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.
To: Practice and Education Committee Members

From: Madhu Chawla, OD
Committee Chair

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

Date: April 15, 2016

Telephone: (916) 575-7170

Dr. Madhu Chawla, O.D., Committee Chair, will call the meeting to order and call roll.
To: Practice and Education Committee Members  Date: April 15, 2016

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

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)].
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
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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; Neuroophthalmology on a busy clinic day - the swollen disc

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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
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   4. Systemic Urgencies and Emergencies
   5. Vitreo-Retinal Disorders
   6. The Pharmacological Management of Glaucoma
   7. Neuro-Optometry
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   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
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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
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

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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

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2/24/16 CE
<table>
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<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
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<th>Disapproved</th>
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<td>2/25/16</td>
<td>Theresa Nguyen., M.D</td>
<td>1</td>
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<tr>
<td>Cataract case review &amp; Post-operative care &amp; therapeutic management of complication</td>
<td>2/25/16</td>
<td>Michael T. Furlong M.D</td>
<td>1</td>
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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

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 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
Dr. Furlong's Credentials

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

EDUCATION:
1982 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 Merrill 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 LVC!, two years
2002 Voted in the Top 50 Practices in the U.S. award by LVC!
Winner of VISX's "Left-Click" award
2000 LVC! Practice of Excellence
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
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:

http://furlongvision.com/vitae.html
1996 "Management of Ocular Pain and Discomfort by Cooling the Eye after PRK" Presented at ASCRS, 1997;
Boston, Massachusetts
"Topographical "Loopy 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
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 Medium Chain Triglycerides ("Ecstasy") on Serotonin
Levels and its 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, CA
American Academy of Ophthalmology (AAO) Annual Meeting, Los Angeles, CA
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, CA
American Academy of Ophthalmology (AAO) Annual Meeting, New Orleans, LA
2003 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Francisco, CA
2002 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Philadelphia
VISX Custom-Contoured Ablation Pattern Physician Certification Course, Santa Clara, CA
American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Diego, CA
2000 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Boston
1999 INTACS Physician Training Course, San Francisco, CA
American Academy of Ophthalmology (AAO) Annual Meeting, Seattle, WA
American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Orlando
American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, San Diego, CA
1997 American Society of Cataract and Refractive Surgery (ASCRS) Annual Meeting, Boston
American Academy of Ophthalmology (AAO) Annual Meeting, San Francisco, CA
VISX Physician Certification Course, San Francisco, CA
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 5.5 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 photography 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 Rutirin Eye Center and Air Force General
Hospital, respectively
1996-1998 Several Continuing Medical Education Talks to Ophthalmic Technicians.
1995-1997 Lecturer for Emergency Medical Technician Students at Salt Lake Community College, "Immediate
Treatment and Triage 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 tree 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

http://furlongvision.com/vitae.html
Agenda Item 3A

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
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

© Furlong Vision Correction Medical Center, Inc. All rights reserved. Privacy Policy & Terms of Use
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
Request for Approval of Continuing Education Course(s)

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

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Practice and Education Committee Member

Determined & placed in pending file for review 3/28/16 SC
<table>
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<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
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<td>Fitting Corneal-Scleral CLs, Future of GPs</td>
<td>3/1/16</td>
<td>Daren Nygren, Dr. David Bartels, OD</td>
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COMMITTEE COMMENTS:
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

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
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.
Agenda Item 3B

**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**
- Over 10,000 data points of the cornea surface
- Measures 3mm diameter of cornea
- Large evaluation of corneal surface
- Data tends to vary due to tear film fluctuation

**MANUAL KERATOMETER**
- 2 data points 90 degrees apart
- Measurement taken at a 3mm corneal diameter
- Small evaluation of corneal surface
- Data is fairly stable/reproducible
Topography vs. Keratometry

- 44.00x180
- 45.00x090

Spherical Cornea
42.55x180/42.33x090

WTR Cylinder

ATR

Oblique Antigmination
42.05x180/43.45x090
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 cornea refraction
- Rules out flakiness (K's /Dk/lens)
- Saves chair time

Some Patients Are Afraid of Large Contacts
Agenda Item 3B

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

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

Minus Over Refraction
• Best Va needs more Minus than Spherical Rx
• Watch for a Tight(steeep) 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
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

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
Corneal-Scleral Multifocals

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

Patients to Avoid

Insertion & Removal
Scleral Lens Care

- Clear Care Peroxide system
- Preservative free single dose saline
- Refresh, Optive, Systane rewetting drops
- Progent protein remover

Removal of Lens
Agenda Item 3B

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
Agenda Item 3B

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

Scleral 16.5 KATT/ICD

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

Determining Apical Clearance

Using the sclera's undiscernible zone to
observe the lens thickness,
500um/250um in
standard with the
preservative-free saline
in the cone openings.
Evaluate the lens
apical location with the
camera awne to the
sclera thickness for tear
transparency.
**Agenda Item 3B**

**Comparisons of Central Fit**
- Optimum fit needed to make axial and radial axis bearing.
- For those with wide open middle.
- Think about the flat fit.
- With an initial evaluation showing the visual field.
- JJ "measuring your distance".

**Peripheral Shut down**
- Biggest problem with Sclerals

**Rosemary**
- KATT/ICD Design
- Bilateral Cone with Intrac
e- Oblique Cornea (bottle cap)
- Wearing Synergics OD 20/30
- OS no contact successful
- Vs 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

**Optical Analysis**

---

1/12/2016
Mackenzie

- Limbal Squared Lens Design
- Rx: -4.00-3.75x180 OÜ
- Good comfort OÜ
- 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

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

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<th>Year</th>
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<td>2006-Present</td>
<td>Custom Craft Lens Service</td>
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<tr>
<td>Managing Partner</td>
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<tr>
<td>· Custom GP Consultant</td>
<td></td>
<td></td>
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<tr>
<td>· Lead R &amp; D design team</td>
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<td></td>
</tr>
<tr>
<td>· National/International Account Manager</td>
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<tr>
<td>2012-2013</td>
<td>CLMA/GPLI</td>
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<td>Board Member</td>
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<tr>
<td>Contact Lens Manufacturers Association/Gas Perm Lens Institute</td>
<td>Bremerton, Washington</td>
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<td>1998-2006</td>
<td>Pacific Eyecare</td>
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<tr>
<td>Ophthalmic Tech</td>
<td></td>
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<tr>
<td>· Performed all testing and lens fitting for an eight doctor ophthalmology practice.</td>
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<tr>
<td>1992-2006</td>
<td>Alderwood Vision Clinic</td>
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<tr>
<td>Optometric Tech</td>
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<tr>
<td>· Performed all testing for a two Doctor Optometric practice</td>
<td>Lynwood, Washington</td>
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</table>
Request for Approval of Continuing Education Course(s)

Dougherty Laser Vision
4353 Rock Terrace Dr.
Sac. #150
Westlake Village Cal 91361

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Practice and Education Committee Member

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<td>Paul Daugherty, MD</td>
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<td>Updates and trends in OHS</td>
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<td>Luke C. Knebel, MD</td>
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<td>Surgical Comanagement</td>
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<td>Ryan Vida, MD</td>
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<td>Technology Repair - updates</td>
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<td>Paul Daugherty, MD</td>
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COMMITTEE COMMENTS:

Check to come in the mail.
Attr: Carolyn (All actions are mailed)
Request for Approval of Continuing Education Course(s)

Dougherty Laser Vision
4353 Rock Terrace Dr.
Suite #150
Westlake Village, CA 91361

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Practice and Education Committee Member

(rev. 11/18/14)
Agenda Item 3C

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Attr: Carolyn (Materials were mailed)

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<td>Updates and trends in CLS</td>
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<tr>
<td>&quot;Functionally-Guided Retinal Protective Therapy – Prevention for Dry AMD&quot;</td>
<td>11/08/15</td>
<td>Jeff Luttrull, M.D.</td>
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<td>&quot;Corneal Updates: Amniotic Membrane Grafts and Plerygium&quot;</td>
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<td>Franz Michel, M.D.</td>
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<td>&quot;Implantable Contact Lenses – Official Certification Course&quot;</td>
<td>11/08/15</td>
<td>Paul Dougherty, M.D.</td>
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<td>&quot;Neuro-Ophthalmology&quot;</td>
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<td>Howard Krauss, M.D.</td>
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<td>&quot;Doctor – How Can I Get Rid of My Reading Glasses?&quot;</td>
<td>11/08/15</td>
<td>Dr. Dougherty</td>
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<td>&quot;What's New in Cornea Surgery?&quot;</td>
<td>11/08/15</td>
<td>Craig Helm, M.D.</td>
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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.
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
Request for Approval of Continuing Education Course(s)

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

<table>
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<td>Glaucoma Grand Rounds</td>
<td>3-23-16</td>
<td>Michael Pokabla, DO</td>
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<td>Top 10 Oral Agents</td>
<td>4-13-16</td>
<td>J. James Thimons, OD</td>
<td>1</td>
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<tr>
<td>Glaucoma Watch: Rapid Fire Topics in Glaucoma</td>
<td>5-18-16</td>
<td>Bud O'Leary, OD</td>
<td>1</td>
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COMMITTEE COMMENTS:
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
- 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
**Live Webinars for CE**

Each Webinar is 1 Hour of CE Credit  
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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

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**Optometrist**

Name ____________________________
Address ____________________________
City ____________________________ State ______
Zip Code __________ Phone __________
(E-mail will be sent to e-mail address.)

**Webinar Registration**

<table>
<thead>
<tr>
<th>Registration</th>
<th>Early Bird by Friday Before</th>
<th>Regular by Tuesday 9 pm</th>
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</thead>
</table>
| ☐ 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 |
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**View a Sample Webinar**

Go to www.NationalGlaucomaSociety.org, click on "Topics" and under "Webinars" select "Sample NGS Webinar" to view a segment from a previous webinar.
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 (Patient 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
  ✓ Aqueous 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
  ✓ Aqueous suppressant
  ✓ Bandage contact lens
  ✓ Ensure the lens is covering the leak (Kontur)
- Follow close for signs of infection
- Avoid patching
- Often need repaired in OR

Large Bleb leaks in the office
- At Limbus
  ✓ Antibiotics
  ✓ Aqueous suppressant
✓ Bandage contact lens
✓ Ensure the lens is covering the leak (Kontur)

• Follow close for signs of infection
• Avoid patching
• Often need repaired in OR

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)
Michael Joseph Pokabla DO, MS

Glaucoma Consultants of the Capital Region
1240 New Scotland Road, Suite 201, Slingerlands, NY 12159
Phone: 518-475-7300
Fax: 518-475-9174
Email: mjpkabla@yahoo.com

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


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


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


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


• 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


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.


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
THE CYCLINES
- RCE
- PLD
- Lyme’s

The Cyclines
- Tetracycline, Doxycycline and Minocycline
  - Isolated from Streptomyces
  - Effective against Gram +/Gram -/Aerobic/ Anaerobic/ 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
- Cephalexin’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%*  
Diphteroids (C. xerosis) 20-33%  
Staphylococcus Aureus 20-25%*  
Streptococcus (S. viridan) 2-6%

* Dominant organisms in microbial keratitis

Hemophilus influenza 3% or more  
Streptococcus pneumoniae 1-3%*  
Gram negative rods 1% or more*  
Pseudomonas aeruginosa 0-5%*

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 rosacea  
- Small Intestine: Gr (+) cocci and bacilli  
- Large intestine: Greatest conc of bacteria in body (103 organisms/gm) anaerobes-enterobacteria, enterococcus fecalis, E. coli  
- Genito-urinary tract: Chlamydia, E. coli, Neisseria gonorrhoea (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
• Staph aureus
  ✓ Coagulase positive
  ✓ Methacillin resistant strain
  ✓ Exotoxins
  ✓ Normal flora
  ✓ Chronic bleparitis
  ✓ Inflammatory disease
  ✓ Abscess formation
  ✓ Severe keratitis

Gram (-) species
• Pseudomonas
• Hemophilus
• Klebsiella
• Serratia
• Moraxella
• Neisseria

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:
  o Presedal cellulitis
  o Dacyrocysitis
  o Pediatric Hemophilus
  o Amoxicillin + Clavulanate
• Dosage forms: 500 or 875mg tablets Bid; 125 or 250mg/5cc pediatric suspension

Amoxicillin/Clavulanate
• Broad spectrum penicillin (Staph, Strep, Hemophilus
• Effective against penicillinase producers-clavulanate blocks penicillinase
• High therapeutic index
• Bacteriocidal
• Low GI side-effects
• 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

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). Acyclovir 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 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
  - MUSCULOSKELETAL/ MYOSITIS
- ACUTE GOUT
- DYSMENORRHEA
- 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
- Non-sedating 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
Glaucome Watch: Rapid Fire Topics in Glaucome
Bud O’Leary, OD

Predictions
- Glaucome 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
- 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 Glaucome 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 I
  • 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
    o Greater abundance of mitochondria in unmeylinated nerve fiber layer due to greater energy demand
    o 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 identify the molecular signature of the transition from ocular etiology (e.g. IOP and scleral mechanics) to the beginnings of axonopathy and vision loss.”

• 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 mm² 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, Calhoun 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

Ohio State University, College of Optometry, Columbus Ohio
Doctor of Optometry

Miami University, Oxford Ohio
Bachelor of Arts, Chemistry

Pennsylvania College of Optometry
Course in Ocular Therapeutics

LAB Therapeutic Certification

July 1978 – July 1979

ADDITIONAL ACADEMIC EXPERIENCE:

Veterans Administration Medical Center, Chillicothe, Ohio
Externship

Ohio State University, College of Optometry
Research Assistant (Dr. James Sheedy)

June 1977 – August 1977

1977-1978

PROFESSIONAL EMPLOYMENT

Medical Director Ophthalmic Consultants
Of Connecticut

Director, TLC/Ophthalmic Consultants
Of Connecticut

State University of New York
State College of Optometry
Director, Glaucoma Institute

September 2002–Present

September 1998 – 2002

January 1997 – September 1998

Chairman, Department of Clinical Science
Director of Professional Services
Director of Externship Programs
OMNI Eye Services, Fairfax, VA
Center Director
VA Medical Center, Chillicothe, Ohio
Chief Optometry Section

October 1988 to December 1997
October 1988 to December 1997
October 1988 to December 1997
1985-1998

1979-1985
HOSPITAL 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. NEWенко, 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

67
3. National Association of VA Optometrists 1980 - Present
4. Beta Sigma Kappa 1978 - 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
16. “Secondary Glaucome” – Primary Care of Glaucomes, Appleton-Lang, Lewis, T.L.,

JOURNALS
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 AI, Kelly S., Thimons, J.J. Clinical Eye and Vision Care, 1990
19. Courts, Community Standards Dictate Use of Technology (Interview), Primary Care Optometry News, December 1996
25. Those That Can Do... And Teach, Optometry Today, July 1997.
27. Raising the Bar in Cataract and Refractive Surgery, Optometric Management 2000
29. Differential Diagnosis and Treatment of Ocular Allergies, Optometric Management 2000
31. Ocular Surface Disease Treatment: Volume I-6 , January 2004
32. New Solutions for Bacterial Resistance in the treatment of Ocular Disease : Volume 1&2 May 2004

POSTERS AND PAPERS

6. Contrast Increment Thresholds at Different Ages, Beard, B., Yager, D. Rosenberg, R. Horn. Paper to be presented in Orlando, Florida for the Optical Society of America
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.
10. Oscillatory Potentials in Glaucoma; Sutija, V.G., Horn, D., Appleman, W.,  
    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 with 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 Light Adaptation Protocol on ERG Components and Corneal Integrity: Yang,  
    State College of Optometry, 1991 Sutija, V.G., Horn, D., Appleman, W., Thimons, J.J., Z.  
    Hua.
16. Effect of Light Adaption Protocol on Erg Components and Corneal Integrity, ST/ NY  
    College of Optometry, Yang, L., Sutija, V.G, Libassi, D, Henahan, J.L., Thimons, J. 1.,  
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: Thimons, J.J., Clinical Eye and Vision  

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

2. CIBA Optometric, Advisory Board 1993 – 2001
4. The Laser Center (TLC) Board of Directors 1996 – present
5. Southern Congress of America, Advisory Board 1997 – 2000
8. AMO Medical Advisory Board 2000 – present

Ophthalmic Publications and Editorial Review Boards

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

2. CE Chair, American Optometric Association National Meeting 1997- 2002
3. Chairman, National Glaucoma Symposium 2003-Present
4. President, MAJ Consulting 2001-Present

REFERENCES

Provided upon request
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,

[Signature]

Dr. Farid Eghballi
Request for Approval of Continuing Education Course(s)

East Valley Eye Center
Dr. Fard Eghbali
2601 West Alameda Ave
Suite #204
Burbank CA 91505

drfeghbali@yahoo.com
(310) 266-8887

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 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)

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
### Agenda Item 3E

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecture(s)</th>
<th>CE Hours Requested</th>
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<tr>
<td>* see attached list 2016-17</td>
<td>see attached list</td>
<td>36 hrs</td>
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<td>* cv on file with state board of optometry optical students from</td>
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<tr>
<td>1) western university</td>
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<td>2) mark ketchum university</td>
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<tr>
<td>3) illinois college of optometry</td>
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</tbody>
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**Total** 36 HRS.

**COMMITTEE COMMENTS:**
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)

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

- Soft: sphere + toric lenses (Principle / update / case management)
- RGP: sphere + bitoric lenses (Principle / update / case management)
- Contact lens solution (Principle / update / case management)
- Keratoconus and post PKP lenses (Principle / update / case management)
- 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)
- 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

TOTAL (8 hrs regular, 36 hrs TPA, 14 hrs Glaucoma)

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

- LASER VISION CORRECTION
- CATARACT SURGERY
- CORNEAL DISEASE
- MULTIFOCAL LENS IMPLANTS
- GLAUCOMA
- RETINAL DESEASE
- FACIAL PLASTIC SURGERY
- CONTACT LENSES
FARID EGBHALI 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: drfeghbal@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 in Ophthalmology, Jules Stein Eye Institute, UCLA School of Medicine 1996-1998.

Agenda Item 3E


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


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**


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.


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


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”, September 29, 2009, Scottsdale, AZ.


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


“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.


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


“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, Glendale, CA. April 20, 2004


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


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.


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


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 Fernando County Optometric Society Continuing Education Seminar. Valley Presbyterian Hospital, CA, April 5, 1998.


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


**Media Presentations**


Eghbali F. Children’s vision. Radio Sedayeh Iran, April 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 trials 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 Ophthalmol 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.

9145 Charleville Blvd Apt 302, Los Angeles CA 90212. (310) 980-7026

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
Cardiomyopathy 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:


Peer Reviewed Publications:


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


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:


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
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
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

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

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. COMANAGEMENT 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 OCULAR SURFACE DISEASES AND IRREGULARITIES
2. DIAGNOSING OCULAR 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- "NEUROPHTHALMOLOGY 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
3. VARIOUS DIAGNOSIS AND CLINICAL TREATMENT AND TRIAGE
4. LONG TERM CLINICAL CARE BY OPTOMETRISTS AND OR OPHTHALMOLOGISTS
5. PATIENT OUTCOMES THROUGH VARIOUS MEDICATIONS AND TREATMENTS
6. QUESTION AND ANSWER 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, PRKα, 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 University of 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 (Iumigan) in lowering intraocular pressure in chronic open angle glaucoma, 2002


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
UCI Department of Ophthalmology

Applications of PAR Corneal Topography to PRK.
1995-1996

UCI Department of Ophthalmology / Beckman Laser Institute

1992

UCI Family Practice Research Fellowship

A Survey of Ophthicmic 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.

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


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.


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 Derrle 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
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@socaleyeye.com
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,

[Signature]

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


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
Harvard Eye Associates
Laguna Hills, California

Academic Affiliation
Clinical Instructor
UCLA Jules Stein Eye Institute
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
CIIBA/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
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
Agenda Item 3G

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


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 inspiring volunteerism among ophthalmologists, 2006-present
Continuing Medical Education Reviewer, Vindico Medical Education, 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
   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 Toric Crystalens, 2010.
Principal Investigator, Phase IIIb Study of the LipiFlow Thermal Pulsation System, 2012
Principal Investigator, 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 III Study of the Revision Optics Corneal Inlay, 2012

Abstracts/Scientific Presentations


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.


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


Named Lectures
Invited Lectures


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


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


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

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

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

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

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

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


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

Overseas Work


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
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, Aba 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, Kyōto 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
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 Endothelial Corneal Dystrophy.

Raoof D, Jacobs D, Jurkunas UV. Assesment 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


Abstracts and Poster Presentations


Request for Approval of Continuing Education Course(s)

TLC Laser Eye Centers at Harvard Eye Associates
34401 Calle de la Louisia
Laguna Hills, CA 92653
Contact: Isabell Cho, OD

<table>
<thead>
<tr>
<th>Receipt #</th>
<th>Payor ID #</th>
<th>Beneficiary ID #</th>
<th>Amount</th>
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<td>100201</td>
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<td>6194714</td>
<td>$50</td>
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</tbody>
</table>

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
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
<th>Approved</th>
<th>Disapproved</th>
<th>ID #</th>
</tr>
</thead>
<tbody>
<tr>
<td>LASIK Grand Rounds</td>
<td>1YR</td>
<td>Dana Reinstein, MD John Hovanesian, MD</td>
<td>4</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

COMMITTEE COMMENTS:
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
24401 Calle de la Louisa
Suite 300
Laguna Hills, CA 92653
Request for Approval of Continuing Education Course(s)

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

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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- 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.

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<th>CE Hours Requested</th>
<th>Approved</th>
<th>Disapproved</th>
<th>ID #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract Surgery Z8105</td>
<td>2/27/16</td>
<td>Paul Daugherty</td>
<td></td>
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</tbody>
</table>

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
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

"other Femtolasers"

Cutting Plane

2 μm

Short focal length

Small spot size – less "shock-wave" effect

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
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/iridodynesia
- 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

- **Prolensad/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
  - Pseudoexfoliation
  - 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 aberration
- 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
Presbyopic 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

Increased Pressure
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, variable 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

805.987.5300 phone
818.707.7668 fax

Dougherty Laser Vision – Beverly Hills
9100 Wilshire Boulevard Suite 265E
Beverly Hills, CA 90210

323.466.7337 phone

Dougherty Laser Vision - Camarillo
1877 Daily Drive, Suite D-1
Camarillo, California 93010

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

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:


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


Ventura 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, Intracocular 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


Eyeonics Crystalens Center of Excellence. 2008

STAAR Surgical Award for Top Implanter of the Visian ICL for Myopia in the United States. November 2006

Stear 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

LICENSE 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 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. Principal Investigator for Addition Technologies Study of Intac Corneal Implants for the Treatment of Keratoconus. 2010 – Present

3. Principal Investigator for RVO Presbytes 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 (Feme-Frast Keratoconus and Pellucid Marginal Degeneration. 2008 to present.

5. Principal Investigator for Lenstec Tetraflex Accommodating IOL FDA Clinical Trial. December 2005 to present.


10. Principal Investigator for STAAR Hyperopic Implantable Collamer Lens. March 2000 to present


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
Agenda Item 3H

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


Nidek Navex CATz Topography-Guided LASIK Medical Advisor – Nidek Technologies, Ltd. Gamagamori, Japan March 2008 – present

GUEST EDITORSHIPS:


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


**LETTERS TO THE EDITOR:**


**PUBLISHED ABSTRACTS AND PRESENTATIONS AT SCIENTIFIC MEETINGS**


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.


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.


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.


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.


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.


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 Vistex 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


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.


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.


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.


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.


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.


PUBLISHED BOOKS:


BOOK CHAPTERS:


EDUCATIONAL SYMPOSIUM FACULTY:


4. Paul J. Dougherty, MD, "Surface Ablation and NSAID’s; Clinical Studies Analgesia and Wound Healing.” Improving Surgical Outcomes and Maximizing Patient Expectations in

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:**


**ROUNDTABLES:**


**SCIENTIFIC MODERATOR POSITIONS:**


13. 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. 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


INVITED LECTURES:


6. "Differential Diagnosis and Management of Ocular Surface Disease", Orange, CA May 20, 2012

7. "Pharmaceutical Treatment of Blepharitis/Melboimitis" – Focused on AzaSite, Orange, CA May 20, 2012

8. TCOS Event, ICL and Intacs for Keratoconus. Santa Barbara, CA May 20, 2012


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 – Tetriflex versus Crystalens.”

20. V University International Course, University of Chile, Santiago, Chile, July 30, 2010. “Update on the FDA Study of the Tetriflex 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.”


30. Ventura County Star Medical Symposium. Ventura, California, April 8, 2010. "Update on Advances in Vision Correction Surgery."


32. Ocular Drug and Surgical Therapy Update, Dana Point, California, February 13, 2010. "Refractive: Mastering the Art of Lens Based Refractive Surgery."


34. Ocular Drug and Surgical Therapy Update, Dana Point, California, February 13, 2010. "Phakic IOLs vs. LASIK."


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"


49. Inspire Symposium for Optometrists, Westlake Village, California. "Azasite for the Treatment of 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. "Clinical Use of the Visian ICL."


96. LADARvision System Users' Meeting. W Hotel, Dallas, Texas, October 29, 2006. "Treating High Astigmatism with the LADARvision."


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 26, 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 26, 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.”


119. Community Memorial Hospital, Ventura, California, December 21, 2004. “NAVEX for Treatment of Irregular Astigmatism” and “The Implantable Contact Lens for Myopia and Hyperopia.”


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134. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "Thin Flap LASIK."


137. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "ICL Implantation for Myopia and Hyperopia."


139. III University International Course, Universitario Internacional, Santiago, Chile, July 30, 2004. "Clear Lensectomy using the Crystalens Accommodating IOL."


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175. Vision Correction Centers Continuing Medical Education for Optometrists, Santa Monica, California. February 5, 1997. "Refractive Surgery Co Management."


GUEST EDITORIALS:


**PHYSICIAN COURSES/LIVE SURGERIES:**


**RECURRING MEDIA EXPERT:**


**NATIONALLY TELEVISED REALITY PROGRAMS:**


**MAKEOVER PROGRAMS:**

OPHTHALMIC NEWS MEDIA:

1. **Eye World**, "Getting Up-close and personel with new accomodative IOLs". February 2012


34. **Euro Times Supplement**, Outcomes with Nidek EC-5000 Compare Favorably with Wavefront-Guided Lasers. September 2005


52. *Refractive Express*, “Use of the NIDEK OPE-Scan in Clinical Practice.” Fall 2003, Volume 1, Number 4, p. 6-7.


PUBLIC NEWS MEDIA:


5. **VC Reporter**, Ventura County Inventors, "Great Minds are Everywhere" January 10, 2013

6. **Exercise**, "For Your Eyes Only" March 2013


36. Ventura County Star "Eye Surgeon's Vision" June 9, 2011
37. **Ventura County Star** Online article. "Free cataract screening offered in Camarillo." July 25, 2011


39. **Ventura County Star** Online article. "Camarillo eye surgeon realizes his vision." June 8, 2011


56. **Exercise for Men Only.** Featured in Magazine Article “New age surgery procedure leads to remarkable vision – even for those who’ve been told that LASIK in not an option.” September 2010.

57. **KTLA Morning Show.** Featured in “Eye Surgery Is Now Safer Then Eye Contacts With ICL Lens Surgery” segment on news. September 21, 2010


60. **Beverly Hills Courier.** Quoted in “Local Air Causing Problems for Contact Lens Users” October 23, 2009.


62. **Splendicity.com.** Quoted in article “Tanning Beds can Cause Irreversible Eye Damage.” September, 2009.

63. **Cooking Light Magazine.** Quoted in article “Tanning Beds can Cause Irreversible Eye Damage.” June 2009.

64. **Sam Brown's For the Record Radio Show, KPFK Radio, Los Angeles, California.** Segment on the Vista Vision Procedure with the Visian ICL for Nearsightedness. April 17, 2009.


68. **Television Week.** Capturing The Reality of TV's Dottors. March 2008


82. **The Oprah Winfrey Show**, Footage from "10 Years Younger" TLC program. "Look 10 Years Younger in 10 Days." June 27, 2005.


35


**TEACHING EXPERIENCE:**


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.


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.


ACTING EXPERIENCE:


PHYSICIAN ADVISORY PANELS:

1. International Cosmetic Awards Advisory Board. 2007

OTHER PRESENTATIONS:


COMMUNITY SERVICE & PHILANTHROPIC OUTREACH:


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, Cory 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


Hobbies: Family, self-actualization through spirituality, travel, weight training, golf, skiing, road biking
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.
Request for Approval of Continuing Education Course(s)

Scott Schachter
300 James Way, Suite 210
Pismo Beach, CA 93449

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
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
<th>Approved</th>
<th>Disapproved</th>
<th>ID #</th>
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</thead>
<tbody>
<tr>
<td>Update on Age Related Macular Degeneration</td>
<td>1/25/16</td>
<td>Steven Ferrucci</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glaucoma: Practical Tips</td>
<td>1/25/16</td>
<td>Steven Ferrucci</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMMITTEE COMMENTS:**
COPE ID: 42196-PS
Course Title: Update on Age Related Macular Degeneration

Format: Live  Category: Trt/Mgmnt 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

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

Disclosures

- Speakers bureau/advisory board:
  - Alcon
  - Allergan
  - B&L
  - Heidelberg
  - MacuLogix
  - Nicon
  - Science Based Health
  - Thrombogenics

Available at www.jama.com
**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, bilberry, 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

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® (pegaptanib sodium) Dec 2004
  - Lucentis (ranibizumab) June 2006
  - Avasin (bevacizumab) Not FDA approved
  - Eylea ( aflibercept ) Nov 2011

Seven-Up study

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% w/ 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

<table>
<thead>
<tr>
<th>Avastin per year</th>
<th>Lucentis per year</th>
</tr>
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<tbody>
<tr>
<td>Cost per injection: $50</td>
<td>Cost per injection: $2000</td>
</tr>
<tr>
<td>Monthly/yr: $600</td>
<td>Monthly/yr: $24000</td>
</tr>
<tr>
<td>PRN: $350</td>
<td>PRN: $14000</td>
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</tbody>
</table>

- 250,000 Americans:
  - Monthly/yr: 150,000,000
  - PRN/yr: 87,500,000

- 250,000 Americans:
  - Monthly/yr: 6,000,000,000
  - 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
    naïve all similar
  - Mean gain slightly better for monthly vs. as needed, 1.4 letters
  - Rates of death and thrombotic events similar
  - Pts with serious systemic adverse events higher with Avastin (39.6% vs.
    31.5%)

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)
  - BRAMO (Netherlands)
  - LUCAS (Norway)

Eylea

- 95% of pts receiving 2 mg 6 mos achieved maintenance of vision vs. 84% with Lucentis monthly
- 0.8 letter mean improvement of vision (vs. 8.1 with Lucentis monthly)

Eylea

- Cost: Eylea = $1850/injection, with injection every 2 months
  - Therefore 1/3 of Lucentis monthly
- Second year study will evaluate use PRN
Eylea

- Second year results (unpublished) found virtually similar results when Eylea vs Lucentis used as needed
  - Eylea 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](http://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
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. 0.5 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, 36.3% 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 Telanglectasia
  - Interesting fact: Headquarters in Cumberland, RI

Topical Treatment

- ATG0003 (CoKenta)
  - No results yet
- GATE (ALCON)
- Squalamine (Oth Pharmaceuticals)
- MacuClear
- Pansamin
  - Encouraging phase 1
    - Phase 2 ended early due to lack of effect
- OT-501
  - OMEGA Terminated after 18 mos due to futility 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. 8.4 over study
      - Lucentis PRN plus Squalamine bid had increased BCVA vs Lucentis alone
        - 48.3% vs. 21.3% 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 choroidal blood flow
    - Preventing rupture of Bruch's Membrane
    - Treating inflammation and oxidative stress
  - Phase 1b studies:
    - Safe and well tolerated
    - Reached back of the eye
    - Has biological effect on choroidal 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 μl BIID x 21 days
    - 18 Lucentis injection
    - At 21 days, treatment with gts 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
- Acucella'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 zidovudine 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
    - 1/4 improved VA
    - 3/4 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
Agenda Item 3I

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 6.7 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 ($84 avg.)
- FDA 510K cleared (K100954)

Successful Precedent

Glaucoma
- Humphrey Perimeter
  - Psychophysical test
  - 5 minute duration
  - $65 reimbursement (CPT 92003)
  - General eye care profit center

AMD
- MacuLogix AdaptDx
  - Psychophysical test
  - 5 minute duration
  - $65 reimbursement (CPT 92284)
  - New, potentially direct 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

Evolution in Primary Therapy
- Over the past 12+ years, clinicians have switched from topical β-blockers to prostaglandin agents
  - Prostaglandin analogues
    - Superior efficacy ~ 30-50% 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

START WITH A PROSTAGLANDIN UNLESS GOOD REASON NOT TO
Prostaglandin: pros

- Very few systemic side effects
- Once daily administration
- Long action with flattening of diurnal curve
- Few drug/drug interactions

Prostaglandins: cons

- Mild hyperemia
  - Subsides over time, 2 weeks or less
  - While 35-50% do report 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
  - Kalian 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)

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

IF NEED LOWER IOP, THEN WHAT?
Agenda Item 3I

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 med 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"
Brinzolamide vs. Brinzolamide as Adjunct to Travoprost

PurPOSE: To compare the 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 concurrent therapy
- IOP was measured at 8:00 AM, noon, and 4:00 PM at baseline (on travoprost monotherapy) and after 3 months of concurrent therapy

Brinzolamide vs. Brimonidine: Adjunct to Travoprost

What to add next?
- Alpha-agonist/CaI
  - Alphagan/Trusopt or Acoat
  - 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
- Possible cost savings (only 1 copay)


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% dorzolamide/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 dorzolamide alone

Combigan

- Timoptic 0.5%/brimonidine 0.2% BID (Allergan)
  - October 2007
- IOP lowering effect of Combigan BID was slightly less than T 0.5% BID–and brimonidine 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 effect (3-5%)
  - Blurred vision
  - Eye irritation
  - Dysgeusia (bad 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: $57 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
  - Dorzolamide 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 dorzolamide 2% tid or timoptic 0.5% bid alone
- Cost: ~$85 mos supply

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 CoQ10

Optic Nerve Formula

Supplement Facts
Examples of ONF Ingredient targets:

Oxidative Stress — High metabolic activity of retinal tissues make RGCs especially vulnerable to oxidative stress (especially in mitochondria)

Antioxidants: Vitamin C, E, NAC (glutathione precursor), alpha-lipoic acid, CoQ10 (protections 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)

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

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!!
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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 fluorescein 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

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


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.


