



**STATE BOARD OF OPTOMETRY**  
 2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834  
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Continuing Education Course  
 Approval Checklist

Title:

Provider Name:

- Completed Application
  - Open to all Optometrists?  Yes  No
  - Maintain Record Agreement?  Yes  No
- Correct Application Fee
- Detailed Course Summary
- Detailed Course Outline
- PowerPoint and/or other Presentation Materials
- Advertising (optional)
- CV for EACH Course Instructor
- License Verification for Each Course Instructor
  - Disciplinary History?  Yes  No



CALIFORNIA STATE BOARD OF OPTOMETRY

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**CONTINUING EDUCATION COURSE APPROVAL APPLICATION**

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1-3538	8414455	4470262	SD

**\$50 Mandatory Fee**

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, a detailed course outline and presentation materials (e.g., PowerPoint presentation). Applications must be submitted 45 days prior to the course presentation date.

**Please type or print clearly.**

<b>Course Title</b> Glaucoma Case Management Decisions	<b>Course Presentation Date</b> 05/21/2017
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**Course Provider Contact Information**

<b>Provider Name</b> John Lee	
(First)	(Last)
<b>Provider Mailing Address</b> Street 2575 Yorba Linda Blvd City Fullerton State CA Zip 92831	
<b>Provider Email Address</b> jlee@ketchum.edu	
<b>Will the proposed course be open to all California licensed optometrists?</b>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>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?</b>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> 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.

<b>Instructor Name</b> George Comer	
(First)	(Last)
<b>License Number</b> 7772	<b>License Type</b> Optometrist
<b>Phone Number</b> (714) 449-7405	<b>Email Address</b> gcomer@ketchum.edu

**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]*  
 \_\_\_\_\_  
 Signature of Course Provider

03/30/2017  
 \_\_\_\_\_  
 Date

## **Glaucoma Case Management - Decisions**

George W. Comer, O.D., MBA  
2 hours

Glaucoma cases will be presented with a discussion of various critical aspects of clinical decision-making in glaucoma diagnosis and management. Attendees will be challenged to analyze the case findings and to make key decisions in glaucoma management. These decisions will include when to initiate medication, what to do when the IOPs haven't responded to medical therapy, how to manage IOP spikes, when/how to advance therapy, when to utilize laser trabeculoplasty and early surgical options such as cataract extraction and MIGs.

1  **Glaucoma Case Management Decisions**

*George W. Comer, OD, MBA  
SCCO at M.B. Ketchum University*

2 

**Disclosures**

**George Comer, OD, MBA  
SCCO at M.B. Ketchum University**

Research funding from Topcon  
Research funding from Optovue  
Research funding from Heidelberg Instruments

6  **MT 11/4/2015 PC Exam  
Followed for diabetic ret, AMD. Does he have glaucoma too?**

- 59 A (Japanese) m
- C/o of blurred vision distance, constant. No fluctuation from day to day.
- POHx: Being followed by OMD for diabetic ret and AMD x 3 yrs, last exam 4 or 5 months ago there – no diabetic ret, took ret photos. Cryo OS x 2 in 2005 for diabetic ret?
- PMHx: DM since 1999 Ha1c: 7.9, last FBS: 180, hypercholesterolemia, thyroid disease
- 

7  **MT 11/4/2015**

- Meds: Crestor, Lotrel, Lansoprazole Metformin, Novolog, Synthroid
- CT: Dist: Ortho Near: 18 ILXT
- Manifest: OD: -9.25 -1.00 x 162 20/20  
OS: -7.75 -0.75 x 120 20/30++ PH no improvement
- NCT: 22, 21, 22/20, 22, 24 1:50
- BP: 140/80 1:55 Pulse: 69
- Color vision: HRR Plates OD: 6/6 OS: 6/6
- VF screening: see FDT printout
- SLE: 1+ NSC OU, mild ant cortical vacuoles

8  **MT  
11/4/2015  
FDT C20-5  
screening**

9  **FDT Interpretation Considerations  
for MT OD**

- 2<sup>nd</sup> eye tested often has misses – “2<sup>nd</sup> eye artifact”
  - Strategy: Give the pt a brief (seconds) rest & test again
  - But in this case the misses are the first tested eye!
- If head is positioned too high the upper row of test points is not visible to patient. Hard to

see this on FDT because you cannot see the pt's eye during the test. Easy to see on Matrix video eye monitor. Retest if this is a possibility.

10  **Why Run the Screening VF Again?**

- Screening is very rapid way to confirm or rule out VF loss, much more rapid than a threshold test.
- Screening is much easier to interpret than threshold VFs
- Screening has much better specificity than threshold VFs

If not sure then quickly rescreen the VF.

If true VF loss is likely then look at ONH, RNFL for correlating damage. Structural damage usually precedes VF loss.

11  **MT 11/20/2015 OD ONH photos**  
**Analyze inf rim carefully**  
**Note inf peripapillary atrophy**

12  **MT 11/4/2015**

- C/D: OD: .7 x .7 shallow broad inf notch OS: .6 x .6 round cup
- Few dot hemes OU
- RPE mottling OU; possible CSME OS

Assessment:

- Glau suspect
- Mild NPDR with possible CSME OS; unstable blood sugar – cause of vision fluctuations
- Mild NSC & ant cortical changes OU
- Myopia, astigmatism, presbyopia

13  **MT 11/4/2015**

Plan:

- Advised glau work-up: HFA 24-2, OCT (92133), CCT, Pascal DCT, gonio
- Macular OCT (92134) OS to assess possibility of CSME
- Pt ed on vision fluctuation – blood sugar control. Report to PCP re: diabetic retinopathy, vision fluctuations
- Monitor cats
- Spec Rx

14  **MT 11/20/2015 Glau Eval**

IOPs:

- NCT: 16, 17, 18/ 19, 20,18 11:15 am predilated
  - GAT: 16/16 12:05 postdiluted
  - DCT: 19.4/22.2 12:10 postdiluted (Q: 1 OU)
- CCT (Reichert IOPac): OD: 597 $\mu$  OS: 605 $\mu$  HFA 24-2:
- OD: 8 point cluster - sup arcuate scotoma
  - OS: Mild gen depression, no focal VF loss
- Avanti OCT: see printouts
- Gonio: Open to CBB 360° OU, minimal TM pig

15  **Tonometry & CCT Considerations**

Why 3 different tonometers?

- Why do NCT?  
Does "not mess" with the cornea. We prefer NCT for IOPs prior to imaging (OCT, photos, HRT etc)
- Why do GAT post-dilated?  
To check for post-dilated IOP spikes & to have GAT for medico-legal purposes
- Why do Pascal DCT? Due to thick CCT. Important: Thick CCT does not necessarily mean false high IOP on applanation tonometers

16  **JS**

**Cirrus GCA**

**OD**

**Segmentation error due to poor signal. White line marks anterior surface of retina & purple line is post surface as determined by Cirrus**

17  **JS**

**Cirrus**

**GCA**

**OS**

**Normal macular architecture.**

**Note position of white line & purple line – very good segmentation of retina.**

18  **JS What happened to the macula in OD? VA is OD: 20/25- OS: 20/30+**

Artifact present in center of the OCT scan due likely due to:

Axial PSC (~2+ axial PSC in each eye yet only OD has the artifact – perhaps PSC is a little denser OD but only a little)

GAT before the scan was done → moderate central SPK OD found; no SPK in OS

**VERY IMPORTANT:**

Do **NOT** touch the cornea before imaging

**NO** GAT, Tonopen/Accupen/I-Care, gonio or pachymetry before imaging

19  **MT 11/20/2015 CCT/IOP Considerations**

- CCT is "high" in both eyes. Yet Pascal DCT reads higher than GAT or NCT, particularly in OS? Why does DCT read higher in a thick cornea?! What is the value of "adjusted IOP"?

- 
- 

20  **MT**  
**11/20/2015**  
**HFA 24-2**  
**OD**

Does this correlate to the FDT VF?

Should this 24-2 be repeated?

Does it correlate to the clinical ONH/RNFL evaluation?

21  **MT**  
**11/20/2015**

**OCT OU**

OD RNFL: Abnormal ( $p < 1\%$ ) sup temp, inf nasal. Borderline inf temp sector  
OD GCC: Large area of  $p < 5\%$  inferior  
OD: OD > OS  
OS: Normal RNFL & GCC

22  **MT**  
**11/20/2015**  
**HRT OU**

OD MRA: All ONH sectors abnormal ( $p < 0.1\%$ ) except temp.  
OD Large cup with significant asymmetry OD > OS though asymmetric ONHs  
OS MRA: Borderline ( $p < 5\%$ ) both inf nasal sectors

23  **Imaging Issues**

- Is imaging necessary for the diagnosis in this case?  
No
- What is the value of imaging in this case?  
Assists your clinical eval in structural assessment  
For tracking for progression
- Could a patient have glaucoma yet have normal imaging?  
With spectral domain imaging and ganglion cell imaging it is unlikely but could happen.

24  **MT 11/20/2015 Decisions**

- Does MT have glau?
- What evidence for glau? What evidence against glau dx?
- If glau what target IOP?
- Would you initiate treatment on one eye or both?
- If glau what initial med(s)?
- Would you consider a combo such as Cosopt, Combigan or Simbrinza?
- 

25  **MT Diagnostic Considerations**

Does MT have glau?

What evidence for glau?

Sup arcuate - both FDT and HFA 24-2 OD

Clin ONH eval: shallow inf rim loss OD

HRT: Sup and inf rim loss to  $p < 0.1\%$  OD

OCT: Sup and inf RNFL loss to  $p < 1\%$  OD

All of the above correlate.

Always check the ONH/RNFL clinically

Structural damage plus correlating VF loss – compelling!

26  **MT Management Issues**

- If glau what type (POAG vs 2° glaucoma)?    Need SLE and gonioscopy to differentiate.
- If glaucoma what target IOP?  
    Stage the glaucoma then set target IOP  
    For stage consider all findings, particularly the VFs – moderate glaucoma by ICD 10 staging
- What target IOP?  
    For initial 1<sup>st</sup> line med try to achieve at least    25% IOP reduction

27  **MT 11/20/2015**

Assessment:

- Early POAG OD with VF loss sup
- Mild NPDR & possible CSME OS
- Mild NSC & ant cortical changes OU

Plan:

- Initiate topical med OD; f/u in 4 to 6 weeks
  - Med to start? Start OD or OU??
  - Any topical glau meds contraindicated?
  - F/U in 4 to 6 weeks. Sooner?
- Macular OCT (92134) OS at f/u exam

28  **MT Initiating Glaucoma Meds**

What first line med?

PG unless contraindicated or not    allowed by insurance (name brand PG)

One eye trial in OD? Treat OD only?

Or treat OU?

When it first f/u exam?

At 4 to 6 weeks

29  **SELECTING THE INITIAL GLAUCOMA MEDICATION**

- Target IOP & IOP lowering effect of various options
- Ease of use
- Current systemic meds
- Potential ocular and/or systemic side effects
- Specific contraindication/considerations
- Cost of med(s)

30  **MT 1/20/2016**

- 1<sup>st</sup> follow-up on glau med, Trav Z 1 gt OD hs
- No dryness, little redness – “not bad”, no other problems
- Compliance reported as only 1 missed drop every couple of weeks due to going to sleep while watching TV & forgetting the med
- GAT: 13/14 11:10 am



31  **Management Considerations**

How did Trav Z lower IOP in OS when it is used for OD only?

