honored with the Laurence Mehlman Prize and was the recipient of the University of California Regents Scholar Award for four years in a row. His presentation on "the effects of intrastromal corneal lens implantation (Intacs) on nerve fiber layer thickness" was honored best paper at the ASCRS 2000 conference in Boston, Massachusetts.

In his spare time, Dr. Parikh teaches principles of ophthalmology and refractive surgery to fellow doctors and surgeons nationally and internationally and has been published in many notable medical journals.

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Steward Park, MD

Professional Experience

Private Practice	Nevada Eye Care July 2004 - Present	Las Vegas, NV

Postgraduate Training

Residency	University of Cincinnati Department of Ophthalmology July 2001 to June 2004	Cincinnati, OH
Internship	University of Illinois Department of Internal Medicine July 2000 to June 2001	Urbana, IL

Education

M.D.	University of Illinois August 1996 to May 2000	Urbana, IL
M.S.	University of Illinois Dept. of Cell and Structural Biology August 1993 to August 1996	Urbana, IL
B.S.	Pomona College Department of Molecular Biology August 1988 to May 1992	Claremont, CA

Board Certification Diplomate – American Board of Ophthalmology
October 2006

Licensure Nevada State Medical License #10937

Honors, Awards, and Achievements

2001	Intern of the Year, UIUC Internal Medicine Residency Program
1996-2000	Awarded UIUC College of Medicine Scholarship
1994-1996	University of Illinois List of Teachers Ranked Excellent by Students
1992	Elected Associate Member of Sigma Xi Research Society
1992	Passed Senior Research Exercise with Distinction
1992	Won F.S. Jennings Memorial Prize for Expository Writing

Memberships and Academic Appointments

American Academy of Ophthalmology, Diplomate
American Society of Cataract and Refractive Surgery
Fellow of the American College of Surgeons
Adjunct Instructor of Ophthalmology, Touro University Nevada College of Osteopathic Medicine

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Jonathan Pirnazar, MD

For Dr. Pirnazar, complexity is another word for "challenge." Finding solutions to complex eye issues is his specialty, and he has the experience and education to back it up.

Having performed more than 20,000 refractive and cataract surgeries, Dr. Pirnazar's specialties include LASIK, premium multifocal and accommodating intraocular lens implants, and implantable contact lens surgeries. He also specializes in treating glaucoma with laser eye surgery. In addition to his clinical experience, he involves himself in pharmaceutical studies and clinical trials in the treatment of ophthalmic diseases.

He received his M.D. with Honors from the University of Illinois, Chicago School of Medicine and completed his residency at the prestigious Washington University in St. Louis, where he also served as chief director of University Eye Service.

He continued his education with fellowship training in corneal and refractive surgery at the University of California, Irvine, where he also served as an assistant professor. He is a bo ard-certified ophthalmologist.

His extensive experience in both surgeries and pharmaceutical trials has made him a sought-after expert among doctors in the ophthalmology field. He has published articles in respected medical journals, including the American Journal of Ophthalmology and Ophthalmology Times.

When he isn't working on complex eye surgeries or helping other doctors manage complex eye surgeries and ophthalmic emergencies, Dr. Pirnazar enjoys spending time with his wife and two sons, playing tennis and watching Chicago Bears games.

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Archana Reddy, MD

Archana V. Reddy, M.D. is a board certified ophthalmologist. She grew up in Kansas, attended college at Washington University in St. Louis, and completed medical school at the University of Kansas. She did an internship at Kern Medical Center in Bakersfield, CA, and completed her ophthalmology residency at Ohio State University in Columbus, OH.

Dr. Reddy has practiced ophthalmology in Columbus, OH and Seattle, WA prior to moving to Las Vegas. She now happily resides in Las Vegas with her husband and two young children.

EDUCATION & TRAINING

Ohio State University Hospital
Kern Medical Center
University of Kansas School of Medicine

CERTIFICATIONS & LICENSURE

NV State Medical License
2010 - 2015

American Board of Ophthalmology
Ophthalmology

NVISION EYE CENTERS

Sheri Rowen, MD

Office Address:
Mercy Medical Center Office - (410) 332-9500
Eye & Cosmetic Surgery Center Direct - (410) 332-9733
301 St.Paul Place, Suite #514 Fax- (410) 545-5161
Baltimore, Maryland 21202 E-Mail- Srowen10@gmail.com

Education:
- University of Maryland, College Park, Maryland
  B.S., May 1976
- University of Maryland, School of Medicine, Baltimore, Maryland
  M.D, May 28, 1982
- Internship, General Surgery, Johns Hopkins Hospital, Baltimore, Maryland
  July 1, 1982 - June 30, 1983
- General Surgery Fellow, Johns Hopkins, Department of General Surgery, Baltimore, Maryland
  July 1, 1983 - June 30, 1985
- Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1985 - June 30, 1987
- Chief Resident, Ophthalmology, University of Maryland Medical System, Baltimore, Maryland
  July 1, 1987 - June 30, 1988

Work History:
- Hirsch Eye Group, Fallston, MD 21047
  July 1988 - June 1989
- Katzen Eye Group, Dulaney Valley Rd. . Towson Md. 21204
  June 1989 - December 1996
- Eye & Cosmetic Surgery Ctr. St.Paul Place, Baltimore Md 21202
  Dec 1996 - Present

Honors:
Phi Kappa Phi
Phi Beta Kappa
Eta Beta Rho Honors Society
Cum Laude Graduate, University of Maryland, College Park
Dean's List, 1971-1976, University of Maryland, College Park

Board Certification:
Diplomat & Fellow, American Board of Ophthalmology

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Research Appointment:

- Research Assistant, National Institute of Health / National Cancer Institute, Bethesda, Maryland
  1976-1978
- Research Assistant, Baltimore Cancer Research Center, Baltimore, Maryland
  1978-1980
- Research Fellow, Johns Hopkins University School of Medicine, Center for Vitreoretinal Research, Baltimore, Maryland
  1983-1985
- Clinical Investigator, for FDA approved study Staar Collamer Lens
  1996
- Clinical Investigator, for FDA approved study Visian ICL
  1997 - 2006

Academic Appointment:

- Clinical Instructor, University of Maryland School of Medicine, Baltimore, Maryland
  1989 – 1990
- Assistant Clinical Professor of Ophthalmology, University of Maryland School of Medicine, Baltimore, Maryland
  1990- Present
- Clinical Instructor, Johns Hopkins Hospital, Baltimore, Maryland
  1991- Present
- Director: Mercy Medical Center for: Eye & Cosmetic Surgery
  1996- Present
  1996- Investigator: Staar Surgical, FDA Study (Collamer Lens)
  1997- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens)

Professional Memberships:

Member, American Medical Association
Member, Association for Research and Vision in Ophthalmology (1982- 1988)
Member, Maryland Eye Physician and Surgeons
Member, MED CHI of Maryland
Committee Member, Research to Prevent Blindness, Inc.
Member, Universal Scleroderma Foundation
Member, Wilmer Resident's Association
Member, American Society of Cataract & Refractive Surgery
Member, American Diabetes Association
Member, American Society for Laser Medicine and Surgery
Board Member, International Society of Cosmetic Laser Surgeons
Vice President, International Association of Women Eye Surgeons

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Medical Licenses:

Maryland
District Of Columbia
Virginia
North Carolina
New York

Community & Volunteer services:

- Health Mission, "Project Dawn" Guyana
  March 1988
- Free Screening, Mercy Medical Center, and Department of Aging
  1997, 1998
- Son's Of Italy – Current Techniques in Eye Surgery
  1999
- Baltimore County Department of Aging
  1990- 1996
- Health Mission - Cali, Columbia
  February 2008

Television:

The Women's Doctor:
1994- "Topical Anesthesia for Cataract Surgery"
1995- "Topical Anesthesia & Clear Corneal Incisions & Foldable Lens"
1996- "First Use Of C02 laser in Baltimore for Eyelid Surgery & Facial Resurfacing"
1997- " Implantable Lens Correcting Hyperopia & Myopia"
1998 " Laser Resurfacing with Co2 & Erbuim Lasers" For Pre Mature Aging
1999- " Implantable Contact Lens" Lasik Surgery
2000- " Toric Lens" Correcting Astigmatisim

1997- National Television: " Implantable Contact Lens"
1998- Ivanhoe Broadcast: " Implantable Contact Lens"
1998- National Television: " Topical, Clear Corneal Cataract Surgery"

Publication:

- Rowen, S.L. & Glaser, B.M. (1985). "Retinal Pigment Epithelial Cells Release a Chemoattractant For Astrocytes, "ARCHIVES OF OPHTHALMOLOGY, 103 (5), 704-707.
- McDonnell, P.J., Rowen, S.R., Glaser, B.M. & Sato, M. (1985). "Posterior Capsule Opacification." ARCHIVES OF OPHTHALMOLOGY, 103 (9), 1378-1381.
- Rowen, S.L. (1994). "Advanced Phacomachine & New Kelman Tip". PHACO AND FOLDABLES, Vol 7 No. 1.
- OCULAR SURGERY NEWS. (1994) "Leaders in Clear Corneal Incisions"

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- Rowen, S.L. (1996). "Topical Anesthesia in Cataract Surgery". REVIEW OF OPHTHALMOLOGY, Supplement to VOL. 2, No. 6
- OPHTHALMOLOGY TIMES. (1995). "Miochol-E with Topical Anesthesia"
- EYE TECHNOLOGY (1996). "Current Trends in Cataract Surgery".
- Rowen, S.L. (1996) "Yes, You Can Convert To Clear Corneal Incisions". REVIEW OF OPHTHALMOLOGY, Vol. 3 No. 5, 110-115
- OCULAR SURGERY, News Symposium Supplement, Feb. 1996
- OCULAR SURGERY, News Symposium Supplement, Feb. 1997
- Rowen, S.L. (1997) "Understanding the Benefits of Plate Haptic Lenses" REVIEW OF OPHTHALMOLOGY, Vol. IV., and No.7 4B- 6B
- Rowen. S.L. (1999) " Why & How to Convert to Injectable Lens" REVIEW OF OPHTHALMOLOGY, VOL 8, and page87
- Rowen S.L. 9 (1999) "Pre-Operative & Post- Operative Medications used for Cataract Surgery" CURRENT OPINIONS IN OPHTHALMOLOGY, VOL 10, PAGES 29-35

American Academy of Ophthalmology - Annual Meeting:
1994 – 2009: 40 Credits Each Calendar Year

American Society of Cataracts and Refractive Surgery - Annual Meeting:
1995 – 1996, 1998 – 2010: 40 Credits Each Calendar Year

American Meeting International Society of Cosmetic Laser - Surgeons:
1996 - 24 Credits 1999 –24 Credits
1998 - 29 Credits 2000 – 24 Credits

International Society of Refractive Surgeons:
1995, 1998 – 2002, 2004: 16 Credits Each Calendar Year

Maryland Optometric Association
1998- 6 Credits

Baltimore Refractive Surgery Society
1999- 6 Credits

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Greater Baltimore Medical Center
1999- 6 Credits

Visual FreedomCenter
1998- 12 Credits

Preceptorships - Ultrapulse CO2 Laser:
1995 - January - Dr. Robert Adrian, Washington, D.C.
Facial Resurfacing Technique

1995 - February - Dr. Sterling Baker, Oklahoma City, OK.

Preceptor: Coherent Medical:
1996- Present Supervise use of C02 & Erbium Laser

Laser Education Foundation - I.S.C.L.S.
1996- October- Sterling S. Baker MD. , Chicago, IL.
Pre- AAO Cosmetic Symposium

Coherent / Ultra FineErbium
1998- January, Maureen A. Foley, RN, BSN, CNOR
Mercy Hospital

The International Society of Cosmetic Laser Symposium
1998- February – C.William Hanke, MD. , Orlando, FL.

Eyelid Incision Techniques International Workshop on Anesthetic Surgery:
1996 April - Dr. Oscar Remirez, Course Director
Rejuvenation of the Centra Oval of the Face, Perioral Area and Lips

Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course
1992 - August - Dr. Charles Williamson , Course Director

Lamellar Refractive Surgery Course
1997 – May, Dr.Stephan G. Slade, Baltimore, MD.

Visual Freedom Center
1998- February – Dr. Charles Casebeer, Course Director
Introduction / Visx Certification Course, Transition to Lasik/ Wet Lab

VISX University
1998- November – Visx Excimer Laser System
Hyperopia Training Course

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Johns Hopkins Hospital, Wilmer Eye
1998- Preceptorship for PRK, Course Director, Terrance O'Brian MD.