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 Bloomstein), 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.


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.


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 Manifestations of Systemic Disease and All About the OCT (with Mike Chaglastan) Illinois College of Optometry Alumni Weekend; Chicago, IL: October 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 Co-management 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.


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 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 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.


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


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.


Retina Update: Diagnostic Dilemmas and Retina Update: Co-Management  Optometric Manager'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.


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.


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

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 Bloomstein, 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.


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.


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, and Clinical Grand Rounds Kentucky Optometric Association Fall Conference: Gatlinburg, TN:
November 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 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.


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 Dogger: 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.


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.


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.


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.


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.


Scleritis, Episcleritis, and other Inflammatory Conditions, Retinal Manifestations of Systemic Disease Eye Sight 20/20; Natick, MA: 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.


Continuing Education Presentations, cont.


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.

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.


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.


Diagnosing with the Stars: Posterior Grand Rounds (with John McGreal); The Amazing Race: New Technologies in Eye Care (with Joe Sholvin); Deal or No Deal: Case Presentations (with Joe Sholvin and Paul Karpecki); Graves Anatomy and other Ocular Manifestations of Systemic Disease Review of Optometry, Maui, HI: June 2008.


Continuing Education Presentations, cont.

ARMD Update Southern California College of Optometry's Faculty-on-the-Road Lecture Series, Santa Clara, CA


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&K's Ocular Symposium; Anaheim, CA: May 2007


The Retina in Systemic Disease 5th Annual Ocular Disease Program, Southern California College of Optometry; Fullerton CA: March 2007.


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.


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.


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.


Diabetes: Treatment and Management and Scleritis/Episcleritis and Other Inflammatory Conditions  C&E’s Optometric Symposium; Fullerton, CA: April 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.


Current Approach to Diabetes Southern California College of Optometry; Fullerton, CA: September 2002.


Fluorescein Angiography Made Simple and Care of the Diabetic Patient: Case Reports Arizona Optometric Association Spring Congress; Goodyear, AZ: June 2002.


Diabetes: Treatment and Management Southern California College of Optometry; Fullerton, CA: September 2001.


Continuing Education Presentations, cont.


Diabetes: Treatment and Management Arizona Optometric Association, Spring Congress; Tucson, AZ: July 1999.


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 I and 2, September 2014
Ocular and Systemic Emergencies January 2014
Macular Diseases January 2014
Co-Management of Retinal Procedures December 2013
Diabetes, Part I 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 I 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 I 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 I and II, 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 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
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 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
Dilation and Irrigation of Lacrimal System, Chalazion Injection, and Injection Techniques Workshop (With David Bright, OD) November 2002
Diabetes: Part I and II  October 2002
Fluorescein Angiography September 2002
Fluorescein Angiography Workshop August 2002
Suture Placement and Removal Workshop May 2002
Posterior Segment Laser Workshop May 2002
Ocular Photodynamic Therapy April 2002.
Laser Management of Posterior Segment Disorders April 2002
Fluorescein Angiography Workshop  March 2002
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.


Keynote Address The Importance of Advanced Clinical Privileges COA’s President and Leadership Council, COA, Sept 2012.


Other Presentations, cont.


Southern California College of Optometry on-line CE Program Diabetic Retinopathy, on-going


Lecture Geriatric Eye Care GRECC Lecture Series, Greater Los Angeles VA Healthcare System; Sepulveda, CA: March 2009.


Poster presentation (with Sunny Field and Jeremiah Tampoya) Peripheral Choroidal Neovascularization: Diagnosis, Treatment and Management SECO International: Atlanta GA: March 2008.


Lecture *Diabetes Treatment and Management and Retina Grand Rounds*, Southern California College of Optometry, Block Lectures; Fullerton, CA: August 2007.


Lecture *Geriatric Eye Disease* ITT&D Lecture Series; Sepulveda, CA: December 2005.


Poster Presentation (with Carol Lee, OD and David Bright, OD) *Cytomegalovirus Treated with Oral Valganciclovir* American Optometric Association; Dallas, TX: June 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 *Geriatric Eye Disease* UCLA Multicampus Program in Geriatrics and Gerontology, Division of Geriatrics, Geffen School of Medicine; Sepulveda, CA: February 2004.


Poster Presentation *Tuberculosis Sella Meningoia Associated with Lymphoid 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 *Fluorescein Angiography* Southern California College of Optometry, Block Lectures; Fullerton, CA: November 2001.

Lecture *Why Should I do a Residency?* Southern 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-Opticmetric Association; Carefree, AZ: November 1998.


**Publications**


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.


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.


Publications, cont.


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.


Lin SM, Ferrucci S. Primary Acquired Melanos of the Conjunctiva. Optometry: Journal of the American Optometric Association, May 2006: 77 (5); 223-228


Ferrucci, S. *Route Your Patients on a Compliance Course.* Optometric Management, June 2005: 78-82.


**Publications, cont.**


**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.


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
  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
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
Request for Approval of Continuing Education Course(s)

Cynthia Adame  
NVISION Eye Centers  
75 Enterprise, Suite 200  
Aliso Viejo, CA 92656

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- 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
<table>
<thead>
<tr>
<th>NVISION EYE CENTERS</th>
<th>FOR BOARD USE ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Title</strong></td>
<td><strong>Date(s) of Course</strong></td>
</tr>
</tbody>
</table>
| 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  
Loren Little, MD  
Franklin Lusby, MD  
Patrick Lydon, OD  
Jeff Machat, MD  
Mihir Parikh, MD  
Steward Park, MD  
Jonathan Piraniyar, MD  
Archana Reddy, MD  
Sheri Rowen, MD  
Richard Melater, MD  
Stanley Teplick, MD  
Thomas Toorna, MD  
Emil Stein, MD  
Jon-Marc Weston, MD | 1.5 | | | |
| **TOTAL TIME**      | **1.5**            | | | | | |
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

*CE pending COPE/California State Board of Optometry approval
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Journal Club CE - Corneal Astigmatism

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REGISTER ONLINE: LaJolla-Journal-Club.eventbrite.com

WE LOOK FORWARD TO SEEING YOU THERE

*CE pending COPE/California State Board of Optometry approval
Request for Approval of Continuing Education Course(s)

Cynthia Adame
NVISION Eye Centers
75 Enterprise, Suite 200
Aliso Viejo, CA 92656

<table>
<thead>
<tr>
<th>Receipt#</th>
<th>Payor ID#</th>
<th>Beneficiary ID#</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>100269</td>
<td>6199013</td>
<td>6199017</td>
<td>$50</td>
</tr>
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CE Committee Member
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<tbody>
<tr>
<td><strong>Course Title</strong></td>
<td><strong>Instructor(s)/Lecturer(s)</strong></td>
</tr>
<tr>
<td>Cataract Surgery and Treatment of Dry Eye</td>
<td>Mitra Ayazifar, MD, George Baarvedt, 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 Parkh, MD, Steward Park, MD, Jonathan Pimazar, MD, Archana Reddy, MD, Sheri Rowen, MD, Richard Meister, MD, Stanley Teplick, MD, Thomas Tooma, MD, Emil Stein, MD, Jon-Marc Weston, MD</td>
</tr>
<tr>
<td><strong>TOTAL TIME</strong></td>
<td>2</td>
</tr>
</tbody>
</table>
Agenda Item 3K

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
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

*NCE pending COPE approval
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

Residency Rhode Island Hospital/ Brown University School of Medicine
Department of Ophthalmology
593 Eddy Street
APC 7th floor Eye Clinic
Providence, RI 02903
July 1999-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 director: 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)
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


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


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 CE Event to Optometrists in Northern California (October 2014).

"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.


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).
Agenda Item 3K

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.

George Baerveldt, MD

Dr. Baerveldt's international reputation is based on his glaucoma research and surgical innovations. Dr. Baerveldt developed the Baerveldt TM Glaucoma Implant and presently holds six patents related to this invention. He also invented Trabectome®, 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 where he was recruited as a full-time 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 Professor and Chair of the Department of Ophthalmology, and Director of the Gavin Herbert Eye Institute from July 2003 - November 2008.

Dr. Baerveldt received the American Academy of Ophthalmology’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 of 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 the 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.
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 Deane 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, LASIK, Cataracts, intraocular lenses, Custom LASIK and Wavefront technology. He is also an expert in implanting multifocal, accommodating TORIC and monofocal intracocular 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.

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."
Agenda Item 3K

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 1992 - 99th percentile
Step III: December 1995 - 99th percentile

Nevada Medical License #10003
Ophthalmology Knowledge Assessment Program
Step I: April 1996 - 99th 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

Military Experience:
1990-1991 HPOC/SAM
1998-2001 Ophthalmology Element Chief, RAF Lakenheath
2001-2002 Chief, Ophthalmology Service, Nellis ABF

Professional Affiliations:
2001: Nevada Ophthalmological Society

Publications:
Allen CS, Casey P, Bauman WC. A Prospective, Masked Trial Evaluating the Use of Intravitreal Dexanmethasone Following Pars Plana Vitrectomy in Experimental Aspergillus Endophthalmitis. IOVS 1998; 39:S513.

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-Blind, 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”
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 assistant 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 SIB International, which is devoted to helping restore sight in blind individuals worldwide. With SIB 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.

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
p 949.274.4652 • f 949.509.4858 • ea info@visionscenters.com • see www.visionscenters.com
Agenda Item 3K

Franklin Lusby, MD

Home Address: 238 Pacific Avenue, Solana Beach, California 92075
Business Address: 9800 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
Makien 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

MEDICAL LICENSES: SOUTH DAKOTA
#0799 NEVADA #2972

RESEARCH AND PUBLICATIONS:
1) APLASIA OF THE OPTIC NERVES
JOURNAL OF
PEDIATRIC OPHTHALMOLOGY VOL. 13 (2) 84-88
1976

2) LOCALIZATION OF INTRAOcular
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 Pgs.
403-419 1994

SUBMITTED: 1) FACTORS AFFECTING
ARMY MEDICAL
TRAINING FACILITIES

PAPERS PRESENTED: WALTER REED
ARMY MEDICAL CENTER BIENNIAL
OPHTHALMOLOGY MEETING –
"CONGENITAL ABSENCE
OF RETINAL VESSELS AND OPTIC NERVE"
1974

SUMMARY REPORTS: LOCALIZATION OF
INTRAOCULAR FOREIGN BODIES, IN:
1) THE DOCTORS DIGEST
2) OPHTHALMOLOGY DIGEST

ADMINISTRATIVE:
1) EMERGENCY ROOM COMMITTEE –
DESERT SPRINGS HOSPITAL - 1989
2) SECRETARY & TREASURER MEDICAL STAFF,
DESERT SPRINGS HOSPITAL - 1986
3) PRESIDENT OF SOUTHERN NEVADA EYE
CARE OPHTHALMOLOGY SOCIETY - 1994
4) CHIEF OF SURGERY, DESERT SPRINGS
HOSPITAL - 1992
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

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
Agenda Item 3K


Fellowship:
- Extracapsular Cataract Extraction and Intracocular Lens Implantation
  - James M. McCaffery, M.D.

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
- Exclimed UV200 Certification, 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

Professional Activity:

Private Practice:
- Glendale Eye Medical Group
  - 607 North Central Avenue, Suite 105
  - Glendale, California 91203
  - (818) 956-1010
  - (1984-1990)
- Franklin W. Lusby, M.D., Inc.
  - 655 North Central Avenue, Suite 209
  - Glendale, California 91203
  - (818) 546-2020
  - (1989-1996)
- Franklin W. Lusby, M.D., Inc.
  - (dba Lusby Eye Medical Group)
  - 205 W. Mission Avenue, Suite M
  - Escondido, California 92025
  - (760) 746-6900
  - (1991-1992)
  - 700 West B Norte Parkway
  - Escondido, California 92026
  - (760) 738-7800
  - (1993-1997)
Agenda Item 3K

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) 489-0900
(1997-2002)

TLC Laser Eye Center – Newport Beach
3501 Jamboree Road, Suite 1100
Newport Beach, California 92660
(949) 954-7400
(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)

F. W. Lusby, M.D., Inc. (dba Lusby Vision Institute-Irvine)
Medical Director
4330 Barranca Parkway, Suite 101
Irvine, California 92604
(949) 733-3937
910 East Birch Street, Suite 350
Brea, California 92821
(949) 733-3937
(2000-2005)
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 @ SICO
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)
Agenda Item 3K

Premiere Surgery Center (1993-2001)
Healthsouth Surgery Center (1994-Current)

- Section Chief
- Division of Ophthalmology
- Department of Surgery
- Glendale Adventist Medical Center (1990-1996)

Laser Center
Affiliations: Mericco Eye Institute
San Diego Eximer Laser Center
TLC Laser Eye Centers

Publications:

Scientific Presentations:

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 (1994-2002)
Ventura 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)


Scientific Exhibits:


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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75 Enterprise, Suite 200, Aliso Viejo, CA 92656
ph 949.274.4652 • fx 949.509.4858 • e•info@nvisioncenters.com • see www.nvisioncenters.com
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)


- 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 team.
- 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.

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 sites.
- 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.
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/IRBEC.
- 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.


- Began at NeoVista as CAS with Retinal Surgeon Training, Monitoring (US And OUS), Radiation Oncologist Training, Medical Physical Training, and Optometrist training.
- 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 VIDEO (radiation device). Trained nursing and radiation staff on use of VIDEO. 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 NHSNICE 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 (Australia – 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, 
     Salko, and Horizon
   - Trained and worked with site staff on VA requirements for Lucentis development.
   - Trained 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 wAMID

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 Bender 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 Bender and Gordon Laser Vision Institute
- Bachelor of Science, Combined Sciences, Minors in Biochemistry and History, University of 
  Santa Clara - Captain Crow 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.
Jeffrey Machat, MD, FRCS, 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


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 4 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 750 Excimer Laser system
  - Sirius Corneal Total Ocular Wavefront Diagnostics system
  - Specular Microscopy, RT YUH OCT system, IOL Master
  - AcuFocus AcaTarget HD and Tagaki microscope for KAMRA surgery
  - Ziemer 74 Femtosecond Laser for Corneal surgery
  - Victor Femtosecond Laser for Cataract surgery

Co-Founder/North American Medical Director 08/01/1993—11/01/2002
TLC Canadian National Medical Director 01/01/2002—02/01/2009
TLC Laser Eye Centers, Toronto, Canada

- Co-founded and developed the largest laser vision 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 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 cares for TLC and non-TLC patients.
- Pioneered many techniques and developed surgical instrumentation for LASIK and PRK.

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p 949.274.4652  f 949.509.4838  e r.info@visionscatterers.com  w www.visionscatterers.com

**Medical Director**
TLC 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, Tacherning, 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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p 949.274.4652  f 949.509.4838  e r.info@visionscatterers.com  w www.visionscatterers.com
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 AuFocus 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 utilize 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 Photo refractive 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 physicists.
- Has performed additional reading vision correction procedures including Sunrise Holmium Laser Thermokeratoplasty, Visc Multifocal Ablation and RezorVision Scleral Implants.

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, LASIK, 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 Mehlerman 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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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 board-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.
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
Korn Medical Center
University of Kansas School of Medicine

CERTIFICATIONS & LICENSURE

NV State Medical License
2010 - 2015

American Board of Ophthalmology
Ophthalmology

Shari Rowen, MD

Office Address:
Mercy Medical Center Office - (410) 332-0500
Eye & Cosmetic Surgery Center Direct - (410) 332-9733
301 St. Paul Place, Suite #514 Fax - (410) 546-5161
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 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:
- Hiroch Eye Group, Fallston, MD 21047
  July 1988 - June 1989
- Katzen Eye Group, Dulany 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

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Sheri Rowen, MD

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Mercy Medical Center Office - (410) 322-9500
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:
- Hiroch 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 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.
- Investigator: Staar Surgical, FDA Study (Collamer Lens) 1996- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens) 1997-2000.

Professional Memberships:
- Member, American Medical Association.
- Member, Maryland Eye Physicians and Surgeons.
- Member, MDCH 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.

Medical Licenses:
- Maryland.
- District of Columbia.
- Virginia.
- North Carolina.
- New York.

Community & Volunteer services:
- Free Screening, Mercy Medical Center, and Department of Aging 1997, 1998.
- Sons Of Italy – Current Techniques in Eye Surgery 1999.
- Baltimore County Department of Aging 1990-1996.

Television:

Publication:
- OCULAR SURGERY NEWS. (1994) "Leaders in Clear Corneal Incisions"
• OPHTHALMOLOGY TIMES. (1995). "Microlint with Topical Anesthesia"
• EYE TECHNOLOGY (1996). "Current Trends in Cataract Surgery"
• OCULAR SURGERY, News Symposium Supplement, Feb. 1996
• Rowen, S.L. (1997) "Understanding the Benefits of Plate Haptic Lenses" REVIEW OF OPHTHALMOLOGY, Vol. IV, and No.7 48- 60
• Rowen, S.L. (1999) "Why & How to Convert to Injectible 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:

Maryland Optometric Association
1990-6 Credits

Baltimore Refractive Surgery Society
1999-6 Credits

Greater Baltimore Medical Center
1999-6 Credits

Visual Freedom Center
1990-12 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 CO2 & Erbium Laser

Laser Education Foundation - L.S.C.L.S.
1996-October Sterling S. Baker, M.D., 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, M.D., Orlando, FL

Eyelid Incision Techniques International Workshop on Anesthetic Surgery:
1994 April - Dr. Oscar Ramirez, Course Director
Rejuvenation of the Central 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

Lameal Refractive Surgery Course
1997 - May, Dr. Stephen C. 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
Agenda Item 3K

Johns Hopkins Hospital, Wilmer Eye
1998 - Preceptorship for PRK, Course Director, Terrance O'Brien MD.

Presentations: Cataracts, Glaucoma, Foldable Lens & Topical Anesthesia

- 1994- ARVO, Wilmer Eye Meeting, Sarasota, FL
- 1998- ARVO, Wilmer Eye Meeting, Sarasota, FL
  "Endothelial Cell Produce a Chemoattractant for Astrocytes"
- 1995- ARVO, Wilmer Eye Meeting, Sarasota, 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
  IO LAB BOOTH "Perileminal Incisions and Topical Anesthesia"
  "Periulminal Incisions Using Topical Anesthesia"
  "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 MicrO-3 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"
  "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
  "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- Tarrant County Medical Society: Fort Worth, TX
  "Cataract Surgery for the 90's"
- 1997- Ophthalmology Society: Bethlehem, PA
  "Cataract Surgery for the 90's"
  "Posterior Chamber Phakic IOLs"
  "Clear Cornea Cataract Surgery"
  "Co2 Laser for Blepharoplasty & Resurfacing"
  "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 Diclofenac Sodium"
  "Cataract Surgery for the Millennium"
- 1998- Maryland Physicians & Eye Surgeons: Maryland
  "Cataract Surgery for the 90's"
  "ICL Update"
  "Toric IOLs"
  "Advanced Techniques for Cataract Surgery using Topical Anesthesia 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 Millennium"
  "ICL Update" "Toric IOLs for Cataract Surgery"
  "Cataract Surgery for the Millennium"
  "International Challenges & Techniques in Advanced Cataract Surgery"
Agenda Item 3K

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 J Pre- AAP, Chicago, IL.
  "CO2 Laser in a Traditional Ophthalmology Practice"
  "CO2 Laser in a Traditional Ophthalmology Practice"
- 1998- The Virginian 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"
  "Erbium Resurfacing for Xanthelasma"
  "CO2 Laser Blepharoplasty"
  "Lower Lid Blepharoplasty Multi-Modal approved"

Presentations: Toric & Implantable Contact Lens:

- 1997- Taustin Eye Center: Louisville, KY.
  "Implantable contact lenses"
  "Toric IOL Update"
  "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"
  "Implantable Contact Lenses for Myopia and Hyperopia"
- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"
  "Implantable Contact Lenses For Myopia & Hyperopia"

International Presentation:

1994- Starr Surgical: Australia
  Five City Lectures: Sydney, 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, Brasil
  "Toric Update & Foldable Lens"
  "Implantable Contact Lens"
  "Advanced Cataract Techniques"

1999- European Society of Ophthalmology
  "Live Cataract Surgery" International Society of Women Eye Surgeons
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 intracapsular 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 world-renowned 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 cataract 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 Vaax 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."

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

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 - 1990

General Medicine

Founder and Medical Director 1978

St. Charles, Minnesota

The Eye Foundation of Utah 1982 - 1990

Ophthalmology

Stahl Eye Associates 1982 - 1990

Garden City, New York

Eye Surgery Center of Louisiana 1990 - 1995

New Orleans, Louisiana

Laser Vision Correction

President and Medical Director 1992 - 1995

Center for Sight

Teplick Vision 1995 - Present
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
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, Equivision, Inc. 1994 – 1997
Adjunct Professor of Ophthalmology, Pacific University 1995-

Presentations
Starr Surgical Intraocular Lens Implantation Course
Sidney, Australia June, 1993
Glucoma 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)
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
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 NVISION’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.

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 Airborne 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
PUBLICATIONS & PRESENTATIONS


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

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 FOY Fellowship, Wilminton Medical Center, Wilmington, DE


BOARDS AND CERTIFICATION:
American Board of Ophthalmology April 21, 1982.
PUBLICATIONS & PRESENTATIONS


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

Chief Investigator
Roseburg Research Associates, LLC
2435 NW Kline Street
Roseburg, OR 97471

EDUCATION
High school: Long Beach Memorial High School, Long Beach, New York

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 Wilmingon Medical Center, Wilmington, DE


BOARDs AND CERTIFICATION:


Agenda Item 3K

Irvaco, WA

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

1980


1980-1981

1982

1983

1984

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1984

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1984

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1981.

1983


Hahnemann University Visiting Professor Program. Good Samaritan Hospital, Pottsville, PA. September, 1984. Doylestown Hospital, Doylestown, PA. October, 1984.
### Agenda Item 3K

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<th>Name</th>
<th>Institution</th>
<th>Dates</th>
<th>Role</th>
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<td>Suburban General Hospital</td>
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<td>Washington (56609)</td>
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<td>Marion Memorial Hospital</td>
<td>1988-1991</td>
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<td></td>
<td>917 West Main Street</td>
<td>Marion, IL 62959</td>
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<td>American Eye Institute</td>
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<td>Attending Surgeon</td>
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<td>Surgery Center of S. Illinois</td>
<td>Marion, IL 62959</td>
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<td>Douglas Community Hospital</td>
<td>1991-2000</td>
<td>Active Medical Staff</td>
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<td>738 W. Harvard Blvd.</td>
<td>Roseburg, OR 97470</td>
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<td>Mercy Medical Center</td>
<td>1991-PRESENT</td>
<td>Active Medical Staff</td>
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<td>2700 Stewart Parkway</td>
<td>Roseburg, OR 97470</td>
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<td>Coquille Valley Hospital</td>
<td>1991-1999</td>
<td>Consultant Staff</td>
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<td>940 E. 5th St.</td>
<td>Coquille, OR 97423</td>
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<td>Roseburg VA Hospital</td>
<td>1992-PRESENT</td>
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<td>NW Garden Valley Blvd.</td>
<td>Roseburg, OR 97470</td>
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<td>Blue Mountain Hospital</td>
<td>1992-1999</td>
<td>Consultant Staff</td>
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<td></td>
<td>John Day, OR 97470</td>
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<td></td>
<td>Roseburg SurgiCenter</td>
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<td></td>
<td>631 W. Stanton</td>
<td>Roseburg, OR 97470</td>
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<td>2003 re-opened as Oregon Surgery Center</td>
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<tr>
<td></td>
<td>2700 Stewart Parkway</td>
<td>Roseburg, OR 97470</td>
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<td></td>
<td>Ocean Beach Hospital</td>
<td>2001-PRESENT</td>
<td>Consultant Staff</td>
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**State Licenses**

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<td>Oregon (17072)</td>
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<td>Washington (56609)</td>
<td>06-20-1998</td>
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</table>

**Hospital Appointments**

- 1981-1989
  - Hahnemann University & Hospital
  - Attending in Ophthalmology
  - Board & Vine Street
  - Philadelphia, PA 19105

- 1981-1989
  - Rolling Hill Hospital & Diagnostic Center
  - Attending in Ophthalmology
  - Elkins Park, PA 19117

- 1971-1987
  - Frankford Hospital
  - Attending in Ophthalmology
  - Frankford & Walking St.
  - Philadelphia, PA 19125

- 1985-1986
  - Cooper Hospital
  - University Medical Center
  - Attending in Ophthalmology
  - One Cooper Plaza
  - Camden, NJ 08103

- 1986-1989
  - St. Mary Hospital
  - Attending in
  - Ophthalmology
  - Frankford & Palmer St.
  - Department of Surgery
  - Philadelphia, PA 19125

- 1986-1989
  - The Osteopathic Medical Center
  - Attending in
  - Ophthalmology
  - City Line Avenue
  - Philadelphia, PA 19131

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NVISION EYE CENTERS

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
Phone: 949.274.4652 • Fax: 949.590.4858 • info@nvisioncenters.com • website: www.nvisioncenters.com
Agenda Item 3K


Director, First Endoscopic Cyclophotocoagulation Certification Course, Minneapolis, MN, August 2002.


Medtronic Solan RGP Course – Endoscopic Photocoagulation Didactic Training and Wet-lab Workshop, 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 Keratocyls"; 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 (Perferential Hyperoposity Perimetry) for Macular Degeneration Detection – Multiple locations

Macular Edema after Cataract Surgery in Diabetic vs. Non-Diabetic eyes, ASCRS, San Francisco, CA.
Agenda Item 3K

Iwaco, WA

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

1980

1980-1981

1982

1983

1981.

1983
“Anatomic Variations in the Anophthalmic Orbit”, Jon-Marc Weston, M.D.,
C. B. Soll, M.D. Presented at the Annual Proxim Society Meeting,

1984
“Experience with Argon Laser trabeculoplasty”, Jon-Marc Weston, M.D.,
Zarko M. Vucicic, 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”,

1984
“Introduction to Clinical Medicine-Ophthalmology”, Hahnemann
University

1988-1991
“Athletic Eye Injuries: Prevention, Diagnosis and Management” World
Video Corp.

1992
“Introduction to the Ophthalmic Examination”, Hahnemann Television

1993
Instructor-American Academy of Ophthalmology “Regional Update-

1994
Hahnemann University Visiting Professor Program. Good Samaritan
Hospital, Pottsville, PA. September, 1984. Doylestown Hospital,

1995

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
pr 949.274.4652 • f 949.509.4858 • ez info@visioncenters.com • see www.visioncenters.com

319
Multicenter Results of Endoscopic Gillary 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

1972

1973

APRIL 1979

1980-1981

1982-1984

1983-1986

1995-1996
Laser Technology Applications in Glaucoma Therapy, J. Weston and Z. Vucicovic.

1996

---

1997

2000
Indications and Incidence of Yag Laser Posterior Capsulotomy.

2003-2004
Phase IV evaluation Alphagan, (AMO).

2005-2007
"Steroid vs. 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
Otsuka Protocol 378-03-202, 53 week Phase III FDA trial, Primary Investigator.

OCTOBER 2007 – APRIL 2008
SEPTMBER 2006 – MAY 2007
2006 – DECEMBER 2008
Otsuka Protocol 57B-03-202, 53 week Phase III FDA trial, Primary Investigator.

2007 – JULY 2008
August 2007 – NOVEMBER 2008
OCTOBER 2008 – AUGUST 2009
PHI for early AMD Detection and New Technology Phakic and Pseudophakic Implants, presented at annual OPA convention, Welches Or.

OCTOBER 2008 – AUGUST 2009
JANUARY 2009 – JULY 2009
Allergan MA-LUM01, FDA trial, Primary Investigator.

JULY 2009 – AUGUST 2009
Bausch & Lamb 0.0% BSV-403, 5-Day Phase III FDA trial, Primary Investigator.

MAY 2009 – AUGUST 2009
Allergan Prostamide/Prostaglandin for glaucoma, 3 year naturalistic

---

75 Enterprise, Suite 200, Aliso Viejo, CA 92655
p: 949.274.4652  f: 949.509.4658  e: info@visionscenters.com  w: www.visionscenters.com

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Agenda Item 3K

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.

1998-1999
NWMG, Board of Directors and Executive Committee.

1999-2000
NWMG Chair

2001-2002
NWMG Medical Director.