What does equal IOP, though only OD is treated, suggest?

Must consider the possibility of diurnal IOP variation OU (Trav actually did not lower it in OD) or asymmetric IOP variation

What is the appropriate management at this point?

Continue the Trav Z and follow up again

32  **MT 2/27/2016**

- Still taking Trav Z OD only. Last instillation was bedtime last night, 11:30 pm. No redness, dry eye or other problems.
- GAT: 13/18 12:15 pm
- What is management now?

33  **MT 4/1/2016**

- Glau f/u. No problems with Trav Z . Last drop last night about 11:30 pm.
- GAT: 14/18 10:34 am
- Clinical ONH/RNFL eval: No change
- HFA 24-2: OD: Several mildly depressed edge points along sup and sup nasal border of VF. OS: normal

34  **MT  
4/1/2016  
HFA 24-2  
OD**

Where did the sup arcuate VF defect go?

Could it have resolved?

Is this simply a lens rim artifact?

35  **MT 4/1/2016**

- Avanti OCT:
  - OD: Very similar to 11/20/2016 – inf arcuate RNFL defect to  $p < 1\%$  but no sup arcuate. OS normal
- HRT: OD: Very similar to 11/20/2016 -  $p < 0.1\%$  inf and sup rim. OS:  $p < 0.1\%$  inf rim.
- 

36  **MT 4/1/2016  
Clinical Questions**

- No or less sup arcuate VF loss in OD! Could we have cured the VF loss? Was there never glaucoma? Could the VF loss disappear then later reappear?
- What is the appropriate management in this situation?
- Since there is no VF loss on this visit should his treatment be discontinued?

37  **MT 4/1/2016**

- A: POAG with good IOP response to Trav Z
- P: Continue Trav Z OD and initiate it in OS

38  **MT 5/2016**

*"My OMD says that he guarantees that I do not have glaucoma. He has photos of my eyes*

*from the last 5 or 6 years and they have not changed he says!"  
"He also said that I had macular edema a few years back and nothing is going on with my macula."*

39  **MT - OptoMap Plus FAF Images**  
**Note the hyperautofluorescence in macula OS**

40  **Clinical Decisions – Macula OS**

- Why does the left macula have hyperautofluorescence and OD does not?
- Could an old central serous do that?
- Could diabetic CSME do that?
- Where specifically (retinal layer) is the problem that results in the hyperautofluorescence?
- What is the most likely cause?

41  **MT 1/19/2017**

- Glau f/u. Decided to continue eyecare with us. No problems with Trav Z .
- Meds: Had d/ced the Trav Z but restarted it about 1 month ago; last drop last night around 11:00 pm.
- Had also d/ced the AREDS II but restarted.
- NCT: 17,15,17/17, 17,18 9:50 am
- GAT: 17/18 11:15 am dilated
- Clinical ONH/RNFL eval: No apparent change
- HFA 24-2: See VFs
- Imaging: See HRT & OCT printouts

42  **MT**  
**1/19/2017**  
**HFA 24-2**  
**OD**

The sup arcuate is back!

Could it resolve and come back?

43  **MT**  
**1/19/2017**  
**HFA GPA**  
**OD**

4 scattered points in the sup arcuate region that have changed on this exam compared to baseline.

Monitor.

44  **MT**  
**1/19/2017**  
**HFA 24-2**  
**OS**

The VF was normal on the prior 2 times.  
Is this a sup arcuate VF defect as in OD?  
Or is this a lens rim artifact???

45  **MT**

**1/19/2017**  
**HFA GPA**  
**OS**

6 continuous points that have changed on this exam compared to baseline.  
Monitor and be sure that head is firmly against headrest on future VFs.

46  **MT**  
**1/19/2017**  
**Matrix N30**  
**OD**

Sup arcuate defect OD with very good correlation to the HFA 24-2 and the inf notch OD.  
Correlates to the FDT N30 in 11/2015

47  **MT**  
**1/19/2017**  
**HRT OU**

OD MRA: Abnormal ( $p < 0.1\%$ ) inf nasal and inf temp

OS MRA: Abnormal ( $p < 0.1\%$ ) in inf nasal sector

48  **MT**  
**1/19/2017**  
**HRT TCA OD**

No progression from 11/2015 baseline

49  **MT**  
**1/19/2017**  
**HRT TCA OS**

No progression from 11/2015 baseline

50  **MT**  
**1/19/2017**  
**OCT OU**

OD RNFL: Abnormal ( $p < 1\%$ ) inf nasal.  
OD GCC: Small area of  $p < 5\%$  inferior  
OD.

OS: Normal RNFL & GCC

51  **MT**  
**1/19/2017**  
**Avanti Change OD**

No change

52  **MT**  
**1/19/2017**  
**Avanti Change OS**

No change

53  **WT 7/12/13**  
**Glaucoma suspect? Glaucoma? Something else?**

- 73 y/o Hispanic male, retired
- Referred as glaucoma suspect by PCP – large C/Ds
- PEHx: Prior OMD followed from 6/2010 to 8/2012 labeled him glau suspect due to large C/Ds but IOPs always <15. Normal HFA 24-2 VF. CCT: OD: 493 OS: 505 12/21/2010  
Cat extraction with PC IOL OS 7/10/2012
- FEHx: Does not know FEHx
- PMHx: Elevated cholesterol Current meds: Lovastatin 40 mg/day
- Allergies: none

54  **WT 7/12/2013**

- NCT: 12, 10, 15/ 10, 15, 13 1:22 pm
- SLE: 2+ NSC, 2+ ant cortical OD, PC IOL OS – clear, centered with capsulotomy. Angles ¼ OD and 1 OS.
- ONH: large ONH OU with large shallow C/Ds of about .75 x .75 OU
- No apparent RNFL defects, no Drance heme. 360° PPA OS, possible pallor OS

55  **WT 7/12/2013**

- VF: HFA 24-2 OU
  - OD: Questionable reliability- increased fix losses. No VF loss
  - OS: Possible sup paracentral scotoma
- HRT: See slide
- RTVue OCT: see slide
- Gonio after dilation:
  - OD: open to CBB inf with 2+ TM pig, open to TM in all other angles
  - OS: open to CBB in all angles with 2+ TM pig

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56  **WT HFA 24-2 OU 7/12/13**

57 

**WT**  
**7-12-13**  
HRT  
OU  
Report

58  **Color**

**WT**  
**7-12-13**  
RTVue  
OCT

59  **WT 7/12/2013 Management**

Assessment:

- 2+ NSC, 2+ ACC OD – BCVA: 20/30
- Glau suspect based on large C/Ds, very suspicious HRT & RTVue. But low IOPs and good VFs

Management:

- Get records from OMD who saw him 2010 to 2012 – progression?
- Re-evaluate IOPs in 3 months
- Re-evaluate VFs, imaging in 6 months

60  **WT 10/10/2013**

- GAT: 13 / 11 10:29 am
- SLE: unchanged
- ONH: no apparent change ; no Drance heme
- Old records show diagnosis of glau suspect based on large C/Ds but no VF loss; no imaging

Management

- Re-evaluate for progression in VFs, ONH, RNFL or GCC in 3 months

61  **WT 12-21-2010 HFA VFs from Prior Eye Doctor**

62  **WT 1/10/2014**

- No change in history
- Pre-dilation NCT: 11, 13, 12/12, 13, 12 10:43 am
- Post dilation GAT: 11 / 11 11:45 am
- SLE: unchanged
- ONH: no apparent change ; no Drance heme
- VFs: HFA 24-2
  - OD: Poor foveal threshold but no glau VF loss
  - OS: Poor foveal threshold; possible sup paracentral scotoma – 2 point cluster

– Suspect more VF loss – get FDT or Matrix

63  **WT 1/10/2014**

- HRT: see slide baseline HRT scan. Very suspicious but consider possibility of a false positive due to large ONH size.
- Cirrus OCT: see slide Baseline scan. Highly suspicious – inf arcuate RNFL loss with corresponding inf GCA loss OU  
Need 3 scans for progression detection on either HRT or OCT

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64  **WT HFA 24-2 OU 1/10/2014**  
**OS: possible sup paracentral scotoma**

- 

65 

**WT**  
**1/10/14**  
HRT  
OU  
Report

66 

**WT**  
**1-10-2014**  
RTVue  
OCT

67 

**WT**  
**1/10/14**  
Cirrus  
OCT  
ONH & RNFL

68 

**WT**  
**1/10/14**  
Cirrus  
OCT  
GCA

69  **WT 1/10/2014 Management**

Assessment:

- Mild NSC OD
- Glaucoma suspect OU with very suspicious structural findings (C/D, HRT, RNFL and GCA on Cirrus) but little to no VF loss OS only and normal VF. IOPs < 15 on all exams at UEC.
- Probable optic atrophy inf ONH OS

Management:

- RTC in 1 week for serial tonometry, reclined IOPs, ONH/RNFL photos, CCT, FDT screening
- 

70  **WT 1/17/2014**

- NCT: 13, 13, 13/12, 12, 12 8:13 am
- Tonpen sitting: 13/10 9:00 am
- Tonopen reclined: 14/11 9:10 am
- Pascal DCT: 16/15 9:15 am
- NCT: 21, 20, 18 / 12,12, 12 12:00 pm
- NCT: 12, 12, 14 / 10, 11, 12 2:05 pm
- NCT: 12, 13, 12 / 10, 12, 11 4:15 pm

71  **Color WT ONH 50° Color OU**

72  **WT ONH 50° Red Free OU**

73  **WT ONH 30° Color OU**

74 

**WT**  
**1/17/2014**

Matrix  
N 30-5  
Screening

75  **WT 1/17/2014**

- CCT (IOPac): OD: 502 OS: 508
- SLE: unchanged
- ONH: no apparent change ; no Drance heme
- VFs: Matrix N 30-5 screening VF
  - OD: Sup arcuate with dense nasal step
  - OS: Incomplete sup arcuate with incomplete dense nasal step
- ONH/RNFL photos – see slides
- 

76  **WT 1/17/2014 Management**

Assessment:

- OA OS inf ONH – old AION?
- IOPs low teens but in mid-teens OU with Pascal DCT and spiked in OD only at noon
- No IOP change when reclined
- Deep sup nasal step OU on Matrix VFs

Plan:

- Rule out systemic causes of OA OS - Westegren ESR, CRP, VDRL, FTA ABS, ANA, possibly CT
- Initiate Trav Z OU hs and RTC in 1 month
- 

77  **Might cat extraction be an option for WT OD?**

**IOP Lowering with Phaco**

- Generally accepted that phaco lowers IOP
- Greater IOP-lowering for higher pre-surgical IOPs and possibly greater for narrower pre-surgical angles
- Duration of IOP-lowering is not well defined
  - OHTS showed a very slow IOP increase post-op, about 0.05 mmHg/month
  - Large study on normal and oc hypertensives showed no significant change over 4.5 years post-op

Mansberger SL et al. OHTS Group. Ophthalmology 119:1826-31, 2012

Poley BJ, Lindstrom RL et al. J Cataract Refract Surg 34:735-742, 2008.