Presentations: Cataracts, Glaucoma, Foldable Lens & Topical Anesthesia

- 1984- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
- 1989- ARVO, Wilmer Eye Meeting, Sarasota, FL.
  "Endothelial Cell Produce a Chemoattractant for Astrocytes"
- 1985- ARVO, Wilmer Eye Meeting, Sarasoto, FL.
  "Retinal Pigment Epithelial Cells Release a Chemoattractant for Astrocytes"
- 1992- Greater Baltimore Medical Center Symposium, Baltimore, MD.
  "The Use of Foldable Lenses in Cataract Surgery"
- 1993- Maryland Eye Physicians and Surgeons
  "No Stitch Incision, Capsulorhexis, and Foldable Lenses" Invited Paper
- 1993-American Academy of Ophthalmology
  IOLAB BOOTH " Perilimbal Incisions and Topical Anesthesia"
- 1994- American Society of Cataract and Refractive Surgeons, Boston, Mass.
  "Perilimbal Incisions Using Topical Anesthesia "
- 1994- American Academy of Ophthalmology , San Francisco, CA
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clinical Decisions in Management of Complications"
  "What I'm Doing Differently This Year"
  "Techniques and Variation of the I. Howard Fine Clear Corneal Incision Course"
- 1995- Staar Surgical: Course Director: Baltimore, MD.
  "Techniques and Variation of the I.Howard Fine Clear Corneal Incision Course"
- 1995- American Society of Cataract and Refractive Surgery, San Diego, CA.
  "The use of Miochol- E for Cataract Surgery and Topical Anesthesia"
  "Advances in Topical Anesthesia and Clear Corneal Incisions"
  "Topical Anesthesia and Clear Corneal Incisions" Staar Booth ASCRS.
- 1995 - American Academy of Ophthalmology: Atlanta, GA.
  "Clinical Decision in Management of Complications"
  "What I Am Doing Differently This Year"
  "Advance Phacoemulsification and Combined Glaucoma- Phaco Surgery"
  "Topical Anesthesia"
  "Clear Corneal Incisions" Invited: ASCRS Symposium
- 1996- Techniques and Variations of the I.Howard Fine Clear Corneal Incision Course: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"
- 1996-The New Jersey Academy of Ophthalmology: New Jersey
  "Topical Anesthesia and Clear Corneal Incisions"
- 1996-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Cataract Surgery for the 90's" Staar and Chiron
  "Advanced Phacoemulsification and Combined Glaucoma- Phaco Surgery"

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- 1996-Techniques and Variations of the I. Howard Fine Clear Corneal Incision Course; Minneapolis
  "Cataract Surgery for the 90's" Course Director Invited Presentation
- 1996- American Academy of Ophthalmology": Chicago, IL.
  "Clinical Decisions in Management of Complication in Cataract Surgery"
  "Cataract Surgery of the 90's" Staar & Chiron
  "Advanced Phacoemulsification and Combined Glaucoma – Phaco Surgery"
- 1996- Tarrand County Medical Society: Fort Worth, TX.
  " Cataract Surgery for the 90's"
- 1997- Ophthalmology Society: Bethlehem, PA.
  "Cataract Surgery for the 90's"
- 1998- The Virginia Society of Ophthalmology: Williamsburg, VA.
  "Posterior Chamber Phakic IOLS"
  "Clear Cornea Cataract Surgery"
  " Co2 Laser for Blepharoplasty & Resurfacing"
- 1998- American Academy of Ophthalmology: New Orleans, LA.
  "Clinical Decisions in the Management of Complication in Cataract and IOL Surgery"
  Preceptor for ICL – Staar Booth
- 1998-Hawaii Eye Meeting / Slack Incorp: Hawaii
  "Topical Clear Corneal Cataract with Diclofenc Sodium"
- 1998-Women in Ophthalmology: Aspen, CO.
  "Cataract Surgery for the Millenium"
- 1998- Maryland Physicians & Eye Surgeons: Maryland
  " Cataract Surgery for the 90's"
  " ICL Update"
  " Toric IOL'S"
- 1999-American Society of Cataract and Refractive surgery: Seattle, Washington
  "Advanced Techniques for Cataract Surgery using Topical Anestheia and Clear Corneal Incisions"
  "Pre & Post Op Medications for the ICL"
  Course Instructor – 2 hrs. " Advance Techniques for Cataract Surgery, ICL's & Toric Lenses"
- 1999- Greater Baltimore Medical Center Baltimore, MD.
  "ICL Update"
- 1999-Society of Ophthalmology: Puerto Rico
  "Cataract Surgery for the Millenium"
  "ICL Update" " Toric IOL'S for Cataract Surgery"
- 1999-Los Angeles Society of Ophthalmology: Los Angeles, CA.
  "Cataract Surgery for the Millenium"
- 2000- American Society of Cataract and Refractive Surgery : Boston Mass.
  " International Challenges & Techniques in Advanced Cataract Surgery'

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- 2002- American Academy Of Ophthalmology - Florida
  " Clinical Decision & Management of Complication 2002"
  " Prevention & Management of Iris Prolapse During Cataract Surgery"

Presentations: Cosmetic - Techniques using CO2 & Erbium Lasers:

- 1996- International Society of Cosmetic Laser Surgery: Chicago IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- Coherent / Pre- AAO, Chicago, IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1996- International Society of Cosmetic Laser Surgery: Washington, DC.
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1998- The Virginia Society of Ophthalmology, Williamsburg, VA.
  "Skin Resurfacing with the CO2 & Erbium laser"
- 1998- Maryland Optometric Association: Baltimore, MD.
  "Cosmetic Laser Surgery using the CO2 & Erbium Lasers"
- 1998- 7th. International Society of Cosmetic Laser Surgeons: Orlando, FL.
  "Great Marketing – Minimal Expense – Coordinated Skin care"
- 1999-International Society of Cosmetic Laser Surgeons: New Orleans, LA.
  "Erbium Resurfacing for Xanthelasma"
  " CO2 Laser Blepharoplasty"
- 2002 – International Society of Cosmetic Laser Surgeons : New York
  "Lower Lid Blepharoplasty Multi-Modal approved"
  Presentations: Toric & Implantable Contact Lens:
- 1997- Taustin Eye Center: Louisville, KY.
  " Implantable contact lenses"
  " Toric IOL Update"
- 1998- Maryland Society of Eye Physicians & Surgeons: Baltimore, MD.
  "Intraocular Contact Lens"
- 1998- Sixth Annual Ophthalmic Allied Health Symposium: Wilmington, DE.
  "Implantable Contact Lens, My Personal Experience"
  "Update: Phase 1 & 2"
- 1998- Women in Ophthalmology: Colorado
  "Correction of High Myopia & Hyperopia with Intraocular contacts"
- 1998- American Society of Cataract and Refractive Surgery: San Diego, CA.
  Staar Surgical: ICL
  "Implantable Contact Lenses, My Personal Experience"
  "Phase 1 & 2" " ICL Update"
- 1998- Hoover Naquian Conference: Baltimore, Md.
  "Implantable Contact Lenses for Myopia and Hyperopia"
- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"
  "Implantacle Contact Lens For Myopia & Hyperopia"

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- 1999- American Society of Cataract and Refractive Surgery: Seattle Washington
  Round Table Discussion Group: Starr Surgical: ICL
  "Latest Technique and variations of Refractive Surgery and the Benefits of using the Implantable Contact lens"
- 2000- Hawaii Eye Meeting / Slack Incorp. Hawaii
  "Current Trends in Refractive Surgery"
  "The Implantable Contact Lens FDA update, for Personal Experience & Techniques"
- 2002- New England Ophthalmological Society Inc,
  " Implantable Contact Lens , Personal Experiences"
  " FDA Update" " Toric & IOL "

International Presentation:

1994- Starr Surgical: Australia
Five City Lectures: Sidney, Perth, Melbourne, Adelaide, and Brisbane
"Clear Corneal Incisions Using Topical Anesthesia"

1995- Live Cataract Surgery: Toulouse, France
"Topical Anesthesia and Clear Corneal Incisions"

1995- Live Cataract Surgery: Juan De Pain, France
"Topical Anesthesia and Clear Corneal Incisions"

1997- Live Cataract Surgery: Clinique Sourdille, France
"From Phaco to CO2"
"Topical Anesthesia for Cataract Surgery"

1997- Live Cataract Surgery: University of Bologna, Italy
"Live Cataract Surgery and Discussion"

1998- IV Congresso International DE-Cataract: Rio de Janeiro, Brazil
"Toric Update & Foldable Lens"
"Implantable Contact Lens"
"Advanced Cataract Techniques"

1999- European Society of Ophthalmology
" Live Cataract Surgery" International Society of Women Eye Surgeons

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NVISION EYE CENTERS

Richard Meister, MD

Dr. Richard Meister is the Medical Director at NVISION Sacramento. He is a board-certified ophthalmologist who started specializing in refractive surgery as a sub-specialty in 1981, under the tutelage of Ralph Berkeley, MD.

Dr. Meister has performed over 40,000 refractive corneal and cataract procedures and, with the approval of the excimer laser in the United States, he was the first in Sacramento to perform laser refractive surgery on patients in 1995. Dr. Meister has excellent LASIK surgical outcomes with less than a 0.2% enhancement rate. He has also been performing premium intraocular lens surgery with multi-focal lens implants since 1998.

Born and raised in Oklahoma City, Dr. Meister graduated from the University of Oklahoma. He focused his residency training on refractive corneal and cataract surgery under worldrenowned expert, Jack Holiday, MD, at the prestigious Hermann Eye Center at the University of Texas, Houston Medical Eye Center.

Dr. Meister established his practice in 1984 in Sacramento specializing in refractive, corneal and cataract surgery. He was the first to introduce the Russian technique of radial keratotomy to Northern California. He was named the proctor of Sutter Hospital and quickly became the leading expert in the area for other ophthalmologists referring patients for refractive and corneal surgery, including transplants. Dr. Meister trained other ophthalmologists in his area in the use of the operating microscope and extracapsular cataract surgery, and phacoemulsification techniques.

Dr. Meister is frequently invited as a guest lecturer. He received the Visx Star award, after approval of the excimer laser, for being among the top 15 refractive surgeons in the United States. He has served as part of the mentor program for new surgeons as they develop their refractive surgery techniques. Dr. Meister has been the Medical Director of the Eye Surgery Center of Northern California from 2000 until present. He is the owner and was one of the initial planners of the first eye surgery center in the Sacramento area. He has also been an FDA investigator for approval of innovative laser techniques and wavefront technology, and has published several articles.

"It is very gratifying to restore people's vision to achieve their goals for recreational, occupational or functional needs. It is such a compliment to hear from patients on a daily basis how their new vision has improved their quality of life, and how they wish they had done it years before."

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NVISION EYE CENTERS

Stanley Teplick, MD

BIO

Dr. Stanley Teplick is the founder and Medical Director of Teplick Custom Vision, a regional Optometric Referral Center with offices throughout Oregon, specializing in refractive surgery. He was involved in the original FDA studies leading to the approval of the Excimer laser in 1995 and has performed over 45,000 refractive surgery procedures.

PERSONAL

Resides: 1930 Egan Way, Lake Oswego, OR 97034

EDUCATION

High School:	Cheltenham High School Wyncote, PA	1965
College	University of Chicago	1965 - 1967
	American Conservatory of Music	1968
	California State University San Francisco	1970 - 1973
	BA Degree Philosophy and Religion	1973
Medical School:	Hahnemann Medical College of Philadelphia	1973 - 1977
	Doctor of Medicine	1977
	Alpha Omega Alpha	1977

TRAINING

Internship:	Mayo Clinic Internal Medicine	1977 - 1978
Residency;	Mayo Clinic Ophthalmology	1979 - 1981
	Chief Resident in Ophthalmology	1981

PROFESSIONAL ACTIVITIES

Jazz Pianist		1968 - 1970
General Medicine	St. Charles, Minnesota	1978
Ophthalmology	Founder and Medical Director The Eye Foundation of Utah	1982 - 1990
Ophthalmology	Stahl Eye Associates Garden City, New York	1990 - 1992
Ophthalmology	Eye Surgery Center of Louisiana New Orleans, Louisiana	1992 - 1995
Laser Vision Correction	President and Medical Director Center for Sight Teplick Vision	1995 - Present

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NVISION EYE CENTERS

CERTIFICATION

Diplomat, National Board of Medical Examiners	1978-
Diplomat, American Board of Ophthalmology	1983-
Fellow, American Academy of Ophthalmology	1984-
Member, International Society of Refractive Surgery	1990-
Member, American Society of Cataract and Refractive Surgery	1990-

APPOINTMENTS

Clinical Assistant Professor of Ophthalmology	
University Medical Center, Salt Lake City, Utah	1982 – 1990
Chairman, Department of Ophthalmology	
Cottonwood Hospital, Salt Lake City, Utah	1983 – 1985
Member, National Board of Examiners in Optometry	1989 – 1992
Member, National Advisory Council, Better Vision Institute	1989 – 1995
Member, Educational Advisory Board, Vision Expo	1994 – 1995
Chairman, Comanagement Task Force, Vision Council of America	1993 – 1995
Adjunct Associate Clinical Professor	
State University of New York College of Optometry	1993 –
Adjunct Associate Clinical Professor	
University of Houston College Optometry	1994 –
Member, National Medical Advisory Board, Equivison, Inc.	1994 – 1997
Adjunct Professor of Ophthalmology, Pacific University	1995-

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Presentations

Starr Surgical Intraocular Lens Implantation Course	
Sidney, Australia	June, 1993
Glaucoma and Therapeutic Update (Course Director)	
New Orleans, Louisiana	Nov 1993
SUNY Comprehensive Therapeutic Update Course (Preceptor	
New Orleans, Louisiana	Dec 1993
National Comanagement Conference (Course Director)	
Vision Expo East, New York	1994-2001
Optometric Therapeutics Course	
Brisbane and Melbourne, Australia	April 1994
Western Comanagement Conference (Course Director)	
Vision Expo West, Anaheim, California	1994-1999
Cataract and Refractive Surgery Update (Course Director)	
Vision Expo West, Las Vegas, Nevada	1999-2001
Pacific University College of Optometry	
3rd Year Refractive Surgery Course	2000-present
Oregon Optometric Physicians Association	
Invited Speaker	1998-present
Great Western Council of Optometry	
Invited Speaker	2000-2010
Pacific University College of Optometry Hawaii Course	
Invited Speaker	2000-2014
Teplick Vision Annual Optometric CE Seminar	1995-2015
Speaker	

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NVISION
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Thomas Tooma, MD

Dr. Tooma has performed more than 100,000 LASIK procedures and believes that laser vision correction at NVISION is as safe as it can be. In fact, he has performed LASIK surgery on hundreds of doctors, including 250 eye doctors. That's why NVISION and Dr. Tooma are The Eye Doctors' #1 Choice for their eyes and their patients' eyes. Dr. Tooma believes that the combination of experience and technology gives NVISIONS's patients the highest possible likelihood of achieving 20/20 or better vision through LASIK procedures.