Gobb Street Learning Center, Roseburg OR, Board of Directors.

Northwest Surgicenters, Executive Committee, Chairmen of the board.

Northwest Surgicenters, Board of Directors.

2003-2005
Oregon Laser Eye Center, Board of Directors and Medical Director.

2006-2007
Chairman, Credentials Committee, Douglas Community Medical Center.

2008-2009
Douglas Community Medical Center, Board of Trustees.

2010-2011
Douglas County Medical Society, Vice President.

2012-2013
Douglas County Medical Society, President.

2014-2015
Chairman, Joint Mercy / Douglas Division of Surgery.

2016-2017
Douglas County Delegate to Oregon Medical Society annual meeting.

2018-2019
Roseburg Surgicenter: Board of Directors.

2020-2021
Pacific University College of Optometry: Adjunct Assistant Clinical Professor, Forest Grove, Oregon.

2022-2023
President, Roseburg Lions Club.

2024-2025
Board of Directors, Oregon Lions Sight and Hearing Foundation and Member of Sight and hearing Committee.

EXECUTIVE POSITIONS & CONSULTANTSHIPS

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
pe 949.274.4652 • f 949.509.4858 • ea info@nvisioncenters.com • web www.nvisioncenters.com

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Agenda Item 3K

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 Benefactor 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:

Susan Walton-Weston
BFA in Fine Arts, Moore College of Art, Philadelphia, PA
Interests: Painting, Tapestry, Weaving, Horse Riding and Jumping

Whitney, Christine, Alexandra
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.

[Signature]

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
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

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 in Committee

2/6/16 CE
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
<th>FOR BOARD ONLY</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controversies in Modern Eye Care</td>
<td>5/22/16</td>
<td>Dr. Robert K. Maloney, Dr. Alex A. Huang, Dr. Olivia L. Lee, Dr. SriniVas R. Sadda, Steven Trafton</td>
<td>3.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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

Agenda Item 3L

SUNDAY | 05.22.16 | LOS ANGELES

COURSE DIRECTOR

Robert K. Maloney, MD, MA, (Oxon)
Director, Maloney Vision Institute
Clinical 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

Srini Vas 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
<table>
<thead>
<tr>
<th>Registration</th>
<th>7:30</th>
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<tbody>
<tr>
<td>Breakfast &amp; Sponsor Lecture (non-CE)</td>
<td>8:00</td>
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<tr>
<td>The Hot Eye: Evaluation of Anterior Uveitis</td>
<td>Dr. Lee</td>
</tr>
<tr>
<td>Size Matters: Clinical Pearls for Diagnosing Narrow Angle Glaucoma</td>
<td>Dr. Huang</td>
</tr>
<tr>
<td>Discussion</td>
<td>9:00</td>
</tr>
<tr>
<td>Vision at 300 mph</td>
<td>Mr. Trafton</td>
</tr>
<tr>
<td>Case Presentations in Cataract &amp; Refractive Surgery</td>
<td>Dr. Maloney</td>
</tr>
<tr>
<td>Dry Macular Degeneration: What We All Need to Know</td>
<td>Dr. Sadda</td>
</tr>
<tr>
<td>Refractive Cataract Surgery in 2016</td>
<td>Dr. Maloney</td>
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<tr>
<td>Discussion</td>
<td>10:25</td>
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<tr>
<td>The Eye in Rheumatologic Disease</td>
<td>Dr. Lee</td>
</tr>
<tr>
<td>Is It Glaucoma or Is It Inevitability?</td>
<td>Dr. Huang</td>
</tr>
<tr>
<td>Peripheral Retinopathy in Diabetes: Why It Matters</td>
<td>Dr. Sadda</td>
</tr>
<tr>
<td>Postoperative Care of the Cataract Patient</td>
<td>Dr. Maloney</td>
</tr>
<tr>
<td>Discussion</td>
<td>11:40</td>
</tr>
<tr>
<td>Adjourn</td>
<td>12:00</td>
</tr>
</tbody>
</table>
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
Hamiton 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”
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 Sicht 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

Alex Ansun Huang
University of California, Los Angeles
Doheny Eye Institute
1355 San Pablo Street, # 402
Los Angeles, CA 90033
Tel: 410-736-6878, E-mail: Ahuang@doheny.org
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 Dastridou, MD

Hong-Yang Zhang MD
Chirayu Moohindru

**Teaching/Education Presentations**

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
- 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  
*Supervisor: Dr. Solomon H. Snyder*
Study on function of endogenous D-amino acids (serine and aspartate)

The Johns Hopkins University  
*Supervisor: Dr. Alex L. Kolodkin*
Self-funded by Grass Foundation  
Study on *Drosophila* semaphorin based axon guidance

May 1997–May 1999  
Pomona College  
Department of Neuroscience Research Education Program  
*Supervisor: Dr. Karen D. Parfitt*
Study on adenylate cyclase mediated hippocampal long-term potentiation

Sep 1995–Jan 1997  
Pomona College  
Department of Psychology  
*Supervisor: Dr. William P. Banks*
Study on Implicit vs. Explicit Memory

---

**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:**

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

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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 Investigator

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 Patients That are High risk (STARFISH). (UCSD 111223): Co-Investigator

**RESEARCH SUPPORT**
1) National Eye Institute: Mentored Clinical Scientist Research Career Development Award (K08): K08 EY024674 PI 9/30/2014- 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

   $10,000 (COMPLETED)

5) American Glaucoma Society Mentoring for Advancement of Physician-Scientists (MAPS) PI 12/2014-12/2015

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
$10,000 (COMPLETED)


LIST OF JOURNAL PUBLICATIONS


Alex Ansun Huang
University of California, Los Angeles
Doheny Eye Institute
1355 San Pablo Street, # 402
Los Angeles, CA 90033
Tel: 410-736-9578, E-mail: Ahuang@doheny.org

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**BOOK PRESENTATIONS**


**REVIEW PRESENTATIONS**


Alex Anaun Huang
University of California, Los Angeles
Doheny Eye Institute
1355 San Pablo Street, # 402
Los Angeles, CA 90033
Tel: 410-736-9878, E-mail: Ahuang@doheny.org


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: 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


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


Dastiridou, A., Marion, K., Swamy, R., Huang, A.S., Sadda, S.R., Francis B.A., and Chopra, V.:


Huang, A.S. Towards Customized Glaucoma Care. Doheny Eye Institute CME; Doheny Days, Los Angeles, CA 2014


Alex Ansun Huang
University of California, Los Angeles
Doheny Eye Institute
1355 San Pablo Street, # 402
Los Angeles, CA 90033
Tel: 410-736-9878, E-mail: Ahuang@doheny.org

OLIVIA L. LEE, MD

Curriculum Vitae

Office: Department of Ophthalmology
David Geffen School of Medicine at UCLA
Doheny Eye Center UCLA
800 S. Fairmount Ave., Suite 215
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

Updated 11 February 2016
OLee@jsei.ucla.edu
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

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

Updated 11 February 2016
OLee@isi.ucla.edu
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  Visiting Consultant, Lifeline Express Eye Train
            (Anticipated October 2015)

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

Updated 11 February 2016
OLee@jsei.ucla.edu
OLIVIA L. LEE, MD
Southern California Cornea Society
Orange County Cornea Society
Women in Ophthalmology

## HONORS AND SPECIAL AWARDS

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>February 1996</td>
<td>Outstanding Scholastic Achievement in Biomedical Science, American Heart Association</td>
</tr>
<tr>
<td>February 1997</td>
<td>Outstanding Scholastic Achievement Award, Chinese Medical and Health Association,</td>
</tr>
<tr>
<td>April 1998</td>
<td>The White House Presidential Scholars Program</td>
</tr>
<tr>
<td>May 1998</td>
<td>The State of Maryland Governor’s Citation</td>
</tr>
<tr>
<td>1998</td>
<td>Alumnus, Howard Hughes Medical Institute/NIH Internship Program, July 1997-May</td>
</tr>
<tr>
<td>1998</td>
<td>President’s Honor Roll at Rice University</td>
</tr>
<tr>
<td>1998 – 2005</td>
<td>Rice/Baylor Medical Scholars Program</td>
</tr>
<tr>
<td>2001 –</td>
<td>Present Member, <em>Psi Chi</em>, National Honor Society in Psychology</td>
</tr>
<tr>
<td>May 2, 2004</td>
<td>Best Paper of Session 2-L Refractive: Pachymetry, Wavefront; ASCRS Symposium,</td>
</tr>
<tr>
<td>2005</td>
<td>Honorable Mention, Student Research Symposium, Baylor College of Medicine, April</td>
</tr>
<tr>
<td>2008</td>
<td>AMO Resident Writers Award Nominee</td>
</tr>
<tr>
<td>June 2009</td>
<td>Louise J. Girard Award for Ophthalmic Research</td>
</tr>
<tr>
<td>April 23, 2012</td>
<td>Winner, ASCRS 2012 Film Festival Winner, Category New Producer,</td>
</tr>
<tr>
<td>2012 – 2015</td>
<td>Pasadena Magazine Top Doctors</td>
</tr>
</tbody>
</table>

*Updated 11 February 2016
OLee@iscl.ucla.edu*
OLIVIA L. LEE, MD

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
OLIVIA L. LEE, MD

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

   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. “Ptterygium Pathogenesis.”
   Sponsor: New York Medical College
   Dates: 2008-present
   Role: Collaborator
   Collaborator: Lars Bellner, Ph.D., New York Medical College.
OLIVIA L. LEE, MD

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.
OLIVIA L. LEE, MD

2011–2014 University of Southern California Medical Students, USC/Doheny Eye Institute, Ophthalmology Residents, Cornea Fellows, and Medical 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:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Rachel Epstein</td>
<td>Chicago Medical School</td>
</tr>
<tr>
<td>2013</td>
<td>Mark Breazzano</td>
<td>SUNY Upstate Medical University</td>
</tr>
<tr>
<td>2015</td>
<td>Jennifer Danesh</td>
<td>David Geffen School of Medicine, UCLA</td>
</tr>
</tbody>
</table>

RESIDENT RESEARCH MENTORING:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Lloyd Cuszio, MD</td>
<td>USC Ophthalmology Resident</td>
</tr>
</tbody>
</table>

POSTDOCTORAL RESEARCH MENTORING:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-14</td>
<td>Jyotsna Maram, OD, PhD</td>
<td></td>
</tr>
<tr>
<td>2013-</td>
<td>Tudor Tepelus, PhD</td>
<td></td>
</tr>
<tr>
<td>2013-</td>
<td>Jianyan Huang, MD, PhD</td>
<td></td>
</tr>
<tr>
<td>2014-15</td>
<td>Anna I Dastiridou, MD</td>
<td></td>
</tr>
<tr>
<td>2014-</td>
<td>Ping Huang, MD, PhD</td>
<td></td>
</tr>
<tr>
<td>2015-</td>
<td>Handan Akil, MD, FEBO</td>
<td></td>
</tr>
</tbody>
</table>
### CORNEA CLINICAL FELLOW MENTORING:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>Veena Raiji, M.D.</td>
<td>Medical Retina/Uveitis Fellow Assistant Professor</td>
<td>George Washington University</td>
</tr>
<tr>
<td>2011-2012</td>
<td>Mingwu Wang, M.D., Ph.D.</td>
<td>Cornea Fellow Associate Professor</td>
<td>University of Arizona</td>
</tr>
<tr>
<td>2011-2012</td>
<td>Omar Chaudhary, M.D.</td>
<td>Cornea Fellow Private practice</td>
<td></td>
</tr>
<tr>
<td>2012-2013</td>
<td>Pho Nguyen, M.D.</td>
<td>Cornea Fellow Private practice</td>
<td></td>
</tr>
<tr>
<td>2012-2013</td>
<td>Benjamin Bert, M.D.</td>
<td>Cornea Fellow Private practice and Clinical Faculty</td>
<td>California Pacific Medical Center &amp; University of California San Francisco</td>
</tr>
<tr>
<td>2013-2014</td>
<td>Jennifer Lee, M.D.</td>
<td>Cornea Fellow Assistant Professor Dean McGee Eye Institute</td>
<td></td>
</tr>
<tr>
<td>2013-2014</td>
<td>Kristine Yin, M.D.</td>
<td>Cornea Fellow Private practice</td>
<td></td>
</tr>
<tr>
<td>2014-2015</td>
<td>Jonathan Heston, MD MSc, FRCSC DA DCH Ophth</td>
<td>Uveitis Fellow Private Practice and Volunteer Faculty</td>
<td>University of Alberta</td>
</tr>
<tr>
<td>2014-2015</td>
<td>Neil Vyas, MD</td>
<td>Cornea Fellow Private Practice</td>
<td></td>
</tr>
<tr>
<td>2014-2015</td>
<td>Anjali Tannan, MD</td>
<td>Cornea Fellow Assistant Professor, Rush Medical Center</td>
<td></td>
</tr>
<tr>
<td>2015-</td>
<td>Laura Vickers, MD</td>
<td>Cornea Fellow Current Fellow, Doheny Eye Center, UCLA</td>
<td></td>
</tr>
</tbody>
</table>

### UVEITIS CLINICAL FELLOW MENTORING:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-</td>
<td>Meghan Berkenstock, MD</td>
<td>Uveitis Fellow Current Fellow, Stein Eye Institute UCLA</td>
<td></td>
</tr>
</tbody>
</table>
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


OLIVIA L. LEE, MD


23. **Lee OL.** "Ocular immunology." Basic and Clinical Science Course Residents Lecture Series, Doheny Eye Institute, Los Angeles, CA. December 23, 2011.
OLIVIA L. LEE, MD


34. Lee OL. “Immune-mediated corneal melting diseases.” Division of Rheumatology Clinical Conference, University of Southern California, Los Angeles, CA. September 24, 2012.


OLIVIA L. LEE, MD

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.


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.


47. Cuzzo L and **Lee OL.** “Not your average scleral melt.” VISTA Cornea Society meeting, Seattle, WA. May 5, 2013.


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OLIVIA L. LEE, MD


OLIVIA L. LEE, MD


OLIVIA L. LEE, MD


TEACHING & INVITED LECTURES — International

OLIVIA L. LEE, MD


OLIVIA L. LEE, MD

PUBLICATIONS & Related Activities

A. RESEARCH PAPERS (PEER-REVIEWED)


B. RESEARCH PAPERS PEER-REVIEWED (In Press):

None.

C. RESEARCH PAPERS (Submitted/In Revision):


D. RESEARCH PAPERS (Non-Peer Reviewed):

Updated 11 February 2016
OLee@sei.ucla.edu
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:


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.


OLIVIA L. LEE, MD

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.


8. Tepelus T, Sadda SR, Lee OL. Characterization of corneal involvement in eyes with mucous membrane pemphigoid by in vivo confocal microscopy.


PAPERS PRESENTATIONS:


8. Lee OL, Bagdasaryan 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.
OLIVIA L. LEE, MD


10. Patel AP, **Lee OL.** Conjunctival sparing technique with use of fibrin adhesive in pterygium surgery. ASCRS Symposium, Chicago, IL, April 23, 2012.


OLIVIA L. LEE, MD

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.


BOOKS

None.

BOOKS (In Preparation):

None.

INTERNET PUBLICATIONS:


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.


8. Yin D and Lee OL. Risk factors for pterygium recurrence after primary excision. ARVO Annual Meeting. Fort Lauderdale, FL. May 9, 2011.


OLIVIA L. LEE, MD


FILM PRESENTATIONS:


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: (310) 208-3937
Facsimile: (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:

Clinical Committee, 1991-1998
Research Committee, 1991-1998
Resident Selection Committee, 1991-1994
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**

- 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
- 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

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
   Journal of Cataract and Refractive Surgery
   Ophthalmic Surgery and Lasers
   Journal of Refractive Surgery

Patents


Books


Peer-Reviewed Research Papers


Scientific Presentations


44. Smith RJ, Manche EE, Maloney. Radial Keratotomy Enhancement Following Myopic Keratomileusis In Situ (ALK) (paper). International Society of Refractive Surgery annual meeting, Atlanta, GA, October, 1995.

45. Manche EE, Elkins BS, Maloney RK. Keratomileusis In Situ (Automated Lamellar Keratoplasty) for High Myopia (paper). International Society of Refractive Surgery annual meeting, Atlanta, GA, October, 1995.


50. Smith RJ, Manche EE, Maloney, RK. Radial Keratotomy Enhancement Following Myopic Keratomileusis In Situ (paper). International Society of Refractive Surgery annual meeting, Minneapolis, MN, July, 1996.

51. Maloney RK. Epithelial Ingrowth after Lamellar Refractive Surgery (paper). International Society of Refractive Surgery annual meeting, Chicago, IL, October, 1996.

52. Hersh PS, Berkeley RG, Brint SF, Durrie DS, Gordon M, Maloney RK, Michelson MA, Thompson VM. Photorefractive Keratotomy (PRK) and Laser Assisted In-Situ Keratomileusis on the Correction of Myopia Greater Than -6.0 Diopters (paper). American Academy of Ophthalmology annual meeting, Chicago, IL, October, 1996.

53. Smith RJ, Chan WK, Maloney RK. The Prediction of Surgically Induced Refractive Change from Corneal Topography (paper). International Society of Refractive Surgery annual meeting, Chicago, IL, October, 1996.

54. Smith RJ, Maloney RK. A New Technique for Marking the Ablation Zone for Photorefractive Keratectomy (paper). International Society of Refractive Surgery annual meeting, Chicago, IL, October, 1996.

55. Faktorovich EG, Maloney RK, Price F, the ARC-T Study Group. The Coupling Ratio in Astigmatic Keratotomy (paper). International Society of Refractive Surgery annual meeting, Chicago, IL, October, 1996.


78. Maloney RK. Results of the U.S. FDA Phase I and II studies of the Artisan phakic IOL for myopia (paper). American Society of Cataract and Refractive Surgery Annual Meeting, Seattle, WA. April, 1999.


83. Davidorf JM, Maloney RK, Eghball F. Hyperopic LASIK: Varying the ablation zone diameter with the VISX star (paper). American Academy of Ophthalmology annual meeting, Orlando, FL, October 1999.


100. Asbell PA, McDonald MB, Maloney RK, Davidorf JM, Hersh PS, Manche EE. One-year results of a multi-center U.S. Clinical Trial on conductive keratoplasty (ck) for correcting hyperopia (paper). The World Refractive Surgery annual meeting, Orlando, FL, July 2001.


106. McDonald MB, Hersh PS, Davidorf JM, Maloney RK, Manche EE. One-year results of a multi-center United States Clinical Trial on conductive keratoplasty (CK) for correcting hyperopia (paper). International Society of Refractive Surgery annual meeting, New Orleans, LA, November 2001.


111. Asbell PA, McDonald MB, Hersh PS, Davidorf JM, Maloney RK, Manche EE. United States multicenter trial on conductive keratoplasty (CK) for correcting spherical hyperopia: recent results of two-year follow-up (paper). Contact Lens and Eyecare symposium annual meeting, Lake Buena Vista, FL, January 2003.


120. Maloney RK. Flap Thickness & Variability with the XP Microkeratome (paper). American Society of Cataract and Refractive Surgery annual meeting, San Francisco, CA, March 2006.


125. Maloney RK. Nomogram to Improve Flap Centration with the IntraLase FS-60 Laser (paper). American Society of Cataract and Refractive Surgery annual meeting, Chicago, IL, April 2008.


127. Maloney, RK. Effect of Operating Room Humidity on the Outcome of LASIK. American Society of Cataract and Refractive Surgery annual meeting, Boston, MA, April 2010.


Abstracts


Book Chapters and Monographs


Letters, Commentary, Brief Reports


34. Maloney RK. The Light Adjustable Lens: The surgeon may optimize this IOL’s power postoperatively. Cataract & Refractive Surgery Today 2003; 3(10):45-46

35. Maloney RK. Therapeutic wavefront-guided LASIK may help patients unhappy with previous correction. Ophthalmology Times 2004 May; 29(9):54.


61. Maloney RK. Postop Day-1 Results with the iLASIK Technology Suite. Refractive Eyecare 2010; 14(2):27.


**Named Lectureships**


2. Distinguished Lanz Refractive Surgery Award lecture. An IOL whose power is laser-adjustable in-vivo. World Refractive Surgery annual meeting; Orlando; FL; July 2001.


Courses, Invited Lectures, and Symposia


18. Invited Speaker. Egredados del Hospital General de Mexico annual meeting, Queretaro, Mexico, July 1993.


51. Invited Speaker. Instituto de Molestias Oculares, Associacao Brasileira de Bancos de Olhos e Transplante de Cornea, Sao Paulo, Brazil, May 1995.


73. Visiting Professor. Stanford University. Stanford, CA, April 1996.


77. Visiting Professor. Sinai Hospital of Baltimore, MD; May 1996.


80. Course Director. Photorefractive keratectomy (certification course). Jules Stein Eye Institute, University of California, Los Angeles, CA, September 1996.


82. Special Invited Speaker. 62nd Annual Meeting of the Mid-Japan Ophthalmological Society. Osaka, Japan, October 1996.


89. Visiting Professor. Naval Regional Medical Center, San Diego, CA, June 1997.


92. Invited Speaker. Santa Monica Rotary Club, Santa Monica, CA, August 1997.


94. Invited Speaker. Optical Society of America annual meeting, Long Beach, CA, October 1997.


121. Keynote Speaker. VISX University symposium. Irvine, CA, June 1999


156. Invited Speaker. The Cleveland Clinic annual meeting. Cleveland, OH, May 2002.


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.


229. Moderator and Invited Speaker. Factors Affecting Consistent High Quality Results. AMO Users Group meeting, San Francisco, CA, October 2009.


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
SriniVas Sadda, M.D.

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
July 1, 2000-June 30, 2002

Assistant Professor of Ophthalmology (tenure track)
SriniVas Sadda, M.D.  

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 2014

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,  
2009-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:

Committee Service:

University of Southern California  
KSOM/Dept. of Ophthalmology:

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 –
Srinivas Sadda, M.D.

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 –


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 –


By-Laws Committee The Retina Society, 2012


8th Editorial Board of the Chinese Journal of Experimental Ophthalmology

SriniVas Sadda, M.D.

International Advisory Board of the Scientific Program Committee of the 31st APAO Congress 2016, Chinese Taipei


**Professional Associations:**
- 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, 1998 –

- 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:
SriNivas Sadda, M.D.

Editorial Services:

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 –
SriniVas Sadda, M.D.  

**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 –
7. Chairman, Electronic Medical Records Committee, USC Department of Ophthalmology, 2003 –

**Teaching Responsibilities:**
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:**
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 (certify resident laser experiences Friday afternoon at LA County Medical Center 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):**


5. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, January 12, 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.


SriniVas Sadda, M.D.


15. Presenter: LAC+USC Medical Center Medical Student Years III & IV Ophthalmology Clerkship, "Diabetic Retinopathy," Doheny Eye Institute, Los Angeles, CA, March 1, 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.


Resident Lectures (Sample Selected List):


42. Presenter: USC Resident Lecture Series, "FA OCT" Doheny Eye Institute, Los Angeles, CA, August 30 2013.


**Special Educational Courses:**

   a. Presenter: "Current Concepts in Diabetic Retinopathy"

   a. Course Director/ Scientific Program Organizer
   b. Presenter: "Introduction to Eye Anatomy and Retinal Degenerations"
SriNivas Sadda, M.D.  

   a. Course Co-Director / Scientific Program Organizer
   b. Presenter: "Retinal Transplantation"

   a. Course Co-Director

5. Age-Related Macular Degeneration Course, Wilmer Ophthalmological Institute, Johns Hopkins, Baltimore, MD:
   b. Panelist: Faculty Panel for Case Presentations, May 31, 2002
   d. Instructor: "Fluorescein Angiography for Photodynamic Therapy and Laser Photocoagulation," June 1, 2002

   a. Course Instructor

   a. Course Instructor

   a. Course Director
   b. Moderator
   d. Presenter: "Optical Coherence Tomography – Do We Need FA?"

   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"
   a. Presenter: Retina Review – Part I

   a. Presenter: Posterior Segment

   a. Presenter: Posterior Segment

   a. Moderator
   b. Presenter: “Issues with Exports of OCT Data to Reading Centers”

   a. Moderator

   a. Moderator
   b. Presenter: "Optimal Spectral Domain Optical Coherence Tomography Scanning Density for Clinical Use"

   a. Case presenter

   a. Presenter: “Spectral Domain Practical and Networking Consultations for 3-D OCT”

   a. Moderator

   a. Presenter: "Posterior Segment: Medical Retina"

   a. Presenter: "Posterior Segment: Medical Retina"
   a. Presenter: "Anti-VEGF Therapy: Emerging Options for Treatment of Diabetic Macular Edema"
   b. Presenter: "Combination Therapy for Diabetic Macular Edema"

   a. Moderator

   a. Moderator


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"

   a. Optical Coherence Tomography in Classifying Disorders of the Vitreomacular Interface: A Contemporary View"

   a. Course Chair
   b. Panelist

   a. Case Presentation

   a. Course Chair
   b. Panelist


31. 2014 Spectral Domain OCT Interpretation for the General Ophthalmologist (Instruction Course), American Academy of Ophthalmology, October 20 2014
SriniVas Sadda, M.D.  

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”, Willis Eye Hospital, Boston, January 11 2015

   a. Presenter: Medical Retina, February 22 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
Srinivas Sadda, M.D.

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. Zumbarge 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


Honor Award, American Society of Retina Specialists, 2007

Achievement Award, American Academy of Ophthalmology, 2009

Best Doctors in Southern California, Los Angeles Times, 2009
SriniVas Sadda, M.D.

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: January 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 gsk33376 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
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
SriniVas Sadda, M.D.

Efficacy and Safety of Ranibizumab Injection in Subjects with Clinically Significant Macular Edema with Center Involvement Secondary to Diabetes Mellitus (RISE).
Source: Genentech
Amount: $160,310
Dates: October 9, 2008 –
Role: Principal Investigator, 1% effort

Past Clinical Trials as Principal Investigator:
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: $395,820
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

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) Secondary 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. LSOCO: 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.
SriniVas Sadda, M.D.  

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. CBPD025AUS01 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  

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-EY023184
   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: $50,000
   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*
SriniVas Sadda, M.D.

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: $480,111
SriniVas Sadda, M.D.

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: $48,844 (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 transplantation
   Amount: $168,000 (no PI salary support)
   Dates: January 1, 2005-December 31, 2008
   Role: Principal Investigator, 5% effort
SriniVas Sadda, M.D.

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 - 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
SriniVas Sadda, M.D.

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
- Teledermatology 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):*

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<tr>
<th>SriniVas Sadda, M.D.</th>
<th>Page 29</th>
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<tr>
<td>8. Chilean Vitreo-Retinal Society Meeting, Santiago, Chile, South America, March 19, 2004:</td>
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<tr>
<td>a. &quot;Update on Age Related Macular Degeneration&quot;</td>
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<td>b. &quot;New Developments in Retinal Transplantation&quot;</td>
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<tr>
<td>c. &quot;Quantitative Retinal Imaging&quot;</td>
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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:


22. XXVII Pan-American Congress of Ophthalmology, Cancun, Mexico, June 3, 2007:
   b. "Retinal Imaging"


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."


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


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"


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"


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

54. Imaging-OCT 2009, Saviosa 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, 2008:
    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,

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"


60. "Adaptive Optics in Ophthalmic Imaging," Ophthalmic Photographers Society
    Educational Program, American Academy of Ophthalmology Meeting, October 25,
    2009.

    Symposium Advances In Diagnostic And Surgical Technology For Retinal Diseases:

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:
   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

   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"


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 Sada, MD
   b. "What's New in Fundus Autofluorescence?"
   c. "Long Wavelength OCT Imaging?"
   d. "OCT in the Management of Neovascular AMD"


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"


77. Saudi Ophthalmology 2011 – 28th Annual Symposium of the King Khaled Eye Specialist Hospital and the 24th Annual Scientific Meeting of the Saudi Ophthalmological 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"
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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.


84. 23rd Annual Midwest Ocular Angiography Conference, Costa Rica, August 3-6, 2011:  
   a. Moderator and Case Presentation, Session 3  
   b. "Viral Retinitis"


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 DOC Symposium: Age-Related Macular Degeneration, Baden-Baden, Germany, September 5-10, 2011:  
   a. Moderator. "Imaging in AMD"  
   b. "Quantitative Measures of Early AMD on SD-OCT Imaging"


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"
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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"


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 Mei Tai with the Masters
   e. Panel Discussion: How are we Treating Wet Macular Degeneration in 2012?
   f. "OCT in the Management of Wet AMD"


96. World Ophthalmology Congress 2012, Abu Dhabi, UAE, February 16-20, 2012:
   a. Co-Chair & Presenter: "Advances in Funds Autofluorescence," Retinal Imaging Session, February 17, 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"


100. OIC Wave Meeting, Vail, CO, June 23-26, 2012:
    a. "Choroidal Imaging with OCT"
    b. Case Presentation


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"


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.


108. Editorial Planning and Section Editors Meeting, Retina Times, ASRS, Las Vegas, NV, August 26, 2012.
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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 Source OCT Format"
   c. "Retinal Substructure 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"


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"


   a. "VEGF and the Pathophysiology of RVO"

   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, Jan. 8, 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"

   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. Prostar Investigator Kick-off meeting at FFB Headquarters, Columbia, MD, March 14
   2013
   a. Presentation: "Imaging for Stargardt’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 Micropereimetry"

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
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146. SOE European Society of Ophthalmology 2013, Copenhagen, June 9 – 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"

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. Ophthalmological 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
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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"

   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

   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"

   a. "Future of Imaging"
   b. "Wet AMD cases, Formula Retina: Wet AMD/Naive CNV"
   c. "Bilateral Acute Vision 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 Spectrals Spectral Domain OCT vs. Zeiss Cirrus Spectral Domain OCT" (Scientific Poster)
   k. OCT and Vision Results at 6 Months After Transition to Afibercept 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

   a. "Retinal reflectivity analysis: extracting more from OCT Data"

170. Washington Univ. St. Louis, Jan. 16 2014
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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"

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 SD-OCT to Measure the Progression of GA in Wet AMD after Anti-VEGF Therapy"

   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"

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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"

a. Moderator & Course Co-Director

182. World Ophthalmology Congress 2014, Tokyo, Japan April 2-6 2014  
a. Presenter: "Correlation of Precise Area of Peripheral Non-Perfusion with the Ischemic Indent 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  

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  

a. "Dislocated IOL Repair"  
b. "What’s next in OCT"  
c. "Predictive Value of Peripheral Non-Perfusion in Retinal Venous Occlusive Disease"

186. 88th Annual Spring Postgraduate Conference and 30th Annual Research Day: Posterior Segment Update for the Comprehensive Ophthalmologist, Kellogg Eye Center, University of Michigan, 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, Iceland 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. Vireoretina Up To Date Congress, Nicolaus Hotel, Bari, Italy, July 4-5 2014
   a. "OCT Angiography"

   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. "Discussin of OCT, Medical and Surgical cases"

   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
   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

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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

   497. Ultra-High Resolution and Swept Source OCT - What Will We Be Able to See in Five Years?

   a. 498. Future of OCT: OCT Angiography
   b.  