78  **IOP-LOWERING EFFECT OF PHACO**

**Two factors: Initial IOP effect, Duration**

- Initial IOP-lowering was proportional to pre-op IOP – greater at higher IOPs
  - Poley BJ, Lindstrom RL et al. J Cataract Refract Surg 34:735-742, 2008.
  - IOP-lowering appears to last well out to at least 3 years post-op; much longer in Poley's study
  - Mansberger SL et al. OHTS Group. Ophthalmology 119:1826-31, 2012

79  **WT KEY POINTS**

- RNFL loss & VF loss are not specific to glaucoma; ONH changes are
- Always consider the possibility of a non-glaucomatous cause
- Evaluate the ONH rim tissue for pallor to find and differentiate non-glaucomatous from glaucomatous
- Try to correlate ONH changes to the RNFL loss &/or VF loss
- 

80  **RB 10/08/2015**  
**Rapidly progressing, early onset glaucoma?**

31 y/o Cf, attorney

Referred for glaucoma management - dx based on asymmetric C/Ds (OS>OD), progressive VF loss OS

PEHx: Occasional SCL wearer.

FEHx: FHx of glaucoma: dad (dxed in his 50s)

PMHx: Allergies- uses Claritin and occasionally Flonase.

Current systemic meds: Claritin, BCP, Flonase - occasional

83  **RB IOP History**

OD:

Range from 10 to 16 from 1999 to 2015 (10 in 10/2015)

OS:



Range from 10 to 11 from 1999 to 2015 (10 in 10/2015)

84  **RB 10/08/2015**

- BCVAs:  
OD: -4.75 -0.50 x 139 20/15  
OS: -5.50 -1.25 x 011 20/15
- BP: 126/74 RAS
- NCT: 17/16 3:00 PM
- CCT: OD: 505 (SD:2.4) OS: 497 (SD: 2.2)
- Pupils: Equal, round, 4+ light, no APD
- SLE: Angles 1 to 1, no evidence of 2<sup>o</sup> glau
- C/Ds: OD: .55 x .6 v shallow inf notch, pink rim  
OS: .6 x .65 v, shallow inf notch, pink rim  
Oblique ONH insertion OU, slight tilt OU

85  **RB 10/08/2015**

HFA 24-2:

OD: Shallow sup arcuate with sup nasal step

OS: Sup arcuate with absolute sup nasal step

Avanti OCT:

OD: Inf arc RNFL loss to p<1% - IT sector with corresponding inf GCC loss encompassing nearly the entire inf hemifield

OS: Very similar to OD. Inf arc RNFL loss to p<1% - IT sector with corresponding inf GCC loss encompassing nearly the entire inf hemifield

86 

**RB**  
**OD**  
**10/8/2015**  
**HFA 24-2**

Good reliability but poor foveal threshold  
Sup arcuate and sup nasal step

87 

**RB**  
**OS**  
**10/8/2015**  
**HFA 24-2**

Good reliability, some fatigue near end of the test  
Sup arcuate with absolute sup nasal step

88 

**RB**  
**10/8/2015**  
**Avanti**

RNFL: Inf arcuate in IT sector OU

GCC: Extensive p<1% loss inferiorly which respects the horizontal raphe OU

89  **RB 10/8/2015**

**Key Clinical Questions**

- Could RB have glaucoma in OS with IOPs of about 11 for the past several years?
- Could the IOPs be false low?
- Could there be factors unrelated to IOP causing the VF loss?
- Given the change in VF between 2014 and 2015 could RB be a "rapid progressor"?
- Should we initiate topical medication to lower IOPs first or do an evaluation of IOPs first?

90  **RB 10/8/2015**

**Dx & Management**

Assessment:

- Moderate POAG (pending gonio) OU OS>OD  
IOPs and IOP hx – mid-teens or lower at all recent exams  
Very thin CCT  
Rapid VF progression OS from 2014 to 2015

Plan:

- Initiate Trav Z OU hs and RTC in 1 month to evaluate IOP lowering effect
- Need supine IOP, Pascal DCT, gonio, ONH photos in 1 month
- 

91  **RB 10/30/2015**

- Reports only 1 scheduled drop missed; eyes a little dry.
- NCT: 17, 14, 16/ 15, 16, 17 8:30 am
- GAT: 15/ 17 8:35 am
- Pascal DCT: 20.9/ 20.8 Q2 OU 8:38 am
- Tonopen sitting: 16 / 14 8:45 am
- Tonopen reclined x 15 min: 18/ 17 9:00 am
- Gonio: CBB 360°, 1+ TM pig, flat angle approach in all quadrants, no angle anomalies
- No apparent change in ONH
- 

92  **RB ONH Photos**

93  **RB 10/30/2015**

**Key Clinical Questions**

- Is the IOP in OS in the low teens?
- Could there be a nonglaucomatous optic neuropathy causing the VF loss?
  - What evidence for or against do we have?
- Is Travatan Z effective at lowering OS IOP?
  - Should we switch? If so to what?
  - Should we add another topical glau med? If so what?
- Is RB a rapid progressor?? How do you determine this?
- 

94  **RB 10/30/2015**

**Dx & Management**

Assessment:

- Moderate POAG OU OS>OD  
Little change in IOP since Trav Z started (3 weeks ago) but suspect variable IOPs/spikes

IOPs slightly higher on Pascal than GAT, NCT

Rapid VF progression OS from 2014 to 2015 – need to get 2<sup>nd</sup> VF to assess stability

Plan:

- Continue Trav Z hs but use OS only
- RTC in 1 month to re-evaluate IOP, get full day diurnal IOP curve starting at 8 am

95  **RB 11/21/2015**

- GAT: 19/ 17 8:00 am
- Tonopen sitting: 16/13 8:25 am
- Tonopen reclined: 16/14 8:30 am
- GAT: 18/16 10:00 am
- GAT: 17/17 11:55 am
- GAT: 14/15 2:05 pm

Assessment & management:

Minimal IOP lowering with Trav Z at 6 weeks; switch to Lumigan OS only

No significant IOP change on reclined

No significant diurnal spike up to 2:00 pm

RTC in 1 month to re-evaluate IOP control

96  **RB 12/18/2015**

- No missed drops.
- GAT: 15/14 4:00 pm
- GAT: 17/ 15 6:10 pm
- BP/pulse: 102/76 RAS, 61 regular

Assessment & management:

Minimal IOP lowering with Trav Z or Lumigan at 8+ weeks; no IOP spikes found even in untreated eye – the result of the med in OS?

Management:

Continue Lumigan in OS and start it in OD

RTC in 2 months to re-evaluate VFs, imaging

97  **12/18/2015 Issues to Consider**

- Should we have switched from Travatan to Lumigan?
- The 4 pm and 6 pm IOPs are down at the 12/18/2015 visit and we switched to Lumigan at the prior visit. Did Lumigan lower the IOPs?

98  **RB 2/5/2016**

- Only missed 1 drop. No increase in redness, no dry eye with Lumigan.
- Hx negative for: blood loss/shock, Raynaud's, migraine, vascular or autoimmune disorders, sleep apnea.
- Only occasional use of steroids (Flonase), no steroid ever used for >2 days.
- Exercise: jogging 4x/week; no lifting, body inversion
- Hx of low BP, generally around 110/65
- GAT: 15/15 8:25 am
- BP/pulse: 108/70 RAS, 63 regular

99 

**RB**

**2/5/2016**  
**HRT**

100  **RB 2/5/2016**

Assessment:

Lumigan IOP lowering is minimal (but may be blunting suspected IOP spikes)

Management:

Continue Lumigan in OS and start it in OD.

RTC in 3 months at 8 am to assess IOPs and evaluate for progression - VFs, imaging (HRT, OCT)

•

101  **RB 5/6/2016**

- No missed drops.
- No change in med hx
- NCT: 17/18 8:05 am
- GAT: 20/19 8:50 am dilated
- Pascal DCT: 22/22 am dilated
- BP/pulse: 112/80 RAS, 62 regular
- No apparent change in ONH
- HFA 24-2: see printouts
- HRT: see printouts
- Avanti OCT: see printouts

102 

**RB**  
**OD**  
**5/6/2016**  
**HFA 24-2**

103 

**RB**  
**OS**  
**5/6/2016**  
**HFA 24-2**

104 

**RB**  
**5/6/2016**  
**HRT**

105 

**RB**  
**5/6/2016**  
**Avanti**

106  **RB 5/6/2016**

Assessment:

Lumigan IOP lowering is minimal (but it may be blunting suspected IOP spikes)

Clinically ONHs appear to be stable.

MUST rule out rapid current progression

But to check for progression we need:

-Another scan (3 total) to use Avanti Change analysis

-Two more scans (3 total) to use HRT TCA progression analysis

-1 more 24-2 for HFA GPA progression analysis.

107  **RB 5/6/2016**

Management:

Continue Lumigan OU

Add dorzolamide q12h OS – first drop upon awakening in am, 2<sup>nd</sup> drop about 12 hours later

RTC in 1 month to assess IOP control with dorzolamide and evaluate for progression - VFs, imaging (HRT, OCT)

•

108  **RB 6/15/2016**

• Only missed 1 drop. Slight stinging on instillation of dorzolamide.

• No change in med hx.

• NCT: 17, 17,19/ 17,13, 14 10:30 am

• GAT: 18/14 12:10 am (not dilated)

• CCT (Pachmate): OD: 519 (6.4) OS: 514 (7.6)

• BP/pulse: 128/68 RAS

• ONH/RNFL: No apparent change

• HFA 24-2: see printouts

• HRT: See printouts

• Avanti: See printouts

109 

**RB**  
**OD**  
**6/15/2016**  
**HFA 24-2**

110 

**RB**  
**OS**  
**6/15/2016**  
**HFA 24-2**

111 

**RB**  
**6/15/2016**  
**HRT**

112 

**RB**  
**6/15/2016**  
**Avanti**  
**OU**

115 

**RB 6/15/2016**

Assessment:

Lumigan + Dorzolamide OS IOP lowering is better

Discussed lifestyle changes that may affect IOP; advised aerobic activity at least 4 to 5 times/week

Clinically ONHs appear to be stable.

But need to get imaging and VFs at next exam

Management:

Continue Lumigan qhs + dorzolamide q12h OU

F/U in 3 months, re-evaluate HFA, OCT, HRT

116 

**RB 9/9/2016**

- Missed no drops.
- No change in med hx.
- NCT: 19, 16,16/ 16,15, 16 10:30 am
- GAT: 18/14 11:25 am
- Pascal DCT: 18.1/17.4 12:05 not dilated
- BP/pulse: 118/63 RAS
- ONH/RNFL eval: no change
- HFA 24-2: See printout
- HRT: See printout
- Avanti: See printout

117 

**RB**  
**OD**  
**9/9/2016**  
**HFA 24-2**

Very good reliability.

Shallow, repeatable sup arcuate and sup nasal step

118 

**RB**  
**OS**  
**9/9/2016**  
**HFA 24-2**

Very good reliability.

Moderate gen depression, sup arcuate with very deep sup nasal step.