A pioneer in the world of LASIK surgery, Dr. Tooma has been a principal investigator in the field of laser vision correction since 1993. He helped several excimer laser manufacturers obtain FDA approvals for their lasers in the United States. He holds the record for many firsts: he was the first doctor in California to perform LASIK surgery and was the first to perform custom Wavefront-guided LASIK. He was also the first in the U.S. to use the FemtoSecond Laser (IntraLase FS30 — bladeless all laser LASIK), which is safer and more precise than a traditional blade.

In 2010, Dr. Tooma purchased TLC's interest in the 8 Southern California locations and formed NVISION Laser Eye Centers. At NVISION, Dr. Tooma provides his patients with a lifetime commitment, giving them the assurance that if they need any enhancement surgeries in the future, they can be performed at any NVISION center, for life and at no cost.

Dr. Tooma received his M.D. from Loma Linda University School of Medicine, where he also completed his internship in internal medicine and residency in ophthalmology. He completed his fellowship in Corneal and Refractive Surgery at the Emory University Department of Ophthalmology in Atlanta, Georgia. He has been board certified in ophthalmology for more than 25 years.

For Dr. Tooma, helping patients achieve their vision goals is his passion. "I feel privileged and blessed to participate in what is a life-changing experience for my patients," he said.

In his spare time, Dr. Tooma has served on medical teaching missions to Romania, Bulgaria, China and Fiji, helping teach local ophthalmology doctors new surgical techniques. In 2008, he and his wife, Marta Tooma, D.D.S., founded the Mission at Natuvu Creek in Fiji. The Mission serves the 250,000 people living on the island, with medical, dental and eye care provided by visiting physicians, including the Toomas.

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NVISION
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Emil Stein, MD

Emil A. Stein, M.D., F.A.C.S. is a board-certified ophthalmologist and a fellow of the American College of Surgeons. He graduated from Rancho High School prior to attending college at the University of Arizona, where he received the outstanding senior award at graduation. His medical training began at the UCLA School of Medicine, where he became interested in ophthalmology at the Jules Stein Eye Institute.

He completed his residency in ophthalmology at the University of Colorado, in Denver. Subsequently, he served as Chief of Ophthalmology at Fort Campbell, Kentucky, home of the 101st Airbourne Division. His tours included Saudi Arabia (Desert Storm) and Somalia. His clinical practice includes most aspects of medical and surgical ophthalmology, including ongoing clinical research. His patients appreciate his individualized approach to educating them on their conditions.

MEDICAL SCHOOL
David Geffen School Of Medicine At UCLA, University Of California, Los Angeles
Graduated in 1985

INTERNSHIP HOSPITAL
St Joseph Hospital
Complete in 1986

RESIDENCY HOSPITAL
University Of Colorado
Complete in 1989

CERTIFICATIONS & LICENSURE
- American Board of Ophthalmology
  Certified in Ophthalmology
- AZ State Medical License
  Active through 2017
- NV State Medical License
  Active through 2017

AWARDS, HONORS & RECOGNITION
Fellow (FAAO), American Academy of Ophthalmology 2012
Fellow (FACS), American College of Surgeons 2013
Top MD, Consumers Checkbook 2014

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PUBLICATIONS & PRESENTATIONS

Stein, E. A., Cho, K., Higgs, P. I., Zusman, D. R. "Two Ser/Thr protein kinases essential for efficient aggregation and spore morphogenesis in Myxococcus xanthus." Mol Microbiol

Paniagua, R. T., Chang, A., Mariano, M. M., Stein, E. A., Wang, Q., Lindstrom, T. M., Sharpe, O., Roscow, C., Ho, P. P., Lee, D. M., Robinson, W. H. "c-Fms-mediated differentiation and priming of monocyte lineage cells play a central role in autoimmune arthritis." Arthritis Res Ther

Lin, J. T., Stein, E. A., Wong, M. T., Kalpathy, K. J., Su, L. L., Utz, P. J., Robinson, W. H., Fathman, C. G. "Differential mTOR and ERK pathway utilization by effector CD4 T cells suggests combinatorial drug therapy of arthritis." Clin Immunol

Söderström, K., Stein, E., Colmenero, P., Purath, U., Müller-Ladner, U., de Matos, C. T., Tarner, I. H., Robinson, W. H., Engleman, E. G. "Natural killer cells trigger osteoclastogenesis and bone destruction in arthritis." Proc Natl Acad Sci U S A

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NVISION EYE CENTERS

Jon-Marc Weston, MD

SPECIALTY

Anterior Segment (Cataract, Glaucoma, Refractive and Laser Surgery)

CURRENT POSITIONS

Medical Director
Vision Surgery & Laser Center, LLC
2435 N.W. Kline Street
Roseburg, OR 97471

Medical Director
Weston Eye Center, PC
2435 NW Kline Street
Roseburg, OR 97471

Principal Investigator
Roseburg Research Associates, LLC
2435 NW Kline Street
Roseburg, OR 97471

EDUCATION

High school: Long Beach Memorial High School, Long Beach, New York
Regents Honors in Science and Language, 1969.

College: State University of New York at Binghamton
(Regents Scholar, Harpur College-Bachelor of Arts Degree, 1973.)

Medical School: Hahnemann Medical College, M.D., 1977-1978, Philadelphia, PA
Flexible PGY-1 Wilmington Medical Center, Wilmington, DE

Ophthalmology Residency: Hahnemann University, 1978-1981

BOARDS AND CERTIFICATION:

National Boards completed: 1978, certificate number 193-183.
American Board of Ophthalmology April 21, 1982.

Certified in cataract surgery : American Board of Eye Surgery April 30, 2007.

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STATE LICENSURES	ORIGINAL DATE OF ISSUE
Oregon (17072)	04-12-1991
Washington (36609)	08-20-1998

HOSPITAL APPOINTMENTS

1981-1989	Hahnemann University & Hospital Ophthalmology Department of Ophthalmology Board & Vine Street Philadelphia, PA 19105	Attending in Asst. Clinical Professor
1981-1989	Rolling Hill Hospital & Diagnostic Center Ophthalmology Department of Ophthalmology Elkns Park, PA 19117	Attending in
1971-1987	Frankford Hospital Frankford & Wakling St. Philadelphia, PA 19125	Attending in Ophthalmology
1985-1986	Cooper Hospital University Medical Center Ophthalmology One Cooper Plaza Camden, NJ 08103	Attending in
1986-1989	St. Mary Hospital Ophthalmology Frankford & Palmer St. Department of Surgery Philadelphia, PA 19125	Attending in
1986-1989	The Osteopathic Medical Center Ophthalmology City Line Avenue Philadelphia, PA 19131	Attending in

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1988-1989	Suburban General Hospital Ophthalmology Norristown, PA 19401	Attending in
1988-1991	Marion Memorial Hospital Ophthalmology 917 West Main Street Marion, IL 62959	Attending in
1988-1991	American Eye Institute Surgery Center of S. Illinois Marion, IL 62959	Attending Surgeon
1991-2000	Douglas Community Hospital 738 W. Harvard Blvd. Roseburg, OR 97470	Active Medical Staff
1991-PRESENT	Mercy Medical Center 2700 Stewart Parkway Roseburg, OR 97470	Active Medical Staff
1991-1999	Coquille Valley Hospital 940 E. 5th Coquille, OR 97423	Consultant Staff
1992-PRESENT	Roseburg VA Hospital NW Garden Valley Blvd. Roseburg, OR 97470	Consultant Staff
1992-1999	Blue Mountain Hospital John Day, OR 97470	Consultant Staff
1991-2000	Roseburg SurgiCenter 631 W. Stanton Roseburg, OR 97470	Attending Surgeon
1993-1998	2003 re-opened as Oregon Surgery Center 2700 Stewart Parkway Roseburg, OR 97470	
2001-PRESENT	Ocean Beach Hospital	Consultant Staff

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Ilwaco, WA

2011-PRESENT
Vision Surgery & Laser Center — Medical Director & Chief Surgeon
Roseburg, OR 97470

Western University of Health Sciences/College of Osteopathic Medicine of the Pacific — Clinical Assistant professor of Surgery

PREVIOUS PRACTICE EXPERIENCE

1981-1986
Hahnemann Eye Associates, Hahnemann University Hospital
Residency Training Coordinator, member private practice group.

1981-1988
Assistant Clinical Professor
Department of Ophthalmology
Hahnemann University
230 N. Broad St.
Philadelphia, PA 19102

PUBLICATIONS, PAPERS AND INSTRUCTION COURSES

APRIL 1979
"Ophthalmic Fixed-Ratio Drug Combinations", David B. Soll, M.D. and Jon-Marc Weston, M.D. American Family Physician, April 1979.

1980
"A New Computerized Ultrasound Technique for Evaluation of Ocular Blood Flow", Zarko M. Vucicevic, M.D., Robert Webb, Ph. D., Jon-Marc Weston, M.D.; Presented at the 1980 American Academy of Ophthalmology Scientific Session, Chicago, IL.

1980-1981
"Visual Toxicity of Digoxin", Jonathan S. Moulton, M.D., Jon-Marc Weston, M.D., David A. Major, M.D. Submitted to Annuals of Medicine.

1982
Evaluation of Ocular Blood Flow, Z. Vucicevic and J. Weston, 1980. Presented Innovation in Ophthalmology conference. Boca Raton, Florida, 1981.

1983
"Anatomic Variations in the Anophthalmic Orbit", Jon-Marc Weston, M.D., David B. Soll, M.D. Presented at the Annuals Ptosis Society Meeting, San Francisco, CA November, 1982.

1983
"Experience with Argon Laser Trabeculoplasty", Jon-Marc Weston, M.D., Zarko M. Vucicevic, M.D. Presented at the International Glaucoma Congress, Bal Harbor, FL March, 1983.

1984
"Experimental Evaluation of the Anophthalmic Socket", Jon-Marc Weston, M.D., and David B. Soll, M.D. Presented at the Annual American Society of Ophthalmic Plastic and Reconstructive Surgery Conference, Chicago, IL. November, 1983.

1984
Editorial: Issues in Glaucoma "Early Detection of Open Angle Glaucoma", Clinical Decisions in Ophthalmology, Vol. 7, No. 2, page 3, 1983.

1984
"Introduction to Clinical Medicine-Ophthalmology", Hahnemann University Television Network. 1984.

1988-1991
"Athletic Eye Injuries: Prevention, Diagnosis and Management" World Video Corp. January, 1984.

1992
"Introduction to the Ophthalmic Examination", Hahnemann Television Network. January, 1984.

1993
Instructor-American Academy of Ophthalmology "Regional Update-Practical Laser Course". Philadelphia, PA. June, 1984.

1993
Hahnemann University Visiting Professor Program. Good Samaratin Hospital, Pottsville, PA. September, 1984. Doylestown Hospital, Doylestown, PA. October, 1984.

1994

1995

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1995 American Eye Institute Quarterly update course series, various anterior segment
topics 1988-1991.

1995 Glaucoma Therapeutics Course given for Pacific University at Ashland, OR,
July, 1992.

1996 Hawaii Optometric Association, Medical Management of Glaucoma, Honolulu, Hawaii. January, 1993.

1997 Medical Management of Glaucoma; Victoria University, Victoria, B.C., July 1993.

1999 Hawaii Optometric Association, Medical and Surgical Management of Glaucoma Honolulu, Hawaii. February 1994.

2002 Co-Director, Management of the Photorefractive Laser Patient, December 1, 1995, Pacific University, Forest Grove, OR.

2002 Refractive Laser Procedures, LASIK and Other Refractive Surgery, PLEC, Vancouver, B.C., October 14, 1995.

2003 Photorefractive Keratectomy.

2004 Co-Management of the Excimer Laser Patient, Co-Course Director, Pacific University, Forest Grove, OR. November 1996.

Update and Intensive Proctoring in Modern Phacoemulsification Cataract Extraction. Mednet Facilities; Shanghai, Wuxi and Kumming, China. April 1997

2005

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2005 Glaucoma – Update on Detection and Treatment, Hawaii Optometric Association, Honolulu, Hawaii, April, 1999.

2006 Director, First Endoscopic Cyclophotocoagulation Certification Course, Minneapolis, MN, August 2002.

2011 Endoscopic Ciliary Ablation for treatment of concurrent Cataract and Glaucoma
2003 Annual Meeting American Society Cataract & Refractive Surgery, San Francisco, April 2003.