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Agenda Item 3L

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14th Euretina Congress, London, September 12-14 2014

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. Micropereimetry: 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 Symposium
g. Co-Chairperson: Imaging III Free Paper Session


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"

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

The Royal Australian and New Zealand College of Ophthalmologists (RANZCO)
46th Annual Scientific Congress 2014, Brisbane, Australia, Nov. 22-26 2014
Agenda Item 3L

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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  
  b. Talk on Widefield Imaging, December 23 2014

205-203. Talk: "Developments in Wide Imaging", LV Prasad Eye Hospital, Hyderabad, India, December 24 2014


  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

  a. AMD Phenotype Genotype Steering Committee  
  b. The Role of Imaging in Atrophic AMD (Tutorial)

  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

  a. Talk: "Applications of Widefield Imaging"
SriniVas Sadda, M.D.  

b. Talk: "Future OCT Technology"

242-210. The 34th Annual Squaw Valley-Northstar Vireoretinal 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

243-211. 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?

244-212. 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

245-213. "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"


   a. Moderator & Course Co-Director

248-216. 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

249-217. Transitions into Clinical Practice, CME course, Santa Monica, CA, March 29 2015
   a. Session 3: Retinal Vein Occlusion - Case presentations and clinical data update

250-216. The 30th APAO Congress, Guanzhou, China, April 1-4 2015
SriniVas Sadda, M.D.

b. Talk: "New Developments in Retinal Imaging", AAO Symposium: New Developments in Retina, April 1 2015

224.219. 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

224.222. First Macular 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"

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 Micropertimetry in AMD" at Next generation retinal diagnostics: advanced micropertimetry and OCT angiography symposium
Srinivas Sadda, M.D.  

Agenda Item 3L

c. Talk: "SD-OCT imaging in dry AMD" & co-chair with Dr. Holz New Insights into Dry AMD session

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

Special Guest Lectures (Local):


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.


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.


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.


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):**


SriniVas Sadda, M.D.  

17. Presenter: “Applications of OCT and Other Imaging Modalities in Retina Clinical Trials.” Alcon Campus, Ft. Worth, TX, March 25, 2011.


PUBLICATION/BIBLIOGRAPHY

RESEARCH PAPERS (PEER REVIEWED):

A. RESEARCH PAPERS – PEER REVIEWED:


43. Thomas BB, Samant DM, Seiler MJ, Aramant RB, Sheikholeslami S, Zhang K, Chen Z, Sadda SR. Behavioral evaluation of visual function of rats using a visual discrimination


SriniVas Sadda, M.D.  


132. Keane PA, Heussen FM, Ouyang Y, Mokwa N, Walsh AC, Tufail A, Sadda SR, Patel PJ. Assessment of Differential Pharmacodynamic Effects using Optical Coherence...
SriniVas Sadda, M.D.  


Srinivas Sadda, M.D.  


Srinivas Sadda, M.D.  


Srinivas Sadda, M.D.  


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Srinivas Sadda, M.D.  


Srinivas Sadda, M.D.


B. RESEARCH PAPERS – PEER REVIEWED (IN PRESS):


C. RESEARCH PAPERS – PEER REVIEWED (SUBMITTED):


20. Harini A, Nittala MG, Sadda SR. Quantitative Characteristics of Spectral-domain Optical Coherence Tomography in the Corresponding Areas of Increased Autofluorescence at
SriNiVas Sadda, M.D.

the Margin of Geographic Atrophy in Patients with Age Related Macular Degeneration. OSLI 2014.


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:


CHAPTERS (IN PRESS):


LETTERS TO THE EDITOR:

None.

REVIEWS:


EDITORIALS:

None.

PAPERS IN PREPARATION (RESEARCH COMPLETED):

None.

ABSTRACTS, POSTERS, AND SHORT COMMUNICATIONS (PEER REVIEWED):


Srinivas Sadda, M.D.  


72. Sadda SR, Shapiro H, Schneider S. Anatomic Outcomes at Years in the ANCHOR Study Comparing Ranibizumab (Lucentis™) and Verteporfin Photodynamic Therapy (PDT) in Predominantly Classic Neovascular Age-Related Macular Degeneration (AMD). ARVO, Ft. Lauderdale, FL, May 9, 2007 (Poster).


97. Briceno CA1, Keane PA, Pate PJ2, Chen FK, Ouyang YL, Ikeji F, Walsh AC, Tufail A, Sadda SR. Quantitative Optical Coherence Tomography Findings From the ABC Trial in Various Subtypes of Neovascular Age-Related Macular Degeneration. ARVO, Ft. Lauderdale, FL. May 7 2009 (Poster).


104. See JL, Pappuru RR, Ouyang Y, Sadda SR. Variation in Outer Retinal Substructure Thicknesses With Age in Normal Eyes. ARVO, Ft. Lauderdale, FL. May 2 2010 (Poster).

105. Jeng DA, Sadda SR. Commonly Evaluated Optical Coherence Tomography Features Are Not Predictive of Number of Anti-VEGF Injections in Neovascular Age-Related Macular Degeneration. ARVO, Ft. Lauderdale, FL. May 2 2010 (Poster).


SriniVas Sadda, M.D.  

After Instillation of Artificial Tears in Patients With Dry Eyes. ARVO, Ft. Lauderdale, FL. May 4 2010 (Poster).


119. Danis RP MD; Sadda SR MD; Jiao J, PhD ; Whitcup SM. Center Retinal Thickness in Patients With Macular Edema Due to Retinal Vein Occlusion Treated with Dexamethasone Intravitreal Implant. American Academy of Ophthalmology, October 17, 2010. (Poster).

120. Sadda SR, Patel P. Characteristics of Choroidal Lesions With Long Wavelength 1050-nm OCT. Academy of Ophthalmology, October 17 2010 (Poster)


122. Vascular Changes in Patients Treated With Dexamethasone Intravitreal Implant for Macular Edema Due to Branch or Central Retinal Vein Occlusion Over 12 Months. Academy of Ophthalmology, October 18 2010 (Poster).


134. Danis RP1, Sadda S, Jiao J, Li XY, Whitchurch SM. Central Retinal Thickness Following Dexamethasone Intravitreal Implant Treatment in Patients With Macular Edema Due to Branch or Central Retinal Vein Occlusion. ARVO, Ft. Lauderdale, FL, May 2 2011 (Poster).


141. Walsh AC, Heussen FM, Sadda SR, Ouyang Y. Prospective Comparison of Nonmydriatic Imaging and 3D Optical Coherence Tomography (3D-OCT) for Detecting Retinal Abnormalities. ARVO, Ft. Lauderdale, FL, May 2 2011 (Poster).


147. Sadda SR. Effect of Anti-VEGF Therapy on Choroidal Thickness in Patients with Neovascular Age-Related Macular Degeneration. 29th Annual Meeting of the American Society of Retina Specialists, Boston, Massachusetts, August 21 2011 (Paper).


Srinivas Sadda, M.D.  


164. Heussen FM, Ou Yang Yanling, Sadda SR. SD-OCT Based Characterization Of Eyes Transitioning From Early Age-related Macular Degeneration To The Neovascular Form. ARVO, Ft. Lauderdale, FL, May 8 2012 (Paper).

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177. Abdelfatah NS, Zhang H, Boyer DS, Sadda SR. Macular Atrophy in Patients with Neovascular Age Related Macular Degeneration Undergoing Anti-VEGF. ARVO, Denver, CO, May 3 2015 (Paper)


194. Hariri A, Diniz B, Fou L, Lam LA, Nittala MG, Sadda SR. Quantitative OCT Subanalysis of Eyes with Choroidal Neovascularization Switched from Multiple Injections of Bevacizumab or Ranibizumab to Intravitreal Afibercept. ARVO, Denver, CO, May 6 2015 (Poster)


197. Thorell MR, Goldhardt R, Nunes RP, Carlos Alexandre de Amorim Garcia Filho, Gregori G, Yehoshua Z, Feuer WJ, Sadda SR, Rosenfeld PJ. Reticular Pseudodrusen, Enlarging Geographic Atrophy, and Decreased Choroidal Thickness in
SriniVas Sadda, M.D.  

Age-Related Macular Degeneration. ARVO, Denver, CO, May 6 2015 (Poster)


TEXTBOOK:


Miscellany Publications – Non-Peer Reviewed:


PATENTS AND INVENTIONS


Paul Lin, O.D.
Mojave Desert Optometric Society
2720 E. Palmdale Blvd. Ste. 133
Palmdale, CA 93550

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

Mar. 3, 2016

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 CEUs. 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.
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

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<thead>
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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.

Kirstina Eklund

Kirstina Eklund, CE Technician

for: Practice and Education Committee Member
## Course Description CE Request

<table>
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<th>Course Title</th>
<th>Date(s) of Course</th>
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<td>Joseph H Chang, M.D.</td>
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**COMMITTEE COMMENTS:**

for: Practice and Education Committee Member
Paul Lin, C.D.
Mojave Desert Optometric Society
2720 E. Palmdale Blvd. Ste. 133
Palmdale, CA 93550

State Board of Optometry
2450 Del Paso Road, Suite 105
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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,

[Signature]

Paul Lin, O.D.
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

cc: afowler@empireeyeandlaser.com

Education
FARRAGUT HIGH SCHOOL, Knoxville, Tennessee, 1984-1988, Valedictorian
EMORY UNIVERSITY, Atlanta, Georgia
   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, 2006-2009
   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

Professional Organizations
Diplomate, American Board of Ophthalmology (Board Certification with Oculoplastic Subspecialty), American Academy of Ophthalmology, American Medical Association, California Medical Association (Kern County Delegates-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

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)
Request for Approval of Continuing Education Course(s)

Harvard Eye Associates  
Attn: Kristine Mays  
25231 Paseo de Alicia, Suite 240  
Laguna Hills, CA 92653

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:

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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
<table>
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<th>Instructor(s)/Lecturer(s)</th>
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<td>Corneal Ulcers</td>
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<td>Charles Keller, MD</td>
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</table>

**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

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**

Rhode Island Hospital, Brown University
Providence, Rhode Island

July 1990 – July 1993

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**

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**

Eden Hospital and Medical Center
Castro Valley, California

August 1988 – July 1989

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

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

Mount Zion Medical Center
Categorical Medical Internship
San Francisco, California

MEDICAL EDUCATION

Boston University School of Medicine
M.D. Degree

September 1980 – June 1984

UNDERGRADUATE EDUCATION

Brown University
A.B. Biology

September 1976 – June 1980

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
| **MEMBERSHIPS** | American Academy of Ophthalmology  
|               | American Society of Cataract and Refractive Surgery  
|               | California Medical Association  
|               | Orange County Society of Ophthalmology  
| **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  

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
## Request for Approval of Continuing Education Course(s)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>Final approval is subject to Board and/or CE Committee review</td>
</tr>
<tr>
<td>Date(s) the course is scheduled to be offered</td>
<td>This course is scheduled for the 2020-2021 academic year</td>
</tr>
<tr>
<td>Topical outline of the course subject matter</td>
<td>The course will cover the latest developments in optometry</td>
</tr>
<tr>
<td>Any announcements, notices or advertisements of the course</td>
<td>Revised course syllabus will be provided</td>
</tr>
<tr>
<td>Curriculum vitae (CV) of all instructors and lecturers involved</td>
<td>CV will include academic credentials, publications, and significant achievements</td>
</tr>
</tbody>
</table>

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.

**Contact Information:**

Jeong-Ah Jennifer Kim, OD
Practice and Education Committee Member

[jenniferkim100@gmail.com]

323-574-8957
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
<th>Approved</th>
<th>Disapproved</th>
<th>ID #</th>
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<tbody>
<tr>
<td>MULTIFOCAL/MONOVISION CONTACTS</td>
<td>3/13-3/15/16</td>
<td>MARISA CHUNG, OD</td>
<td>1</td>
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<tr>
<td>PATIENT CARE</td>
<td>3/13-3/15/16</td>
<td>HOWARD COHEN, MD</td>
<td>2</td>
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<tr>
<td>CURRENT STATUS OF ANTI-VEGF THERAPY, IMPLANTABLE TELESCOPE</td>
<td>3/13-3/15/16</td>
<td>PETER CUSTIS, MD</td>
<td>2</td>
<td></td>
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<tr>
<td>GLAUCOMA MANAGEMENT 2016, WHEN TO TREAT, HOW TO FOLLOW</td>
<td>3/13-3/15/16</td>
<td>GARY GROESBECK, MD</td>
<td>1</td>
<td></td>
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<tr>
<td>BILATERAL SAME DAY CATARACT SURGERY</td>
<td>3/13-3/15/16</td>
<td>AMIR ESAEISFAHANI</td>
<td>2</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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
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
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


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.

A 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 presbyς (πρέοςυς) = old man + ops (ὤψ) = see like, sight

Presbyopia in Chinese

老花眼 = old, blurry/cloudy vision

On a side note:

黄斑 (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 expectations)

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
Kirschner et al: 68% Acuvue BF vs monovision
Richdale et al: 76% Soflens MF vs monovision
Johnson et al: 75% GP multifocal vs monovision

CL multifocals do not work...unti 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: simultaneous 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 center 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 needed

Contact Lens
Plastic/foreign body in eye
Take care of it
Thank you!
Comfort
Not comfortable, switch brands

Health
No compromise

Vision
Troubleshoot if needed

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


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 - 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 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 Vandeveer Ave.
San Diego, CA  92120

(619) 516-7163
e-mail: PHCustis@seal.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

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
Mefloquine Progestosterone Acetate Contraception Injection. Naval Medical Center San

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


PRESENTATIONS

Posterior Ophthalmomyiasis. Duke University Eye Center Annual Meeting 1982


Cryptococcus Endophthalmitis. American Uveitis Annual Meeting, 1992

Incontinentia Pigmenti : Retinal and other manifestations. American Academy of

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


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 peacetime: 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

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


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)
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%
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  

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#: 038-095746
California State License#: G078449
DEA Controlled Substance#: BK 3988702

Marital Status: Married, two sons

EDUCATION:

1998-1997 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
2000-2004 Chief of Department of Surgery- Graham Hospital

PROFESSIONAL AFFILIATIONS:

HOSPITAL AFFILIATIONS:
Graham Hospital, Canton, IL, Active Staff since 1997
Mason District Hospital, Havana, IL

RECEIVED

OCT 04 2004

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


PEER-REVIEW JOURNAL


OCT 04 2004


**PUBLISHED ABSTRACTS**


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
- 2. Five visits for bilateral cases vs 7 visits for unilateral cases
- 3. Less co-pay for surgery and office visits
- 4. Less travel time for patients and family members
- 5. Less anesthesia especially for patients requiring general anesthesia
- 6. Faster recovery, less pain and faster visual rehabilitation
- 7. 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

• Disadvantages

• 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 patients
• 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.
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

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
<table>
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<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
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COMMITTEE COMMENTS:
Joseph A. Pruitt, O.D., M.B.A., FAAO

Objective:

Education:

Salus University, Elkins Park, Pennsylvania
Master of Public Health (in progress) 2014-present

Nova Southeastern University, Fort Lauderdale-Davie, Florida
Master of Business Administration, 2011

West Los Angeles Veteran Affairs Healthcare Center, Los Angeles, California
Residency Certificate, Geriatric/Primary Care, 2008

Illinois College of Optometry, Chicago, Illinois
Doctor of Optometry, 2007

California State Polytechnic University, Pomona, California
Bachelor of Science, Biology, 2003

University of Memphis, Memphis, Tennessee
Major in Biology 1999-2000

Licenses:

Tennessee #2753 Date of Issue: July 10, 2007
- Active
- Injectable Certification
- Therapeutic Certification

California #13429T Date of Issue: Sept. 28, 2007
- Active
- Therapeutic and Pharmaceutical Agent + Lacrimal Irrigation and Dilution + 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)
• Certification Number: 161000

Advance Competence in Medical Optometry (ACMO)
• 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

Date Taken: June 13, 2008

Employment:

Riverside San Bernardino County Indian Health, Inc
• Director of Eye Care
• Staff Optometrist

Oct. 2014 – present

Riverside San Bernardino County Indian Health, Inc
• Staff Optometrist


Minneapolis Veteran Affairs Health Care System
• Low Vision/Staff Optometrist
• Optometric Residency Coordinator
  o Spearheaded and implemented program
• Student Externship Coordinator
  o Spearheaded and implemented program

Nov 2008– June 2014

Wal-Mart Vision Center (Red Wing & Rochester, MN)
• Associate Optometrist

Jul 2008– Nov 2008

EyExam of California
• 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-Roseberg School of Optometry,
San Antonio, Texas
• Clinical Assistant Professor
• Minneapolis VA HCS Externship Site Program Director

May 2012– June 2014

Midwestern University-Arizona College of Optometry, Glendale, Arizona
Adjunct Clinical Assistant Professor
Minneapolis VA HCS Externship Site Program Director

May 2012– June 2014

Southern College of Optometry, Memphis, Tennessee
Adjunct Faculty
• Minneapolis VA HCS Externship Site Program Director

May 2012– June 2014

University of Missouri, St. Louis College of Optometry, St. Louis, Missouri
Adjunct Assistant Professor
• Minneapolis VA HCS Externship Site Program Director

May 2012– June 2014

Experience:

Riverside-San Bernardino Indian Health, Inc
• Director of Eye Care

Oct 2014 – present

Riverside-San Bernardino Indian Health, Inc
• Staff Optometrist

July 2014 – Oct 2014
Minneapolis Veteran Affairs Medical Center
- 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)
- Associate Optometrist

Residency:
West Los Angeles Veteran Affairs Healthcare Center
- 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
- 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
- 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

- 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

- 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

- Volunteer Optometric Assistant
  - Body of Christ Optometry Clinic, Tegucigalpa, Honduras
- 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)

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)


Posters/Presentations


Pruitt JA, Prussing N. The Curious Case of the Functionally Legally Blind Patient with


**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 1/2 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 interpapillary area (temporal > nasal)

Mild elevation of overlying conjunctiva possible

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

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

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

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

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 syphilis
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
  - Prednisolone 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° involvement
 Deep scleral vessels may produce a bluish to purplish color (which cannot be blanched with 2.5% phenol)

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
Agenda Item 3P

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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 anastomosis, 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
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- Underlying choroidal pigment becomes visible
- If inflammation continues the entire anterior segment can become involved

37 Scleritis

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
  - Immunosuppressive 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
Agenda Item 3P

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- "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...
  - Choroiditis
  - 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**

580
57  Anterior Uveitis
   $\bullet$ Posterior synechia may be present
   $\bullet$ Less frequently, anterior synechia

   $\bullet$ IOP initially reduced due to hypotony of ciliary body
   $\bullet$ But eventually may rise due to accumulation of inflammatory by-products in trabecular meshwork

58  Anterior Uveitis
   $\bullet$ May be chronic or acute
   $\bullet$ Chronic is very often due to underlying systemic disorder
   $\bullet$ Acute is most often the result of trauma
   $\bullet$ Can also just be idiopathic or may be the 1st sign of underlying systemic disease
   $\bullet$ Thus, your call if you adhere to “1 non-granulomatous” rule

59  Anterior Uveitis
   $\bullet$ Treatment is aimed at stopping inflammatory response
   $\bullet$ Pred Forte 1%/Lotemax 0.5% qid to q1h based on severity of presentation
   $\bullet$ Cycloplege if great discomfort or posterior synechia
   $\bullet$ Homatropine 5%
   $\bullet$ Occasionally injectable and oral steroids are needed
   $\bullet$ Oral prednisone 60 to 80 mg
   $\bullet$ Kenalog 40

60  Anterior Uveitis
   $\bullet$ When should lab tests be done...?
   $\bullet$ Recurrent or chronic
   $\bullet$ Bilateral
   $\bullet$ Recalcitrant
   $\bullet$ Granulomatous
   $\bullet$ If history suggest

61  Anterior Uveitis
   $\bullet$ What do you want to order and why?
   $\bullet$ CBC
   $\bullet$ Assesses general health
   $\bullet$ ESR/CRP
   $\bullet$ Non-specific for inflammatory conditions
   $\bullet$ ANA/RF
   $\bullet$ For rheumatologic disorders, RA, SLE etc.
   $\bullet$ RPR/FTA-ABS
   $\bullet$ Syphilis
   $\bullet$ ACE/Serum calcium
   $\bullet$ Sarcoid; (x-ray)
   $\bullet$ ELISA
   $\bullet$ Lyme disease, toxo
   $\bullet$ HLA Typing
   $\bullet$ B-27: Ankylosing Spondylitis; (x-ray)
Agenda Item 3P

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!

Arriving in Ethiopia

The Royal Treatment

Who we treated...

"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."

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

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."

"Supports Eye Clinics..."

- The focal point to the presentation:

- Eye clinic support

Problems with Short-term Mission Trips

- Unmonitored qualifications or standards of participants

- Participants involved for all the wrong reasons

- Re-conditioning of the area + surrounding areas served

- Unwarranted paternalism

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 • Ethiopia

26 • 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 with 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

- **Trachoma**
  • MacCallen Classification
    - Stage 3
      • Stage 3: Follicles and scarring of superior tarsal conjunctiva (a.k.a. Arlt’s line)

- **Trachoma**
  • MacCallen
    - Stage 4
      • Stage 4: No follicles, extensive conjunctival scarring

- **Trachoma**
  • MacCallen
    - Late Complications
      • Late complications: Severe DES, trichiasis, entropion, keratitis, K scarring, superficial fibrovascular pannus, Herbert pits (scarred limbal follicles)

- **Trachoma**
  • World Health Organization (WHO) Classification
    - TF (Trachomatous inflammation: follicular): More than five follicles on the upper tarsus
    • TT (Trachomatous inflammation: intense): Inflammation w/thickening obscuring more the 50% of the tarsal vessels

- **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

- **Trachoma**
  • Treatment
    • Antibiotics (p.o. and ung)
Agenda Item 3P

- 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
Agenda Item 3P

- 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

55 What Do You Think?
- No complaint
- Encountered when I was "triaging"

**WHAT WE SAW**

**Cranial Nerve III Palsy**
- **Cause:**
  - Tumors or lesions
  - Trauma
  - Infections
  - Infarction
  - Cerebral aneurysms
  - Vascular malformations
  - Sinus thrombosis
  - Migraine HA (Rare)
  - Unknown

**Cranial Nerve III Palsy**
- Most likely the cause?
- Cerebral Aneurysm
  - Most notably PCA subarachnoid hemorrhage
- Why?
- Pupil involvement

**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

**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

**Cranial Nerve III Palsy**
- Make the appropriate referral
  - Aneurysms, tumor, and trauma usually require neuro-surgery

**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

BONUS...WHAT DO YOU THINK?

WHAT WE SAW

WHAT WE SAW

Just for fun/extras...

CATARACT SURGERY "BEFORE"

CATARACT SURGERY "DURING"

CATARACT SURGERY "AFTER"
Neuroscience: Visual Fields

Lingo of Visual Field Defects
- Anopsia - field defect
- Hemianopsia - half/ hemi field defect
- Quadrantanopsia - 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)
- Central scotoma - area of central visual loss surrounded by normal vision

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

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

- Photoreceptors
- Bipolar Cell
- Horizontal Cell
- Amacrine Cell
- Ganglion Cells
- Axons form the optic nerve
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!
Rt Homonymous Hemianopia

Left optic tract lesion causes a right homonymous hemianopia
Example: Tumor

Left lateral geniculate nucleus lesion also causes a right homonymous hemianopia
Example: Tumor

Lesion of all left optic radiations causes a right homonymous hemianopia
Example: Posterior cerebral artery infarct
**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 quadrantopsia 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?
**Agenda Item 3P**

**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(a)?
Edinger-Westphal Nucleus/Nuclei

**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
- 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**

Suggests ipsilateral internal carotid artery stenosis!

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

- 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?

**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

Axial CT

Case 6

- Where is the lesion?
  - Left occipital lobe

Case 6

- What artery is involved?
  - Posterior cerebral artery
- Why is there macular sparing?
  - Dual blood supply
**SYSTEMIC URGENCIES AND EMERGENCIES**

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**INTRODUCTION**

- Systemic emergencies are uncommon in the optometric setting
- **BUT DO HAPPEN**
- **Essential to be able to identify such emergencies and act appropriately**

**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

**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

**SYNCOPE**

- Symptoms:
  - Lightheadedness
  - Nausea
  - Sweating
  - Dizziness
  - Blurred vision is possible
  - Generalized "just don't feel good"

**SYNCOPE**

- Signs
  - Pallor of neck/face
  - Clammy skin
Cyanosis of the lips
 Eyes may roll up
 Tachycardia
 Blood pressure drop
 Loss of consciousness

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

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
 Risk factors:
 Prolonged recumbence
 Old age
 Physical exhaustion
 Certain drugs
 Anti-hypertensives
 Some anti-depressives
 Narcotics
 Women in the final (3rd) trimester of pregnancy

POSTURAL HYPOTENSION
 Signs and Symptoms:
Agenda Item 3P

- 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

**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 CO₂?
  - Remains controversial

**SEIZURES**

- There are 6 types of generalized seizures. Can you name them?

**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

**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
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

**MYOCARDIAL INFARCTION**
- Risk factors include
  - Increasing age (50-70)
  - Family history
  - Cigarette smoking
  - Hypertension
  - Diabetes
  - Elevated cholesterol
  - Sedentary lifestyle

**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

**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

**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

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)

SHOCK
Symptoms:

- Dizziness
- Lightheadedness
- Possible paresthesia
- Hypothermia
- Profuse sweating
- Blurred vision possible
- Nausea
- Severe thirst possible

SHOCK
Signs:

- Gray pallor
- Cyanosis of conjunctiva and lips
- Hypotension
- Thready pulse
- Rapid and weak
- Clammy skin
- Pupil dilation is 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.

HYPERGLYCEMIA

Due to a decrease in insulin uptake or increase in food intake

Resultant elevated glucose level and begin to use fat for energy

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

HYPERGLYCEMIA

Management:

- Check patients blood sugar (if possible)
- Arrange for immediate care
- Patient may need insulin

HYPOGLYCEMIA

- Increase insulin intake or insufficient nutritional intake
- Serum glucose level is decreased
- Reduced sugar level available to brain
HYPOGLYCEMIA

Signs and Symptoms:

- Headache
- Dizziness
- Syncope
- Extreme hunger
- Salivation
- Weakness

HYPOGLYCEMIA

Management

- Check blood sugar
  - If shown to be hypoglycemic intake of sugar needed
    - Orange juice
    - Sublingual tablets

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**
   6. Clinical Exam
      6. FDA biomicroscope guidelines
         6. “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**
   7. Choriocapillaris
      7. Acts as a red filter (uniform; independent of race)
   7. Choroidal Vessels (larger and deeper)
      7. Uniformly red
      7. Do not filter color
   7. Choroid
      7. Contains varying amounts melanocytes
         7. Thus, variable brown/black color

8. **Coloration**
   8. Retina
      8. Pale orange → orange to red → gray/brown
         8. Dependent upon:
            8. Hemoglobin in choriocapillaris (constant)
            8. Melanin in RPE (variable)
            8. Lipofuscin in RPE (variable)
            8. Melanin in choroid (variable)

9. **Thickness**
   9. Sensory Retina
      9. Quite thin in the peripheral (normal)
      9. Subject to full thickness breaks from one or more:
         9. Atrophy (degenerative)
         9. Traction (vitreal-retinal)

10. **Approximate Distances**
    10. 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 bold Vitreous Base
  - Normally invisible
  - May have pigment at its border or appear white and elevated from traction

12 bold Vitreous Base
  - A PVD will not advance farther anteriorly than the posterior vitreous base
  - The vitreous base may advance posteriorly with increasing age

13 bold 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 bold Age Changes in the Vitreous
  - Early Shrinkage
    - Condensation only, but readily visible
  - Late Shrinkage
    - Increasingly dense
    - Highly visible fibers
    - PVD
    - Traction
    - With symptoms

15 bold 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
Agenda Item 3P

- 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 straightforward 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

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

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

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

Equatorial Drusen

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)

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

Reticular Degeneration

Degenerative Conditions

Cobblestone/Pavingstone Degeneration

- aka "Chorioretinal Atrophy"
  - Depigmented round or oval areas where sclera and large choroidal vessels are visible
  - 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

Cobblestone/Pavingstone Degeneration

- Percentage of increased risk of Retinal Detachment when present...?

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

Retinoschisis

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

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

**White Without Pressure**

**Degenerative Conditions**

- **Lattice Degeneration**
  - **Epidemiology**
    - Young patients; first appears in 10-20 year age group
    - Refractive error is not 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

- **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**

- **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

- **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

- **Lattice Degeneration**
  - **Follow-up**
    - Yearly if asymptomatic
o Every 6 months if symptomatic
  o Asymptomatic holes should be treated if other risks are present
  o ALL tears and breaks should be treated
  o Treat in the presence of cataract that precludes laser treatment
  o Treat in monocular patient

60 [ ] Lattice Degeneration
61 [ ] Degenerative Conditions
   - Snailtrack Degeneration
     o Appears like "frost" on the retina
       • Very similar to WOP
       • Shaped similarly as lattice
     o ~80% occur between ora and 2 DD anterior to the equator
     o Speculation eventually becomes lattice
       • Unsubstantiated
62 [ ] Snailtrack Degeneration
63 [ ] Retinal Holes and Breaks
   - Atrophic retinal holes
     o NOT caused by traction
     o Occur in atrophic retina
       • Possibly related to underlying vascular insufficiency
     o Small, round and red
       • Although, can appear gray-ish against darker backgrounds (e.g. tigroid fundi)
     o 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
     o Round, red hole with operculum attached to vitreous
     o Operculum looks smaller than hole due to degeneration of tissue
     o 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
NO choroidal details are visible

Billowing folds due to subretinal fluid

Undulating surface

Shafer's sign ("tobacco dust")
  - Can also be present with retinal tears

Retinal Detachment
  - Rhegmatogenous RD
    - 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)

Retinal Detachment
  - Non-rhegmatogenous RD
    - NOT arising from a retinal break
      - Accumulation of exudate or transudate in subretinal space
      - Tumors, choroiditis and retinal angiomatosis
    - Traction upon adhesion bands

Retinal Detachment
  - Risk Factors
    - Risk of an RD with a retinal break is 1 in 70
    - Risk increases with family history of RD
    - Risk increases with high myopia, vitreoretinal traction, retinal degeneration
    - Superior RDs progress faster due to gravity pulling subretinal fluid down
    - Superior-temporal location is worst
      - Macula most vulnerable
    - Superior-nasal area has less risk
      - Optic nerve blocks progression
    - Greater risk with non-operculated retinal breaks
      - Traction is continuous

Retinal Detachment
  - Histopathology
    - Serous fluid enters through retinal break
    - Passes underneath retina
    - Photoreceptors degenerate
Agenda Item 3P

- Outer layers become edematous and atrophic 2-3 months later
- Cysts and glial tissue proliferate

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

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

Scleral Buckle

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

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

Drugs

- Cholinergic 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

Drugs (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

Drugs (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

Drugs (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 than pilocarpine
  - Used by patients allergic or refractory to pilocarpine

Drugs (continued)

- 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 (Topoline)
      – 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 hypersensitivity 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% ≥ 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
    • Unilocular 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

32 [ ] 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...
• 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 absorption 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%)
Drugs

- Carbonic Anhydrase Inhibitor (Topical)
  - Contraindications
    - Severe Kidney Disease
    - Liver Disease (not critical)
    - COPD (not as critical)
    - CHF (not as critical)

Drugs

- Prostanoids
  - Includes prostaglandin analogues, docosanoids and prostatamides
  - Pharmacologic and ocular effects are dose-dependent

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

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

Drugs

- Prostanoids
  - Latanoprost (continued)
    - Contraindications
      - History of uveitis
      - Prior "incision surgery" or YAG capsulotomy
      - Previous episodes of recurrent HSV keratitis
      - Relative contraindication is unilateral therapy

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

Drugs

• Prostanoids
  – Brimatoprost (Lumigan)
    • Synthetic analogue of fatty acid prostandines
    • Prostandines are present in ocular tissues
    • Prostandines presumably lower IOP by the same mechanism as prostaglandins
    • Dosage QHS

• Prostanoids
  – Brimatoprost (continued)
    • Adverse Effects
      – Conjunctival hyperemia
      – FB sensation
      – Tearing
      – Dry Eyes
      – Increased pigmentation in iris and periorbital tissue
      – Increased pigmentation and growth of eyelashes

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%) *

Drugs

• Prostanoids
  – Unoprostone (Rescula)
    • Originally on market 2000
    • Reintroduced 2012-2013
    • Discontinued March 31, 2015
59 Drugs
- Combination Formulations
  - Cosopt
    - timolol 0.5% & dorzolamide 2%
  - Dosed BID
  - As effective as timolol 0.5% BID & dorzolamide 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
    - Brinzolamide 1.0%/Brimonidine 0.2%

62  
63  
64 Drugs
- Combination Formulations
  - Xalacom and Extravan
    - Latanoprost 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
NEURO-OPTOMETRY
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Anatomical Review
Embryological Review
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)

Functions of the Brainstem
- Medulla
  - Contains cranial nerve nuclei IX-XII
  - Contains continuation of spinal tracts
  - Pyramids of medulla carry descending cortical information (continuation of cerebral peduncles of pons)

Functions of Brainstem
- Pons
  - Contains cranial nerve nuclei IV-VII
  - Contains medial longitudinal fasciculi which connects CN VI nucleus with contralateral CN III nucleus for conjugate gaze
  - Middle cerebellar peduncle (tract) conveys information from cerebrum to cerebellum

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

Functions of the Brainstem
- Lesions in the brainstem usually produces serious neurological deficits

- Because of the proximity of small structures, multiple deficits often occur

Cranial Nerve Review
- CN I
  - Name:
    - Olfactory
  - Type (Sensory, Motor or Both):
    - Sensory
  - Function:
    - Transmits the sense of smell from the nasal cavity

Cranial Nerve Review
Cranial Nerve Review

1. **CN II**
   - Name:
     - Optic
   - Type (Sensory, Motor or Both):
     - Sensory
   - Function:
     - Transmits visual signals from the retina of the eye to the brain

2. **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.