119 

**RB**  
**OS**  
**9/9/2016**  
**HFA GPA**

VFI Trend: Up, possible learning effect

Point by point: No change

Note significant fluctuation within the defect.

120 

**RB**  
**9/9/2016**  
**HRT**

Very good quality

121 

**RB**  
**9/9/2016**  
**HRT TCA**  
**OD**

122 

**RB**  
**9/9/2016**  
**HRT TCA**  
**OS**

123 

**RB**  
**9/9/2016**  
**Avanti**

124 

**RB**  
**9/9/2016**  
**Avanti Change**  
**OD**

RNFL: Moderate variability, slight up trend

GCC: Tight data, flat trend

125  **RB**  
**9/9/2016**  
**Avanti Change**  
**OS**

RNFL: Moderate variability, flat trend  
GCC: Much variability, slight up trend

126  **RB 9/9/2016**

Assessment:  
Lumigan + Dorzolamide IOP OU lowering is good  
Clinically ONHs appear to be stable.  
Imaging suggests stability but need another set of scans, VFs  
Management:  
Continue Lumigan qhs + dorzolamide q12h  
F/U in 3 months, re-evaluate HFA, OCT, HRT

127  **RB IOP History 10/2015 to 11/2016**

128  **RB 2/3/2017**

- Missed no drops.
- No change in med hx.
- NCT: 14, 18,16/ 14,16, 16 8:15 am
- GAT: 15/16 8:55 am not dilated
- BP/pulse: 122/68 RAS
- ONH/RNFL eval: no change
- HFA 24-2: See printout
- HRT: See printout
- Avanti: See printout

129  **RB**  
**OD**  
**2/3/2017**  
**HFA 24-2**

Very good reliability.

Shallow, repeatable sup arcuate and sup nasal step

130  **RB**  
**OD**  
**2/3/2017**  
**HFA GPA**

VFI Trend: Flat, stable



Point by point analysis: Scattered points depressed x 1 exam

131 

**RB**  
**OS**  
**2/3/2017**  
**HFA 24-2**

132 

**RB**  
**OS**  
**2/3/2017**  
**HFA GPA**  
VFI Trend: Stable  
Point by point: No change

133 

**RB**  
**2/3/2017**  
**HRT**  
Very good quality

134 

**RB**  
**2/3/2017**  
**HRT TCA**  
**OD**

135 

**RB**  
**2/3/2017**  
**HRT TCA**  
**OS**

136 

**RB**  
**2/3/2017**  
**Avanti**  
**OCT**

137 

**RB**  
**2/3/2017**  
**Avanti Change**  
**OD**

RNFL: Moderate variability, slight up trend  
GCC: Very tight data (tight confidence interval), flat trend

138 

**RB**  
**2/3/2017**  
**Avanti Change**  
**OS**

RNFL: Moderate variability,

flat trend

GCC: Much variability (wide confidence interval) slight up trend

139  **RB 2/3/2017**

Assessment:

Lumigan + Dorzolamide IOP OU lowering- good

VFs stable

Clinically ONHs appear to be stable.

ONH, RNFL & GCC imaging stable.

Management:

Continue Lumigan qhs + dorzolamide q12h

Consider possibility of SLT

F/U in 3 months, re-evaluate HFA, OCT, HRT



# Glaucoma Case Management Decisions

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## Disclosures

George Comer, OD, MBA  
SCCO at M.B. Ketchum University

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- Research funding from Heidelberg Instruments

M.B. Ketchum University

## MT 11/4/2015 PC Exam

Followed for diabetic ret, AMD. Does he have glaucoma too?

59 A (Japanese) m

C/o of blurred vision distance, constant. No fluctuation from day to day.

POHx: Being followed by OMD for diabetic ret and AMD x 3 yrs, last exam 4 or 5 months ago there – no diabetic ret, took ret photos. Cryo OS x 2 in 2005 for diabetic ret?

PMHx: DM since 1999 H<sub>1c</sub>: 7.9, last FBS: 180, hypercholesterolemia, thyroid disease

## MT 11/4/2015

Meds: Crestor, Lotrel, Lansoprazole  
Metformin, Novolog, Synthroid

CT: Dist: Ortho Near: 18 ILXT

Manifest: OD: -9.25 -1.00 x 162 20/20

OS: -7.75 -0.75 x 120 20/30++ PH no improvement

NCT: 22, 21, 22/20, 22, 24 1:50

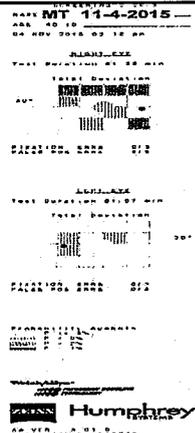
BP: 140/80 1:55 Pulse: 69

Color vision: HRR Plates OD: 6/6 OS: 6/6

VF screening: see FDT printout

SLE: 1+ NSC OU, mild ant cortical vacuoles

MT  
11/4/2015  
FDT C20-5  
screening



## FDT Interpretation Considerations for MT OD

2<sup>nd</sup> eye tested often has misses – “2<sup>nd</sup> eye artifact”

– Strategy: Give the pt a brief (seconds) rest & test again

– But in this case the misses are the first tested eye!

If head is positioned too high the upper row of test points is not visible to patient. Hard to see this on FDT because you cannot see the pt’s eye during the test. Easy to see on Matrix video eye monitor. Retest if this is a possibility.

### Why Run the Screening VF Again?

Screening is very rapid way to confirm or rule out VF loss, much more rapid than a threshold test.

Screening is much easier to interpret than threshold VFs

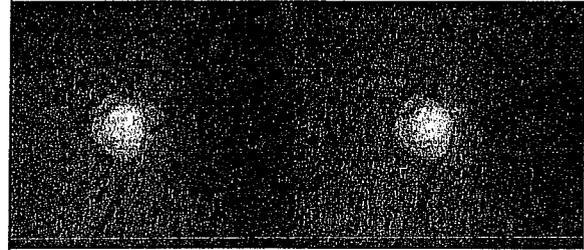
Screening has much better specificity than threshold VFs

If not sure then quickly rescreen the VF.

If true VF loss is likely then look at ONH, RNFL for correlating damage. Structural damage usually precedes VF loss.

MT 11/20/2015 OD ONH photos

Analyze inf rim carefully  
Note inf peripapillary atrophy



MT 11/4/2015

C/D: OD: .7 x .7 shallow broad inf notch

OS: .6 x .6 round cup

Few dot hemes OU

RPE mottling OU; possible CSME OS

#### Assessment:

Glau suspect

Mild NPDR with possible CSME OS;  
unstable blood sugar – cause of vision  
fluctuations

Mild NSC & ant cortical changes OU

Myopia, astigmatism, presbyopia

MT 11/4/2015

#### Plan:

Advised glau work-up: HFA 24-2, OCT  
(92133), CCT, Pascal DCT, gonio

Macular OCT (92134) OS to assess  
possibility of CSME

Pt ed on vision fluctuation – blood sugar  
control. Report to PCP re: diabetic  
retinopathy, vision fluctuations

Monitor cats

Spec Rx

MT 11/20/2015 Glau Eval

#### IOPs:

NCT: 16, 17, 18/ 19, 20, 18 11:15 am predilated

GAT: 16/16 12:05 postdiluted

DCT: 19.4/22.2 12:10 postdiluted (Q: 1 OU)

CCT (Reichert IOPac): OD: 597 $\mu$  OS: 605 $\mu$

HFA 24-2:

OD: 8 point cluster - sup arcuate scotoma

OS: Mild gen depression, no focal VF loss

Avanti OCT: see printouts

Gonio: Open to CBB 360° OU, minimal TM pig

### Tonometry & CCT Considerations

#### Why 3 different tonometers?

##### Why do NCT?

Does "not mess" with the cornea. We prefer NCT for IOPs prior to imaging (OCT, photos, HRT etc)

##### Why do GAT post-dilated?

To check for post-dilated IOP spikes & to have GAT for medico-legal purposes

##### Why do Pascal DCT? Due to thick CCT.

Important: Thick CCT does not necessarily mean false high IOP on applanation tonometers

**JS  
Cirrus  
GCA  
OD**

Segmentation error due to poor signal. White line marks anterior surface of retina & purple line is post surface as determined by Cirrus

Advanced Visualization: Macular Cube 512x128

**JS  
Cirrus  
GCA  
OS**

Normal macular architecture. Note position of white line & purple line – very good segmentation of retina.

Advanced Visualization: Macular Cube 512x128

**JS What happened to the macula in OD?  
VA is OD: 20/25- OS: 20/30+**

Artifact present in center of the OCT scan due likely due to:

Axial PSC (~2+ axial PSC in each eye yet only OD has the artifact – perhaps PSC is a little denser OD but only a little)

GAT before the scan was done → moderate central SPK OD found; no SPK in OS

**VERY IMPORTANT:**  
Do NOT touch the cornea before imaging  
**NO** GAT, Tonopen/Accupen/I-Care, gonio or pachymetry before imaging

**MT 11/20/2015 CCT/IOP Considerations**

CCT is "high" in both eyes. Yet Pascal DCT reads higher than GAT or NCT, particularly in OS? Why does DCT read higher in a thick cornea?! What is the value of "adjusted IOP"?

EXAMINATION									
IOP	RT	LT	Test	Time	Category	HA	Pachymetry		Retinal Image
							RT	LT	
2	17	20	Non-Contact	10:11	Examination				
3	18	18	Non-Contact	10:11	Examination				
4	16	16	Goldmann	11:19	Post-Dilation		597	605	
5	19.4		Pascal Tonometry		Examination		Adjusted IOP		
							12	14	

**MT  
11/20/2015  
HFA 24-2  
OD**

Does this correlate to the FDT VF?  
Should this 24-2 be repeated?  
Does it correlate to the clinical ONH/RNFL evaluation?

**MT  
11/20/2015  
OCT OU**

OD RNFL: Abnormal (p<1%) sup temp, inf nasal.  
Borderline inf temp sector  
OD GCC: Large area of p<5% inferior  
OD: OD>OS  
OS: Normal RNFL & GCC

**MT**  
**11/20/2015**  
**HRT OU**

OD MRA: All ONH sectors abnormal (p<0.1%) except temp.  
OD Large cup with significant asymmetry  
OD>OS though asymmetric ONHs  
OS MRA: Borderline (p<5%) both inf nasal sectors

Linear Cup/Disk Ratio	Asymmetry	OS	AS
176	3.19	0.54	0.54
p<0.01	p<0.01	p<0.01	p<0.01

Cup Shape Measure	Asymmetry	OS	AS
0.02	1.13	0.16	0.16
p<0.01	p<0.02	p<0.01	p<0.01

Sup Area (sqmm)	Asymmetry	OS	AS
836	0.76	1.01	1.01
p<0.01	p<0.01	p<0.01	p<0.01

Inf Area (sqmm)	Asymmetry	OS	AS
816	1.13	0.24	0.24
p<0.01	p<0.02	p<0.01	p<0.01

Mean RNFL (micrometers)	Asymmetry	OS	AS
117	8.11	8.11	8.11
p<0.01	p<0.01	p<0.01	p<0.01

### Imaging Issues

Is imaging necessary for the diagnosis in this case?  
No

What is the value of imaging in this case?  
Assists your clinical eval in structural assessment  
For tracking for progression

Could a patient have glaucoma yet have normal imaging?  
With spectral domain imaging and ganglion cell imaging it is unlikely but could happen.