Medtronic Solan ECP Course - Endoscopic Photocoagulation Didactic Training and Wet-lab Worskhop, Minneapolis, MN, August 24, 2002.

"Form and Function in the Diagnosis and Management of Glaucoma"; presented at
the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Intacs and Keratoconus"; presented at the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Endoscopic Ciliary Process Ablation in the Management of Glaucoma"; presented at the Annual OOPA meeting, June 4, 2004. Seven Feathers Convention Center, Canyonville, Or.

"Knowing the Unknowable" World Religion Day, Roseburg Or.

"Final Results of the FDA Visco-Shield Clinical Trial"; presented at the ASCRS Annual Meeting. Washington, DC.

"Panelist, Session 2R: Cataract Complications and Results"; ASCRS Annual Meeting. Washington, DC.

PHP (Preferential Hyperacuity Perimetry) for Macular Degeneration Detection – Multiple locations

Macular Edema after Cataract Surgery in Diabetic vs. Non-Diabetic eyes, ASCRS, San Francisco, CA.

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Multicenter Results of Endoscopic Ciliary Ablation for various types of Glaucoma, ASCRS, San Diego, CA.

Point/Counterpoint: Are Brand-Name Agents Required for Cataract Surgery?, Advanced Ocular Care, March 2011.

RESEARCH:

1971	Clinical Application of the serial CPK Serum Enzyme Analysis. P. Lavine, D. Shirley, J. Weston, Hahnemann Hospital. Unpublished.
1972	Biologic Preparation for Experimental Heart Lung Bypass Studies, J. Weston, R. Trubore. Unpublished research, Hahnemann Cardiovascular Institute.
1973	
APRIL 1979	The Histamine Wheel and Flare Response as a Biologic Assay for Antihistamine Effects of RM9981. J. Weston, I. Itkin. Unpublished research, Hahnemann Medical College.
1980-1981	"Ophthalmic Fixed-Ratio Drug Combinations", David B. Soll, M.D. and Jon-Marc Weston, M.D. American Family Physician.
1982-1984	
1983-1986	Evaluation of Ocular Blood Flow, Z. Vucicevic and J. Weston. Presented Innovation in Ophthalmology conference. Boca Raton, Florida.
DECEMBER 1995	Experimental Evaluation of the Anophthalmic Socket, J. Weston and D. Soll Presented at ASOPRS Annual Conference, 1984.
1995-1996	Laser Technology Applications in Glaucoma Therapy, J. Weston and Z. Vucicevic.
1996	

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1997	Post Market Evaluation of MK 507-MSD, (Merck).
2000	Indications and Incidence of Yag Laser Posterior Capsulotomy.
2003-2004	Phase IV evaluation Alphagan, (AMO).
2005-2007	
JUNE 2006	"Steroid vrs. No Steroid in the LVCI Lasik study group." Presented at the International Society Refractive Surgeons. San Francisco.
OCTOBER 2006 – MARCH 2007	Phakic Implantable Contact Lenses for high grade myopia and hyperopia evaluation and implant technique. Tijuana, Mexico.
MARCH 2006- SEPTEMBER 2007	Oasis Viscoshield™ for cataract surgery, Phase III FDA trial, Primary Investigator.
AUGUST 2006- DECEMBER 2009	
OCTOBER 2007 – APRIL 2008	Otsuka Protocol 37E-03-202, 53 week Phase III FDA trial, Primary Investigator.
SEPTEMBER 2006- MAY 2007	
2006 – DECEMBER 2008	PHP for early AMD Detection and New Technology Phakic and Pseudophakic Implants, presented at annual OPA convention, Welches Or.
JULY 2008 – NOVEMBER 2008	
OCTOBER 2008 – AUGUST 2009	Allergan MA-LUM01, FDA trial, Primary Investigator.
JANUARY 2009 – JULY 2009	Bausch & Lomb 0.6% ISV-403, 5-Day Phase III FDA trial, Primary Investigator.
MARCH 2009 – OCTOBER 2009	Allergan Prostamide/Prostaglandin for glaucoma, 3 year naturalistic
MAY 2009- AUGUST	

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2010	observational study, Primary Investigator.
AUGUST 2009 – OCTOBER 2010	Allergan Study # 191578-006: Primary Investigator.
DECEMBER 2009-JANUARY 2010	Pfizer XXX for glaucoma, 12-week Phase III FDA trial, Primary Investigator.
AUGUST 2010 – AUGUST 2011	Advanced Medical Optics, Inc. – Protocol BBLK-102-PRSM, FDA Device trial, Primary Investigator
JANUARY 2011 – JULY 2011	Ista Pharmaceuticals – Protocol CL-S&E-0415081-P
MARCH 2011 – NOVEMBER 2011	Alcon – Protocol C-08-047
FEBRUARY 2012-JUNE 2013	Ista Pharmaceuticals – Protocol CL-PKT-0415083-P
APRIL 1, 2013 – APRIL 2014	QLT Inc. – Protocol PPL GLAU 04
AUGUST 2014 – PRESENT	Alcon – Protocol C-07-53
AUGUST 2014 - PRESENT	Bausch & Lomb – Protocol 603
	Bausch & Lomb – Protocol 577
	ISTA Pharmaceuticals, Inc. – Protocol S00007
	Inspire Pharmaceuticals, Inc. – Protocol 044-103
	ISTA Pharmaceuticals, Inc – Protocol S00124
	Insite Vision, Inc – Protocol C-10-502-004
	Hi-Tech Pharmacal Co., - Protocol 13-150-0001 Bioequivalance
	Bausch & Lomb – Protocol 843
	Xigen, S.A. Protocol SDD-1002-064

EXECUTIVE POSITIONS & CONSULTANTSHIPS

NVISION EYE CENTERS

1992-1995	Eye Health Services of Oregon, Vice President, Board of Directors.
1992-1993	Independent Practice Association of Douglas County Steering Committee.
1994-1997	Pacific Eye Centers, Board of Directors and Executive Committee.
1997-1998	Pacific Eye Centers, Chairman.
1996-1998	NWMG, Board of Directors and Executive Committee.
1996	NWMG Chairman
1998	NWMG Medical Director.
1996-1999	Cobb Street Learning Center, Roseburg OR, Board of Directors.
1996-1997	Northwest Surgicenters, Executive Committee, Chairmen of the board.
1998-2000	Northwest Surgicenters, Board of Directors.
1996-1998	Oregon Laser Eye Center: Board of Directors and Medical Director.
1998-1999	Chairman, Credentials Committee, Douglas Community Medical Center.
1999-2000	Douglas Community Medical Center, Board of Trustees.
1998	Douglas County Medical Society, Vice President.
1999	Douglas County Medical Society, President.
2000	
APRIL 2000	Chairman, Joint Mercy / Douglas Division of Surgery.
1999-2001	Douglas County Delegate to Oregon Medical Society annual meeting.
APRIL 27,2001-APRIL 27, 2006	Roseburg Surgicenter: Board of Directors.
2005-2006	Pacific University College of Optometry: Adjunct Assistant Clinical Professor, Forest Grove, Oregon.
2006-2009	President, Roseburg Lions Club.
2005-2009	Board of Directors, Oregon Lions Sight and Hearing Foundation and Member of Sight and hearing Committee
2006-2009	

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Board of Trustees, Oregon Lions Eye Bank.

Board of Directors, Outpatient Ophthalmic Surgery Society

PROFESSIONAL SOCIETIES:

FELLOW	American College of Surgeons
MEMBER	Oregon Medical Association Douglas County Medical Assoc. American Society of Cataract and Refractive Surgeons American Academy of Ophthalmology

COMMUNITY ACTIVITIES

2005-2008	UACT Betty Long Theatre Board of Directors
2005-2006	Roseburg Lions Club – President
1996-1999	Hospital Facility Authority of Douglas County
1993-1996	Assistant Instructor, Roseburg YMCA Judo Club
1993-PRESENT	Director, Douglas County Mission Cataract

HONORS:

1999	Helen Keller Benefactors Award
2001	Melvin Jones Fellowship of Lions International
2003	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2004	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2005	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2006	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2007	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County
2008	News Review Reader's Choice Awards #1 Eye Doctor in Douglas County

FAMILY:

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WIFE	Susan Walton-Weston BFA in Fine Arts, Moore College of Art, Philadelphia, PA Interests: Painting, Tapestry, Weaving, Horse Riding and Jumping
CHILDREN	Whitney, Christine, Alexandra

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STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

CALIFORNIA STATE BOARD OF OPTOMETRY

2010 MAR -4 PM 4:20

Request for Approval of Continuing Education Course(s)

Jeong-Ah Kim
6150 Buckingham Pkwy #205
Culver City, CA 90230

Cashiering and Board Use Only			
Receipt #	Payor ID #	Beneficiary ID #	Amount
1-619	3815685	3815685	50

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee (per course)
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

(Jeong-Ah Kim)
Practice and Education Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Third World Ocular Disease	3-13-16 to 3-15-16	HOWARD COHEN, MD	2			

COMMITTEE COMMENTS:

6150 Buckingham Parkway #205

Culver City, CA 90230

February 29, 2016

State Board of Optometry

2450 Del Pasao Road

Suite 105

Sacramento, CA 95834

To whom it may concern:

I submitted 8 hours of CE approval for the dates of 3/13/16 to 3/15/16. It was originally supposed to be for 10 hours of CE, but we had a last minute cancellation of 2 hours because of the presenter's injury. Another presenter volunteered to replace the cancelled presenter so I am submitting the outline, processing fee, and CE request form now. I apologize for such short notice in receiving the approval, but since it was due to an unexpected injury, would it be possible to expedite the approval process for this course? It would very much be kindly appreciated if that is possible.

Please contact me at jenniferkim100@hotmail.com or 323-574-8957 if you have any questions.

Thank you so much for your attention.

Sincerely,

Jeong-Ah Jennifer Kim, OD

CA Lic 11674TLG

CURRICULUM VITAE

NAME: Howard B. Cohen
MARITAL STATUS: Married
DOB: 7/16/39
CHILDREN: 5

HIGH SCHOOL:	Stuyvesant High School, New York City, N.Y. Diploma - Academic	1954-1961
COLLEGE:	New York University, Heights, N.Y. Degree: B.A.	1957-1961
MEDICAL SCHOOL:	New York Medical College Degree: M.D.	1961-1965
INTERSHIP:	Jersey Shore Medical Center Type: Rotating	1965-1966
ASSIGNMENTS:	General Medical Officer, 7th Special Forces Group, Fort Bragg, North Carolina	1966-1967
	General Medical and Surgical Officer, 5th Special Forces Group, Vietnam	1967-1968
	Chief, EENT, Fort Carson, Colorado	Mar 1972 - Sep 1974
	Staff Ophthalmologist, Fitzsimons Army Medical Center, Denver, Colorado	Sep 1974 - Jul 1975
	Asst Chief, Ophthalmology Service, Letterman Army Medical Center, Presidio of San Francisco, California	Feb 1977 - Feb 1983
	Director, Vitreo-Retinal Service	Feb 1977 - Present
	Chief, Ophthalmology Service, Letterman Army Medical Center, Presidio of San Francisco, California	Feb 1983 - [redacted] 1987
RESIDENCY:	Ophthalmology - Fitzsimons Army Medical Center, Denver, Colorado	Mar 1969 - Mar 1972
FELLOWSHIPS:	Vitreo-Retinal Surgery - Dr. Charles Schepen Retina Associates, Fellow Retina Service, Massachusetts Eye and Ear Infirmary and Harvard Medical School	Aug 1975 - Feb 1977

Third World Ocular Disease
Coming to a clinic near your

Howard B Cohen MD

Disclosure

The faculty and planners for this activity as well as the CME staff, do not have any relevant financial relationships with commercial interests or affiliations to disclose.

First View

New York Harbor

Ellis Isand

Ellis Island

Ellis Island

1857 - 1892 Castle Island Immigration Depot

1892 - 1954 Ellis Island

450,000 first year

1,500,00 first 5 years

Ellis Island

Peak 1907 - 1,004,756

Daily high - 11,747

10,000,000 1900 - 14

2% deported - 80% with Trachoma

3000 died in Ellis Island hospital

Ellis Island

1891 law mandated medical inspections

1907 exams became stricter

2 - 5000 checked daily

May 1907 16,209 examined

The 6 second exam

Ellis Island

2 doctors , 2 rows

Questionable cases marked with chalk

15 - 25% checked mark with letter indicating type of problem. E = Eye

Stethoscopes not used until after 1910 and only on those with chalk marks

6 Second Exam

Ellis Island

First and second class passengers were examined on the ship.

Examination of these passengers were often cursory and many people booked second class to avoid the risky Ellis Island exam

Angel Island

Angel Island

Ellis Island of the west

1910 - 1940

Medical exams were more extensive

Tested for diseases and parasites

Deported immediately if they failed the tests or they could pay for their own hospitalization

Angel Island

Modes of Entrance

Tourists returning to the United States

165 million foreign tourists and visitors in 2012

Border movement

Refugees

Legal immigration

Illegal immigration

Present Day

Today we depend on foreign physicians to screen legal immigrants and refugees.

Illegal immigrants are never checked

CDC " 300 million legal crossings take place from Mexico each year"

CDC - 11 million live along the border, 30% at or below the poverty level

Present Day

CDC " Mobility of the U.S.-Mexico border population complicates prevention and investigation of infectious disease."