3. **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

4. **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

5. **Cranial Nerve Review**
   - **CN VI**
     - Name:
       - Abduces
     - Types (Sensory, Motor or Both):
       - Motor
     - Function:
       - Innervates lateral rectus
*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 hemianopsia 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 Recklinghausen'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 unilaterial)
      ▪ 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**
   - Joseph A. Pruitt, O.D., M.B.A., FAAO
   - Riverside-San Bernardino County Indian Health, Inc.
   - San Jacinto, California
   - Pauline F. Ilson, O.D., F.A.A.O
   - West Los Angeles VA Healthcare Center
   - Los Angeles, California

   **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

2. **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 prostatectomy April 2004
     - Total Knee Replacement March 2004
   
   - Family Medical History
     - Unremarkable
   
3. **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
   
4. **Case History**
   - Present to Neurology for Follow-up exam July 2007 (2 months 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/Ophthalmology 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
  - 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 receptors 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 Ophthalmoplegia (INO)
     - Thyroid Ophthalmopathy
     - Chronic Progressive External Ophthalmoplegia (CPEO)
     - Inflammatory Orbital Pseudotumor
     - Levator Dehiscence
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

Myasthenia Gravis

- Diagnostic Tests con’t:
  - Tensilon Test:
    - Intravenous injection of an acetylcholine esterase 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

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

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 positive result is an improvement in ptosis

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)
        - Tutoptoplast 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
Agenda Item 3P

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- 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

- Ptoosis crutch is an inexpensive first-line treatment for a ptotic patient not yet at the point of surgical intervention

26. **If Interested...**


27. **References**


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• Tomelleri G, Vattemi G, Filosto M, Tonin P. Eyelid ptosis from sympathetic nerve dysfunction mistaken as myopathy: a simple test to identify this condition. J Neurol Neurosurg Psychiatry 2007;78(6):632-634

• Scherer K, Bedlack R, Simel D. Does This Patient Have Myasthenia Gravis?. JAMA 2005;293(15):1906-1914


• http://eyeglassrepair.net/_wsn/page3.html

• http://www.blepharospasm.org
1. **AGE-RELATED MACULAR DEGENERATION**
   Joseph A. Pruitt, O.D., M.B.A., FAAO
   Riverside-San Bernardino County Indian Health, Inc.

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**
   - Pathologies 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
  o 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
  o Also leads to increased rigidity of eye
  o These factors cause breaks in Bruch’s membrane which makes it susceptible for CNVM formation
  o 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 Membranes

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
27  □ Categorize the Dry ARMD
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%

**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

**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

**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

**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

**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%

ARED S II
- Formula Modification
  - 10 mg lutein and 2 mg zeaxanthin
  - 350 mg DHA and 650 mg EPA
  - No beta-carotene
  - 25 mg zinc

ARED S 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

ARED S 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

ARED 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

ARED 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....

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

**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

**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

**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
  - Obesitv
  - 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

**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)

**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.

**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).

**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.

**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.

**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.

**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.

**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

**Other Study Summary: Statins**
  - 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

**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...?

**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

**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

**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

**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
  o 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)
  o 2-step procedure
    o IV administration of photosensitizing agent (Visudyne)
    o Activation with a laser light source
      • Power of 600 mW/cm²
      • Duration of 83 seconds
  • FDA approved late 1999/early 2000

64 [ ] **Wet ARMD: Treatment**
  @ Photodynamic Therapy (PDT)
  o Patients still lost vision, but less than observation
  o Marked a step forward in ARMD treatment
  o By and large taken over by VEGF treatments
    o 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
    o Macugen (pegatanib sodium) Dec. 2004
    o Lucentis (ranibizumab) June 2006
    o Avastin (bevacizumab) not FDA approved
    o Elyea (afibicert) Nov. 2011

66 [ ] **Wet ARMD: Treatment**
  @ Anti-Angiogenic Agents
  • Macugen
    o Anti-vasoactive endothelial growth factor (VEGF) aptamer
    o 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
    o 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 VEGF activity
     - Less specific that Macugen; thus likely more efficacious

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)

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

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

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

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

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
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

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%)

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)

Avastin or Lucentis?
○ A randomized controlled trial of alternative treatments to Inhibit VEGF in Age-related choroidal Neovascularization

- IVAN Study

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

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 topographic 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

Eylea
○ Eylea (aflibercept)
○ Latest anti-Vegf agent for treatment of wet AMD
Agenda Item 3

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Regeneron Pharmaceuticals

FDA approved November 2011

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:

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)

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)

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)

Eylea

Cost

- ~$1,850 per injection, with injection every 2 months
- Therefore ½ of Lucentis monthly

Other Therapies...

As of July 2013, there are 936 studies evaluating AMD

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

**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

**FoVista**
- First study results were BETTER THAN Lucentis’
- FoSho

**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

**Major Genetic Factors**
- Complement H Factor (CHF)
  - Single most important genetic component
  - CHF Y402H
- ARMS2/HTRA1
  - Second most important gene in ARMD
- C3
  - Another component of the complement system
- ND2
  - Mitochondrial oxidative phosphorylation molecule

**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

**Macula Risk Score**
- Macula Risk testing is recommended based on presenting AREDS ARMD score:

**Macula Risk Score**
- Management recommendations:

**VEGF 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 immunomodulatory 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
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

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

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

Radiation
- MERITAGE Study
  - 53 patients with ARMD that required frequent VEGF injections
  - Pars Plana Vitrectomy with single 24-GY dose fEMB (epimacular brachytherapy)

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

Others
- Effect of Saffron Supplementation on ARMD
- Transcorneal Electrical Stimulation Therapy for Retinal Disease
- Effect of Lutein-Enriched-Egg Beverage on ARMD

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**  
   Joseph Pruitt, OD, MBA, FAAO  
   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**

   Risk Factors for Retinopathy
   - Long duration of diabetes  
   - Poor metabolic control  
   - Pregnancy  
   - Hypertension  
   - Renal disease  
   - Other:  
     - Obesity  
     - Hyperlipidemia  
     - Smoking  
     - Anemia

5. **Vision with Diabetic Retinopathy**

6. **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

7. **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  Vascular Insufficiency  (exudates)
  ↓
  Capillary Non-Perfusion
  ↓
  Retinal Hypoxia (CWS)
Retinal, Optic Nerve and Iris Neovascularization

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17
18
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)

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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)

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Ancillary testing:
Fluorescein Angiography
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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

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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

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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 Anomalies)
   - 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**
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%.

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

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

Goals for glycemic control

- Recommendation is glucose levels as near to normal as possible

Goals for glycemic control

- For a person not diagnosed with diabetes
- For a person with diabetes

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 photoacogulation 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

\[\text{When it shrinks, it can pull the retina away from the back of the eye}\]

Retinal detachment:

\[\text{Tx: scleral buckle, cryo}\]

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**  
   Joseph A. Pruitt, O.D., M.B.A., FAAO  
   Riverside-San Bernardino County Indian Health, Inc.

Lyn M. Wiley, M.A., COMS  
Blind Rehabilitation Outpatient Specialist, Minneapolis VA Health Care System

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 Thorton/Maddox Rod resulted 6 prism dipters right  
       hyperphoria and 2 prism dipters 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 Thorton/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.

**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 amplitudes 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-blind” technique to manage the Conversion Disorder
- The double-blind 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

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

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.

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.

References
Psychiatry (2004); 185: 140-146.

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,

[Signature]

Joseph A. Pruitt, O.D., M.B.A., FAAO
Director of Eye Care

JP/sru
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

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.
<table>
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<th>Date(s) of Course</th>
<th>Instructor(s)/Lecture(s)</th>
<th>CE Hours Requested</th>
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<td>8/5/16</td>
<td>Joseph Pruitt, OD</td>
<td>2</td>
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</table>

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 conjunctivitis

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 vasoconstriction
    - 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 hydrochloride (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 unknown when administer topically as an ophthalmic solution
      • Prevailing thought is it acts as an immunomodulator

18 Bacterial
• Hyperacute
  • Rapid onset of copious purulent discharge, severe 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
  • Preauricular lymphadenopathy is generally absent
  • Fellow eye likely to become involved within 48 hours

21 Bacterial
22 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

23 Bacterial
24 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
• Chlamydia
  • Caused by Chlamydia 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 Chlamydia
• Adult Inclusion
  • Large follicles
    • predominantly in the lower palpebral conj. + fornix
  • Often hyperemia
  • 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 Chlamydia
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:
    • Staphylococcus
    • 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 SET'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

42  □  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
Joseph A. Pruitt, O.D., M.B.A., FAAO

Objective:

Education:

Salus University, Elkins Park, Pennsylvania  
Master of Public Health (in progress)  
2014–present

Nova Southeastern University, Fort Lauderdale-Davie, Florida  
Master of Business Administration, 2011

West Los Angeles Veteran Affairs Healthcare Center, Los Angeles, California  
Residency Certificate, Geriatric/Primary Care, 2008

Illinois College of Optometry, Chicago, Illinois  
Doctor of Optometry, 2007

California State Polytechnic University, Pomona, California  
Bachelor of Science, Biology, 2003

University of Memphis, Memphis, Tennessee  
Major in Biology  
1999–2000

Licenses:

Tennessee #2753  
• Active  
• Injectable Certification  
• Therapeutic Certification

California #13429T  
• Active  
• Therapeutic and Pharmaceutical Agent + Lacrimal Irrigation and Dilation + Glaucoma (TLG) Certified

Georgia #OPT002454  
• Active  
• Diagnostic and Therapeutic Pharmaceutical Agent Certified

Minnesota #3130  
• 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
Agenda Item 3Q

Certification Number: 20050406002

Paragon Corneal Refractive Therapy (CRT)

Date of Issue/Completion: Dec. 28, 2007

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
- Director of Eye Care
- Staff Optometrist

Oct. 2014 – present

Riverside San Bernardino County Indian Health, Inc
- Staff Optometrist


Minneapolis Veteran Affairs Health Care System
- Low Vision/Staff Optometrist
- Optometric Residency Coordinator
  o Spearheaded and implemented program
- Student Externship Coordinator
  o Spearheaded and implemented program

Nov 2008- June 2014

Wal-Mart Vision Center (Red Wing & Rochester, MN)
- Associate Optometrist

Jul 2008- Nov 2008

EyExam of California
- On-call/Fill-in Optometrist

Oct 2007- June 2008

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
- Clinical Assistant Professor
- Minneapolis VA HCS Externship Site Program Director

May 2012- June 2014

Midwestern University-Arizona College of Optometry, Glendale, Arizona
Adjunct Clinical Assistant Professor
Minneapolis VA HCS Externship Site Program Director

May 2012- June 2014

Southern College of Optometry, Memphis, Tennessee
Adjunct Faculty
- Minneapolis VA HCS Externship Site Program Director

May 2012- June 2014

University of Missouri, St. Louis College of Optometry, St. Louis, Missouri
Adjunct Assistant Professor
- Minneapolis VA HCS Externship Site Program Director

May 2012- June 2014

Experience:

Riverside-San Bernardino Indian Health, Inc
- Director of Eye Care

Oct 2014 - present

Riverside-San Bernardino Indian Health, Inc
- Staff Optometrist

July 2014 – Oct 2014
• Staff Optometrist
  o Primary Eye Care
  o Low Vision
    ▪ Sole low vision eye care provider
  o Polytrauma/Traumatic Brain Injury (TBI) Ocular Health & Vision Assessments

• VISN 23 Low Vision Continuum of Care Conference (May 2009)
  o Faculty
  o 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
  o Externship program director

• Established Associated Health Education Affiliation Agreement with
  the Illinois College of Optometry for the optometry residency program
  o Residency in Primary Care/Brain Injury and Vision Rehabilitation
  o Residency program director
    ▪ Designed the program’s curriculum
    ▪ Secured all necessary approvals and funding
    ▪ After the initial site visit, program received full ACOE accreditation

• Associate Optometrist

Residency:
West Los Angeles Veteran Affairs Healthcare Center Jul 2007- June 2008
• Geriatrics/Primary Care
  o Primary Care including Diabetic exams
  o Low Vision evaluations/exams
  o Nursing home/in-patient exams
  o Medically justified specialty contact lenses exams/fittings
  o Lecture Internal Medicine's and Endocrinology's Residents & Interns on Diabetic Retinopathy
    ▪ Given during Chief Resident rotation
  o 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:
  o Cataract Extraction
  o Blepharoplasty
  o 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
• Emphasis on Pediatrics/Binocular Vision, Advance Care, and Low Vision
• Performed comprehensive eye exams on pediatric patients (infants-11 yrs 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
  o Observed and assisted in Cataract Extraction and Incision and Curettage procedures
  o Provided pre and post-surgical care

Primary Care Clinical Education Aug 2005-May 2006
Illinois Eye Institute, Chicago, IL

Volunteer Optometric Assistant Jun-Aug 2004
Body of Christ Optometry Clinic, Tegucigalpa, Honduras
• Assisted staff optometrist in direct patient care in the clinic and multiple remote satellite outreach locations

Professional Affiliations/Memberships:
• Accreditation Council on Optometric Education
  o Consultant, 2014-present
• American Academy of Optometry (AAO)
  o Fellow; Class of 2009
• American Optometric Association (AOA)
• Armed Forces Optometric Society (AFOS)
• European Academy of Optometry and Optics (EAOO)
  o Candidate for Fellowship
• Fellowship of Christian Optometrists (FCO)
• Minneapolis VAMC Medical Staff Association
  o Steering Committee, member 2010-2014
• National Association of Veteran Affairs Optometrists (NAVAO)
  o Newsletter Committee, member 2010-present
• National Optometric Association (NOA)
  o Minnesota’s NOA State Representative 2010-2012
  o National Optometric Student Association (NOSA)
    o NOSA National Vice-President: 2006-2007
    o NOSA-ICO President: 2005-2006
    o NOSA-ICO Vice-President: 2004-2005
• Volunteer Optometric Service to Humanity (VOSH)
• Journal of Rehabilitation Research and Development
  o Peer Reviewer, 2013-present


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
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.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Presentation Date</th>
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<tbody>
<tr>
<td>[Signature]</td>
<td>04/03/2016</td>
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Provider Name

<table>
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<tr>
<th>Provider Name</th>
<th>Provider Mailing Address</th>
<th>Provider Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>2575 Yorba Linda Blvd</td>
<td><a href="mailto:jlee@ketchum.edu">jlee@ketchum.edu</a></td>
</tr>
<tr>
<td>Lee</td>
<td>Fullerton</td>
<td>CA 92831</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>(First)</th>
<th>(Last)</th>
<th>(Middle)</th>
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License Number

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</tbody>
</table>

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: [Signature]  Date: 03/21/2016

Form CE-01, Rev. 2/16
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.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
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<td>4/3/16</td>
<td>J Machat MD, P Lydon MD</td>
<td>2</td>
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<tr>
<td>LASIK Myth Busters</td>
<td>4/3/16</td>
<td>T Tooma MD</td>
<td>0.5</td>
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<tr>
<td>Hyperopia</td>
<td>4/3/16</td>
<td>F Lusby MD</td>
<td>0.5</td>
</tr>
<tr>
<td>Diabetic Retinopathy</td>
<td>4/3/16</td>
<td>R Yacoub OD</td>
<td>2</td>
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COMMITTEE COMMENTS:
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 accommodation
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

- 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, NVL: pre-retinal hemorrhage, vitreal hemorrhage

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 "opahty")
- 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 sorbitol (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 Vegf 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
- Weakening of capillary walls
- Loss of capillary endothelial cells
- Retinal capillary cell death
- Leads to hypoxia and breakdown of blood-retinal 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)
- Abnormal tissue oxygenation leads to prolonged vascillation... Leads to pericyte degeneration and basement membrane thickening due to increase in endothelial migration.
- Hyperperfusion 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 shape) 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 kidney function

- Reduced progression of diabetic retinopathy by 50% and reduced progression of proliferative diabetic retinopathy by 80%.

Other risk factors for retinopathy

- Puberty (Normal 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 rapidly progressing diabetic retinopathy. High link with progressive retinopathy and kidney disease (Link with glomerular 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)
- Glaucome (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
- Choroidal 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?

- Hello
- What type of diabetic are you?
- How long have you been diabetic?
- Control? Seeing a PCP?
- Any fluctuation of vision?
- Last glucose/FBS or HbA1c?

What tests to do?

- Ws (best corrected)...may need to refoct
- Pupil
- EOMs...Diabetics are prone to CN palsies especially CN 6
- Conf.
- Amsler Grid
- Slit Lamp (be sure to look for NVI at pupillary ruff)
- OPH (rule out POAG/Neovascular glaucoma)
- Dilation/Fundus
- Vt
- OCT (may need to do this)
- Every diabetic should be evaluated yearly
**Documentation**

- INJI
- INVO
- JNVE
- CME
- Always record for diabetic ret if none

**Treatments**

- Control BSBP
- Focal laser: Focal treatment, 50-100 microns
- Grid laser: Diffuse treatment, 100-200 microns, 100 apart
- Laser: Increase in proliferation of PPE cells which leads to re-establishment of blood-retina barrier/Seals off leaking 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 multiple treatments
- Atrophic retinal edema due to focal leakage
- AMD
- Vitreous haze
- NVD/NVE don’t always regress
- Also do at first sign of NVL, What if a secondary angle closure develops due to the NVL
- 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 200 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.
Agenda Item 3R

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

Mild Non-proliferative diabetic retinopathy
- MAC: Weakness of capillary walls, focal enlargement of capillary walls/outpouching. Luminally located in inner nuclear layer and retroprist in the fovea. Hyperfluorescence on FA and leaks slightly around adjacent tissue.
- Dot-Blot hemangiath [Macular or capillary body] Outer nuclear and outer plexiform layers.
- Dot: Small, distinct
- Blot-Haze, fuzzy borders
- Hemos resolve in about 1 month (What absorbs them?)
- Hemos hypofluorescence on FA
- Red free
- Usually the first sign are mac's dot, and dots
- Cotton wool spots can be seen
- 5% risk of PDR in 1 year
Agenda Item 3R

Flame hemorhages 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 hemorhages 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 hemorhages usually resolve in 6 weeks (Dot/blot hemorhages 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?
Agenda Item 3R

Moderate Non-proliferative diabetic retinopathy

- Increase in dot/blot hemorr (Moderate in 4 quadrants or severe in 1 quadrant)
- MA
- CVI/cotton wool spots—RNFL infilr...dark spot noted on FA which includes non-perfusion. After resolution of CVI, there is atrophy of ganglion cell and nerve fibers which leads to a "depression" sign
- Venous beading in less than 3 quadrants...Sausages? Due to weakening of blood vessel walls and sludging of blood
- IRMA—intra-retinal microvascular abnormality (same as drusen, but blood vessel growth from existing blood vessels vs. remodelling of pre-existing vessels which shunt blood over non-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
- 13.37% 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 Myelation?
Severe Non-proliferative diabetic retinopathy

- 4:2:1 rule
- 4 quadrants of hemnes(severe)
- 2 or more quadrants of venous beading(Biggest predictor of PDR)
- 1 big IRMA
- 1 item: Severe
- 2 items: Very Severe
- 9/6= 1 month
- 52% will develop PDR in 3 year
- Inconclusive whether early PRP will help. Poor compliance?
  - Poor 9/6? Rapid progression?

Biggest indicator of proliferation

- A. Dot hemnes
- 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.
- NVIE→not within 1 DD 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 areas of 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
- Neovascularization 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 hemorrhage or a pre-retinal heme
- NVE with a pre-retinal heme or vitreal hemorrhage
- Consult in 24-48 hours
- PPV leads to a 50% reduction in risk of severe vision loss. Also do focal/grid before PPV
- How does PPV work? Decreasing need for oxygen which decreases hypoxia which decreases veg-f which makes neo go away.

If see neo...

- Do gonio
Collateral vessels

- Vessels develop within the retina vascular framework to join obstructed to non-obstructed vessels (Pre-formed capillaries)
- 3 types: A\(\rightarrow\)A,V\(\rightarrow\)V, A\(\rightarrow\)V
- Not new vessels
- Thin vessels but not as tortuous as neo
- No leakage on FA
- Actually reduce the amount of neo

Optociliary shunt vessels
Optociliary 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 meningioma, papilledema, optic nerve gliomas and disc drusen

Clinically Significant Macular Edema

- Can happen during any stage of diabetic 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
- Worse 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 10D 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 retinal exudates are left over, exudates are composed of protein and lipids. No outer plexiform layer.
- Exudates can take months or years to go away through phagocytosis.
- Chronic 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 in Stabilize VA but doesn't improve it. Also using Avastin injection and topical injection to 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 then 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 edema 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: Circular ring
  - Diffuse: Large area of leaking, typically seen 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 neovascular edema

How to see edema?

- Stereo
- Thin optic section
- Blurring of underlying choroidal vasculature
- Foveal reflex is blunted or gone
- Ameller 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/Ausstin
Diabetic macular edema

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  * Focal: Circinate ring
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OCT of CSME

- Cystic spaces
- Sub-retinal fluid
- Decrease in reflectivity of RPE
- Exudates: hyper
Fibrovascular Proliferation

- Can lead to
  - Dragging/distortion of the macula
  - Dragging/distortion of the optic nerve
  - Tractinal retina detachment
  - Vitreal hemorrhages
  - Macular hole
  - Retinal tears

Pre-retinal hemorrhage

- In between the ILM and posterior hyaloid face... Usually in younger patients
- Boat shape appearance inferiorly
- Linear streak superiorly

Vitreal Hemorrhage

- Caused by neovascularization growing in to the vitreous and hemmorhaging.
- Old ones will usually turn brown or white and sink to the bottom
- Treatment: Vitrectomy (if hemorrhage is persistent 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
Agenda Item 3R

Vitrectomy

- Non-clearing vitreous hemo
- Tearing of vitreous base
- Recurrent
- Bilateral
- Monocular patient
- Trabecular bite
- Donor para-retinal hemo
- Severe PDR
- Trabecular mesh edema
- Progressive neovascularization despite full PRP
- Pre-macular hemo (blood leads to scarbing and fibrosis)
- Complications: Endophthalmitis, Cataract, RD, Corneal decompensation
- Flu 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 uveal-scleral pathway
- Glaucoma drops except pilo and prostaglandins.
Vitrectomy

- Non-clearing vitreous heme
- Unergating
- Recurrent
- Bilateral
- Monocular patient
- Tractional RD
- Donor pre-retinal heme
- Severe PDR
- Tractional macular edema
- Progressive neovascularization despite full PRP
- Pre-retinal heme (blood leads to scarring and fibrosis)
- Complications: Endophthalmitis, Cataract, RD, Corneal decompensation
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- Can lead to neovascular glaucoma
- Vegf diffuses through the vitreous and into the aqueous which then 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 gonioc
- Gonioc should be done
- Leads to secondary angle closure
- Treatment: PRP or bleb/shunt depending on situation

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.
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 hemorrhages 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
- H/V retinopathy
- Sickle Cell retinopathy
- Interferon retinopathy
- Ocular ischemic retinopathy
- Radiation retinopathy
- Coat's Disease
- Purtscher's retinopathy
- Eale's Disease
- Antiphospholipid Syndrome

- CWS, hemas 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 > Hemas
- Kaposi'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
- Angioid 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.
Agenda Item 3R

- Peripheral hemes
- Dilated but not tortuous vessels
- Unilateral
- Dull ache
- Mild iritis

Melanoma noted

- Extensive exudates
- Multiple telangiectatic vessels
- Young patient
- Genetic
• Autoimmune disease
• Antibodies are created which attack normal components of blood and cell membranes
• Blood clots "sticky blood"
• History of miscarriages
• Hemos
• CWS
• Vessel sheathing

Lifestyle changes
• THE DCC 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 (>120/80 or <110/75 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 retinopathy
• Exercise is good but be careful.

Fun facts
• Glyburide (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 nocturnal vision
• Decrease in peripheral vision

New Instrument
• Confocal Adaptive Optics Scanning Laser Ophthalmoscope: Mild to moderate NPDR had significant microvascular changes including corkscrew capillaries.
• Enhances hemos and micro-aneurysms
• Shows early signs of vascular wall thickening and capillary closure.
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, Zieme 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 –
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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.

- 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
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
  1976-1978
- Research Assistant, Baltimore Cancer Research Center, Baltimore, Maryland
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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
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”
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 Astigmatism

1997- National Television: “Implantable Contact Lens”
1998- Ivanhoe Broadcast: “Implantable Contact Lens”

Publication:
  Chemoattractant For Astrocytes,” ARCHIVES OF OPHTHALMOLOGY, 103 (5), 704-707.
  Opacification.” ARCHIVES OF OPHTHALMOLOGY, 103 (9), 1378-1381.
  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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- Research Fellow, Johns Hopkins University School of Medicine, Center for Vitreoretinal Research, Baltimore, Maryland
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- Research Assistant, Baltimore Cancer Research Center, Baltimore, Maryland  1978-1980
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- Clinical Investigator, for FDA approved study  Visian ICL  1997 - 2006

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  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"


American Academy of Ophthalmology - Annual Meeting:
1994 – 2009: 40 Credits Each Calendar Year

American Society of Cataracts and Refractive Surgery - Annual Meeting:

American Meeting International Society of Cosmetic Laser - Surgeons:
1996 - 24 Credits
1998 - 29 Credits
1999 –24 Credits
2000 – 24 Credits

International Society of Refractive Surgeons:

Maryland Optometric Association
1998- 6 Credits

Baltimore Refractive Surgery Society
1999- 6 Credits

**Greater Baltimore Medical Center**
1999- 6 Credits

**Visual Freedom Center**
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 CO2 & 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, Sarasota, FL.
• 1989- ARVO, Wilmer Eye Meeting, Sarasota, FL.
  "Endothelial Cell Produce a Chemoattractant for Astrocytes"
• 1985- ARVO, Wilmer Eye Meeting, Sarasota, 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- Tarrant County Medical Society: Fort Worth, TX.
“Cataract Surgery for the 90’s”

“Cataract Surgery for the 90’s”

“Posterior Chamber Phakic IOLS”
“Clear Cornea Cataract Surgery”
“Co2 Laser for Blepharoplasty & Resurfacing”

“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”

“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 Anesthesia 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”

“Cataract Surgery for the Millenium”

"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"
  "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"
  "Great Marketing – Minimal Expense – Coordinated Skin care"
  "Erbium Resurfacing for Xanthelasma"
  "CO2 Laser Blepharoplasty"
  "Lower Lid Blepharoplasty Multi-Modal approved"

**Presentations: Toric & Implantable Contact Lens:**

- 1997- Taustin Eye Center: Louisville, KY.
  "Implantable contact lenses"
  "Toric IOL Update"
  "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"
  "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"
  "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"
  "Great Marketing – Minimal Expense – Coordinated Skin care"
  "Erbium Resurfacing for Xanthelasma"
  "CO2 Laser Blepharoplasty"
  "Lower Lid Blepharoplasty Multi-Modal approved"

Presentations: Toric & Implantable Contact Lens:
- 1997- Taustin Eye Center: Louisville, KY.
  "Implantable contact lenses"
  "Toric IOL Update"
  "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"
  "Implantable Contact Lenses for Myopia and Hyperopia"
- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"
“Implantable 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”
  “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
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 NVISION'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.
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

1-877-91-NVISION | NVISIONCenters.com
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 NVISION’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.

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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.
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
Baltimore, 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  

Fellowship: Extracapsular Cataract Extraction and  
Intraocular Lens Implantation  
James M. McCaffery, M.D.  