### MT 11/20/2015 Decisions

Does MT have glau?  
What evidence for glau? What evidence against glau dx?  
If glau what target IOP?  
Would you initiate treatment on one eye or both?  
If glau what initial med(s)?  
Would you consider a combo such as Cosopt, Combigan or Simbrinza?

### MT Diagnostic Considerations

Does MT have glau?  
What evidence for glau?  
Sup arcuate - both FDT and HFA 24-2 OD  
Clin ONH eval: shallow inf rim loss OD  
HRT: Sup and inf rim loss to p<0.1% OD  
OCT: Sup and inf RNFL loss to p<1% OD  
All of the above correlate.  
Always check the ONH/RNFL clinically  
Structural damage plus correlating VF loss - compelling!

### MT Management Issues

If glau what type (POAG vs 2° glaucoma)?  
Need SLE and gonioscopy to differentiate.  
If glaucoma what target IOP?  
Stage the glaucoma then set target IOP  
For stage consider all findings, particularly the VFs - moderate glaucoma by ICD 10 staging  
What target IOP?  
For initial 1<sup>st</sup> line med try to achieve at least 25% IOP reduction

### MT 11/20/2015

**Assessment:**  
Early POAG OD with VF loss sup  
Mild NPDR & possible CSME OS  
Mild NSC & ant cortical changes OU

**Plan:**  
Initiate topical med OD; f/u in 4 to 6 weeks  
- Med to start? Start OD or OU??  
- Any topical glau meds contraindicated?  
- F/U in 4 to 6 weeks. Sooner?  
Macular OCT (92134) OS at f/u exam

## MT Initiating Glaucoma Meds

What first line med?

PG unless contraindicated or not allowed by insurance (name brand PG)

One eye trial in OD? Treat OD only?  
Or treat OU?

When it first f/u exam?

At 4 to 6 weeks

## SELECTING THE INITIAL GLAUCOMA MEDICATION

Target IOP & IOP lowering effect of various options

Ease of use

Current systemic meds

Potential ocular and/or systemic side effects

Specific contraindication/considerations

Cost of med(s)

## MT 1/20/2016

1<sup>st</sup> follow-up on glau med, Trav Z 1 gt OD hs  
No dryness, little redness – “not bad”, no other problems

Compliance reported as only 1 missed drop every couple of weeks due to going to sleep while watching TV & forgetting the med

GAT: 13/14 11:10 am

## Management Considerations

How did Trav Z lower IOP in OS when it is used for OD only?

What does equal IOP, though only OD is treated, suggest?

Must consider the possibility of diurnal IOP variation OU (Trav actually did not lower it in OD) or asymmetric IOP variation

What is the appropriate management at this point?

Continue the Trav Z and follow up again

## MT 2/27/2016

Still taking Trav Z OD only. Last instillation was bedtime last night, 11:30 pm. No redness, dry eye or other problems.

GAT: 13/18 12:15 pm

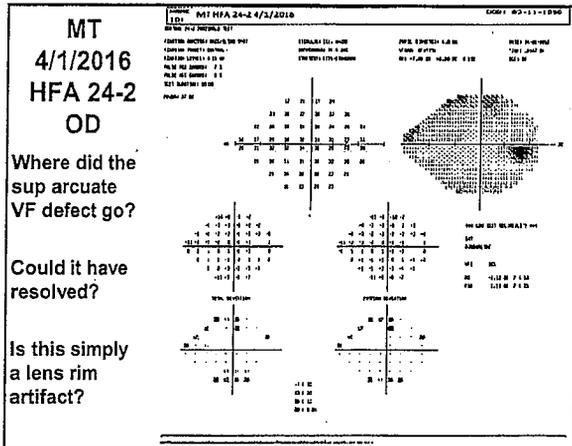
What is management now?

## MT 4/1/2016

Glau f/u. No problems with Trav Z . Last drop last night about 11:30 pm.

GAT: 14/18 10:34 am

Clinical ONH/RNFL eval: No change  
HFA 24-2: OD: Several mildly depressed edge points along sup and sup nasal border of VF. OS: normal



MT 4/1/2016

Avanti OCT:  
OD: Very similar to 11/20/2016 – inf arcuate RNFL defect to  $p < 1\%$  but no sup arcuate. OS normal  
HRT: OD: Very similar to 11/20/2016 -  $p < 0.1\%$  inf and sup rim. OS:  $p < 0.1\%$  inf rim.

MT 4/1/2016  
Clinical Questions

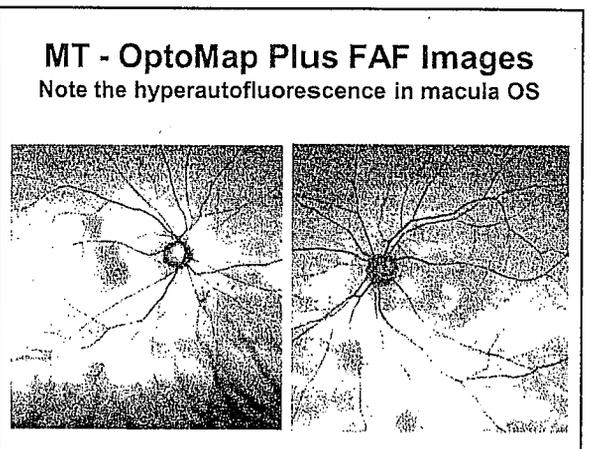
No or less sup arcuate VF loss in OD!  
Could we have cured the VF loss?  
Was there never glaucoma? Could the VF loss disappear then later reappear?  
What is the appropriate management in this situation?  
Since there is no VF loss on this visit should his treatment be discontinued?

MT 4/1/2016

A: POAG with good IOP response to Trav Z  
P: Continue Trav Z OD and initiate it in OS

MT 5/2016

*"My OMD says that he guarantees that I do not have glaucoma. He has photos of my eyes from the last 5 or 6 years and they have not changed he says!"*  
*"He also said that I had macular edema a few years back and nothing is going on with my macula."*





## Clinical Decisions – Macula OS

Why does the left macula have hyperautofluorescence and OD does not?  
 Could an old central serous do that?  
 Could diabetic CSME do that?  
 Where specifically (retinal layer) is the problem that results in the hyperautofluorescence?  
 What is the most likely cause?

MT 1/19/2017

Glau f/u. Decided to continue eyecare with us. No problems with Trav Z.

Meds: Had d/c'd the Trav Z but restarted it about 1 month ago; last drop last night around 11:00 pm.

Had also d/c'd the AREDS II but restarted.

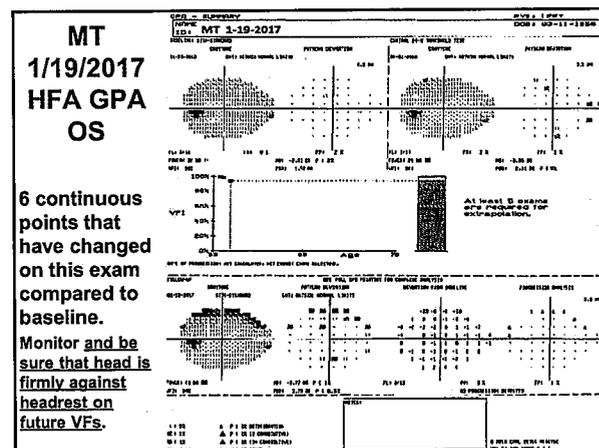
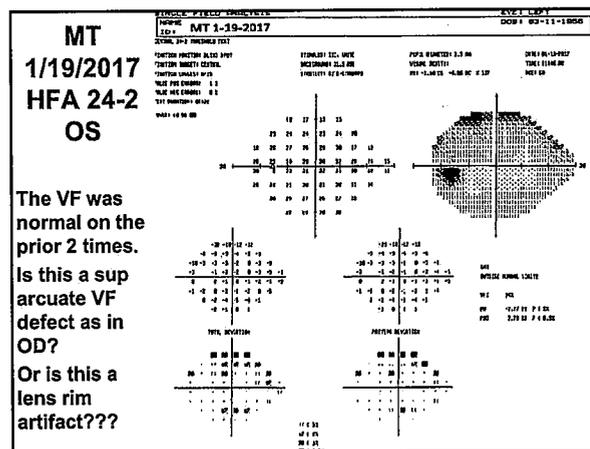
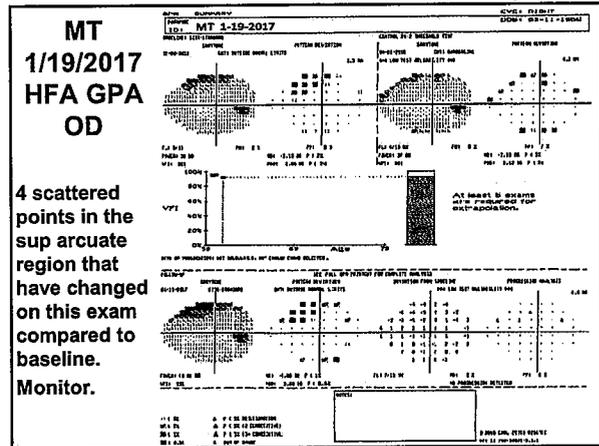
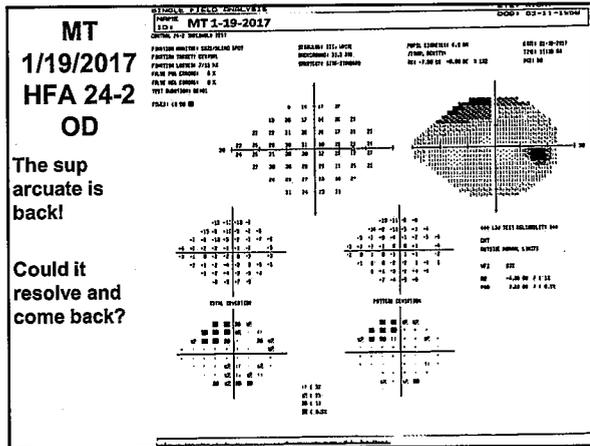
NCT: 17,15,17/17, 17,18 9:50 am