CDC "Studies have identified the importance of cross-border movement in the transmission of various diseases, including HIV, measles, pertussis, rubella, rabies, hepatitis A, influenza, tuberculosis, shigellosis, syphilis, *Mycobacterium bovis* infection, brucellosis, and foodborne diseases, such as infections associated with raw cheese and produce."

Modes of Entrance

Returning tourists and visitors are not checked for communicable disease.

Refugees and legal immigrants are examined in their country of origin.

Classified A - communicable disease of public health significance.

Classified B - health related problems.

Class A

Class A (From past medical history and physical exam worksheets: DS-2053, DS-2054)

Class A arrivals are uncommon. When a Class A condition is identified during the pre-departure exam, the individual is restricted from travel until the condition is treated or in remission. Once treatment is completed, they are reclassified as a Class B. In unusual circumstances, someone with a Class A condition may be granted a waiver to travel as long as testing indicates they are not contagious and will not expose others while traveling. The expectation is that Class A arrivals seek medical care within 1 week of arrival in the U.S.

· _Infectious tuberculosis

· _Syphilis, untreated

· _Chancroid, untreated

· _Gonorrhea, untreated

· _Granuloma inguinale, untreated

· _Lymphogranuloma venereum, untreated

· _Hansen's disease, untreated multibacillary

· _Addiction of abuse of specific substance

· _Any physical or mental disorder (including other substance-related disorder) with harmful behavior or history of such behavior likely to recur

HIV was removed from this list in January 2010

Class B

Class B (From past medical history and physical exam worksheets: DS-2053, DS-2054)

Class B conditions are not inadmissible, but represent a significant departure from normal health

· _Syphilis (with residual defect) treated within the last year

· _Current pregnancy

· _Any physical or mental disorder (excluding addiction or abuse of specific substance but including other substance-related disorder) without harmful behavior or history of such behavior unlikely to recur

· _Hansen's Disease, treated multibacillary

· _Hansen's Disease, paucibacillary

· _Sustained, full remission of addiction or abuse of specific substances

· _Non-infectious pulmonary tuberculosis

· _Non-infectious extrapulmonary tuberculosis

· _Latent tuberculosis infection evaluation

· _Tuberculosis Contact Evaluation

Modes of Entrance

In 2009 27% of 78,900 refugees had Class A or Class B disease of which 93% were TB.

These are referred to local health departments for follow up. Only 75% showed.

3/4 of legal immigrants were screened in 2012

When you hear hoofbeats

Sometimes it's Zebras

Tuberculosis

Hippocrates described the clinical characteristics

Most common cause of illness of his time

Eye - 1700 iris nodules

1830 – 40 Choroidal tubercles

Incidence of Tuberculosis

2013 estimated 3-5 /100,000

Foreign born 15 – 27 /100,000

Homeless 10x / 100,000

Asians 26X

Blacks 6X whites

8.6 million TB cases reported in 2013

Estimated that 3 million cases were missed

TB Case Rates by Race/Ethnicity,*
United States, 2003–2013**

*All races are non-Hispanic.

**Updated as of June 11, 2014.

TB Case Rates by Age Group and Race/Ethnicity,*
United States, 2013

*All races are non-Hispanic. Persons reporting two or more races accounted for less than 1% of all cases.

Trends in TB Cases in Foreign-born Persons,
United States, 1993 – 2013*

*Updated as of June 11, 2014.

Incidence of Tuberculosis

NEJM June 2009 Liu et al

57.8% of all new cases of TB were in foreign born

9.8 X those born in US

Percentage of TB Cases Among
Foreign-born Persons, United States*

*Updated as of June 11, 2014.

Incidence of Tuberculosis

1/3 population live in NY,CA and FL

1/2 TB cases were in these states in 2013

2% increase

TB Case Rates,* United States, 2013

*Cases per 100,000.

Incidence of tuberculosis

Mexico - 20+/100,000

Guatemala - 62/100,000

Pakistan - 231/100,000

OTM – Other Then Mexican

248,457 apprehended

150,000 – 170,000 country unknown entered illegally

Incidence of Tuberculosis

Syrian refugee problem presents serious health problems.

Incidence of TB in Syria was 23/100,000

In 2014 there was 2.9 million Syrian refugees.

Refugees from Africa and other nations with high incidence of communicable disease move freely over borders.

Incidence of Tuberculous

World Health Organization criteria.

Population data indicate TB is an important health problem.

Acute phase of the emergency is over.

Population is stable for at least 6 months

Basic needs are met.

Incidence of Tuberculousis

Essential health care services and drugs for common illnesses are available, and primary care health services are accessible so that patients with suspected TB can be identified, investigated, and referred, if necessary.

None of these criteria are now being met outside of Jordan.

Incidence of TB

Those who arrived after their 5th birthday the incidence rate is 2 - 6 times greater then those arriving before the 5th birthday

45% of TB cases immigrants are younger then 35

Incidence of Latent Tuberculosi

NIH 2013 2 billion cases of latent TB

WHO 1/3 of worlds population has latent TB

5 - 10% develop TB

1.4% develop ocular disease (estimated)

1 - 2% of patients with uveitis

10 – 15 million in U.S. with latent TB

Tuberculosis

Etiology - Mycobacterium tuberculosis

Mode of infection

- Airborne
- Droplet
- Person to person

Mode of Infection

Most who breathe TB bacteria become infected

The immune system fights the bacteria

Bacteria becomes inactive but remains alive

Can become active when the immune system becomes compromised or weakened

Symptoms

Bad cough lasting longer than 2 weeks

Pain in chest

Coughing up blood or sputum

Weakness and / or fatigue

Loss of weight and appetite

Chills, fever, night sweats

Ocular TB

Posterior Uveitis

Most common presentation

Predominately choroidal

Choroidal tubercles

Serpiginous like choroiditis

Retinal vasculitis

Ocular TB

Incidence uncertain - estimate 1.4%

Anterior Uveitis - Cells , Flare, Mutton fat KP

Iris nodules both Koeppe and Busacca

Posterior Synechine

Often associated with vitritis and cataract

Mutton Fat KP

Busacca Nodules

Koeppe Nodules

Posterior Synechiae

Ocular TB

Intermediate Uveitis 47%

Snow-banking , snowballs 86%

Vitreous cells

CME, cataract, ERM, IOP

Vitreous hemorrhage

Snow Banking

Cystoid Macular Edema

CME OCT

Ocular TB - Choroidal Tubercles

Most recognized lesions

Located deep in choroid

Unilateral > Bilateral

Yellow, elevated, ill defined borders

Ocular TB - Choroidal Tubercles

Single or Multiple

Rupture of Bruchs membrane

Posterior pole

Vitreous cells, perivasculitis

Choroidal Tubercles

Choroidal Tubercles

Choroidal Tubercles

Ocular TB - Choroidal Tubercles

1/3 may have disseminated TB

Ocular TB - Serpiginous Choroiditis

Multi focal at start

Join to form Serpiginous lesion

Predominately affects young - middle age males

Bilateral , Vitreous cells

Fovea often spared

Serpiginous Choroidits

Serpiginous Choroiditis

Serpiginous Choroiditis

Ocular TB - Retinal Vaculitis

Veins > Arteries

Perivascular Cuffing

Vasculitis can result in non perfusion

Pre retinal and Vitreous Hemorrhage

Retinal Vasculitis

Retinal Vasculitis

Retinal Vasculitis

Retinal Vasculitis

Ocular TB

Less common complications

Endophthalmitis

Panophthalmitis

Neuroretinitis

TB Treatment

4 drug therapy

Isoniazid 6 months

Rifampin 6 months

Pyrazinamide 2 months

Ethambutol or Streptomycin 6 months

Daily unless in DOT then 2 - 3 X weekly

Primary Isoniazid Resistance in
U.S.-born vs. Foreign-born Persons,
United States, 1993 – 2013*

*Updated as of June 11, 2014.

Note: Based on initial isolates from persons with no prior history of TB.

TB Drug Resistance

Multi Drug Resistance - MDR

Resistance to 2 drugs - Isoniazid and Rifampin

WHO - 5%, 480,00 cases in 2013

WHO - 3.5% of new cases, 20% of treated cases

Extensive Drug Resistance - XDR

9% of those with MDR

83% in foreign born

48% treated successfully

latent TB Treatment

Younger then 35

HIV

TB scarring on X Ray in untreated patient

Healthcare workers

TB in Immigrants

Ann. Am Thorac Soc. May 2014

Unchanged TB rates among newly arrived persons from Mexico

Large increases in non recently arrived Mexico born population

TB in Immigrants

If current trends continue TB mortality among Mexican

born persons will be increasingly driven by those living in

the US for more than 5 years

TB in Immigrants

Emerging Infectious Diseases Vol 8 # 7 2002

Increased risk of TB several years after immigration in

Somali population. Risk does not disappear after 2 - 3

years.

TB in Immigrants

JAMA 1997

Immigrants must be checked for longer intervals.

BCG

Bacille Calmette – Guerin

Vaccine has existed for 80 years

Over 80% of neonates and infants immunized

Prevents meningitis and disseminated TB

Does not prevent primary infection or reactivation of latent TB

BCG

Problems in identifying individuals with Infectious or Latent TB

Many individuals have had BCG

People who have had BCG have a high rate of false positive TST

IGRA (Interferon - Gamma Release Assay) can identify TB in BCG patients

BCG

IGRA cannot distinguish between infectious TB or Latent TB

The cost to test all possible individuals is prohibitive

Cost of one of the two approved tests is $149

If only 10% of immigrants are tested the cost would be over $150,000,000.

Carlos Chaga

Chagas Disease

First described by Carlos Chaga in 1909

Despite a large outbreak in 1920 it was not considered a problem until 1960

Darwin was thought to have contracted the disease on his voyage and died from it years later

American Trypanosomiasis - Trypanosoma Cruzi

Chagas Disease

8 - 11 million infected in 21 countries

Mortality estimated at 10,000 - 50,000

Am Fam Physician May 2014 listed Chagas disease among neglected diseases. Primarily affects Latin American immigrants

Chagas Disease - CDC

300,000 migrants infected in US

Almost all acquired disease outside US

In US it is a rare vector borne disease

Most unaware of infection

Chagas Disease Transmission

Chagas Disease Transmission

Chagas Transmission

Triatomine - Kissing Bug

Congenital

Transfusions

Organ donor

Contaminated food or drink

Chagas Disease Triatomine Bug

Trypanosoma Cruzi

Chagas Disease Life Cycle

Chagas Blood Transfusions

Increasing seroprevalence among blood donors in LA county

2006 - 2009 screening found incidence of 1/2365

Screening tests available but NOT mandatory

Red Cross does report using screening 65%

CDC claims 1000 infected donors identified

1 - 20% chance of acquiring disease after contaminated blood transfusion

Chagas

10 - 40%, Average 30%, develop a lifetime risk of severe cardiac and intestinal problems

Chagas Disease Acute Symptoms

None

lid swelling at site of injection

Romana sign

Rash

Swollen glands, fatigue, aches

Chagas Disease Romana Sign

Chagas Disease Romana Sign

Chagas Disease late Symptoms

Cardiac enlargement

Rhythm problems

Mega colon

Dilated esophagus

CHF

Chagas Treatment

In the US medication is only available through the CDC as the drug is not approved by the FDA

2000 + cases reported only 422 doses of medication given by CDC between 2007 - 2013

Benznidanzole and Nifurtimox are both not approved by the FDA as side effects are very common

Trachoma

Chlamyda Trachomatis

Leading cause of blindness worldwide

80 million cases

7 million with trichiasis

1 million with corneal scarring

Trachoma Estimated Cases

Guatemala 250,000

Mexico 150,000 - 288,000

Brazil 58 million

Trachoma in Mexico

Chiapas 30% of children 6 - 12

Chiapas 50% those over 50

Oaxaca 42%

Zacateras 22%

Chlamyda Trachomatis

Trachoma Signs and Symptoms

5+ follicles upper eyelid

Intense inflammation, thickening

Swelling of upper eyelid

Irritation of eyelids

Mucous and/or Pus

Trachoma Follicles

Intense Inflammation

Mucous and Pus

Trachoma

Photophobia

Blurred Vision

Trichiasis

Eyelid scars

Corneal clouding

Eye pain

Trichiasis

Eyelid Scarring

Arlts Line

Corneal Scarring

Trachoma WHO - SAFE

S Surgical care

A Antibiotics

F Facial Cleansing

E Environment

Trachoma Treatment

Zithromax

Topical Antibiotics

Surgery

If more then 10% of children ages 1 - 9 infected treat entire community

Cysticercosis

Most common parasitic disease

worldwide distribution

50 million infected

Endemic in Mexico, Central America and South America, Asia, Africa

Cysticercosis World Distribution

Cysticercosis US Distribution

Fatal Cases of Cysticercosis

Cysticercosis

Neurocysticercosis most prevalent brain infection worldwide

1000 new cases yearly

10% of seizure victims in LA county ER

Neurocysticercosis

Cysticercosis

Fecal oral transmission

Auto infection

Fecal oral contamination occurs when food handlers do not wash hands

Fruit or vegetables fertilized with human waste

Fruit or vegetables picked with contaminated hands

Cysticercosis

Ingestion of encysted pork does not cause Cysticercosis it causes an tapeworm infection or carrier state

Ingestion of T Solium eggs causes symptoms.