Examinations: National Board of Medical Examiners (1979)


**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  
-ExcilMed UV200 Certification, 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 Custom CAP Training Course: VISX, June, 2002
- 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)

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

[Signature]
(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

[Signature]
(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)

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:


Signed: [Signature]
Scientific Presentations:


Scientific Exhibits:


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.

e-mail: ryacoubod@gmail.com

**Education**

*Doctor of Optometry*
Southern California College of Optometry, Fullerton, CA 2006

*Bachelor of Arts, Major: Psychology*
University of California Los Angeles, Los Angeles, CA 2002

**Clinical Experience**

QTC/VA examiner (Specialized exams with reports)  
Southern California College of Optometry, Fullerton, CA  
(Primary Care/Ocular Disease and Special Testing)  
Puente a La Salud—St. Joseph's Hospital, Orange County, CA  
Tustin Village of Hope—Hurtt Family Clinic, Tustin, CA  
Cal State Fullerton Health Clinic, Fullerton, CA  
Cerritos College Health Clinic, Cerritos, CA  
Dec 2007- Present  
July 2006-Present  
October 2006-Nov 2013  
October 2008-June 2010  
Sep 2008- June 2010  
July 2007-Sep 2008

**Residency**

*Optometric Residency in Primary Eye Care and Geriatrics*  
VA Sepulveda Ambulatory Care Center/Nursing Home  
Affiliated with Southern California College of Optometry  
July 2006-July 2007

**Services and Activities**

Case Reviews sent to 4th year students  
Planned Commencement Lunch for SCCO  
Spirit Week Participant/Judge  
Wrote Ocular Disease Questions for SCCO Academic Superbowl  
Judge for SCCO Academic Superbowl  
Help pick graduating student awards (Ocular Disease/Primary Care)  
Job reference/referrals for many alumni  
Residency Mentor  
Instituted Arcltic Macula Risk in clinic  
Instituted Biotissue Products in clinic  
Helped plan Faculty Institute  
August 2013-Present  
May 2013-Present  
Nov 2012-Present  
March 2010-Present  
March 2009-Present  
April 2008-Present  
April 2008-Present  
October 2007-Present  
Aug 2014  
Feb 2014  
Nov 2013
<table>
<thead>
<tr>
<th>Agenda Item 3R</th>
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<tbody>
<tr>
<td>First Year Orientation</td>
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<tr>
<td>HeartSmart Integration in Clinic</td>
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<tr>
<td>Faces of SCCO You Tube Video</td>
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<tr>
<td>SCCO Student Interviews(12)</td>
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<tr>
<td>Helped plan Faculty Institute</td>
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<tr>
<td>Helped with Public Health video for students</td>
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<tr>
<td>Boards Review</td>
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<tr>
<td>Wrote Scope Article</td>
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<tr>
<td>SCCO Student Interviews (3)</td>
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<tr>
<td>Helped with Writing Diabetic Retinopathy/ARMD Study Sheets(BSK)</td>
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<tr>
<td>Helped get Remote Access started</td>
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<td>EyeSi Demonstration</td>
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<td>Helped Tested 4 Mirror for Volk</td>
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<td>SCCO Student interview(4)</td>
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<td>SCCO Student interview(6)</td>
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<tr>
<td>Health Fair at Santa Ana High School</td>
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<td>“Por Tu Familia” ADA Health Fair</td>
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<tr>
<td>Oasis Punctal Plug Workshop for 4th years</td>
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<td>Pathology Symposium for 3rd years</td>
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<tr>
<td>“Unidos Contra La Diabetes” Health Fair-American Diabetes Association</td>
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<tr>
<td>American Diabetes Association Health Fair</td>
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</tbody>
</table>

**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
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  
OHP II  

Sep 2007-Present  
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)  
Geriatrics Course, SCCO  
October 2008-Present

"Pre and Post op Cataract Evaluation and Management" (2 hours)  
OHP II, SCCO  
September 2008-Present

"The Red Eye" (2 hours)  
OHP II, SCCO  
September 2008-Present

"Systemic Diseases in the Elderly Part II" (2 hours)  
Geriatrics Course, SCCO  
September 2008-Present

"Systemic Diseases in the Elderly Part I" (2 hours)  
Geriatrics Course, SCCO  
September 2008-Present

"Cranial Nerve Testing" (1 hour)  
Clinical Medicine, SCCO  
October 2008-2010

"Pupils, Pupils, and more Pupils" (1.5 hours)  
4th year Clinical Seminar  
September 2008

"Charles-Bonnet Syndrome" (1 hour)  
Residency symposium, SCCO  
February 2007

"A Day in the Life at the VA" (1 hour)  
Senior Residency Forum, SCCO  
August 2006

CE Lectures

Pseudoexfoliation Syndrome Online CE  
SCCO  
Pending

Glaucoma Medications Online CE  
SCCO  
Pending

"The Diagnosis is Glaucoma.....Or is it??"  
SCCO CE  
Feb 2015

Glaucoma Grand Rounds  
SCCO CE  
Aug 2015
"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

Glucoma Grand Rounds  
SCCO CE  
Feb 2015

Glucoma Grand Rounds  
SCCO CE  
May 2015

Glucoma Grand Rounds  
SCCO CE  
March 2015

Pigment Dispersion Syndrome Online CE  
SCCO  
Jan 2014

Glucoma Grand Rounds  
SCCO CE  
Dec 2013

Glucoma Grand Rounds  
SCCO CE  
Sep 2013

Glucoma 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

Glucoma 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
SCCO CE

Glaucoma Grand Rounds
SCCO CE

"Interesting Retinal Cases"
SCCO CE

Glaucoma Grand Rounds
SCCO CE

"6 Things You Didn’t Know about Diabetic Retinopathy"
SCCO CE

"Differentiating Iris Lesions"
AAOS CE

"Differentiating Choroidal Lesions"
SCCO CE

"Secondary Glaucomas"
SCCO CE

"Pupils, Pupils, and more Pupils: Common Cases you may encounter in Office"
AAOS CE

"Lab Testing in Office"
SCCO CE

Dilation and Irrigation Lab CE
SCCO CE

**Leadership**

Tustin Eye Clinic
October 2008-April 2009

Cerritos Eye Clinic
July 2007-May 2009

**Proctoring**
Publications

"Role of Specialty 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 Pressure Fundus 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 Brainstorming 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. Jul 2009-Aug 2011
P.I. Dr. Robert Yacoub
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 Pressure Fundus Lesions" (Poster) Oct 2015
AAO New Orleans

"Age-related Macular Degeneration and Primary Care of Optometry" California Optometry Magazine. Sep/Oct 2013 issue (Second author) Sep 2013


"Charles-Bonnet Syndrome" Optometry: Journal of the AOA (First author) July 2011

"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) December 2009

Research

Hoya Lens Technologies Research Brainstorming 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. July 2009-Aug 2011
P.I. Dr. Robert Yacoub
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 (Presented at student research symposium)  
January 2009-Present

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
Request for Approval of Continuing Education Course(s)

Claudia Silva  
15051 Hesperian Blvd, suite A  
San Leandro, CA 94578

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
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
<th>FOR BOARD ONLY</th>
<th>USE</th>
<th>Approved</th>
<th>Disapproved</th>
<th>ID #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Platform for Cataract Surgery &amp; LASIK</td>
<td>03/24/16</td>
<td>V. Nicholas Batra, M.D.</td>
<td>1.0</td>
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<tr>
<td>Complications in the Anophthalmic Socket</td>
<td>03/24/16</td>
<td>Kasra Eliasieh, M.D.</td>
<td>0.75</td>
<td></td>
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<tr>
<td>Normal Tension Glaucoma</td>
<td>03/24/16</td>
<td>Ting Ting Liu, M.D.</td>
<td>0.75</td>
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<td></td>
<td></td>
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<tr>
<td>Uveitis &amp; Systemic Disease</td>
<td>03/24/16</td>
<td>Daniel Ting, M.D.</td>
<td>0.5</td>
<td></td>
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</tr>
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</table>

**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.
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

www.bayarearetina.com
Agenda Item 3T

Bay Area Retina Associates

Curriculum Vitae – T. Daniel Ting, M.D., Ph.D.

Page 2

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


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
CLINICAL TRIALS


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 – SCORE Study for BRVO/CRVO – 2004 Sponsor – NIH/NEI


PUBLICATIONS


Agenda Item 3T

BayArea Retina Associates

Curriculum Vitae – T. Daniel Ting, M.D., Ph.D.

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ABSTRACTS


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
Director, Cornea, Cataract and Refractive Surgeon
SAN LEANDRO, CA
2002-Current

EDUCATION

UCSF DEPARTMENT OF OPHTHALMOLOGY
Clinical fellow in Cornea and Refractive Surgery (UCSF/Proctor Foundation)
SAN FRANCISCO, CA
1999-2000
Heed Foundation Fellow
1999-2000
Resident in Ophthalmology
1996-1999

UCLA SCHOOL OF MEDICINE
Intern in Internal Medicine (SFV Program)
LOS ANGELES, CA
1995-1996
M.D., 1995
1991-1995

DARTMOUTH COLLEGE
A.B. in Economics modified with Biology, 1991
HANOVER, NH
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
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

MEETINGS/LECTURES/COURSES

“Refractive Surgery Update 2004” San Ramon, CA 2004
“Scleritis, Episcleritis, Endophthalmitis” 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 Autonomous 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 telangiectasia" 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.

**WORK EXPERIENCE**

**Eye Physician and Surgeon**
Turner Eye Institute, Performed Cornea, Cataract and Refractive Surgery
*Medical Assistant*
Set up computer database for the office ans assisted in patient care in a private practice setting
*Tutor*
Peer tutor in Economics and Physics

July 2000-February 2003
Spring 1990, summer 1991
1988-1991

**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
Big Sibling Coordinator 1992-1993

**PERSONAL**

Agenda Item 3T

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, Ophthalmology 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 reproducability

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*

*Pupilometer*

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<sup>*</sup> Laser SoftFit™ Patient Interface: Reduces Corneal Compression & IOP to 16 mmHg Over Baseline

NEW CAPSULOTOMY PERFORMANCE

New LenSx<sup>*</sup> 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<sup>*</sup> Laser SoftFit™ Patient Interface

New Alcon<sup>®</sup> LenSx<sup>*</sup> 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 decenteration

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 LRI's 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?
TING TING LIU, M.D.
321 E 13th STREET, APARTMENT 6D • NEW YORK, NY 10003
626.922.7569
ttingliu@gmail.com

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.

*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


PRESENTATIONS


**SELECTED ACTIVITIES & WORK EXPERIENCES**

**East Haven Lions Club - East Haven, CT**  
*Volunteer*  
Provided eye screenings in various community events.

**JeffSEES - Jefferson Medical College**  
*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**  
*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**  
*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**  
*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**  
*Clinical Care Volunteer & Leadership Committee*  
Devoted over 300 hours in patient care, clerical assistance, and leadership committee.

821
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.

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*


Agenda Item 3T

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


Eliasieh K. Chapter: *Trichiasis.* Master Techniques in Ophthalmic Surgery. Roy FH (Editor). *In Press*


Abstracts


INVITED LECTURES

Howard Hughes Medical Institute (HHMI) Annual Medical Fellows Conference, May 2006. Chevy Chase, MD.

*Aging and Plasticity of the Retina*


*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

<table>
<thead>
<tr>
<th>Date</th>
<th>Institution</th>
<th>Description</th>
<th>Preceptor</th>
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<tbody>
<tr>
<td>12/01-06/02</td>
<td>University of California, Davis Department of Neurobiology, Physiology, and Behavior</td>
<td>Student Researcher, The role of dopaminergic amacrine cells in the stratification of retinal ganglion cell axons during development. Preceptor: Leo M. Chalupa, PhD</td>
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<tr>
<td>06/05-06/06</td>
<td>Howard Hughes Medical Institute</td>
<td>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</td>
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### Leadership

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<tr>
<th>Year</th>
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<tr>
<td>2004-2006</td>
<td>Physiology and Neuroanatomy Instructor</td>
<td>UC Davis School of Medicine</td>
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<tr>
<td>2007</td>
<td>Co-Director- Willow Project Homeless Clinic</td>
<td>UC Davis School of Medicine</td>
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<tr>
<td>2007</td>
<td>Co-Director- Ophthalmology Student Interest Group</td>
<td>UC Davis School of Medicine</td>
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### 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., Maumee 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
Request for Approval of Continuing Education Course(s)

Vantage Eye Center
Attn: Kristen Ish
622 Abbott Street
Salinas, CA 93901

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
<table>
<thead>
<tr>
<th>Course Title</th>
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<th>Instructor(s)/Lecturer(s)</th>
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<tr>
<td>Oculoplastics/Orbit Eyelid lesions: evaluation and treatment of benign and malignant tumors</td>
<td>5/26/16</td>
<td>Carlo R. Bernardino, MD</td>
<td>2.0</td>
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<tr>
<td>Anterior Segment/Cataract Cataract surgery with Flomax:</td>
<td>9/21/16</td>
<td>Jon Page, MD</td>
<td>2.0</td>
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<tr>
<td>Floppy Iris Syndrome</td>
<td></td>
<td></td>
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<tr>
<td>Glaucoma Update Ocular hypertension</td>
<td>10/20/16</td>
<td>Victoria Min, MD</td>
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**COMMITTEE COMMENTS:**
VANTAGE EYE CENTER
CONTINUING EDUCATION LECTURE SERIES
2016

Oculoplastics/Orbit
Eyelid lesions: evaluation and treatment of benign and malignant tumors
May 26, 2016

Anterior Segment/Cataract
Cataract surgery with Flomax: Floppy Iris Syndrome
September 21, 2016

Glaucoma Update
Ocular hypertension
October 20, 2016
VANTAGE EYE CENTER
CONTINUING EDUCATION LECTURE SERIES
2016

Oculoplastics
Eye lid 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
Carlo Roberto Bernardino, MD FACS

Vantage Eye Center
2 Upper Ragsdale Drive
Suite B-130
Monterey, CA 93940

W: 831.771.3900
F: 831.771.3966
www.vantageeye.com
rbernardino@vantageeye.com

Revised 02/06/2015

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

<table>
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<tr>
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<th>Position/Committee</th>
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<tbody>
<tr>
<td>10-present</td>
<td>Examiner, American Board of Ophthalmology</td>
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<tr>
<td>09-present</td>
<td>E-Learning Committee, Joint Commission on Allied Health</td>
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<tr>
<td>09-14</td>
<td>Personnel in Ophthalmology (JCAHPO) Board of Directors</td>
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<tr>
<td>11-12</td>
<td>Member-at-Large, Joint Commission on Allied Health</td>
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<tr>
<td>10-12</td>
<td>International Relations Committee, Joint Commission on Allied Health</td>
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<tr>
<td>09-12</td>
<td>Treasurer, Commission on Accreditation of Ophthalmic Medical Programs (CoA-OMP) Board of Directors</td>
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<tr>
<td>03-11</td>
<td>Specialty Information Team Member, Oculoplastics, AAO</td>
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<tr>
<td>09-10</td>
<td>Annual Meeting Program Committee, Oculoplastic Reviewer, AAO</td>
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<tr>
<td>08-10</td>
<td>Connecticut Society of Eye Physicians Executive Committee</td>
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<td>08-09</td>
<td>JCAHPO representative to CoA-OMP Board of Directors</td>
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<tr>
<td>00-02</td>
<td>Council of Representatives of the Candidate and Associate Society, American College of Surgeons</td>
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<td>National Eyecare Outcomes Network Palm Pilot Project, AAO</td>
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<td>Program Advisory Committee of AAO</td>
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### Institutional Committee Membership

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<tr>
<td>09-10</td>
<td>Yale Medical Group Clinical Information Systems Committee - practice standards for clinical information systems subcommittee</td>
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<tr>
<td>07-10</td>
<td>Graduate Medical Education Committee, Yale School of Medicine</td>
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<tr>
<td>07-10</td>
<td>Member, Chairman’s Trauma Task Force, Yale Eye Center (YEC)</td>
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<tr>
<td>07</td>
<td>Chair, Resident Education Committee, YEC</td>
</tr>
<tr>
<td>07</td>
<td>Member, Intranet and List-serve Design Committee, Emory Eye Center (EEC)</td>
</tr>
<tr>
<td>05-07</td>
<td>Chair, Webpage Re-design Committee, EEC</td>
</tr>
<tr>
<td>05</td>
<td>Member, Information Technology and Simulations Subcommittee, Emory University School of Medicine (ESoM) Curriculum Planning, Co-Chairs: Martin Reznik, MD and Kenneth Walker, MD</td>
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<td>04-07</td>
<td>Resident Selection Committee, Application Reviewer, Department of Ophthalmology, ESoM</td>
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<td>04-07</td>
<td>EeMR STARS member – Emory Healthcare electronic medical record transition committee</td>
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<tr>
<td>03-07</td>
<td>Resident Selection Committee, Interviewer, Department of Ophthalmology, ESoM</td>
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<tr>
<td>94-95</td>
<td>Admissions Committee, Jefferson Medical College, Philadelphia, PA</td>
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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 Thyroid Eye Disease.
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<td>07</td>
<td>Marquis Who's-Who of Emerging Leaders, 1st Edition</td>
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<td>Secretariat Award, American Academy of Ophthalmology</td>
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<td>06-07</td>
<td>Marquis Who's Who in America, 60th &amp; 61st Edition</td>
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<td>06</td>
<td>Achievement Award, American Academy of Ophthalmology</td>
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<td>05</td>
<td>Residents' Day Presentation – Second Place, Takle LM,</td>
<td><strong>Bernardino CR.</strong> Periocular Cutaneous Lesions and Their Management Through Mohs Reconstructive Surgery.</td>
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<td>01-04</td>
<td>American Medical Association Physician Recognition Award</td>
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<td>Outstanding Teaching and Commitment to Education, Residency Retreat, Ophthalmology Residents, MEEI</td>
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<tr>
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<td>Marquis Who's Who in Medicine and Healthcare, 4th Edition</td>
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<td>Bausch &amp; Lomb Travel Grant for Young Investigators, Contact Lens Association of Ophthalmologist Annual Meeting</td>
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<td>Bausch &amp; Lomb Travel Grant for Young Investigators, Contact Lens Association of Ophthalmologist Annual Meeting</td>
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**Society Membership**

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<tr>
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<td>American Society of Ophthalmic Plastic Surgeons</td>
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<td>California Academy of Eye Physicians &amp; Surgeons</td>
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<tr>
<td>10-present</td>
<td>California Medical Association, Monterey County Medical Society</td>
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<tr>
<td>08-present</td>
<td>American Eye Study Club</td>
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<tr>
<td>05-present</td>
<td>American College of Surgeons – Fellow</td>
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<tr>
<td>98-present</td>
<td>American Academy of Ophthalmology – Fellow</td>
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<tr>
<td>09-10</td>
<td>The Most Venerable Order of the Hospital of St. John of Jerusalem, Serving Brother</td>
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<tr>
<td>07-10</td>
<td>Association of University Professors of Ophthalmology</td>
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<td>06-10</td>
<td>Association of Philippine Ophthalmologists in America</td>
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<tr>
<td>07-10</td>
<td>Connecticut Society of Eye Physicians</td>
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<tr>
<td>98-09</td>
<td>American Medical Association</td>
<td></td>
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<tr>
<td>03-07</td>
<td>Georgia Society of Ophthalmology</td>
<td></td>
</tr>
</tbody>
</table>
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  Leif 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 oculoplastic

## Lectures/Courses

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/11</td>
<td>Managing the Difficult or Unhappy Patient. JCAHPO Annual Continuing Education Meeting</td>
</tr>
<tr>
<td>08-11</td>
<td>Red Drop, Yellow Drop, Blue Drop, Eye Drop - Ophthalmic Pharmacology. JCAHPO Annual Continuing Education Meeting</td>
</tr>
<tr>
<td>06-11</td>
<td>Preoperative and Postoperative Management of the Surgical Patient. JCAHPO Continuing Education Program. JCAHPO Annual Continuing Education Meeting</td>
</tr>
<tr>
<td>10/11</td>
<td>Eyelids Lumps and Bumps. JCAHPO Annual Continuing Education Meeting</td>
</tr>
<tr>
<td>10/11</td>
<td>Eyelids Lumps and Bumps. JCAHPO Webinar</td>
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<tr>
<td>8/11</td>
<td>Eyelid Lumps and Bumps. Vantage Eye Center Optometric Continuing Education Lecture Series</td>
</tr>
<tr>
<td>08-10</td>
<td>iEmergencies. Physician Assistant Lecture Series, YSoM, New Haven, CT</td>
</tr>
<tr>
<td>06-10</td>
<td>Entering the Orbit – Incisions and Approaches. Orbital Fracture Repair – Plating Course. Lecturer and Instructor. AAO Skills Transfer Course</td>
</tr>
<tr>
<td>10/10</td>
<td>Surfing the Silver Tsunami. Geriatric Medicine for the Ophthalmologist. AAO Annual Meeting, Chicago, IL.</td>
</tr>
<tr>
<td>10/10</td>
<td>Management of Pain and Anxiety in an Office Setting. American Society of Ophthalmic Registered Nurses Annual Meeting, Chicago, IL.</td>
</tr>
</tbody>
</table>
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, Riyadh, 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
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
</table>
| 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 Demographics  
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 |
| 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 |
<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
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<tr>
<td>8/06</td>
<td>Anophthalmia&lt;br /&gt;Lacrimal System&lt;br /&gt;Orbital Fractures&lt;br /&gt;Porex Surgical Global Sales Meeting 2006, Lake Lanier, GA</td>
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<tr>
<td>03-05</td>
<td>Medial Wall Fractures. Orbital Fracture Repair – Plating Course. Lecturer and Instructor. AAO Skills Transfer Course</td>
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<tr>
<td>7/05</td>
<td>Hydrogel and the Anophthalomic Socket – An Expanding Role. Georgia Society of Ophthalmology Annual Summer Meeting, Sea Island, GA</td>
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<td>03-04</td>
<td>Eye Plastic Essentials for the Anterior Segment Surgeon. Course director and lecturer. AAO Instructional Course</td>
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<tr>
<td>3/03</td>
<td>Transition to Office-Based Oculoplastics Surgery. Philippine Society of Ophthalmic Plastic and Reconstructive Surgery Annual Meeting, Manila, Philippines</td>
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<td>3/03</td>
<td>Overview of Thyroid-Related Ophthalmopathy. Department of Ophthalmology, University of the Philippines, Manila, Philippines</td>
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<td>3/03</td>
<td>Anatomy of the Midface for the Ophthalmologist. Department of Ophthalmology, University of Santo Thomas, Manila, Philippines</td>
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<td>1/02</td>
<td>Orbital Fractures – Evaluation and Treatment. Department of Ophthalmology, University of the Philippines Medical School, Manila, Philippines</td>
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<tr>
<td>8/01</td>
<td>Anatomy, Reconstruction, and Cosmetic Surgery: A Hands-On Course. Eyelid and Ocular Adenexal Cadaveric Dissection. Instructor. Boston University School of Medicine, Boston, MA</td>
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<tr>
<td>12/99</td>
<td>Evaluation and Treatment of Ophthalmic Sequela of Facial Nerve Palsy. Department of Ophthalmology; University of the Philippines Medical School, Manila, Philippines</td>
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Published Research


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<tr>
<th>Date</th>
<th>Authors and Title</th>
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<td>Date</td>
<td>Authors</td>
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<tr>
<td><strong>Review Articles</strong></td>
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</table>
November 8


September 8


April 8


November 7


April 7


September 6


November 4


October 4


September 3


Book Chapters

2012


In Press

Brazil CR, Rubin PAD. Surgical Treatment of Neurotrophic Keratopathy. Contemporary Ophthalmology

2011


Textbooks

Letters To The Editor


7/05  
**Bernardino CR**, Chang EL, Hatton MP, Rubin PAD, Dohlman CH.


4/05  

12/04  

6/03  

**Published Abstracts**

10/11  
Lin J, 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  

5/10  

5/10  
Lin J, **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**. Tarsoconjunctivo-Muller-Levator Resection, a novel technique for involutional ptosis. Resident Research Day, YSoM.

5/10  
Lin J, **Bernardino CR**. The modified tarsal strip tarsorrhaphy versus the lateral tarsal strip for entropion and ectropion. Resident Research Day, YSoM.
<table>
<thead>
<tr>
<th>Date</th>
<th>Authors</th>
<th>Title/Description</th>
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<tbody>
<tr>
<td>1/10</td>
<td>Bernardino CR.</td>
<td>Developing a Geriatrics Curriculum for Eye Care.</td>
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<td></td>
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<td>Educating the Educators, Association of University Professors of Ophthalmology</td>
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<td>Annual Meeting, Sarasota, FL</td>
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<tr>
<td>10/09</td>
<td>Lin JL, Fay AM, Bernardino CR.</td>
<td>Supine Exophthalmometry as a Screening Tool for Thyroid Eye Disease. ASOPRS Fall</td>
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<td></td>
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<td>Meeting, San Francisco, CA</td>
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<td>9/09</td>
<td>Bernardino CR, Liggett PE.</td>
<td>Orbital carcinoid: first or second ocular metastasis. International Society of</td>
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<td>Ocular Oncology Meeting, Cambridge, UK</td>
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<tr>
<td>5/09</td>
<td>Crum AV, Servat JJ, Bernardino CR.</td>
<td>Developing a Geriatrics Curriculum for Eye Care – The Yale Geriatrics for</td>
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<td>Ophthalmology Initiative. American Geriatrics Society Annual Meeting, Geriatrics</td>
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<td></td>
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<td>Education for Specialty Residents, Chicago, IL</td>
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<tr>
<td>11/06</td>
<td>Bernardino CR.</td>
<td>Hydrogel and the Anophthalmic Socket: An Expanding Role. AAO Annual Meeting, Las</td>
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<td>Vegas, NV</td>
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<tr>
<td>10/05</td>
<td>Chang EL, Bernardino CR, Rubin PAD.</td>
<td>Development of an Orthotopic Xenographic Mouse Model of Adenoid Cystic Carcinoma</td>
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<tr>
<td></td>
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<td>of the Lacrimal Gland. ASOPRS Fall Meeting, Chicago, IL</td>
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<td>6/05</td>
<td>Takle LM, Bernardino CR.</td>
<td>Periocular Cutaneous Lesions and Their Management Through Mohs Reconstructive</td>
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<td>Surgery. Resident Day Research Presentation. EEC, Atlanta, GA</td>
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<tr>
<td>11/03</td>
<td>Chang EL, Bernardino CR, Rubin PAD, Ksander BR.</td>
<td>Orthotopic metastatic mouse model of ocular tumors for anticancer treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>evaluation: bridging the gap from lab to clinic. ASOPRS Fall Meeting, Anaheim,</td>
</tr>
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<td></td>
<td></td>
<td>CA.</td>
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</tbody>
</table>
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 JJ, Nouri M, Bernardino CR, Rubin PAD. Tube Extension from Ahmed Valve to Lacrimal Sac, Ethmoid or Maxillary Sinuses in Patients with Keratoprosthesis. 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

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


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

Published Interviews


<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Channel</th>
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<tbody>
<tr>
<td>10/10</td>
<td>External Dacryocystorhinostomy. Youtube.</td>
<td><a href="http://www.youtube.com/watch?v=gPF6omQTXv0">http://www.youtube.com/watch?v=gPF6omQTXv0</a></td>
<td></td>
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</tbody>
</table>
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 treatment 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


INTERESTS/HOBBIES

Golf, Fly-fishing.
**Victoria K. Min, M.D.**

**Demographics**

| Address (Home) | 25381 Markham Lane  
|               | Salinas, CA 93908 |
| (Work) Vantage Eye Center  
|               | 622 Abbott Street  
|               | Salinas, CA 93901  
|               | 831-771-3900 |

| Telephone | 717-424-7105 |
| Email     | vicklemin@gmail.com |

**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 Michigan Medical School, Ann Arbor, Michigan

**Positions and Employment**

- **Aug 3, 2015-present** Ophthalmologist and Glaucoma Specialist  
  Vantage Eye Center, Salinas, California

- **2014-2015** Glaucoma Fellow, Ophthalmology  
  Henry Ford Hospital, Detroit, Michigan  
  Program Director: Nauman Imami, MD, MHSA

- **2011-2014** Resident, Ophthalmology  
  Henry Ford Hospital, Detroit, Michigan

- **2010-2011** Intern, Transitional Year Program  
  Wayne State University School of Medicine, Rochester, Michigan

- **2004** Congressional Intern  
  Congressman Todd Platts, U.S. House of Representatives
Research Experience, Presentations/Publications


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


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


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**

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity</th>
<th>Location</th>
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<tr>
<td>2011-present</td>
<td><strong>Detroit Tigers Health Screening</strong></td>
<td>Detroit, Michigan</td>
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<tr>
<td>2013</td>
<td><strong>Hope Clinic</strong></td>
<td>Detroit, Michigan</td>
</tr>
<tr>
<td>2006-2010</td>
<td><strong>Project H Clinic</strong></td>
<td>Ypsilanti, Michigan</td>
</tr>
<tr>
<td>2006-2010</td>
<td><strong>Galens Medical Society</strong></td>
<td>Ann Arbor, Michigan</td>
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</table>

**Honors and Awards**

<table>
<thead>
<tr>
<th>Year</th>
<th>Award</th>
<th>Institution</th>
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<tbody>
<tr>
<td>2014</td>
<td><strong>Grand Prize Winner</strong></td>
<td>2014 David Barsky, MD Resident Research Award Competition</td>
</tr>
<tr>
<td>2009</td>
<td><strong>Helping Hand Award for co-ordination of the M3Survival Workshop</strong></td>
<td>University of Michigan Medical School</td>
</tr>
<tr>
<td>2009</td>
<td><strong>Note of Commendation from AlonKahana, MD, PhD for research in the Department of Ophthalmology and Visual Sciences</strong></td>
<td>University of Michigan Kellogg Eye Center</td>
</tr>
<tr>
<td>2009</td>
<td><strong>Note of Commendation from Larry Koreen, MD, PhD for clinical performance and research in the Department of Ophthalmology and Visual Sciences</strong></td>
<td>University of Michigan Kellogg Eye Center</td>
</tr>
<tr>
<td>2007</td>
<td><strong>University of Michigan Student Biomedical Research Fellowship</strong></td>
<td>University of Michigan Medical School</td>
</tr>
<tr>
<td>2007</td>
<td><strong>Upjohn Memorial Educational Fellowship</strong></td>
<td>University of Michigan Medical School</td>
</tr>
<tr>
<td>2006</td>
<td><strong>Magna Cum Laude, with Distinction in Biology</strong></td>
<td>University of Pennsylvania</td>
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**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
Request for Approval of Continuing Education Course(s)

Cynthia Adame  
NVISION Eye Centers  
75 Enterprise, Suite 200  
Aliso Viejo, CA 92656

<table>
<thead>
<tr>
<th>Receipt#</th>
<th>Payor ID#</th>
<th>Beneficiary ID#</th>
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<tr>
<td>1-524</td>
<td>6199013</td>
<td>6199017</td>
<td>106</td>
</tr>
</tbody>
</table>

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
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
<table>
<thead>
<tr>
<th>NVISION EYE CENTERS</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
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<tr>
<td>Course Title</td>
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</tr>
<tr>
<td>Peripheral Retinal Lesions</td>
<td>2/3/16 and ongoing</td>
<td>Mits Ayyazifar, MD George Baerveldt, MD Sondra Black, OD Amarpreet Brar, MD Richard Burns, MD Paul Casej, MD John Davidson, MD Loren Little, MD Franklin Lusby, MD Patrick Lydon, OD Jeff Machet, MD Mithir Parkh, MD Steward Park, MD Jonathan Pirnazar, MD Archna Reddy, MD Sheel Rowan, MD Richard Meister, MD Stanley Teplick, MD Thomas Tooma, MD George Simon, MD Emil Stein, MD Jon-Marc Weston, MD</td>
<td>1</td>
<td>Approved</td>
</tr>
<tr>
<td>Hyperopia</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TOTAL TIME</td>
<td></td>
<td></td>
<td>2</td>
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</tbody>
</table>

COMMITTEE COMMENTS:
YOU’RE INVITED TO OUR FREE

Torrance 2-Hour CE*

Wednesday, February 3, 2016 | 6:30 – 9:00 PM
NVISION Torrance | 23550 Hawthorne Blvd, Suite 220 | Torrance, CA 90505

Discuss elements of Hyperopia, Peripheral Retinal Lesions, and have your questions answered by Franklin Lusby, MD and Ron Taban, MD

6:30 - 7:00 PM  Registration and Dinner
7:00 - 8:40 PM  2-Hour CE
8:40 - 9:00 PM  Q&A with Franklin Lusby, MD and Ron Taban, MD

Limited Spots | Questions? Call Jocelyn Harrington (949) 433 - 1876
REGISTER ONLINE: NVISION-Torrance-CE.eventbrite.com

WE LOOK FORWARD TO SEEING YOU THERE

*CE pending California State Board of Optometry approval
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

**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 (AOA) 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 Chairmen (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
- Grand Rounds/Quilt Award 2006-2007

**Fellowship:**
- Head 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

**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. Cluck, M.D., Ph.D.

**Residency:** 2004-2007
- Cole Eye Institute, Cleveland Clinic Foundation. Mentors: Hillel Lewis, Elias Traboulsi, Jonathan Sears, Peter Kaiser, Andrew Schachat, others.