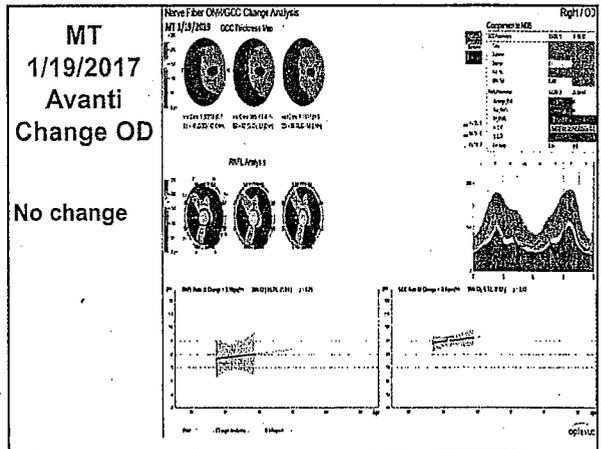
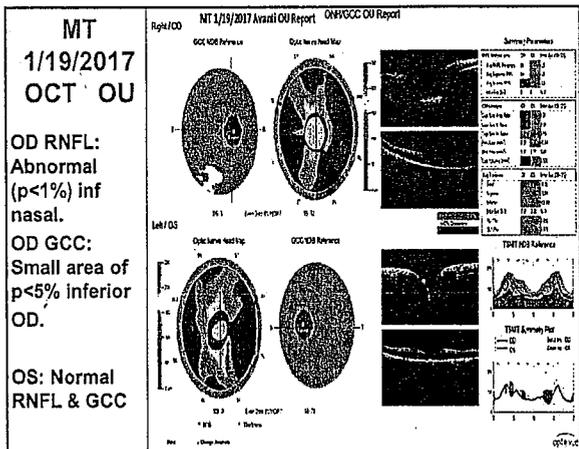
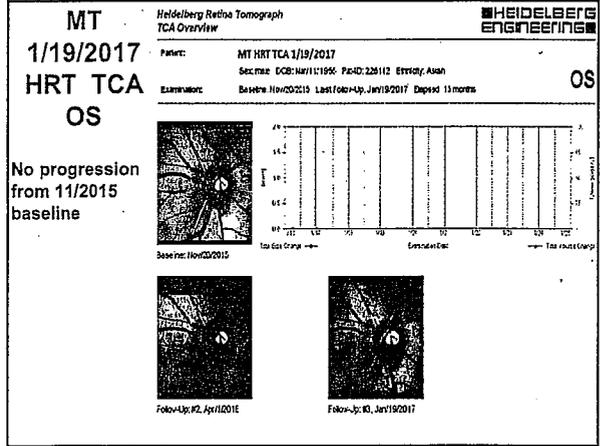
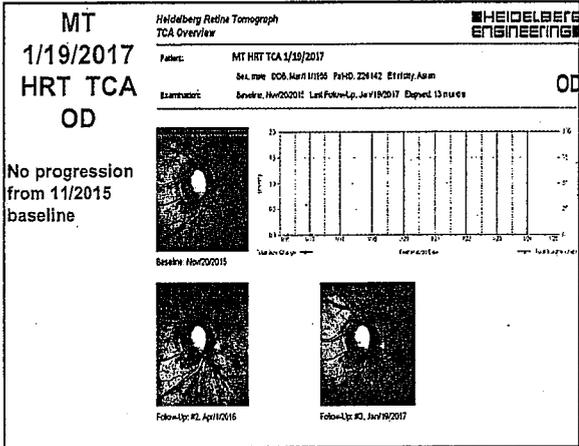
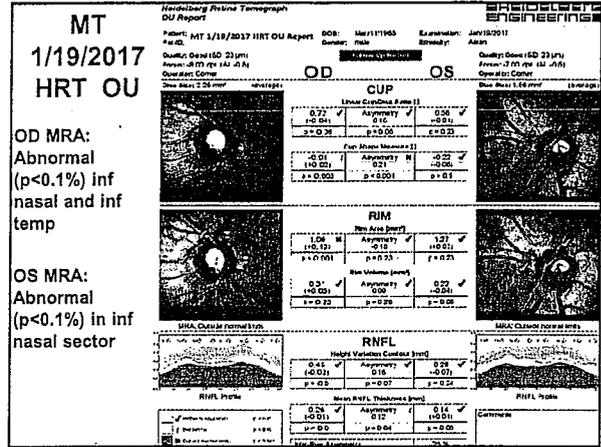
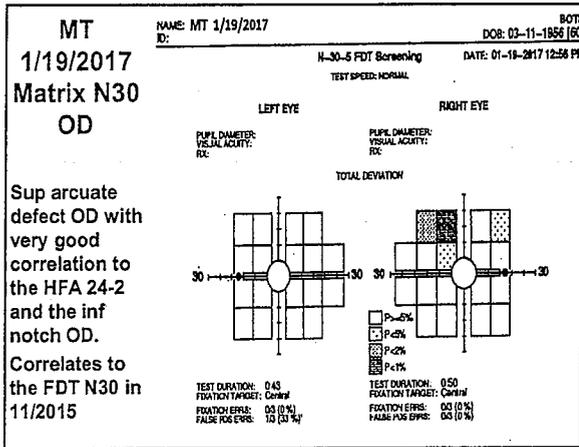
GAT: 17/18 11:15 am dilated

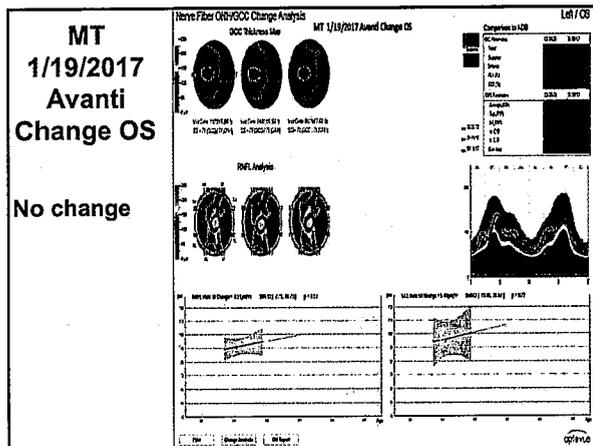
Clinical ONH/RNFL eval: No apparent change

HFA 24-2: See VFs

Imaging: See HRT & OCT printouts







**WT 7/12/13**

**Glaucoma suspect? Glaucoma? Something else?**

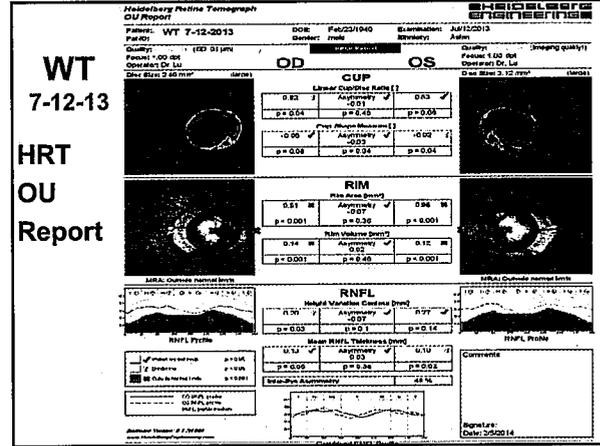
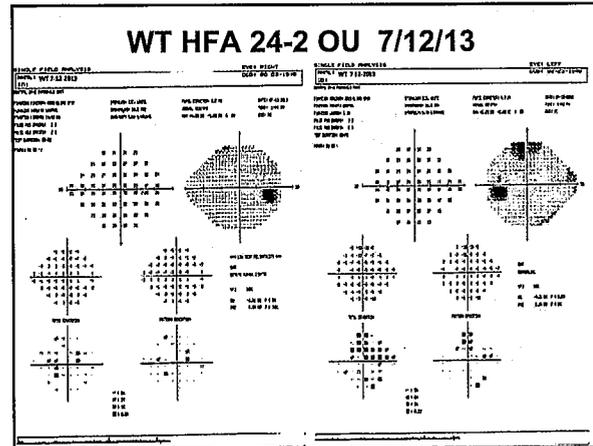
73 y/o Hispanic male, retired  
 Referred as glaucoma suspect by PCP – large C/Ds  
 PEHx: Prior OMD followed from 6/2010 to 8/2012 labeled him glau suspect due to large C/Ds but IOPs always <15. Normal HFA 24-2 VF. CCT: OD: 493 OS: 505 12/21/2010  
 Cat extraction with PC IOL OS 7/10/2012  
 FEHx: Does not know FEHx  
 PMHx: Elevated cholesterol Current meds: Lovastatin 40 mg/day  
 Allergies: none

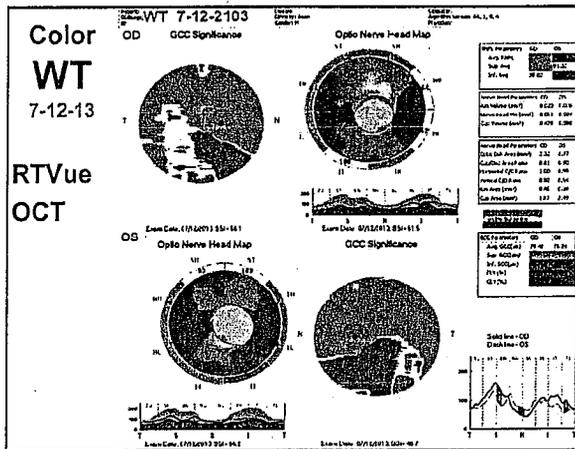
**WT 7/12/2013**

NCT: 12, 10, 15/ 10, 15, 13 1:22 pm  
 SLE: 2+ NSC, 2+ ant cortical OD, PC IOL OS – clear, centered with capsulotomy. Angles ¼ OD and 1 OS.  
 ONH: large ONH OU with large shallow C/Ds of about .75 x .75 OU  
 No apparent RNFL defects, no Drance heme. 360° PPA OS, possible pallor OS

**WT 7/12/2013**

VF: HFA 24-2 OU  
 – OD: Questionable reliability- increased fix losses. No VF loss  
 – OS: Possible sup paracentral scotoma  
 HRT: See slide  
 RTVue OCT: see slide  
 Gonio after dilation:  
 OD: open to CBB inf with 2+ TM pig, open to TM in all other angles  
 OS: open to CBB in all angles with 2+ TM pig





### WT 7/12/2013 Management

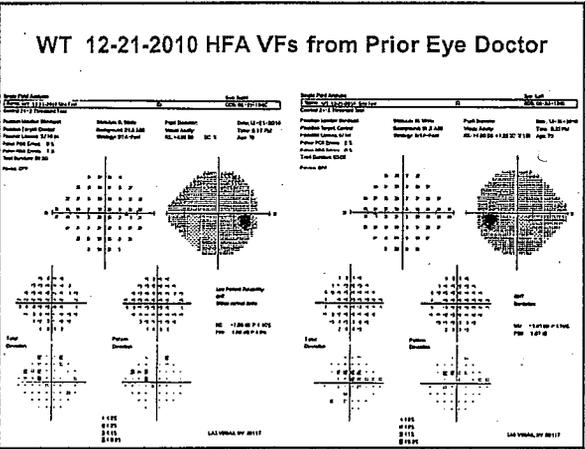
**Assessment:**  
 2+ NSC, 2+ ACC OD – BCVA: 20/30  
 Glau suspect based on large C/Ds, very suspicious HRT & RTVue. But low IOPs and good VFs

**Management:**  
 Get records from OMD who saw him 2010 to 2012 – progression?  
 Re-evaluate IOPs in 3 months  
 Re-evaluate VFs, imaging in 6 months

### WT 10/10/2013

GAT: 13 / 11 10:29 am  
 SLE: unchanged  
 ONH: no apparent change ; no Drance heme  
 Old records show diagnosis of glau suspect based on large C/Ds but no VF loss; no imaging