Even non pork eating individuals and vegans can develop cysticercosis

Taenia Solium

Cysticercosis Life Cycle

Cysticercosis Clinical Features

Depends of location and number of larval cysts

Cysts can be in brain, spine, eye, skeletal muscle, subcutaneous tissues

Brain 60 - 90 % of cysts

Eye 1 - 3 %

Can be solitary or number in the hundreds

Multiple Cysticercosis Cysts of Brain

Cysticercosis Ocular Findings

Subconjuctival

Eyelid

Optic Nerve

Orbit

Lacrimal Gland

EOM

Vitreous , Subretinal, Anterior Chamber

Location of Cysticercosis Cysts

Subconjuctival Cysticercosis

Subconjuctival Cysticercosis

Optic Nerve Cysticercosis

Orbital Cysticercosis Cyst

Lacrimal Sac Cysticercosis Cyst

EOM Cysts of Cysticercosis

Medial Rectus Cysticercosis Cyst

Anterior Chamber Cysticercosis Cyst

Cysticercoisi Cyst Anterior Vitreous

Subretinal Cyst of Cysticercosis

Intravitreal Cysticercosis Cyst

Intra Vitreal Cysticercosis Cyst

Cyst of Cysticercosis in Vitreous

Cysticercosis Ocular Findings

Most common presenting symptoms:

1 - Restricted ocular movement

2 - Recurrent pain and redness

Cysticercosis Diagnosis

Ophthalmoscope, slit lamp

X Ray

MRI

CT

Cysticercosis Treatment

Observation

Medical - Antihelminthics and steroids.

Medical treatment used most frequently on EOM cysts

Surgery - Most often for intraocular cysts

Onchocerciasis

1590 West African slaves

1862 Napoleon III sent Sudanese troops to Mexico

Endemic in Mexico, Brazil, Columbia , Venezuela , Ecuador and Guatemala

Distribution of Onchocerciasis

US Distribution of Onchocerciasis

Onchocerciasis Cycle

Onchocerciasis CDC 2013

High risk in Americas

Guatemala 231,467

Mexico 170,000

Venezuela 119,000

Onchocerciasis Ocular

Two types

Savanna - Blindness more common.

Most often corneal

Sclerosing Keratitis

Rain Forest - If blindness occurs , occurs early

Usually posterior segment

Onchocercisis Ocular

Chorioretinitis 20%

Punctate Keratitis 14%

Intra Retinal deposits 10%

Iridocyclitis 8%

Optic Atrophy

Onchocerciasis Chorioretinitis

Progressive inflammation

Loss of RPE and Choriocapillaris

RPE affected early

Can mimic Toxoplasmosis, Histoplasmosis and RP

Autoimmune etiology

Punctate Keratitis

Onchocerciasis

Ocular manifestations of Onchocerciasis in a rain forest area of West Africa

H S Newland et al

Br J Ophthalmol Mar 1991; 75(3) 163 - 169

Onchocerciasis Acute Retinitis

Onchocerciasis Intra Retinal Deposites

Onchocerciasis Intraretinal Deposites

Onchocerciasis Pigment Clumping

Wide Spread RPE Changes

Optic Atropy and RPE Changes

Onchocerciasis RPE Changes

Extensive Rpe and Choroid Loss

Onchocerciasis Treatment

Ivermectin - Single dose every 6 months for 10 years.

It kills the larvae , not the adult. Treat for the life span of the adult.

Doxycycline - Kill the Wolhachia bacteria on which the adults depend on for survival.

Steroids - Topical

Surgical for complications

Chikungunya Fever

1952 Tanzania

2013 Sustained transmission in Caribbean by local mosquitoes

17 Caribbean countries and southern US at risk

Chikungunya

Alphavirus - RNA

3 genotypes indentified

Affects all age groups

Males = Females

2 - 7 day incubation period

Distribution of Chikungunya Virus

Distribution of US Cases

Aedes - Aegypti

Chikungunya Signs and Symptoms

Sudden onset

Fever, chills, malaise, arthralgia, headache

Skin rash, back pain

Self limited

Some have persistent joint pain

Occasional hemorrhagic and neurologic problems

Chikungunya Ocular Findings

Anterior Uveitis most common ocular finding

Can be granulomatous and nongranulomatous

Pigmented KP occur in both types

Usually bilateral associated with increased IOP

Resolves in weeks to months

Keratitis reported

Chikungunya Ocular Findings

Retinitis - Mimics Herpetic and West Nile

vitritis, edema, vasculitis, serous detachment

Choroiditis

Most recover over 10 - 12 weeks

Visual loss due to macular ischemia

Subtle RPE changes

Chikungunya

A case of bilateral presumed Chikungunya neuroretinitis

Mahesh et al

Indian J Ophthalmol 2009; 57: 2

Neuroretinitis

Neuroretinitis

Neuroretinitis

Neuroretinitis

Neuroretinitis

Neuroretinitis

Chikungunya Retinitis

Chikungunya and the eye: a review

Mahendradas et al

Journal of Ophthalmic Inflammation and Infection

2013; 3:35

Chikungunya Retinitis

Chorioretinitis

Chorioretinitis

Chorioretinitis

Chorioretinitis Resolved

Chikungunya Ocular Findings

Acute onset of visual loss can occur with optic neuritis, neuroretinitis and retrobulbar neuritis

36% had concurrent symptoms and other neurologic signs.

Prompt recovery with immediate steroids

Chikungunya

Chikungunya

Keep in mind the occasional zebra

STATE AND CONSUMER SERVICES AGENCY GOVERNOR EDMUND G. BROWN JR.

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUTIE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

OPTOMETRY

1-618/615-4356/615-4356/100

Request for Approval of Continuing Education Course(s)

For Office Use Only
Receipt No. _____
ATS No. _____
Date Rec'd _____

Elite Eyecare Medical Group
910 E Stowell Rd
Santa Maria CA 93454

Attention: Malin Heaton

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____
CE Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Vitreoretinal diseases	4-7-16	Dr. Candy Chan	1			
Common postop complicat.	4-7-16	Dr. Rami Zarnegar	1			

COMMITTEE COMMENTS:

Spectral Domain Optical Coherence Tomography (SD-OCT) and Multi-Modality Imaging in Vitreoretinal Diseases

I. SD-OCT in Common Retinal Diseases
   A. Abnormalities at the Vitreoretinal Interface
   B. Inner Retinal Disease
   C. Outer Retinal and Choroidal Diease
II. Multi-Modality Imaging in Common Retinal Diseases
   A. Plaquenil Toxicity Screening
   B. Hereditary Retinal Disease
   C. Aquired Retinal Disease
III. SD-OCT and Multi-Modality Imaging in Infectious and Inflammatory Retinal Diseases (Case Studies)
IV. OCT Angiography
   A. Technology
   B. Normal Retinal Vascular Architecture
   C. Current and Future Applications

Objectives:
1. Identify abnormal OCT findings at the vitreoretinal interface, and inner and outer retinal layers in common and advanced retinal diseases
2. Identify uses of multi-modality imaging in common and advanced retinal diseases

Course objective: To review common post-operative complications with the co-managing eye professional. Most common post-cataract extraction and post-refractive surgery complications encompassing differential diagnosis and appropriate treatment will be discussed.

Outline:

Cataract surgery

A. Early post-operative complications:
- -corneal abrasion
- -corneal edema
- -increased IOP
- -ocular inflammation
- -refractive surprise
- -endophthalmitis
- -sterile
- -infectious

B. Late post-operative con
- -persistent corneal e
- -persistent inflamm
- -chronically elevate
- -chronic dry eye
- -cystoid macular e
- -residual refractive
- -"the unhappy pat

Refractive surgery

A. Early post-operative
- -subconjunctival
- -pain
- -dry eyes
- -corneal abrasion
- -flap striae (micro vs macro)
- -displaced flap
- -loss of near vision
- -refractive surprise
- -photosensitivity and glare
- -infectious keratitis
- -early DLK

B. Late post-operative complications
- -residual refractive error
- -induced astigmatism
- -epithelial in-growth
- -flap melt
- -"the unhappy patient"

STATE AND CONSUMER SERVICES AGENCY GOVERNOR EDMUND G. BROWN JR.

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUTIE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov

OPTOMETRY

2016 MAR -7

1-632/6219428/5781735/100

Request for Approval of Continuing Education Course(s)

For Office Use Only

Receipt No. _____

ATS No. _____

Date Rec'd _____

Mark R. Mandel, M.D.
Optima Ophthalmic Medical Associates
Attn: Joan Hernandez
1229 B Street
Hayward, CA 94541

Please type or print name and mailing address in the space provided to the left

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- **$50** processing fee per course ✓
- Name of provider ✓
- Course title(s) ✓
- Date(s) the course is scheduled to be offered ✓
- Topical outline of the course subject matter attached
- Any announcements, notices or advertisements of the course ✓
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement) attached

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

_____

CE Committee Member

TECHNIQUE, INDICATIONS & HOW TO COUNSEL PATIENTS

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
TOPOGRAPHICALLY - GUIDED LASER TREATMENT	JUNE 1	M MM	1			
CORNEAL INLAYS FOR PRESBYOPIA	JUNE 1	MRM	1			
INDICATIONS, COMPLICATIONS + GUIDANCE FOR PATIENTS						

COMMITTEE COMMENTS:

Topographically-Guided Laser Treatment: Technique, Indications, & How to Counsel Patients

Corneal Inlays for Presbyopia – Indications, Complications, & Guidance for Patients

Mark R. Mandel, M.D.

Technology in ophthalmology in the field of refractive surgery is changing at lightning speed. Recently, the FDA approved two new important and potentially "disruptive" technologies which will greatly broaden our armamentarium of corneal refractive procedures.

It is of critical importance that the practicing optometrist be aware of each technique, the pros and cons, advantages and disadvantages, and the proper clinical application of these new technologies so as to appropriately counsel their patients.

Additionally, armed with the knowledge of the indications for these procedures, which patients are good candidates, which patients should ***not*** have the procedures, and the potential risks and complications, the practicing optometrist will be able to continue their intimate involvement in the co-management process at the highest clinical level… always focused on safety.

As a fellowship trained corneal and refractive surgeon, I have designed a two hour continuing education course which will address these two new technological advances in refractive surgery.

Specifically, topographically-guided laser refractive surgery, which was FDA approved in late 2015, is currently coming online. The FDA results, as well as the results of studies throughout the world, have shown tremendous improvement in visual acuity and a significant decrease in symptoms following laser refractive surgery such as glare, haloes, and starbursts. Additionally, this technology will be able to improve the visual function in patients who have **had** LASIK or other laser refractive surgeries yet currently have persistent disturbing symptoms due to an irregular corneal surface. However, choosing the proper patient and counseling them appropriately is critical for success. Not all patients are good candidates for this technology.

In the first hour, I will address patient selection, the technique of topographically-guided ablation, the advantages, disadvantages, risks, potential complications, and the proper way to advise potential patients in the optometric setting.

In the second hour, I will address the recently FDA approved corneal inlays for presbyopia. Currently, there is only one inlay FDA approved. This is the KAMRA inlay. There are some advantages to this inlay but *many* cautions, and potential risks and complications which must be carefully and completely addressed with the patient prior to consideration of surgery. Additionally, there are three other corneal inlays that are currently undergoing FDA trials. I will address each of the inlays, how they work, their usefulness, their limitations, the techniques of implantation, the clinical results, and **most importantly** the risks complications and cautions so that the practicing optometrist will be able to advise patients to pursue a safe course of treatment.

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD ONLY USE		
				Approved	Disapproved	ID #
Topographically-Guided Laser Treatment: Technique, Indications, &	June 2016	Mark R. Mandel, M.D.	1			
How to Counsel Patients						
Corneal Inlays for Presbyopia - Indications, Complications, &	June 2016	Mark R. Mandel, M.D.	1			
Guidance for Patients						

COMMITTEE COMMENTS:

MARK R. MANDEL, M.D.
CONSULTANT
DISEASES AND SURGERY OF THE CORNEA AND EXTERNAL EYE

CURRICULUM VITAE

EDUCATION

1997	University of Phoenix, Degree: M.B.A.
1979	UCLA School of Medicine, Degree: M.D.
1973-1975	Oxford University, Oxford, England, Degree: B.A. (Honours Degree); M.A. (Oxon)
1971-1973	University of California, Berkeley
1971	Beverly Hills High School

POST GRADUATE EDUCATION

1984-1985	Fellow: Cornea and External Disease, University of Iowa, Iowa City, Iowa (with Jay H. Krachmer, M.D.)
1980-1983	Residency: Ophthalmology, Pacific Medical Center, San Francisco, California
1979-1980	Internship: Internal Medicine, UCLA - San Fernando Valley Veterans Administration Program

SCHOLARSHIPS and GRANTS

1984-1985	Heed Ophthalmic Fellowship Foundation Grant
1981-1982	Pacific Vision Foundation Grant, Immunofluorescent Corneal Studies
1974	The Oxford University Scholarship, Presented to five students per year for outstanding academic achievement
1973	California State finalist, Rhodes Scholarship competition

PROFESSIONAL CERTIFICATION

1984	Diplomate of the American Board of Ophthalmology
1984	Iowa State Medical License
1980	Diplomate of the National Board of Medical Examiners
1980	California State Medical License

PROFESSIONAL ORGANIZATIONS

East Bay Ophthalmological Society: **President,** 1989-1992

03/10

1237 B STREET * HAYWARD, CALIFORNIA 95441-2977 * TELEPHONE 510-886-3937 * FAX 510-886-6304
DIPOLMATE OF THE AMERICAN BOARD OF OPHTHALMOLOGY

California Medical Association: **Chairman, Ophthalmology Section**, 1995-1996

California Medical Association: **Health Tips Section Editor**, 1993-1994

California Medical Association: **Ophthalmology Section Secretary**, 1994-1995

Alameda-Contra Costa Medical Association

American Academy of Ophthalmology: Fellow 1984 to present

American Society of Cataract and Refractive Surgery

Association for Research in Vision and Ophthalmology

Castroviejo Corneal Society

Contact Lens Association of Ophthalmologists

Phi Delta Epsilon Medical Fraternity

AREAS OF RESEARCH INTEREST

Corneal and external diseases of the eye

Peribulbar anesthesia of the eye

LASIK vs. PRK for low and high myopia, hyperopia, and astigmatism

CURRENT PROJECTS

1. Investigation of the cause of high astigmatism post-corneal transplant surgery.
2. Investigation of methods to reduce and repair high astigmatism following penetrating keratoplasty.
3. The surgical management of pellucid marginal degeneration and other atypical corneal thinning disorders using wedge resection vs. large penetrating graft.
4. Examination of the use of a hand-held wire loop keratometer (designed by Dr. Mandel) for intra-operative astigmatism control for penetrating and lamellar keratoplasty.
5. Investigation of the mechanism of action, safety, and efficacy of the peribulbar block for ophthalmic surgery.