**Fellowship:** 2007-2009
- Cole Eye Institute, Cleveland Clinic Foundation. Mentors: Hillel Lewis, Jonathan Sears, Peter Kaiser, Andrew Schachat, Dan Martin, Rishi Singh, Nadia Waked.

**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 Regeneron 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).
Published/Accepted Manuscripts/Lectures:


Chapters:


Presentations/Abstracts:

3. Taban M. Stimulation of choroidal neovascularization in the rabbit through sustained release of VEGF and bFGF. J Invest Med 2003;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) • 8th Annual UCI Faculty Research Poster Session, Mar 20, 2002, Irvine, CA, USA. (Poster)
5. Wong CG, Taban M, Wilson M, Dennis MW. Bioengineering retinal blood vessels with pre-angiogenic polymeric scaffolds. 2003 Annual ARVO Meeting, Fort Lauderdale, FL, USA.
Agenda Item 3V


Newsletter Articles and Brief Reviews:


Professional Societies:

- Alpha Omega Alpha (AOA) 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. Michals Fellowship Foundation
Medical Doctor Curriculum Vitae
As of February 8, 2016

Mitra Ayazifar, MD
5950 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

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: Yoael 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)
75 Enterprise, Suite 200, Aliso Viejo, CA 92656
ph 949.274.4652  •  ft 949.309.4856  •  e info@visioncenters.com  •  w www.visioncenters.com

870
**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**


2. Strauch M, Ayazifar M. BenT DNA is found in some but not all regions recognized by the Bacillus subtilis AbcB protein. Molecular and General Genetics 1995; 246(6):756-760.

**BOOK CHAPTERS**


**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 CEevent to Optometrists in Northern California (October 2014).
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).

EMLOYMENT 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:

Solo 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 dermat 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.

George Baerveldt, MD

Dr. Baerveldt's international reputation is based on his glaucoma research and surgical innovations. Dr. Baerveldt developed the Baerveldt Glaucoma Implant and presently holds six patents related to this invention. He also invented Trabecom®, 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 Professor and Chair of the Department of Ophthalmology, and Director of the Gavin Herbert Eye Institute from July 2003 - November 2008.

Dr. Baerveldt received the American Academy of Ophthalmology'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 the 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.
Sandra Black, OD

68 Spernich Ave
Torrino, Ontario
M4K 1G9
ddaubk@gmail.com
416-666-6465

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

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
OCRBE
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

CAO

Lecture topics include:
- How to Build your refractive surgery practice
- Iris registration
- Presbyopia options
- New Technology in refractive surgery
- Restorative 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
- Wavefront Allegretto Canadian custom trials
- RestorVision reading implants
- Visx Presbyopia trials
- AMO SymfonyLow Add

Articles written for most industry journals including:
- Optometric Management
- Vision Voice
- TLC E Vision
- Review of Optometry (including COPE articles)
- OSN
- Primary Care Opthalmology News
- refractive Eye Care

Educational Videos completed for:
- Eyetube OD
**Agenda Item 3V**

**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 intracocular 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.

**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.”
Paul Casey, MD

BIOGRAFICAL DATA:
Date of Birth: January 27, 1962 Birthplace: Glen Ridge, NJ
Wife: Ansemarie 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- 90th 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

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
ph 949.274.4652 • f 949.509.4858 • e info@visioncenters.com • www.visioncenters.com

Agenda Item 3V

MILITARY EXPERIENCE:
1990-1991 HPOIC/SAM
1998-2001 Ophthalmology Element Chief, RAF Lakenheath
2001-2002 Chief, Ophthalmology Service, Nellis APB

PROFESSIONAL AFFILIATIONS:
1994- American Academy of Ophthalmology
2001- Nevada Ophthalmological Society

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
ph 949.274.4652 • f 949.509.4858 • e info@visioncenters.com • www.visioncenters.com
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 Refor implanting surgeon in all of California and has more experience with Refor 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 assistant 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 SIR International, which is devoted to helping restore sight in blind individuals worldwide. With SIR 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.
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

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, PARACUTIST BUDGE,
YSM, 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
OPHTHALMOLOGISTS, 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

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:
FELLOWS: AMERICAN ACADEMY OF OPHTHALMOLOGY
FELLOWS: AMERICAN COLLEGE OF SURGEONS CLARK COUNTY AND NEVADA STATE MEDICAL ASSOCIATION INTERNATIONAL SOCIETY OF REFRACTIVE SURGERY of the AMERICAN ACADEMY OF OPHTHALMOLOGY

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 BI-ANNUAL OPHTHALMOLOGY MEETING - "CONGONITIAL ABSENCE OF RETINAL VESSELS AND OPTIC NERVE" 1976

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) SECT & 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


LISTED:
WHO'S WHO IN AMERICA
WHO'S WHO IN ENTREPRENEURING
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
Franklin Lusby, MD
Home Address: 238 Pacific Avenue, Solana Beach, California 92075
Business Address: 9850 Genessee 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
DPA: AL9233634
Education:
High School: High Point High School
Baltimore, 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
Fellowship:
- Extracapsular Cataract Extraction and
Intraocular Lens Implantation
James M. McCaffery, M.D.
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
- EclInMed UV200 Certification, 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
- VIXS Excimer Laser System Astigmatism Training Course: VIXS, May,
  1997
- VIXS Excimer Laser System PRK with Astigmatism & High Myopia
  Training Course: VIXS, March, 1998
- VIXS Excimer Laser System Hyperopia Training Course: VIXS,
  November, 1998
- VIXS Excimer Laser System LASIK Training Course: VIXS, January,
  2000
- VIXS Excimer Laser System Blend Zone with Variable Spot Scanning
  Training Course: VIXS, April, 2001
- LADARVision Excimer Laser Workstation Certification: Alcon,
  October, 2001
- VIXS Excimer Laser System LASIK for the Treatment of Mixed
  Astigmatism Training Course: VIXS, March, 2002
- VIXS Excimer Laser System Custom CAP Training Course: VIXS, June,
  2002
- LADARVision Ladarwave Customcornea Certification: Alcon,
  February, 2003

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- VISX Excimer Laser System CustomVue Training Course: VISX, June 2003
- Intralase Training Course: Intralase, January, 2004
- VISX Excimer Laser System Fourier Algorithm Training Course: VISX, November, 2004
- Allegro 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
  (1986-1989)
  (1991-1997)

Franklin W. Lusby, M.D., Inc.
605 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)

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) 499-0900
(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)
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)

TCL Laser Eye Centers - Brea
Medical Director
910 East Birch Street, Suite 350
Brea, California 92821
(714) 257-0560
(2001-2005)

TCL 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) 660-4668
(2008-2011)
10 Pointe Dr., Suite 310
Brea, California 92821
(714) 880-8908
(2008-2011)
1600 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) 794-2020
(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 (1984-1998)
Victor Valley Community Hospital (1989-1997)
Palomar Medical Center (1991-1994)
Pomarado Hospital (1991-1997)
Escondido Surgery Center (1991-1997)
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Scientific Exhibits:


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)
Agenda Item 3V

Patrick Lydon, OD
Clinical Research Optometrist –
Manager and Director of Clinical Affairs

Primary Residence:
77-251 Tribeca St, Indian Wells, CA 92210
Home: 760-360-5245
Email: plwed@earthlink.net
Cell: (949) 735-2786

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 these 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

Previous Work Experience: (full time – non consulting)

   - 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, CPO'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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- 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 - April 2014)

- 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 Surgeons (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/EC.
- 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.
- Contributed with obtaining the highest volume of clinical KAMRA subjects for new sites in Canada.
- Developed the Visionmetric AcuFocus HD Acutarget project for site use.


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Specific Job Functions in UK for NeoVista:

- Credited with completing enrollment of subjects on time for the MERLOT trial (375 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 (e.g., Reporting).
- Assured studies were conducted in compliance with UK NHS/NICE Good Clinical Practice and appropriate international, federal, state, and local regulations and guidelines.
- 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 (Australia - 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.

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 External Director 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 downward, 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.
Jeffrey Machat, MD, FRSC, DABO
13700 Marina Pointe Dr. Ste.#1822 Marina Del Rey, Ca. 90292
416-818-1747, jjeff.machat@crystalclearvision.com

Education and Medical Training

Board Certification by the American Board of Ophthalmology, November 24, 1991
Internship 7/1/1986—6/30/1990
University of Toronto, Toronto, On. Canada
Comprehensive Medical Internship, Toronto General Hospital

Board Certification by the Royal College of Physicians & Surgeons of Canada
November 16, 1990
Doctor of Medicine 7/1/1982—6/12/1986
University of Toronto, Toronto, On. Canada
Undergraduate Program, Life Science
9/1/1983-5/15/1982
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 anisometropia, KAMRA Vision for readers 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 Diagnostics system
  - Specular Microscopy, RT VIRCUT system, PTK system, IOL Master
  - AcuFocus Acugard HD and Topkar microscope for KAMRA surgery
  - Ziemer Z4 Femtosecond Laser for Corneal surgery
  - Victor Femtosecond laser for Cataract surgery

Co-Founder/North American Medical Director 08/01/1993—01/01/2002
TLC Canadian Medical Director 01/01/2002—02/01/2009
TLC Laser Eye Centers, Toronto, Canada

- Co-founded and developed the largest laser vision correction company in the world, with over 83 laser sites across North America, as well as 300 mobile sites.
- Provided clinical training, education and direction for over 600 surgeons.
- Provided the clinical and operating guidelines for all surgeons, technicians and clinical staff.
- Functioned as Assistant Medical Director 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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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 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, Tacherning, and Ray Tracing technology

Licences and Certifications
Board Certified, Royal College of Physicians & Surgeons of Canada, November 16, 1990
Diplomat of The American Board of Ophthalmology, November 24, 1991

Professional Memberships
Canadian Society of Cataract and Refractive Surgery
Canadian Ophthalmological Society
International Society of Refractive Surgery
American Society of Cataract and Refractive Surgery

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 utilize 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 Hansatonne 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 Keratotomy, Laser in situ Keratomileusis (LASIK), and the KAMRA Comical 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, Viss Multifocal Ablation and RestorVision Sclelral Implants.
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, LASIK, 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.

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
Jonathan Pinazar, MD

For Dr. Pinazar, 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. Pinazar’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 board-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. Pinazar enjoys spending time with his wife and two sons, playing tennis and watching Chicago Bears games.

Archan Reddy, MD

Archan 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
NY State Medical License
2010 - 2015
American Board of Ophthalmology
Ophthalmology
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 #214 Fax - (410) 545-5161
Baltimore, Maryland 21202 E-Mail - Srowen.10@gmail.com

Education:
- University of Maryland, College Park, Maryland
  B.S., May 1976
- University of Maryland, School of Medicine, Baltimore, Maryland
  M.D., May 20, 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
- Katzir Eye Group, Dunawey 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, M.O.D. Ch. of Maryland
Committee Member, Research to Prevent Blindness, Inc.
Member, Universal Sclerodera 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 1998
- 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
  1999–1996
- 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 CO2 laser in Baltimore for Eyelid Surgery & Facial Resurfacing"
1997- "Implantable Lens Correcting Hyperopia & Myopia"
1998- "Laser Resurfacing with CO2 & Erbium Lasers" For Pre Mature Aging
1999- "Implantable Contact Lens" Lasik Surgery
2000- "Toric Lens" Correcting Astigmatism

1997- National Television: "Implantable Contact Lens"
1998- Vanhoose Broadcast: "Implantable Contact Lens"
1998- National Television: "Topical, Clear Corneal Cataract Surgery"

Publication:
- OCULAR SURGERY NEWS. (1994) "Leaders in Clear Corneal Incisions"

- Rowen, S.L. (1997) "Understanding the Benefits of Plate Haptic Lenses" REVIEW OF OPHTHALMOLOGY, Vol. IV, and No.7 4B-6B

American Academy of Ophthalmology - Annual Meeting:
1994 – 2009: 40 Credits Each Calendar Year

American Society of Cataracts and Refractive Surgery - Annual Meeting:

American Meeting International Society of Cosmetic Laser - Surgeons:
1996 - 24 Credits
1998 - 29 Credits
2000 - 24 Credits

International Society of Refractive Surgeons:

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 Freedom Center
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 CO2 & 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 Corona 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’Brien MD.

Presentations: Cataracts, Glaucoma, Foldable Lens & Topical Anesthesia
- 1984 - ARVO, Wilmer Eye Meeting, Sarasota, FL
- 1989 - ARVO, Wilmer Eye Meeting, Sarasota, FL
  “Endothelial Cell Produce a Chemooattractant for Astrocytes”
- 1985- ARVO, Wilmer Eye Meeting, Sarasota, FL
  “Retinal Pigment Epithelial Cells Release a Chemooattractant 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
  10LAB BOOTH “Perlimbal Incisions and Topical Anesthesia”
  “Perlimbal Incisions Using Topical Anesthesia *
  "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 Microlas- B 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”
  “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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Agenda Item 3V

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 0.5% 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 world-renowned 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 Viss 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
   "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- Tarrant County Medical Society: Fort Worth, TX.
   "Cataract Surgery for the 90's"

   "Cataract Surgery for the 90's"

   "Posterior Chamber Phakic IOLs"
   "Clear Cornea Cataract Surgery"
   "CO2 Laser for Blepharopasty & Resurfacing"

   "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 Diclofenac Sodium"

   "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 Anesthesia 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"

   "Cataract Surgery for the Millenium"

   "International Challenges & Techniques in Advanced Cataract Surgery"

Presentations:

Cosmetic - Techniques using CO2 & Erbium Lasers:

- 2002- American Academy Of Ophthalmology - Florida
  "Clinical Decision & Management of Complication 2002"
  "Prevention & Management of Iris Prolapse During Cataract Surgery"

- 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"

  "CO2 Laser in a Traditional Ophthalmology Practice"

- 1998- The Virginia Society of Ophthalmology, Williamsburg, VA.
  "Skin Resurfacing with the CO2 & Erbium laser"

- 1998- Maryland Ophthalmic 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"

  "Erbium Resurfacing for Xanthelasma"
  "CO2 Laser Blepharoplasty"

  "Lower lid Blepharoplasty Multi-Modal approved"

Presentations:

- 1997- Taustin Eye Center: Louisville, KY.
  "Implantoable contact lenses" "Toric IOL Update"

  "Intraocular Contact Lens"

- 1998- Sixth Annual Ophthalmic Allied Health Symposium: Wilmington, DE.
  "Implantoable Contact Lens, My Personal Experience" "Update: Phase 1 & 2"

- 1998- Women in Ophthalmology: Colorado
  "Correction of High Myopia with Hyperopia with Intraocular contacts"

- 1999- American Society of Cataract and Refractive Surgery: San Diego, CA.
  "Staar Surgical: ICL" "Implantoable Contact Lenses, My Personal Experience" "Phase 1 & 2"  "ICL Update"

  "Implantoable Contact Lens for Myopia and Hyperopia"

- 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"
  "Implantoable Contact Lens For Myopia & Hyperopia"
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
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
Stahl Eye Associates 1990 - 1992
Ophthalmology President and Medical Director Center for Sight Teplick Vision 1995 - Present

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
Adjunct Associate Clinical Professor
State University of New York College of Optometry 1993 –
Adjunct Associate Clinical Professor
University of Houston College of Optometry 1994 –
Member, National Medical Advisory Board, Equivision, Inc. 1994 – 1997
Adjunct Professor of Ophthalmology, Pacific University 1995-
Presentations
Starr Surgical Intraocular Lens Implantation Course
Sidney, Australia
Glaucoma and Therapeutic Update (Course Director)
New Orleans, Louisiana
SUNY Comprehensive Therapeutic Update Course (Preceptor)
New Orleans, Louisiana
National Comanagement Conference (Course Director)
Vision Expo East, New York
Optometric Therapeutics Course
Brisbane and Melbourne, Australia
Western Comanagement Conference (Course Director)
Vision Expo West, Anaheim, California
Cataract and Refractive Surgery Update (Course Director)
Vision Expo West, Las Vegas, Nevada
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

Agenda Item 3V

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 NVISION'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 FS 30 — 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 2006, 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.
Emil Stein, M.D.

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 Airborne 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

- NV State Medical License
  Active through 2017

- NY 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

PUBLICATIONS & PRESENTATIONS


Agenda Item 3V

Jan-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

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

Ophthalmology Residency:
Hahnemann University, 1978-1981

Boards and Certification:
American Board of Ophthalmology April 21, 1982.


STATE LICENSES
Oregon (17072) 04-12-1991
Washington (36609) 08-20-1998

HOSPITAL APPOINTMENTS
1981-1989
Hahnemann University & Hospital
Attending in Ophthalmology
Department of Ophthalmology
Board & Vine Street
Philadelphia, PA 19105

1981-1989
Rolling Hill Hospital & Diagnostic Center
Attending in Ophthalmology
Department of Ophthalmology
Elkins Park, PA 19117

1971-1987
Frankford Hospital
Attending in Ophthalmology
Frankford & Walking St.
Philadelphia, PA 19125

1985-1986
Cooper Hospital University Medical Center
Attending in Ophthalmology
One Cooper Plaza
Camden, NJ 08103

1986-1989
St. Mary Hospital
Attending in Ophthalmology
Frankford & Palmer St.
Department of Surgery
Philadelphia, PA 19125

1986-1989
The Osteopathic Medical Center
Attending in Ophthalmology
City Line Avenue
Philadelphia, PA 19131

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**Suburban General Hospital**
Ophthalmology
Norristown, PA 19401
1988-1989

**Marion Memorial Hospital**
Ophthalmology
917 West Main Street
Marion, IL 62959
1988-1991

**American Eye Institute**
Surgery Center of S. Illinois
Marion, IL 62959
1988-1991

**Dougherty Community Hospital**
738 W. Harford Blvd.
Roseburg, OR 97470
1991-2000

**Mercy Medical Center**
2700 Stewart Parkway
Roseburg, OR 97470
1991-PRESENT

**Coquille Valley Hospital**
940 E. 5th
Coquille, OR 97423
1991-1999

**Roseburg VA Hospital**
NW Garden Valley Blvd.
Roseburg, OR 97470
1992-PRESENT

**Blue Mountain Hospital**
John Day, OR 97739
1992-1999

**Roseburg SurgiCenter**
631 W. Stanton
Roseburg, OR 97470
1991-2000

**2003 re-opened as Oregon Surgery Center**
2700 Station Parkway
Roseburg, OR 97470
1993-1998

**Ocean Beach Hospital**
Consultant Staff
2001-PRESENT

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**Irvaco, WA**

**Vision Surgery & Laser Center**
Medical Director & Chief Surgeon
Roseburg, OR 97470
2011-PRESENT

**Western University of Health Sciences/College of Osteopathic Medicine of the Pacific**
Clinical Assistant
Professor of Surgery

---

**PREVIOUS PRACTICE EXPERIENCE**

**1981-1986**
Hahmemann Eye Associates, Hahmemann University Hospital Residency Training Coordinator, member private practice group.

**1981-1988**
Assistant Clinical Professor
Department of Ophthalmology
Hahmemann University
230 N. Broad St.
Philadelphia, PA 19102

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**PUBLICATIONS, PAPERS AND INSTRUCTION COURSES**

**APRIL 1979**

**1980**

**1980-1981**
"Visual Toxicity of Digoxin", Jonathan S. Moultor, M.D., Jon-Marc Weston, M.D., David A. Major, M.D. Submitted to Annuals of Medicine.

**1982**

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**p: 949.274.4652 • f: 949.509.4838 • ext info@visioncenters.com • view www.visioncenters.com**
1981.

1983

"Anatomic Variations in the Anophthalmic Orbit", Jon-Marc Weston, M.D.,
David B. Soll, M.D. Presented at the Annual Proscis Society Meeting,

1984

"Experience with Argon Laser Trabeculectomy", Jon-Marc Weston, M.D.,
Zarko M. Vucicic, 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

1984

"Introduction to Clinical Medicine-Ophthalmology", Hahnemann
University Television Network. 1984.

1988-1991

"Athletic Eye Injuries: Prevention, Diagnosis and Management" World

1992

"Introduction to the Ophthalmic Examination", Hahnemann Television

1993

Instructor: American Academy of Ophthalmology "Regional Update-

1994

Hahnemann University Visiting Professor Program. Good Samaritan
Hospital, Postville, PA. September, 1984. Doylestown Hospital,

1995

American Eye Institute Quarterly update course series, various anterior

1996

Glaucoma Therapeutics Course given for Pacific University at Asilund,

1997

Hawaii Optometric Association, Medical Management of Glaucoma,

1999

2002

Medical Management of Glaucoma; Victoria University, Victoria, B.C., July
1993.

2002

2003

Hawaii Optometric Association, Medical and Surgical Management of

2004

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.

2005

Photorfractive 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, Wu and Kunming, China,
April 1997

Director, First Endoscopic Cyclophotocoagulation Certification Course, Minneapolis, MN, August 2002.

Endoscopic Ciliary Ablation for treatment of concurrent Cataract and Glaucoma

Medtronic Solan ECP Course - Endoscopic Photocoagulation Didactic Training and Wet-lab Workshop, 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.


"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.

"Penetrate, Session 2R: Cataract Complications and Results"; ASCRS Annual Meeting, Washington, DC.

PHP (Preferential Hyperacuity Perimetry) for Macular Degeneration Detection – Multiple Locations

Macula Edema after Cataract Surgery in Diabetic vs. Non-Diabetic eyes, ASCRS, San Francisco, CA.

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

1972

1973

1979

1980-1981

1982-1984

1983-1986

DECEMBER 1995

1995-1996

1996

Laser Technology Applications in Glaucoma Therapy, J. Weston and Z. Vucicavic.
Eye Health Services of Oregon, Vice President, Board of Directors.

Independent Practice Association of Douglas County Steering Committee.

Pacific Eye Centers, Board of Directors and Executive Committee.

Pacific Eye Centers, Chairman.

NWIMG, Board of Directors and Executive Committee.

NWIMG Chairman 1996-1999

NWIMG Medical Director 1996-1997

Cobb Street Learning Center, Roseburg OR, Board of Directors.

Northwest Surgicenter, Executive Committee, Chairman of the board.

Northwest Surgicenter, Board of Directors.

Oregon Laser Eye Center: Board of Directors and Medical Director.

Chairman, Credentials Committee, Douglas Community Medical Center.

Douglas Community Medical Center, Board of Trustees.

Douglas County Medical Society, Vice President.

APRIL 2000

Douglas County Medical Society, President.

APRIL 27, 2001 - APRIL 27, 2006

Chairman, Joint Mercy / Douglas Division of Surgery.

Douglas County Delegate to Oregon Medical Society annual meeting.

Roseburg Surgicenter: Board of Directors.

Pacific University College of Optometry: Adjunct Assistant Clinical Professor, Forest Grove, Oregon.

President, Roseburg Lions Club.

Board of Directors, Oregon Lions Sight and Hearing Foundation and Member of Sight and hearing Committee.

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

1995-1996

Assistant Instructor, Roseburg YMCA Judo Club

1992-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
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
Request for Approval of Continuing Education Course(s)

TURNER EYE INSTITUTE
420 Estudillo Ave.
San Leandro, CA 94577

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
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
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<tr>
<td><strong>TURNER EYE INSTITUTE</strong></td>
<td>4/22/16</td>
<td>CHIRAG R. PATEL, M.D.</td>
<td>3</td>
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<tr>
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<td>4/28/16</td>
<td>SCHOWMEI H. WU, M.D.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>SORAYA ROFAABHA, MD</td>
<td></td>
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<td></td>
<td></td>
<td>JESSE J. JUNG, M.D.</td>
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**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@turnereye.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 Institute, San Leandro, CA
    o Glaucoma & Cataract surgery – Associate (Aug. 2015 – Present)

Education:
  • High School:
    o 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:
    o Harvard College: University Hall, Cambridge, MA 02138 (September 2002-June 2006)
  • Doctorate of Medicine:
    o Columbia University College of Physicians and Surgeons: 630 West 168th Street, New York, NY 10032 (August 2006-May 2010)
  • Resident in Medicine I:
    o New York Hospital Queens: 56-45 Main Street, Flushing, NY 11355 (July 2010-June 2011)
  • Resident in Ophthalmology:
    o 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:
    o University of California San Francisco: 533 Parnassus Avenue, San Francisco, California 94122 (July 2014-present)

Peer reviewed publications:


**Book chapters:**


**Standardized Test Scores:**
- SAT: 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:


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 Spirit 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)

*Performers: Bard Hall Players.* Played a Hot Box Girl in Columbia Medical Center’s annual musical, *Guys and Dolls.* (August 2006 to November 2006)

*Performers: 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 singing
- 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

914
<table>
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<tr>
<th>Year</th>
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<tr>
<td>1997-2001</td>
<td>Dean's List, University of California, Berkeley</td>
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<tr>
<td>1997-2001</td>
<td>Pre-Medical Honor Society, University of California, Berkeley</td>
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<td>1997</td>
<td>Regents Scholarship Nominee, University of California</td>
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**RESEARCH:**

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<tr>
<td>2014-present</td>
<td>Reduction in the Bacterial Load on the Skin in a Clinical Setting</td>
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<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>2011-present</td>
<td>Long-Term Graft Survival Rates in Descemet's Stripping Endothelial Keratoplasty</td>
</tr>
<tr>
<td></td>
<td>Co-Authors: John A. Seedor, M.D., David C. Ritterband, M.D., &amp; Elaine Wu, M.D.</td>
</tr>
<tr>
<td>2011-present</td>
<td>Outcomes with Deep Anterior Lamellar Keratoplasty (DALK)</td>
</tr>
<tr>
<td></td>
<td>The New York Eye and Ear Infirmary (New York, NY)</td>
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<td>Co-Authors: John A. Seedor, M.D., David C. Ritterband, M.D., &amp; Elaine Wu, M.D.</td>
</tr>
<tr>
<td>2010-2011</td>
<td>Incidence of and Risk Factors for Chronic Uveitis Following Cataract Surgery</td>
</tr>
<tr>
<td></td>
<td>Vanderbilt Eye Institute (Nashville, TN)</td>
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<tr>
<td></td>
<td>Department of Veterans Affairs Medical Center (Nashville, TN)</td>
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<tr>
<td></td>
<td>Co-Authors: Stephen J. Kim, M.D. &amp; Amy Chomsky, M.D.</td>
</tr>
<tr>
<td>2009—2011</td>
<td>Endophthalmitis Rates Following Anti—VEGF Intravitreal Injection</td>
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<td>Department of Veterans Affairs Medical Center (Nashville, TN)</td>
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<tr>
<td></td>
<td>Vanderbilt Eye Institute (Nashville, TN)</td>
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<td>Co-Authors: Amy Chomsky, M.D. &amp; Janice C. Law, M.D.</td>
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<tr>
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<td>Long-term Predictive Value of a Glaucoma Risk Calculator</td>
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<td></td>
<td>UCSD School of Medicine Department of Ophthalmology (La Jolla, CA)</td>
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<tr>
<td></td>
<td>Co-Authors: Robert N. Weinreb, M.D. &amp; Felipe Medeiros, M.D., Ph.D.</td>
</tr>
<tr>
<td>2002-2007</td>
<td>Association of Peripheral Arterial Disease with Mortality</td>
</tr>
<tr>
<td></td>
<td>UCSD School of Medicine Dept. of Family &amp; Preventative Medicine (La Jolla, CA)</td>
</tr>
<tr>
<td></td>
<td>Co-Authors: Michael H. Criqui, M.D., MPH</td>
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<td>Supported by National Institute of Health (NIH) Research Training Grant</td>
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<td>1999-2001</td>
<td>The Role of TRAIL in Apoptosis of Neoplastic Cells</td>
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<tr>
<td></td>
<td>University of California, Berkeley Dept. of Molecular &amp; Cell Biology (Berkeley, CA)</td>
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<td>Co-Authors: Astar Winoto, Ph.D.</td>
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</table>
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, 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, 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)*


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

Disclosures

- Roche-Genentech, Principal Investigator, East Bay Retina Consultants, Lampalizumab Phase 3 trial

Fundus photography

OCT

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

Enlargement Rate

**Risk Factors for GA**

- 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

**Genetics**

- Complement hyperactivity has been implicated in dry AMD
  - Part of innate immune system (like phagocytes, 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-brain barrier, complement dysregulation into retinal tissue
- Ideal intervention would target alternative complement pathway, leaving other pathways intact

**Alternative Complement Pathway**

**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, the prognostic SNPs for GA progression are not as well understood
MAHALO Phase II Study Design

- Sham
- Treatment
- Sham

Safety follow-up period or Open-label extension study

Slide courtesy of Genetech

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 size disc area (DA, 2.5 mm²) and DA (7.5 mm²)
  - If GA is multifocal, at least one focal lesion must be 50.5 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 Genetech

MAHALO Efficacy Endpoints

Primary Endpoint
- Mean change in GA area from baseline to Month 18 assessed by FAF

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 Genetech

Patient Demographics

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<tr>
<th>Characteristic</th>
<th>Short-Haul</th>
<th>Long-Haul</th>
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<tr>
<td>Age, mean (SD)</td>
<td>76.0 (7.6)</td>
<td>76.7 (7.4)</td>
<td>76.7 (7.4)</td>
<td>76.7 (7.4)</td>
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<td>Sex—Female, n (%)</td>
<td>24 (80.0)</td>
<td>28 (74.3)</td>
<td>30 (83.3)</td>
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<td>Race—Caucasian, n (%)</td>
<td>40 (100.0)</td>
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Slide courtesy of Genetech

Study Eye Baseline Characteristics

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<th>Characteristic</th>
<th>Mean (SD)</th>
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Slide courtesy of Genetech

MAHALO Efficacy Outcomes

- Graphs showing efficacy outcomes over time

Slide courtesy of Genetech
Primary Efficacy Endpoint Results

Adjusted Mean Change in GA Area from Baseline to Month 18*

Slide courtesy of Genentech

MAHALO Safety Outcomes

Overall Phase II Adverse Event Profile

No ocular AEs suspected to be caused by study drug

No deaths or ocular SAEs suspected to be caused by study drug

No deaths or ocular SAEs suspected to be caused by study drug leading to treatment discontinuation

Slide courtesy of Genentech

Ocular AEs in Study Eye

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, we evaluated 4 SNPs tagging loci containing genes in the alternative complement pathway.
- Risk alleles assessed included:
  - Complement factor H (CFH)
  - C3
  - C2/C8 (joint SNP tag)
  - Complement factor I (CFI)

**Biomarker Prevalence in MAHALO**
- High prevalence rates for the CFH and C2/C8 SNPs restricted our ability to evaluate differential treatment response by these SNPs.
- There was no apparent relationship between C3 and treatment response in lampalizostat-treated patients.

**Differential GA Progression in Sham Arms: CFH vs CFH−**
- The CFH group progresses more rapidly than the CFH− group.
- CFH biomarker is prognostic for GA progression.