**Management**  
 Re-evaluate for progression in VFs, ONH, RNFL or GCC in 3 months



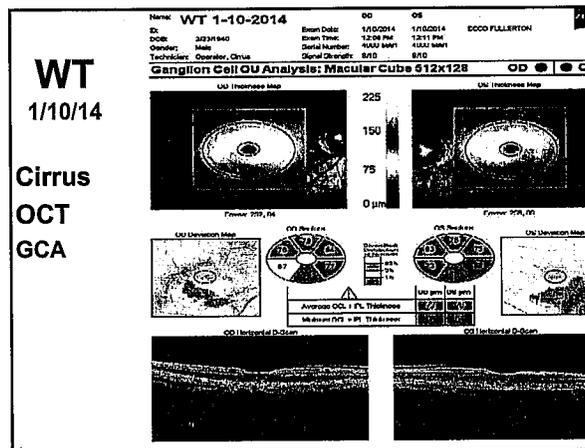
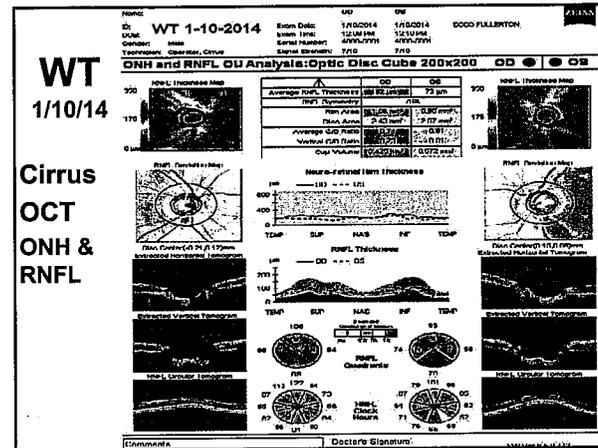
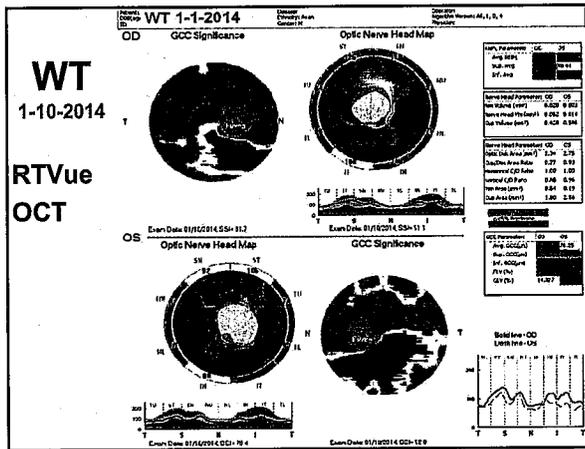
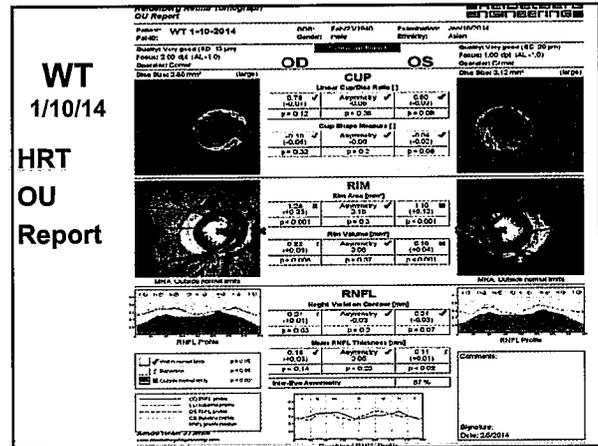
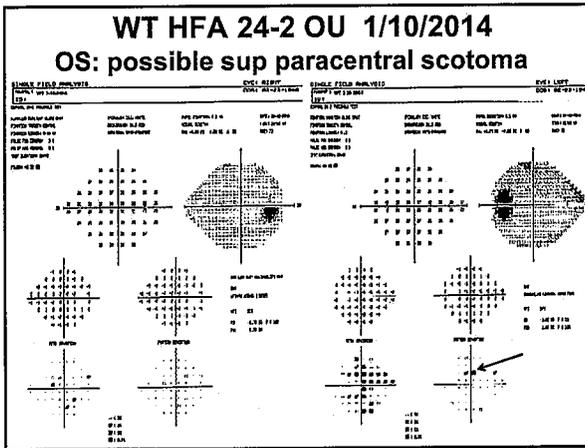
### WT 1/10/2014

No change in history  
 Pre-dilation NCT: 11, 13, 12/12, 13, 12 10:43 am  
 Post dilation GAT: 11 / 11 11:45 am  
 SLE: unchanged  
 ONH: no apparent change ; no Drance heme  
 VFs: HFA 24-2  
 – OD: Poor foveal threshold but no glau VF loss  
 – OS: Poor foveal threshold; possible sup paracentral scotoma – 2 point cluster  
 – Suspect more VF loss – get FDT or Matrix

### WT 1/10/2014

HRT: see slide baseline HRT scan. Very suspicious but consider possibility of a false positive due to large ONH size.

Cirrus OCT: see slide Baseline scan. Highly suspicious – inf arcuate RNFL loss with corresponding inf GCA loss OU  
 Need 3 scans for progression detection on either HRT or OCT



## WT 1/10/2014 Management

**Assessment:**

- Mild NSC OD
- Glaucoma suspect OU with very suspicious structural findings (C/D, HRT, RNFL and GCA on Cirrus) but little to no VF loss OS only and normal VF. IOPs < 15 on all exams at UEC.
- Probable optic atrophy inf ONH OS

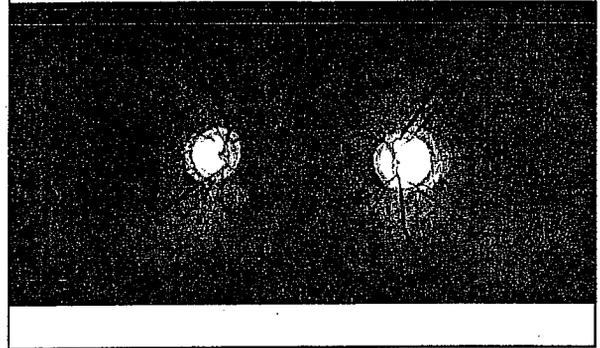
**Management:**

- RTC in 1 week for serial tonometry, reclined IOPs, ONH/RNFL photos, CCT, FDT screening

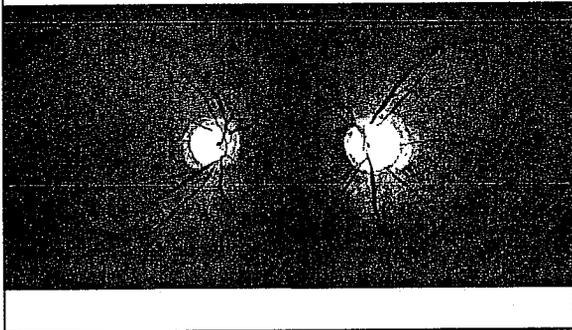
**WT 1/17/2014**

NCT: 13, 13, 13/12, 12, 12 8:13 am  
 Tonpen sitting: 13/10 9:00 am  
 Tonopen reclined: 14/11 9:10 am  
 Pascal DCT: 16/15 9:15 am  
 NCT: 21, 20, 18 / 12,12, 12 12:00 pm  
 NCT: 12, 12, 14 / 10, 11, 12 2:05 pm  
 NCT: 12, 13, 12 / 10, 12, 11 4:15 pm

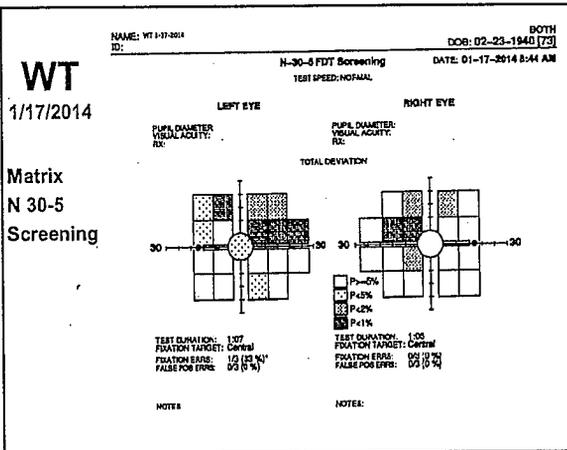
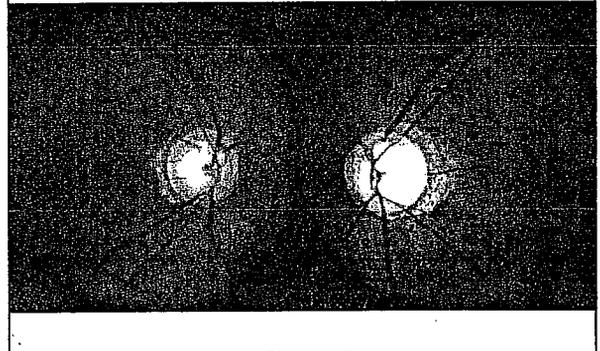
**Color WT ONH 50° Color OU**



**WT ONH 50° Red Free OU**



**WT ONH 30° Color OU**



**WT 1/17/2014**

CCT (IOPac): OD: 502 OS: 508  
 SLE: unchanged  
 ONH: no apparent change ; no Drance heme  
 VFs: Matrix N 30-5 screening VF  
 - OD: Sup arcuate with dense nasal step  
 - OS: Incomplete sup arcuate with incomplete dense nasal step  
 ONH/RNFL photos - see slides

## WT 1/17/2014 Management

### Assessment:

OA OS inf ONH – old AION?  
 IOPs low teens but in mid-teens OU with  
 Pascal DCT and spiked in OD only at noon  
 No IOP change when reclined  
 Deep sup nasal step OU on Matrix VFs

### Plan:

Rule out systemic causes of OA OS -  
 Westgren ESR, CRP, VDRL, FTA ABS, ANA,  
 possibly CT  
 Initiate Trav Z OU hs and RTC in 1 month

## Might cat extraction be an option for WT OD? IOP Lowering with Phaco

Generally accepted that phaco lowers IOP  
 Greater IOP-lowering for higher pre-surgical  
 IOPs and possibly greater for narrower pre-  
 surgical angles

Duration of IOP-lowering is not well defined

OHTS showed a very slow IOP increase post-  
 op, about 0.05 mmHg/month

Large study on normal and oc hypertensives  
 showed no significant change over 4.5 years  
 post-op

Mansberger SL et al. OHTS Group. Ophthalmology 119:1826-31, 2012  
 Poley BJ, Lindstrom RL et al. J Cataract Refract Surg 34:735-742, 2008.

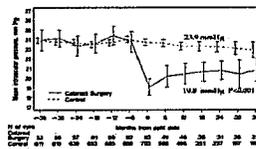
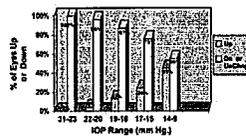
## IOP-LOWERING EFFECT OF PHACO Two factors: Initial IOP effect, Duration

Initial IOP-lowering  
 was proportional to  
 pre-op IOP – greater at  
 higher IOPs

Poley BJ, Lindstrom RL et al. J Cataract Refract  
 Surg 34:735-742, 2008.