TEACHING CLINICAL and PROFESSIONAL ACTIVITIES

Postgraduate

Continuing medical education programs on ophthalmology for physicians and nurses.

Consultant, Cornea and External Disease service at California Pacific Medical Center, San Francisco

Chief of Ophthalmology, Eden Hospital, Castro Valley, California, 1986 to 1989

Assistant Clinical Professor, University of California Berkeley

Clinical Instructor, University of California San Francisco

BIBLIOGRAPHY

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3. Newman NM, Mandel MR, Fujikawa LS: Clinical and Histologic Findings in Opportunistic Ocular Infection - Part of a New Syndrome of Acquired Immunodeficiency. Archives of Ophthalmology, Volume 101, No. 3, March 1983, Page 396

4. Mandel MR, Stewart WS: Orbital Osteoma - A Case Report and Review of the Literature. Journal of Oculoplastic and Reconstructive Surgery. Volume 1, No. 2, Page 129

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7. Shapiro MB, Krachmer JH, Rodriguez M, Mandel MR: Anterior Clear Spaces in Keratoconus - A Clinical Pathologic Correlation. Ophthalmology. Volume 93, 1986, Pages 1316-1319

8. Davis DB, Mandel MR: Posterior Peribulbar Anesthesia: An Alternative to Retrobulbar Anesthesia - J Cataract Refract Surgery, Volume 12, Page 182-184, March, 1986

9. Mandel MR, Shapiro MB, Krachmer JH: Relaxing Incisions with Augmentation Sutures for the Correction of Post Keratoplasty Astigmatism. American Journal of Ophthalmology, Volume 103, Part II, Pages 441-447, March 15, 1987

10. Davis DB II, Mandel MR: Posterior Peribulbar Anesthesia: An Alternative to Retrobulbar Anesthesia. Indian Journal of Ophthalmology, 1989, April-June; 37 (2): 59-61

11. Davis DB II, Mandel MR: Retrobulbar vs. Peribulbar Injection (Letter): Ophthalmic Surgery, June, 1989; 20 (6): 448-51

12. Davis DB II, Mandel MR: Peribulbar Anesthesia (Letter; Comment): Comment on: J Cataract Refract Surgery, 1990, March; 16 (2): 243-5: J Cataract Refract Surgery, 1990, July; 16 (4): 527-8

13. Davis DB II, Mandel MR: Efficacy and Complication Rate of 16,224 Consecutive Peribulbar Blocks, A Prospective Multi-center Study. J Cataract Refract Surgery, 1994, May; 20 (3): 327-37

14. Mandel, MR: Ophthalmology-Keratorefractive Surgery (Epitomes). West J Med 1994; 161:592-593

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1. Mandel MR, Shapiro MB, Krachmer JH, Kolder HE: Techniques of Penetrating Keratoplasty. In Phelps CD (eds): A Manual of Ophthalmic Surgical Procedures. Churchill Livingstone, New York, 1985, Pages 35-56

2. Mandel MR, Shapiro MB, Krachmer JH: Refractive Keratoplasty Procedures for High Post-Keratoplasty Astigmatism. In Bruner WE II, Stark WJ, Maumenee AE (ed): A Manual of Corneal Surgery. Churchill Livingston, New York, 1985, Pages 109-118

3. Mandel MR, Shapiro MB, Krachmer JH: Surgical Correction of Astigmatism. In Dabezies OH, Cavanagh DH, Farris RL, Kemp MA (eds): Contact Lenses The CLAO Guide to Basic Science and Clinical Practice. Grune and Stratton, New York, Volume 2, Chapter 51A, 1985

4. Shapiro MB, Mandel MR, Krachmer JH: Techniques of Conjunctival Flap. In Phelps CD and Kolder HE (eds): A Manual of Ophthalmic Surgical Procedures. Churchill Livingston, New York, 1985, Pages 55-59

5. Shapiro MB, Mandel MR, Krachmer JH: Technique of Pterygium Removal. In Phelps CD and Kolder HE (eds): A Manual of Ophthalmic Surgical Procedures. Churchill Livingston, New York, 1985, Pages 51-54

6. Shapiro MB, Mandel MR, Krachmer JH: Pathogenesis, Diagnosis, and Treatment of Corneal Transplant Rejection. In Brightbill FS (ed): Corneal Surgery, Mosby, 1985, Pages 130-137

7. Davis DB II, Mandel MR: Peribulbar Anesthesia: A Review of Technique and Complications. In: Stamper RL (ed) Ophthalmology Clinics of North America: Regional Anesthesia for Intraocular Surgery. Philadelphia, W.B. Saunders, 1990, Pages 101-110

8. Davis DB II, Mandel MR: Ophthalmic Anesthesia: Local vs. General, Retrobulbar vs. Peribulbar. In Weinstock FJ (ed): Management and Care of the Cataract Patient. Boston, Blackwell Scientific Publications, 1992, Pages 150-159

9. Davis DB II, Mandel MR: Injection Anesthesia. In Gills JP (ed): Ophthalmic Anesthesia, New Jersey, Slack, 1993, Pages 122-124

10. Davis DB II, Mandel MR: Anesthesia for Cataract Extraction. In: Dodick JM, Donnefeld ED (ed): International Ophthalmology Clinics, Cataract Surgery. Boston; Little, Brown, & Co., Spring 1994, Pages 13-30

11. Mandel MR: Instrumentation for Corneal Transplant Surgery. In: Krachmer, Mannis, Holland (eds): CORNEA. St. Louis, MO, Mosby, 1997, Pages 1571-1579

12. Davis DB II, Mandel MR: Anterior Peribulbar. In: Stamper RL (ed): Ophthalmology Clinics of North America: Anesthesia. Philadelphia, W.B. Saunders, 1998, Pages 123-123

TEXTBOOK - EDITOR

1. Davis DB II, Mandel MR (Guest Editors): Anesthesia. In: Stamper RL (ed): Ophthalmology Clinics of North America. Philadelphia, W.B. Saunders, 1998

PAPERS DELIVERED at MEETINGS (Partial List)

1. Association for Research in Vision and Ophthalmology (Annual Meeting):, Laminin, Type IV Collagen, and Bullous Pemphigoid Antigen in Full Thickness Rabbit Corneal Wounds. May 1982

2. Aspen Cornea Society: The Ocular Manifestation of AIDS. March 1983

3. Association for Research in Vision and Ophthalmology (Annual Meeting): Fibronection, Laminin, Type IV Collagen and Bullous Pemphigoid Antigen in Rabbit Corneal Epithelial Wounds in Culture. May 1983

4. University of California, San Francisco, Department of Ophthalmology Update Course: The Ocular Manifestation of AIDS. June 1983

5. Pacific Medical Center, San Francisco, California: The YAG Laser in Clinical Ophthalmology. **Course Chairman**. February and June 1984, November 9, 1985

6. Alta Ophthalmologic Society, Sacramento, California: How to Set Up An Outpatient Surgical Facility. May 1984

7. 7th Sight Vesper Society Annual Meeting, Oakland, California: The Pre-Operative Evaluation of the Cornea Prior to Cataract Extraction. December 1984

8. Iowa Eye Society Annual Meeting: The Future of Keratorefractive Surgery. June 6, 1985

9. Asian Optometric Society: Advanced Slit Lamp Techniques and Management of Difficult Office Problems in Corneal Disease. August 1985

10. 14th Corneal Research Conference, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts: Relaxing Incisions with Augmentation Sutures for the Correction of Post Keratoplasty Astigmatism: A Prospective Study. November 1-2, 1985

11. Ophthalmic Outpatient Surgery Society Meeting, San Diego, California: Endophthalmitis in Ambulatory Surgery Centers - A National Survey. 1986

12. American Academy of Ophthalmology: Posterior Peribulbar Anesthesia - Course 345. 1986

13. Eden Hospital Continuing Education for Registered Nurses (Yearly Seminar): Helpful Hints for Smooth Turn-around in Outpatient Surgery. March 1986

14. Royal Hawaiian Eye Meeting: Advanced Slit Lamp Techniques for Corneal Evaluation. January 18-25, 1986

15. Royal Hawaiian Eye Meeting: Staffing An Outpatient Surgery Center. January 18-25, 1986

16. Eden Hospital Continuing Education for Registered Nurses (Yearly Seminar): Update on Operating Room Techniques for Corneal Surgery (full day seminar). December 1986

17. A.M.O., Irvine, California: National Course in Epikeratoplasty (KPE) - Course Instructor. February and August 1986, August 1987

18. St. Rose Hospital Medical Staff Lecture - General Medical Staff: The Ophthalmic Manifestations of Medical Disorders. March 1986

19. Pacific Presbyterian Hospital, San Francisco, California-Ophthalmology Review and Update: "Outpatient Surgery - Medical Center or Shopping Center?" April 24, 1986

20. Pacific Medical Center, Department of Ophthalmology, Alumni Meeting: "The Gamut of Keratorefractive Surgery". May 31, 1986

21. The Peninsula Eye Society, Burlingame, California: Epikeratophakia and an Update on Other Keratorefractive Procedures. 1987

22. Altamont Society, Bodega Bay, California: Two-day Lecture Series on Corneal Transplant Surgery, Indications, Technique and Complications. 1987

23. American Academy of Ophthalmology, Dallas, Texas: Posterior Peribulbar Anesthesia - Course 702. 1987

24. St. Rose Hospital Emergency Room/Trauma Center: Lecture on Detection and Initial Treatment of Ocular Trauma. 1987

25. Royal Hawaiian Eye Society Meeting: Bacterial Corneal Ulcers - Diagnosis and Management. February 1987

26. Royal Hawaiian Eye Society Meeting: Diagnosis and Treatment of Herpes Zoster Ophthalmicus. February 1987

27. Royal Hawaiian Eye Society Meeting: Infectious Corneal Ulcers - Management. February 1987

28. University of California, San Francisco Residency Program - Valley Medical Center, Fresno: Visiting Professor. October 1, 1987

29. Fresno Eye Society: Surgical Decision Making in Difficult Corneal Cases. October 2, 1987

30. Tampa Bay Ophthalmological Society, Tampa, Florida: Posterior Peribulbar Anesthesia - Techniques and Complications. October 10, 1987

31. Castroviejo Society Meeting, Dallas, Texas: Discussion of Paper on Correction of Astigmatism by Limberg, Kauffman, et al. November 7, 1987

32. Eden Hospital Continuing Education for Registered Nurses Yearly Seminar: Microsurgery - The Role of the Assistant Surgeon Hands-on Workshop (8 hour workshop coordinated and lead). **Course Director.** 1988

33. Krachmer Cornea Society, Co-Coordinator, San Francisco Meeting: The Surgical Management of Terrien's Marginal Degeneration Using Superior Wedge Resection and Lamellar Transplantation. 1988

34. Eden Hospital Trauma Center Conference, Castro Valley, California: The Detection and Early Treatment of Ophthalmic Emergencies. 1988

35. Ocular Symposium I, San Francisco: Update on New Advances in Cornea and External Disease. June 1988

36. Sarver Contact Lens Symposium, University of California, Berkeley: Anatomy, Physiology, and Disorders of the Ocular Surface. January 1989

37. Ocular Symposium II, Berkeley: Diagnosis and Management of the Anterior Uveititis. June 1989

38. Krachmer Cornea Society, Vancouver, Canada: The Surgical Management of a Series of Fungal Corneal Ulcers Techniques and Results. June 5, 1989

39. Altamont Society, Santa Cruz, California: Two-day lecture series on Ocular Surface Disorders - Techniques in Detection and Diagnosis. October 7, 1989

40. SOBVCO Annual Meeting, St. Trudent, Belgium: Posterior Peribulbar Anesthesia; Phacoemulsification Surgery; Corneal Transplant Surgery - An Update on Our Technique. October 20, 1989