**Differential Treatment Response: CFH+ vs CFH− Monthly Groups**
- Reduction of 50% in GA area progression at 12M vs sham.
Differential Treatment Response:
CFI+ vs CFI− Every Other Month Groups

- CFI biomarker again shown:
  - Prognostic for GA progression
  - Predictive of lampalizumab treatment response

 [Graphs showing treatment outcomes]

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

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

MAHALO Conclusions

- MAHALO was the first study to demonstrate a positive treatment effect in GA

- At the Month 18 endpoint:
  - Lampalizumab monthly all-cause population: 30% 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
  - CFI appears to be predictive of lampalizumab treatment response
  - Lampalizumab was found to have an acceptable safety profile through Month 18

Phase 3 is underway

- Phase II 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 to 2:1 Drug:Sham
  - Both eyes followed: FF, FA, VA
  - Genetic analysis: CFI+ versus CFI−

- Induction Criteria
  - Geographic atrophy involving both eyes
  - No CNV
  - Well demarcated
  - Minimum 1 DA (or 0.5 DA if multifocal GA)
THANK YOU!
CURRICULUM VITAE

(Updated 10/28/2015)

Name: Soraya Rofagha, MD, MPH
East Bay Retina Consultants, Inc.
3300 Telegraph Avenue
Oakland, CA. 94609-3028

Voice: 510-444-1600
Fax: 510-444-5117
Email: srofagha@gmail.com

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


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 ACTIVITIES

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)


6. Rofagha S, Perchanond T, Stewart JM. Late spontaneous dissociation of a flucinolone acetonide implant (Retisert). Ocular Immunology and Inflammation. Accepted September 30, 2012.


OTHER CREATIVE ACTIVITIES


ABSTRACTS


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.
3300 Telegraph Avenue, Oakland, CA 94609
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 OPHTHALMOLOGY, 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 360° Selective Laser Trabeculoplasty.

DIVISION OF GASTROENTEROLOGY, WASHINGTON UNIV. MEDICAL SCHOOL, St. Louis, Missouri
Research Assistant (Primary Investigators: Shrikanat 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

POST GRADUATE TRAINING

EDWARD S. HARKNESS EYE INSTITUTE, COLUMBIA COLLEGE OF PHYSICIANS 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)
Agenda Item 3W

- 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

MEMORIAL SENIOR HIGH SCHOOL, Houston, TX – (August 1998 – July 2001)
- Class Salutatorian

LICENSE/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. Paulin 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
- Alameda-Contra Costa Medical Association: 2015 – present
- California Medical Association: 2015 - present
- 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)

2 of 6
Agenda Item 3W

- 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
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 tomographic changes after single versus double peeling during vitrectomy for macular epiretinal membranes. Retina [in press]
6. Naysan I, 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].

3 of 6


Case Reports/Series


Books and Chapters


Reviews and Editorials

4 of 6


Abstracts


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.


34. Hoang QV, Mendonca LS, Della Torre KE, Jung JJ, Tsuang AJ, Freund KB. Sustained IOP Elevation due to Intravitreal Anti-vascular Endothelial Growth Factor Therapy. [poster]. Association for Research in Vision and Ophthalmology; 2011 May 1-5; Fort Lauderdale, FL.


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.


**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**

Request for Approval of Continuing Education Course(s)

Cynthia Adame
NVISION Eye Centers
75 Enterprise, Suite 200
Aliso Viejo, CA 92655

<table>
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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
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
<table>
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<th>NVISION EYE CENTERS</th>
<th>Course Title</th>
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<td>Advantages of the Latest Technology, Lens Surgery, and Managing Astigmatism in Cataract Surgery</td>
<td>1/25/16 and ongoing</td>
<td>Mitra Ayzazif, MD, George Baasveldt, MD, Amarpree 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 Pimazar, MD, Archana Reddy, MD, Sheri Rowen, MD, Richard Meister, MD, Stanley Teplick, MD, Thomas Tooma, MD, Emil Stein, MD, Jon-Marc Weston, MD</td>
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COMMITTEE COMMENTS:

944
NVISION PALM DESERT INVITES YOU TO
COACHELLA VALLEY FREE 2-HOUR CE*

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

*CE pending California State Board of Optometry approval.
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

Residency Rhode Island Hospital/ Brown University School of Medicine
Department of Ophthalmology
593 Eddy Street
AFC 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: Yuash 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)

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
p: 949.274.4652  f: 949.509.4838  e: info@nvisioncenters.com  w: www.nvisioncenters.com

946
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


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


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 CEevent to Optometrists in Northern California (October 2014).

"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.


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).

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
 Ph 949.274.4652 • Fx 949.509.4858 • info@visioncenters.com • www.visioncenters.com

947
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
Vision Sacramento
Capital Eye Medical Group joined Vision 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 cosmeticophthalmic 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.

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 Trabecom®, 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 full-time 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 Professor and Chair of the Department of Ophthalmology, and Director of the Gwin Herbert Eye Institute from July 2003 - November 2008.

Dr. Baerveldt received the American Academy of Ophthalmology'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 the 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.
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.

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.”
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- 99th 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

**MILITARY 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:**


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.


**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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**Agenda Item 3X**
Agenda Item 3X

Loren Little, MD

DATE OF BIRTH: OCTOBER 28, 1941

PLACE OF BIRTH: SIOUxFALLS, 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

MILITARY SERVICE: SEPT 1968 - ENTERED U.S. ARMY

AWARDS:
1969 - VIETNAM: SILVER STAR, PURPLE HEART, BRONZE STAR w/OLC, AIR MEDAL w/OLC, COMBAT MED, 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 INTERN, 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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Agenda Item 3X

MEDICAL LICENSES: SOUTH DAKOTA #0799 NEVADA #2972

RESEARCH AND PUBLICATIONS:
1) APHASIA OF THE OPTIC NERVES
JOURNAL OF PEDIATRIC 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 LENSES
OPHTHALMOLOGY Vol. 91 ISSUE #4 Pgs. 403-419 1994

SUMMITTED: 1) FACTORS AFFECTING ARMY MEDICAL TRAINING FACILITIES

PAPERS PRESENTED: WALTER REED ARMY MEDICAL CENTER BIENNIAL OPHTHALMOLOGY MEETING - "CONGENITAL ABSENCE OF RSTIAL VESSELS AND OPTIC NERVE" 1974

SUMMARY REPORTS: LOCALIZATION OF INTRAORBITAL FOREIGN BODIES, IN:
1) THE DOCTORS DIGNITARY
2) OPHTHALMOLOGY DIGEST

ADMINISTRATIVE:
1) EMERGENCY ROOM COMMITTEE - DESERT SPRINGS HOSPITAL - 1989
2) SECY & 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


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

Franklin Lushby, M.D.
Home Address: 238 Pacific Avenue, Solana Beach, California 92075

Business Address: 9850 Genesee Avenue, Suite 220
La Jolla, CA 92037
(858) 459-6209

Web address: www.drlushby.com

Date of Birth: November 14, 1953

Medical License: G-41930 (California)

UPIN: A46707

DEA: AL9233634

Education:

High School: High Point High School
Beavie, 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
Agenda Item 3X


Fellowship: Extracapsular Cataract Extraction and Intracocular Lens Implantation
James M. McCaffrey, M.D.

Examinations: National Board of Medical Examiners (1979)


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
  -ExcelMed UV200 Certification, 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

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
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(818) 546-2020
(1990-1996)
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205 W. Mission Avenue, Suite M
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(760) 746-6900
(1991-1993)
700 West El Norte Parkway
Breaux, California 92826
(760) 739-7800
(1993-1997)

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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
  Myopic Patients with Low to Moderate Myopia and Myopic
  Astigmatism: VISX, March, 2006

Professional Activity:

Private Practice: Glendale Eye Medical Group
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(1991-1997)
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(760) 739-7800
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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, 2006

Professional Activity:

Private Practice: Glendale Eye Medical Group
607 North Central Avenue, Suite 105
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(818) 956-1010
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(1991-1997)

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(1990-1996)

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(760) 746-6900
(1991-1993)
700 West El Norte Parkway
Bakersfield, California 93301
(760) 738-7800
(1993-1997)


Fellowship:
- Extracapsular Cataract Extraction and Intraocular Lens Implantation
- James M. McCaffrey, M.D.

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
  - ExcelMed UV200 Certification, Summit Technology, October, 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 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 Custom CAP Training Course: VISX, June, 2002
Agenda Item 3X

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
(2001-2006)

Medical Directorships:

Pacific Laser Eye Center
Medical Director
4330 Barranca Parkway, Suite 101
Irvine, California 92604
(949) 733-3937
(1996-2000)

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
(2000-2006)
910 East Birch Street, Suite 350
Brea, California 92821
(949) 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) 660-4668
(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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(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 90402
(310) 984-2020
(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)

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:

Scientific Presentations:


Scientific Exhibits:


Teaching Appointments:

Faculty: Residents Skills Training Course in Radial Keratotomy, ASCRS Symposium on Cataract, 101, 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)

Patrick Lydon, OD

Clinical Research Optometrist —
Manager and Director of Clinical Affairs

Primary Residence:
77-251 Tribeca St., Indian Wells, CA 92210
Home: 760-360-5245
Email: pdlydon@earthlink.net
Cell: (844)-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 LASIC/Cataract

2. March 2016 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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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)


- Reported directly to the President and CEO
- 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.

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.
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, O20A and O20B 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 Surrogate (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/MEC.
- 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.


Specific Job Functions in UK for NeoVista:

- 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.
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 NeoVis to continue work in wAMD

Field-Related WORK EXPERIENCE:

- Prior to joining Genentech: Pearle VisionCare HMO of California
- November 1996 – 2002: Starting as a Staff OD in a single office in 1996, my career at Pearle saw my responsibilities expand to include the following positions:
  - Medical Director/VP Cole Managed Vision (parent company of Pearle)
  - Regional Optometric Coordinator
  - 1995 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 declining sales, 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.

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.
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


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 9/1/1980-5/1982 University of Toronto, Scarborough, Ontario, Canada

Professional Work History

Founder and Medical Director 02/1/2000—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 750 Excimer Laser system
  - Sirius Corneal and Total Ocular Wavefront Diagnostics system
  - Specular Microscopy, RT YUII OCT system, IPE system, IOL Master
  - Amniotic Achromatolytic and Tautki scope for KAMRA surgery
  - Ziemer ZA Femtosecond Laser for Cataract surgery
  - Visum 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—01/01/2009

TLC Laser Eye Centers, Toronto, Canada

• Co-founded and developed the largest laser vision correction company in the world, with 83 fixed site clinics across North America, as well as 300 mobile sites.
• Provided clinical training, education and direction for over 600 surgeons.
• Provided the clinical and operating guidelines for all surgeons, technicians and clinical staff.
• Pioneered as Chief surgeon at multiple clinics, performing thousands of vision correction surgeries and complication management, and co-founded TLC and non-TLC patients.
• Pioneered many techniques and developed surgical instrumentation for LASIK and PRK.

Agenda Item 3X
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 Melman 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 intrastomal 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.
Steward Park, MD

Professional Experience
Private Practice Nevada Eye Care
July 2004 - Present

Postgraduate Training
Residency University of Cincinnati
Department of Ophthalmology
July 2001 to June 2004

Internship University of Illinois
Department of Internal Medicine
July 2000 to June 2001

Education
M.D. University of Illinois
August 1996 to May 2000

M.S. University of Illinois
Dept. of Cell and Structural Biology
August 1993 to August 1996

B.S. Pomona College
Department of Molecular Biology
Claremont, CA
August 1988 to May 1992

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 P.S. Jennings Memorial Prize for Expository Writing

Memberships and Academic Appointments
American Academy of Ophthalmology, Diplomat
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

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 board-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.
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

Sheri Rowen, MD

Office Address:
Mercy Medical Center
Office - (410) 332-9500
Eyes & Cosmetic Surgery Center
Direct - (410) 332-9733
301 St. Paul Place, Suite #514
Fax - (410) 545-5161
Baltimore, Maryland 21202
E-Mail - Swrown10@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
- Katzman Eye Group, Dulaney Valley Rd., Towson Md. 21204
  June 1989 - December 1996
- Eyes & 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
- Investigator: Staar Surgical, FDA Study (Collamer Lens) 1996- Investigator: Staar Surgical, FDA Study (Implantable Contact Lens) 1997

Professional Memberships:
- Member, American Medical Association
- Member, Association for Research and Vision in Ophthalmology 1982- 1988
- Member, Maryland Ophthalmology Association
- Member, MED CH 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

Medical Licenses:
- Maryland
- District Of Columbia
- Virginia
- North Carolina
- New York

Community & Volunteer services:
- 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 CO2 laser in Baltimore for Eyelid Surgery & Facial Resurfacing"
- 1997 - "Implantable Lens Correcting Hyperopia & Myopia"
- 1998 - "Laser Resurfacing with Co2 & Erbium Lasers For Pre Mature Aging"
- 1999 - "Implantable Contact Lens" Lasik Surgery
- 2000 - "Toric Lens" Correcting Astigmatism

- 1997- National Television: "Implantable Contact Lens"
- 1998- Ivanhoe Broadcast: "Implantable Contact Lens"
- 1998- National Television: "Topical, Clear Corneal Cataract Surgery"

Publication:
- OCULAR SURGERY NEWS. (1994) "Leaders in Clear Corneal Incisions"
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- Rowen, S.L. (1997) "Understanding the Benefits of Plate Haptic Lenses" REVIEW OF OPHTHALMOLOGY, Vol. IV., and No.7 4B-6B

American Academy of Ophthalmology - Annual Meeting:
1994 – 2009: 40 Credits Each Calendar Year

American Society of Cataracts and Refractive Surgery - Annual Meeting:

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:

Maryland Optometric Association
1998- 6 Credits

Baltimore Refractive Surgery Society
1999- 6 Credits

Greater Baltimore Medical Center
1999- 6 Credits

Visual Freedom Center
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 CO2 & 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 Ramirez, Course Director
Rejuvenation of the Centra Oval of the Face, Perioral Area and Lips

Techniques and Variations of the J. 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

- 1989-ARVO, Wilmer Eye Meeting, Sarasota, FL.
  "Endothelial Cell Produce a Chemoattractant for Astrocytes"
- 1985-ARVO, Wilmer Eye Meeting, Sarasota, 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
  IOELAB BOOTH "Periocular Incisions and Topical Anesthesia"
  "Periocular Incisions Using Topical Anesthesia"
  "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'm Doing Differently This Year"
  "Advanced 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"
  "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"
• 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"
  "Great Marketing - Minimal Expense - Coordinated Skin care"
• 1999-International Society of Cosmetic Laser Surgeons: New Orleans, LA.
  "Erbium Resurfacing for Xanthelasmas"
  "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 Ophthamlic 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"
  "Implantable Contact Lenses for Myopia and Hyperopia"
• 1999- 44th Annual University of Rochester Medical Center: New York
  "Toric Intraocular Lens"
  "Implantable Contact Lens For Myopia & Hyperopia"
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 world renowned 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 Vizz 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
Chief Resident in Ophthalmology 1981

PROFESSIONAL ACTIVITIES
Jazz Pianist 1968 - 1970
General Medicine St. Charles, Minnesota 1978
Ophthalmology Founder and Medical Director 1982 - 1990
The Eye Foundation of Utah Stahl Eye Associates 1990 - 1992
Garden City, New York Eye Surgery Center of Louisiana
Laser Vision Correction President and Medical Director 1995 - Present
Center for Sight Teplick Vision
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
Adjunct Associate Clinical Professor
State University of New York College of Optometry 1993 –
Adjunct Associate Clinical Professor
University of Houston College of Optometry 1994 –
Member, National Medical Advisory Board, Equivison, Inc. 1994 – 1997
Adjunct Professor of Ophthalmology, Pacific University 1995-

Presentations
Starr Surgical Intraocular Lens Implantation Course
Sidney, Australia June, 1993
Glucoma 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)
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
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 NVISION’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 2006, 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.

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 Airborne 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
- NY 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
PUBLICATIONS & PRESENTATIONS


<table>
<thead>
<tr>
<th>STATE LICENSES</th>
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<td>Oregon (17072)</td>
<td>04-12-1991</td>
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<td>Washington (36602)</td>
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<th>HOSPITAL APPOINTMENTS</th>
<th>(1981-1989)</th>
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<tr>
<td>Hebraimann University &amp; Hospital Ophthalmology</td>
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<td></td>
</tr>
<tr>
<td>Board &amp; Vine Street</td>
<td>Asst. Clinical Professor</td>
</tr>
<tr>
<td>Philadelphia, PA 19105</td>
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<tr>
<td>Rolling Hill Hospital &amp; Diagnostic Center</td>
<td>Ophthalmology</td>
<td>Attending in</td>
</tr>
<tr>
<td></td>
<td>Department of Ophthalmology</td>
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<td></td>
<td>Elks Park, PA 19117</td>
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<tr>
<td>Frankford Hospital</td>
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<td>Frankford &amp; Wabling St.</td>
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<tr>
<td>Philadelphia, PA 19125</td>
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<tr>
<td>Cooper Hospital University Medical Center</td>
<td>Ophthalmology</td>
<td>Attending in</td>
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<tr>
<td>One Cooper Plaza</td>
<td></td>
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<tr>
<td>Camden, NJ 08103</td>
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<tr>
<td>St. Mary Hospital</td>
<td>Ophthalmology</td>
<td>Attending in</td>
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<tr>
<td>Frankford &amp; Palmer St.</td>
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<tr>
<td>Department of Surgery</td>
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<tr>
<td>Philadelphia, PA 19125</td>
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<tr>
<td>The Osteopathic Medical Center</td>
<td>Ophthalmology</td>
<td>Attending in</td>
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<tr>
<td>City Line Avenue</td>
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<tr>
<td>Philadelphia, PA 19131</td>
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<th>Hospital/Medical Center</th>
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<th>Position</th>
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<tbody>
<tr>
<td>1988-1989</td>
<td>Suburban General Hospital Ophthalmology</td>
<td>Norristown, PA 19401</td>
<td>Attending in</td>
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<tr>
<td>1988-1991</td>
<td>Marion Memorial Hospital Ophthalmology</td>
<td>917 West Main Street Marion, IL 62959</td>
<td>Attending Surgeon</td>
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<th>Hospital/Medical Center</th>
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<th>Position</th>
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<tbody>
<tr>
<td>1991-2000</td>
<td>Dougher Community Hospital</td>
<td>738 W. Harvard Blvd. Roseburg, OR 97470</td>
<td>Active Medical Staff</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Hospital/Medical Center</th>
<th>City/OAddress</th>
<th>Position</th>
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<tbody>
<tr>
<td>1991-PRESENT</td>
<td>Mercy Medical Center</td>
<td>2700 Stewart Parkway Roseburg, OR 97470</td>
<td>Active Medical Staff</td>
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<th>Position</th>
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<tr>
<td>1991-1999</td>
<td>Coquille Valley Hospital</td>
<td>940 R. 5th Coquille, OR 97423</td>
<td>Consultant Staff</td>
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<table>
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<th>Hospital/Medical Center</th>
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<tr>
<td>1992-PRESENT</td>
<td>Roseburg VA Hospital NW Garden Valley Blvd. Roseburg, OR 97470</td>
<td>Consultant Staff</td>
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<table>
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<tr>
<td>1992-1999</td>
<td>Blue Mountain Hospital</td>
<td>John Day, OR 97470</td>
<td>Consultant Staff</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Hospital/Medical Center</th>
<th>City/OAddress</th>
<th>Position</th>
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<tbody>
<tr>
<td>1991-2000</td>
<td>Roseburg SurgiCenter</td>
<td>631 W. Stanton Roseburg, OR 97470</td>
<td>Attending Surgeon</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Hospital/Medical Center</th>
<th>City/OAddress</th>
<th>Position</th>
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<tr>
<td>1993-1998</td>
<td>2003 re-opened as Oregon Surgery Center</td>
<td>2700 Stewart Parkway Roseburg, OR 97470</td>
<td>Consultant Staff</td>
</tr>
<tr>
<td>2001-PRESENT</td>
<td>Ocean Beach Hospital</td>
<td></td>
<td>Consultant Staff</td>
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</table>
Agenda Item 3X

1981.

1983

“Anatomic Variations in the Anophthalmic Orbit”, Jon-Marc Weston, M.D.,
David B. Soll, M.D. Presented at the Annual Ophthalmic Society Meeting,

1983

“Experience with Argon Laser Trabeculoplasty”, Jon-Marc Weston, M.D.,
Zarko M. Vucicevic, M.D. Presented at the International Glaucoma
Congress, Baltimore, MD 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”,

1984

“Introduction to Clinical Medicine-Ophthalmology”, Hahnemann
University

1988-1991

“Exercise and Eye Injuries: Prevention, Diagnosis and Management” World
Video Corp.

1992

“Introduction to the Ophthalmic Examination”, Hahnemann Television

1993

Instructor-American Academy of Ophthalmology “Regional Update-

1994

Hahnemann University Visiting Professor Program. Good Samaritan
Hospital, Postsell, PA. September, 1984. Doylestown Hospital,

1995

1996

Glaucoma Therapeutics Course given for Pacific University at Ashland, OR, July, 1992.


1999 Medical Management of Glaucoma; Victoria University, Victoria, B.C., July 1993.

2002


2002 Co-Director, Management of the Photorefractive Laser Patient, December 1, 1995, Pacific University, Forest Grove, OR.


Photoraphic Keratotomy.

Co-Management of the Excimer Laser Patient, Co-Course Director, Pacific University, Forest Grove, OR, November 1996.


2006 Director, First Endoscopic Cyclophotocoagulation Certification Course, Minneapolis, MN, August 2002.


Medtronic Solan ECP Course - Endoscopic Photocoagulation Didactic Training and Wet-lab Workshop, Minneapolis, MN, August 24, 2002.

"Form and Function in the Diagnosis and Management of Glaucoma" presented at the Annual OOAP meeting, June 4, 2004. Seven Peathers Convention Center, Canyonville, Or.

"Intacs and Keratoconus"; presented at the Annual OOAP meeting, June 4, 2004. Seven Peathers 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.
Multicenter Results of Endoscopic Ciliary Ablation for various types of Glaucoma, ASCRS, San Diego, CA.

Point/Countpoint: Are Brand-Name Agents Required for Cataract Surgery?, Advanced Ocular Care, March 2011.

RESEARCH:

1971

1972

1973

APRIL 1979

1980-1981

1982-1984

DECEMBER 1995

1997

2000
Indications and Incidence of Yag Laser Posterior Capsulotomy.

2003-2004
Phase IV evaluation Alphagan, (AMC).

2005-2007
Phakic Implantable Contact Lenses for high grade myopia and hyperopia evaluation and implant technique. Tijuana, Mexico.

OCTOBER 2006 - MARCH 2007
Oasis Viscoshield™ for cataract surgery, Phase III FDA trial, Primary Investigator.

OCTOBER 2007 - APRIL 2008
Otsuka Protocol 371E-03-202, 53 week Phase III FDA trial, Primary Investigator.

SEPTEMBER 2006 - MAY 2007
2006 - DECEMBER 2008
Otsuka Protocol 371E-03-202, 53 week Phase III FDA trial, Primary Investigator.

JULY 2008 - NOVEMBER 2008
PH 8 for early AMD Detection and New Technology Phakic and Pseudophakic Implants, presented at annual OPA convention, Welches OR.

OCTOBER 2008 - AUGUST 2009
Allergan MA-LUMBi, 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 Prostaglandine Prostaglandin for glaucoma, 3 year naturalistic

MAY 2009 - AUGUST 2009
Allergan Prostaglandine Prostaglandin for glaucoma, 3 year naturalistic

75 Enterprise, Suite 200, Aliso Viejo, CA 92656
Ph 949.274.6652 • Fx 949.500.4858 • e info@visioncenters.com • see www.visioncenters.com

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Observational study, Primary Investigator.

Allergan Study # 191578-006: Primary Investigator.

Pfizer XXX for glaucoma, 12-week Phase III FDA trial, Primary Investigator.

Advanced Medical Optics, Inc. – Protocol BBLK-102-PRSM, FDA Device trial, Primary Investigator

Ista Pharmaceuticals – Protocol CL-S6E-0415081-P

Alcon – Protocol C-08-047

Ista Pharmaceuticals – Protocol CL-PKT-0415083-P

QLT Inc. – Protocol PPL GLAU 04

Alcon – Protocol C-07-53

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


Bausch & Lomb – Protocol 843

Xigen, S.A. Protocol SDD-1002-064

EXECUTIVE POSITIONS & CONSULTANTSHIPS

1992-1995

Bye 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

NWIMG, Board of Directors and Executive Committee.

1998

NWIMG Chairman

1996-1999

NWIMG Medical Director.

1996-1997

Cobb Street Learning Center, Roseburg OR, Board of Directors.

1998-2000

Northwest Surgeonists, Executive Committee, Chairman of the board.

1998-1999

Northwest Surgeonists, Board of Directors.

1999-2000

Oregon Laser Eye Center: Board of Directors and Medical Director.

1998

Chairman, Credentials Committee, Douglas Community Medical Center.

1999

Douglas Community Medical Center, Board of Trustees.

2000

Douglas County Medical Society, Vice President.

2000

Douglas County Medical Society, President.

1999-2001

Chairman, Joint Mercy / Douglas Division of Surgery.

2000-2006

Douglas County Delegate to Oregon Medical Society annual meeting.

2006-2009

Roseburg Surgeonists: Board of Directors.

2005-2009

Pacific University College of Optometry: Adjunct Assistant Clinical Professor, Forest Grove, Oregon.

2006-2009

President, Roseburg Lions Club.

2006-2009

Board of Directors, Oregon Lions Sight and Hearing Foundation and Member of Sight and hearing Committee.
Agenda Item 3X

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 Lion 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:

Susan Walton-Weston
BFA in Fine Arts, Moore College of Art, Philadelphia, PA
Interests: Painting, Tapestry, Weaving, Horse Riding and Jumping

Whitney, Christine, Alexandra
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.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
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<tr>
<td>Third World Ocular Disease</td>
<td>3/13-16, 3/15-16</td>
<td>HOWARD COHEN, MD</td>
<td>2</td>
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</tbody>
</table>

COMMITTEE COMMENTS:
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 - 1987

RESIDENCY:
Ophthalmology - Fitzsimons Army Medical Center,

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 you

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 Island

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, 2003–2018**

*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 Tuberculous
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 Tuberculosis
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 Koepp and Busacca
Posterior Synechiae
Often associated with vitritis and cataract
Mutton Fat KP
Busacca Nodules
Koepp 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
Multifocal at start
Join to form Serpiginous lesion
Predominately affects young - middle age males
Bilateral, Vitreous cells
Fovea often spared
Serpiginous Choroiditis
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
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

Benznidazole 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%
Zacatecas 22%
Chlamydia 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
Arts 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
Subconjunctival
Eyelid
Optic Nerve
Orbit
Lacrimal Gland
EOM
Vitreous, Subretinal, Anterior Chamber
Location of Cysticercosis Cysts
Subconjunctival Cysticercosis
Subconjunctival Cysticercosis
Optic Nerve Cysticercosis
Orbital Cysticercosis Cyst
Lacrimal Sac Cysticercosis Cyst
EOM Cysts of Cysticercosis
Medial Rectus Cysticercosis Cyst
Anterior Chamber Cysticercosis Cyst
Cysticercosis 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

**Onchocerciasis 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 Atrophy 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 identified
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
Request for Approval of Continuing Education Course(s)

Elite Eyecare Medical Group
910 E Stowell Rd
Santa Maria CA 93454

Attention: Melvin Heaton

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
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date(s) of Course</th>
<th>Instructor(s)/Lecturer(s)</th>
<th>CE Hours Requested</th>
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<tr>
<td>Vitreo-renal diseases</td>
<td>4-7-16</td>
<td>Dr. Candy Chen</td>
<td>1</td>
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<tr>
<td>Common postop complication</td>
<td>4-7-16</td>
<td>Dr. Rajiv Zarember</td>
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</tbody>
</table>

**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 Disease

II. Multi-Modality Imaging in Common Retinal Diseases
    A. Plaquenil Toxicity Screening
    B. Hereditary Retinal Disease
    C. Acquired 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 complications
   - persistent corneal edema
   - persistent inflammation
   - chronically elevated
   - chronic dry eye
   - cystoid macular edema
   - residual refractive
   - "the unhappy patient"

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"
Request for Approval of Continuing Education Course(s)

Mark R. Mandel, M.D.
Optima Ophthalmic Medical Associates
Attn: Joan Hernandez
1229 B Street
Hayward, CA 94541

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:

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<td>Cancer Treatment</td>
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<td>Find extreme complications</td>
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<td>Diagnosis</td>
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<td>Treatment</td>
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<td>Pain</td>
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<td>For patients</td>
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FOR BOARD USE

Agenda Item 3AA
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.
<table>
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</thead>
<tbody>
<tr>
<td>Topographically-Guided Laser Treatment: Technique, Indications, &amp; How to Counsel Patients</td>
<td>June 2016</td>
<td>Mark R. Mandel, M.D.</td>
<td>1</td>
</tr>
<tr>
<td>Corneal Inlays for Presbyopia - Indications, Complications, &amp; Guidance for Patients</td>
<td>June 2016</td>
<td>Mark R. Mandel, M.D.</td>
<td>1</td>
</tr>
</tbody>
</table>

COMMITTEE COMMENTS:
EDUCATION

1997 University of Phoenix, Degree: M.B.A.
1979 UCLA School of Medicine, Degree: M.D.
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
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

Papers Published


TEXTBOOK - EDITOR


2. Aspen Cornea Society: The Ocular Manifestation of AIDS. March 1983


4. University of California, San Francisco, Department of Ophthalmology Update Course: The Ocular Manifestation of AIDS. June 1983


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


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


21. The Peninsula Eye Society, Burlingame, California: Epikeratophakia and an Update on Other Keratorefractive Procedures. 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


28. University of California, San Francisco Residency Program - Valley Medical Center, Fresno: Visiting Professor. October 1, 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


34. Eden Hospital Trauma Center Conference, Castro Valley, California: The Detection and Early Treatment of Ophthalmic Emergencies. 1988


39. Altamont Society, Santa Cruz, California: Two-day lecture series on Ocular Surface Disorders - Techniques in Detection and Diagnosis. October 7, 1989

40. SOBVOCO Annual Meeting, St. Trudent, Belgium: Posterior Peribulbar Anesthesia; Phacoemulsification Surgery; Corneal Transplant Surgery - An Update on Our Technique. October 20, 1989


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


50. Optometry Alumni Association, University of California Berkeley, Second Annual Yosemite Meeting: Anterior Segment Disease and Office Emergencies. February 14, 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


57. Krachmer Cornea Society, Course Director. Santa Fe, New Mexico. August 5-7, 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


65. QEA Regional Continuing Education: Update on PRK. June 8, 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


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


82. Alameda Contra Costa Optometric Society: Management of Bacterial Keratitis, Herpes Simplex, and Herpes Zoster for the Practicing Optometrist. April 20, 1999


88. California Optometric Association, Monterey: Corneal Ulcers - Diagnosis and Management. Fall, 2000


91. Ocular Symposium, San Francisco, **Chairman:** Refractive Surgery, Talk: Update in Refractive Surgery. June, 2001 


112. UC Berkeley, School of Optometry: Point-Counterpoint: Comanagement is Good for the Patient. May 21, 2008.


BOOK REPORTS


POSTERS


VIDEO TAPES


INSTRUMENT DESIGN


TELEVISION and RADIO GUEST APPEARANCES, NEWSPAPER ARTICLES

1. Dr. Dean Edell "Housecalls", San Francisco Channel 7 (ABC): Epikeratophakia and Keratorefractive Surgery. 1987

3. Helen Ketchum's United Artists Cable: Eye Care For the Elderly. September, 1991 et seq.
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11. San Francisco Chronicle, Business Section. Excimer Laser PRK
To:  Practice and Education Committee Members  Date:  April 15, 2016

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

Subject:  Agenda Item 4. – Adjournment