41. Belgium Ophthalmological Society, St. Trudent, Belgium: Live performance of corneal transplant surgery closed circuit television presentation. October 21, 1989

42. University of California - Berkeley School of Optometry: Corneal and External Disease - Course 136, Eight part lecture series. 1990, 1991, 1992, 1993, 1994

43. American Society of Ophthalmic Registered Nurses Regional Educational Program, San Francisco: Surgical Complications and Emergencies of the Anterior Segment. January 13, 1990

44. Barkan Ophthalmologic Society, San Francisco: Capsulorrhexis - Tips and Techniques and the Avoidance of Pitfalls. March 1990

45. Optometry Alumni Association, University of California at Berkeley, First Annual Yosemite Meeting: Update on the Diagnosis of Cornea and External Disease. April 1990

46. Krachmer Cornea Society, **Coordinator,** Pebble Beach: Technique of Capsulorrhexis During the Combined Corneal Transplant/Cataract Operation. September 5-7, 1990

47. Barkan Ophthalmologic Society, San Francisco: Sutureless Phacoemulsification Surgery - Techniques and Avoidance of Pitfalls. April 13, 1991

48. Federation of Ambulatory Surgery Association (FASA), Las Vegas, Nevada: The Performance of Corneal Transplant Surgery on an Outpatient Basis - Clinical Experience with 400 Consecutive Cases. May 17, 1991

49. University of California - Berkeley, Student and Alumni Lecture: The Gamut of Keratorefractive Surgery Today and Tomorrow. February 3, 1992; December 1, 1992

50. Optometry Alumni Association, University of California Berkeley, Second Annual Yosemite Meeting: Anterior Segment Disease and Office Emergencies. February 14, 1992

51. American Society of Ophthalmic Registered Nurses, Regional Educational Program, San Francisco: Ophthalmic Injections: Location, Technique, Indications and Complications. February 28, 1992

52. Barkan Ophthalmologic Association, San Francisco: Posterior Peribulbar Anesthesia Attempts to Design the "Perfect" Block. March 7, 1992

53. Salinas Valley Memorial Hospital Update for Operating Room Nurses: Techniques and Gamut of Corneal Surgery. March 28, 1992

54. Krachmer Cornea Society, Charleston, South Carolina: The Surgical Management of Penetrating Keratoplasty Following Radial Keratotomy - Tips, Techniques and Video Demonstration. May 31, 1992

55. Ocular Symposium V, San Francisco: Pearls on Ocular Diagnosis - Update on Cornea and External Disease. June 6, 1992

56. American Academy of Ophthalmology, Summer Academy, San Francisco: Phacoemulsification Update Course. July 30, 1992

57. Krachmer Cornea Society, Course Director. Santa Fe, New Mexico. August 5-7, 1993

58. Association of Operating Room Nurses. Oakland, CA: Radial Keratotomy and Refractive Surgery - Unraveling the Mysteries and Separating Fact from Fiction. November 3, 1993

59. Morton D. Sarver Lecture Series in Contact Lenses, School of Optometry, University of California, Berkeley: Refractive Surgery in the 90's. January 29-30, 1994

60. Ocular Therapy Course, University of California, Berkeley: Corneal Dystrophies and Degenerations. January 21, 1994

61. Ophthalmologist-Gatekeeper Interactions: Managed Eye Care, California Medical Association, Western Scientific Assembly, Anaheim, CA: Red Eye: Recognizing the Dangers. March 20, 1994.

62. University of California Berkeley, School of Optometry, Ocular Therapeutics Course: Corneal Dystrophy & Update on Keratorefractive Surgery. May 3, 1995

63. Modesto Optometric Society: The Reality of Refractive Surgery. June 2, 1995

64. Ocular Pearls Symposium, San Francisco, CA: RK vs. PRK - Separate Myth from Reality. June 4, 1995

65. QEA Regional Continuing Education: Update on PRK. June 8, 1995

66. Asian Optometric Association: RK vs. PRK & ALK - The Spectrum of Refractive Surgery. June 14, 1995

67. EYEXAM 2000 of California: Update on Small Incision Phacoemulsification and Refractive Surgery - Where are We and Where We are Going. Los Angeles, October 22, 1995

68. EYEXAM 2000 of California: Update on Small Incision Phacoemulsification and Refractive Surgery - Where are We and Where We are Going. San Francisco, November 5, 1995

69. University of California, School of Optometry: Excimer Laser Surgery. November 13, 1995

70. Asian Optometric Society: PRK vs. LASIK. January 10, 1996

71. University of California, School of Optometry, Therapeutics Course: Corneal Dystrophy - PKP. January 11, 1996

72. Ocular Symposium: Update of Refractive Surgery; Chairman. San Francisco, CA, June 1-2, 1996

73. Morton D. Sarver Lecture Series in Cornea and Contact Lens: Diagnosis and Treatment of Corneal Infection; Refractive Surgery - An M.D.'s Perspective. January 25-26, 1997

74. University of California Berkeley, School of Optometry, Course in Ocular Therapy: Immune Keratopathy, Herpes Simplex, Herpes Zoster, and Bacterial Keratitis. (Multiple courses per year) 1997, 1998, 1999

75. Barkan Society: PRK vs. LASIK. St. Helena, California, April 18, 1997

76. University of California Berkeley, School of Optometry, Course in Ocular Therapeutics: Herpes Simplex, Herpes Zoster, and Bacterial Keratitis. May 6, 1997

77. Ocular Symposium, San Francisco, **Chairman**: Refractive Surgery, Talk: Update in Refractive Surgery. June 8, 1997

78. University of California San Francisco, Proctor Foundation: Lamellar Keratoplasty - Surgical Techniques. June 18, 1997

79. University of California Berkeley, School of Optometry, Ninth Annual Berkeley Practicum: LASIK Refractive Surgery - A Current Evaluation. December 6, 1997

80. Ocular Symposium, San Francisco, **Chairman**: Refractive Surgery, Talk: Update in Refractive Surgery. June, 1998

81. University of California San Francisco, Proctor Foundation: Management of Complications in Laser Surgery. December, 1998-1999-2000-2001

82. Alameda Contra Costa Optometric Society: Management of Bacterial Keratitis, Herpes Simplex, and Herpes Zoster for the Practicing Optometrist. April 20, 1999

83. Ocular Symposium, San Francisco, **Chairman**: Refractive Surgery, Talk: Update in Refractive Surgery. June, 1999

84. California Association of Ophthalmology Annual Meeting, San Francisco. Cataract and Refractive Symposium: Hyperopic LASIK, Tips & Techniques. September 25, 1999

85. University of California Berkeley, School of Optometry: Ocular Therapeutics - Cataract Surgery; Refractive Surgery (multiple courses). 2000-2001

86. Ocular Symposium, San Francisco, **Chairman**: Refractive Surgery, Talk: Update in Refractive Surgery. June, 2000

87. Alameda Contra Costa Optometric Society: Management of Challenging Cases in Refractive Surgery. Fall, 2000

88. California Optometric Association, Monterey: Corneal Ulcers - Diagnosis and Management. Fall, 2000

89. Santa Clara Optometric Society: Management of Common Corneal and External Eye Conditions. February 20, 2001

90. Monterey Optometric Society: Update in Refractive Surgery. March 20, 2001

91. Ocular Symposium, San Francisco, **Chairman**: Refractive Surgery, Talk: Update in Refractive Surgery. June, 2001

92. Peninsula Optometric Society: Systemic Medications & Pain Management for Ocular Disorders. January 22, 2002

93. Santa Clara Optometric Society: LASEK and Phakic Intraocular Lenses. February 21, 2002

94. American Academy of Optometry: The Pre-Operative Prevention and Post-Operative Management of Complications in Refractive Surgery. December 12, 2002

95. American Academy of Optometry: Pain Management for the Practicing Optometrist. December 15, 2002

96. University of California, Berkeley - Meredith Morgan Symposium: Pain Management in Ocular Diseases. May 18, 2003.

97. Ocular Symposium, San Francisco: Pain Management in Ocular Diseases. June 8, 2003.

98. Santa Clara Optometric Society: Update on Refractive Surgery. March 18, 2004.

99. Ocular Symposium, San Francisco: Update on Refractive Surgery. June 6, 2004.

100. Santa Clara Optometric Society: Update on Refractive Surgery. April 21, 2005.

101. Alameda/Contra Costa Counties Optometric Society: The High Myope and Hyperope: How to Guide Patients Through the Maze of Treatment Options. October 13, 2005.

102. Lions Club: Update on Refractive Surgery. May 18, 2005.

103. Ocular Symposium, San Francisco: Update on Refractive Surgery. June 5, 2005.

104. Ocular Symposium, San Francisco: Update on Refractive Surgery: The High Myope and Hyperope. June 4, 2006.

105. Asian Optometric Society: Update on Refractive Surgery: The High Myope and Hyperope. September 13, 2006.

106. Berkeley Practicum, UC Berkeley School of Optometry: The High Myope and Hyperope: Guiding Patients Through the Maze of Treatment Options. January 8, 2007.

107. C.O.L.A.: Update on Refractive Surgery, The High Myope and The High Hyperope. March 1, 2007

108. Santa Clara County Optometric Society: Bacterial Keratitis. April 19, 2007.

109. Ocular Symposium, San Francisco: Recognizing and Treating Ocular Inflammation and Infection. June 3, 2007.

110. C.O.L.A.: Update on Refractive Surgery, The High Myope. September 27, 2007.

111. C.O.L.A.: Keratitis Sicca in Refractive Surgery. January, 24, 2008.

112. UC Berkeley, School of Optometry: Point-Counterpoint: Comanagement is Good for the Patient. May 21, 2008.

113. Ocular Symposium, San Francisco: Options for the High Myope and High Hyperope. June 8, 2008.

114. C.O.L.A.: LASIK Pre-Operative Work-Up, Post-Operative Care, and Complications. June 24, 2008.

115. Primetime, Hawaii: A Step-Wise Approach to The Management of the Post-RK Eye. December 6, 2008.

116. Primetime, Hawaii: Cataract Surgery – Past, Present and Future. December 6, 2008.

117. Primetime, Hawaii: Refractive Options for the Myope and Hyperope. December 6, 2008.

118. Ocular Symposium: Update on Refractive Surgery: What's New in 2009. June 7, 2009.

119. Monterey Symposium: Cataract Surgery in the Refractive Age. November 22, 2009.

120. Monterey Symposium: Refractive Surgery Decision Making – How to Help the Patient Make the Right Choice. November 22, 2009.

BOOK REPORTS

1. Corneal Sensitivity by J. Draeger, Ophthalmologica, Basel, American Journal of Ophthalmology. 1985

2. AIDS And Other Sexually Transmitted Diseases Of The Eye by Michael Insler, American Journal of Ophthalmology, Vol. 103, Pages 604-605. April, 1987

POSTERS

1. Anterior Clear Spaces in Keratoconus: A Clinicopathologic Correlation. American Academy of Ophthalmology Annual Meeting, San Francisco. October, 1985

VIDEO TAPES

1. Feder R, Mandel MR, Krachmer JH: Techniques and Complications of Penetrating Keratoplasty. American Academy of Ophthalmology, (1 Hour). October, 1985.

2. Davis DB, Mandel MR: Posterior Peribulbar Anesthesia Technique. (30 minutes). March, 1986

INSTRUMENT DESIGN

1. Hand-held wire-loop surgical Keratometer. Katena Instruments (#K3-7892), New Jersey.

2. Advisory Panel Becton-Dickinson - Beaver microsurgical instruments.

TELEVISION and RADIO GUEST APPEARANCES, NEWSPAPER ARTICLES

1. Dr. Dean Edell "Housecalls", San Francisco Channel 7 (ABC): Epikeratophakia and Keratorefractive Surgery. 1987

2. "Health Talk Modesto": What's New In Corneal Transplant Surgery. June, 1989

3. Helen Ketchum's United Artists Cable: Eye Care For the Elderly. September, 1991 et seq.
4. "Health Talk Modesto": Keratorefractive Surgery - Separate Fact from Myth. May, 1994
5. "Transitions" Viacom Cable: Update of Clinical Ophthalmology. June, 1994
6. San Ramon Valley Times: Lamellar Keratoplasty. June 5, 1995
7. San Ramon Valley Times: Radial Keratotomy. Front page, June 5, 1995
8. KGO Radio: Excimer Laser Surgery. October 26, 1995
9. KRON Channel 4 TV News Interview: Excimer Laser PRK. November 6, 1995
10. KNBR Radio Interview: PRK. November, 1995
11. San Francisco Chronicle, Business Section. Excimer Laser PRK
12. Modesto Bee: Excimer Laser PRK. January 10, 1996
13. Health Talk with Nancy Sneiderman, M.D. - Nationally Syndicated Radio CBS: Excimer Laser PRK. January 12, 19, 20, 1996
14. KQED Radio - Family Talk: Laser Refractive Surgery. December, 1996
15. KGO Radio, Ron Owens: Refractive Surgery & General Eye Care. January 1, 2007
16. Dr. Dean Edell "Housecalls", San Francisco Channel 7 (ABC): Epi-LASIK. January 30, 2007
17. KNX-LA: Refractive Surgery. February 6, 2007

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To: Practice and Education Committee Members **Date:** April 15, 2016

From: Madhu Chawla, OD
Committee Chair **Telephone:** (916) 575-7170

Subject: **Agenda Item 4. – Adjournment**