IOP-lowering appears  
 to last well out to at  
 least 3 years post-op;  
 much longer in  
 Poley's study

Mansberger SL et al. OHTS Group.  
 Ophthalmology 119:1826-31, 2012



## WT KEY POINTS

RNFL loss & VF loss are not specific to  
 glaucoma; ONH changes are

Always consider the possibility of a non-  
 glaucomatous cause

Evaluate the ONH rim tissue for pallor to  
 find and differentiate non-glaucomatous  
 from glaucomatous

Try to correlate ONH changes to the RNFL  
 loss &/or VF loss

## RB 10/08/2015

Rapidly progressing, early onset glaucoma?  
 31 y/o Cf, attorney

Referred for glaucoma management - dx  
 based on asymmetric C/Ds (OS>OD),  
 progressive VF loss OS

PEHx: Occasional SCL wearer.

FEHx: FHx of glaucoma: dad (dxed in his  
 50s)

PMHx: Allergies- uses Claritin and  
 occasionally Flonase.

Current systemic meds: Claritin, BCP,  
 Flonase - occasional

## RB IOP History

OD:

Range from 10 to 16 from 1999 to  
 2015 (10 in 10/2015)

OS:

Range from 10 to 11 from 1999 to  
 2015 (10 in 10/2015)

## RB 10/08/2015

### BCVAs:

OD: -4.75 -0.50 x 139 20/15

OS: -5.50 -1.25 x 011 20/15

BP: 126/74 RAS

NCT: 17/16 3:00 PM

CCT: OD: 505 (SD:2.4) OS: 497 (SD: 2.2)

Pupils: Equal, round, 4+ light, no APD

SLE: Angles 1 to 1, no evidence of 2° glau

C/Ds: OD: .55 x .6 v shallow inf notch, pink rim

OS: .6 x .65 v, shallow inf notch, pink rim

Oblique ONH insertion OU, slight tilt OU

## RB 10/08/2015

### HFA 24-2:

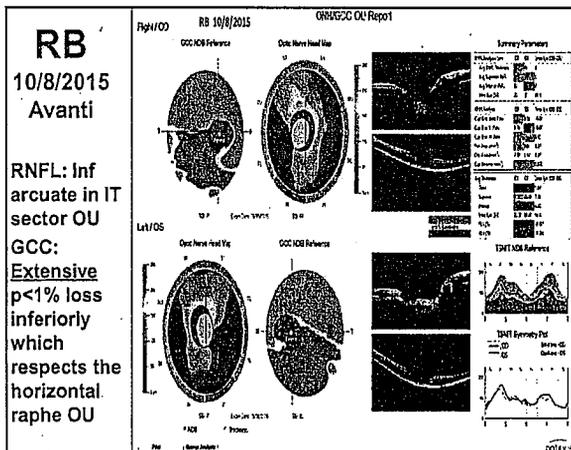
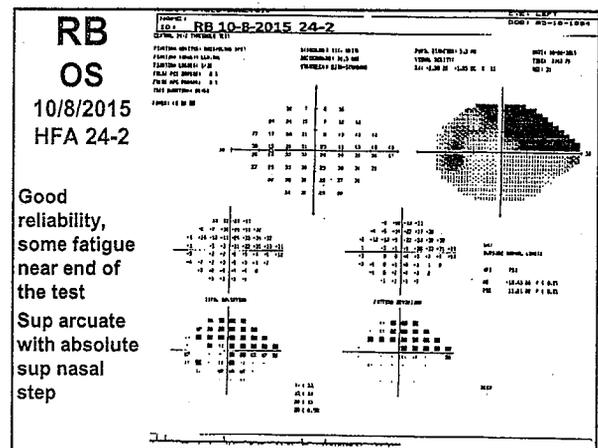
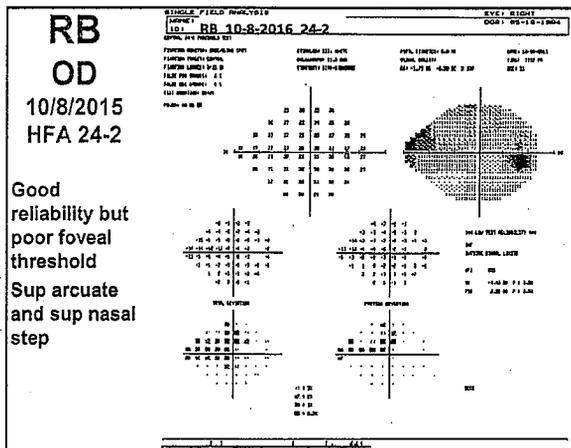
OD: Shallow sup arcuate with sup nasal step

OS: Sup arcuate with absolute sup nasal step

### Avanti OCT:

OD: Inf arc RNFL loss to p<1% - IT sector with corresponding inf GCC loss encompassing nearly the entire inf hemifield

OS: Very similar to OD. Inf arc RNFL loss to p<1% - IT sector with corresponding inf GCC loss encompassing nearly the entire inf hemifield



## RB 10/8/2015 Key Clinical Questions

Could RB have glaucoma in OS with IOPs of about 11 for the past several years?

Could the IOPs be false low?

Could there be factors unrelated to IOP causing the VF loss?

Given the change in VF between 2014 and 2015 could RB be a "rapid progressor"?

Should we initiate topical medication to lower IOPs first or do an evaluation of IOPs first?



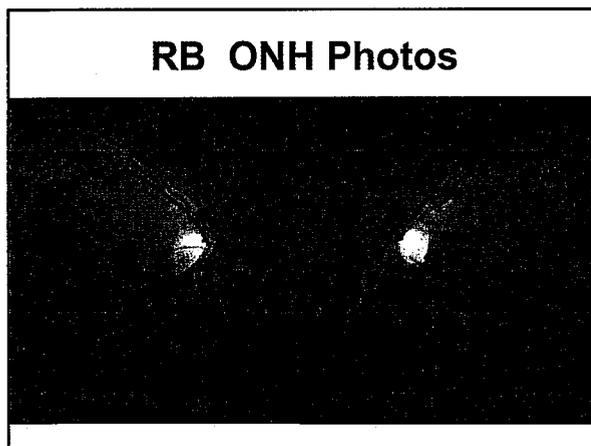
**RB 10/8/2015**  
**Dx & Management**

**Assessment:**  
 Moderate POAG (pending gonio) OU OS>OD  
 IOPs and IOP hx – mid-teens or lower at all recent exams  
 Very thin CCT  
 Rapid VF progression OS from 2014 to 2015

**Plan:**  
 Initiate Trav Z OU hs and RTC in 1 month to evaluate IOP lowering effect  
 Need supine IOP, Pascal DCT, gonio, ONH photos in 1 month

**RB 10/30/2015**

Reports only 1 scheduled drop missed; eyes a little dry.  
 NCT: 17, 14, 16/ 15, 16, 17 8:30 am  
 GAT: 15/ 17 8:35 am  
 Pascal DCT: 20.9/ 20.8 Q2 OU 8:38 am  
 Tonopen sitting: 16 / 14 8:45 am  
 Tonopen reclined x 15 min: 18/ 17 9:00 am  
 Gonio: CBB 360°, 1+ TM pig, flat angle approach in all quadrants, no angle anomalies  
 No apparent change in ONH



**RB 10/30/2015**  
**Key Clinical Questions**

Is the IOP in OS in the low teens?  
 Could there be a nonglaucomatous optic neuropathy causing the VF loss?  
 – What evidence for or against do we have?  
 Is Travatan Z effective at lowering OS IOP?  
 – Should we switch? If so to what?  
 – Should we add another topical glau med? If so what?  
 Is RB a rapid progressor?? How do you determine this?

**RB 10/30/2015**  
**Dx & Management**

**Assessment:**  
 Moderate POAG OU OS>OD  
 Little change in IOP since Trav Z started (3 weeks ago) but suspect variable IOPs/spikes  
 IOPs slightly higher on Pascal than GAT, NCT  
 Rapid VF progression OS from 2014 to 2015 – need to get 2<sup>nd</sup> VF to assess stability

**Plan:**  
 Continue Trav Z hs but use OS only  
 RTC in 1 month to re-evaluate IOP, get full day diurnal IOP curve starting at 8 am

**RB 11/21/2015**

GAT: 19/ 17 8:00 am  
 Tonopen sitting: 16/13 8:25 am  
 Tonopen reclined: 16/14 8:30 am  
 GAT: 18/16 10:00 am  
 GAT: 17/17 11:55 am  
 GAT: 14/15 2:05 pm

**Assessment & management:**  
 Minimal IOP lowering with Trav Z at 6 weeks; switch to Lumigan OS only  
 No significant IOP change on reclined  
 No significant diurnal spike up to 2:00 pm  
 RTC in 1 month to re-evaluate IOP control

### RB 12/18/2015

No missed drops.

GAT: 15/14 4:00 pm

GAT: 17/ 15 6:10 pm

BP/pulse: 102/76 RAS, 61 regular

Assessment & management:

Minimal IOP lowering with Trav Z or Lumigan at 8+ weeks; no IOP spikes found even in untreated eye – the result of the med in OS?

Management:

Continue Lumigan in OS and start it in OD  
RTC in 2 months to re-evaluate VFs, imaging

### 12/18/2015 Issues to Consider

Should we have switched from Travatan to Lumigan?

The 4 pm and 6 pm IOPs are down at the 12/18/2015 visit and we switched to Lumigan at the prior visit. Did Lumigan lower the IOPs?

### RB 2/5/2016

Only missed 1 drop. No increase in redness, no dry eye with Lumigan.

Hx negative for: blood loss/shock, Raynaud's, migraine, vascular or autoimmune disorders, sleep apnea.

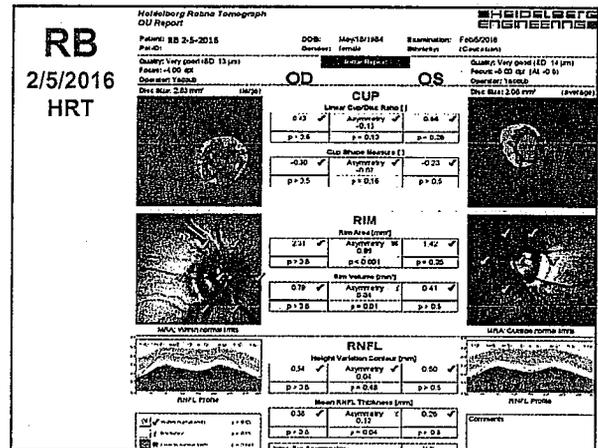
Only occasional use of steroids (Flonase), no steroid ever used for >2 days.

Exercise: jogging 4x/week; no lifting, body inversion

Hx of low BP, generally around 110/65

GAT: 15/15 8:25 am

BP/pulse: 108/70 RAS; 63 regular



### RB 2/5/2016

Assessment:

Lumigan IOP lowering is minimal (but may be blunting suspected IOP spikes)

Management:

Continue Lumigan in OS and start it in OD.

RTC in 3 months at 8 am to assess IOPs and evaluate for progression - VFs, imaging (HRT, OCT)

### RB 5/6/2016

No missed drops.

No change in med hx

NCT: 17/18 8:05 am

GAT: 20/19 8:50 am dilated

Pascal DCT: 22/22 am dilated

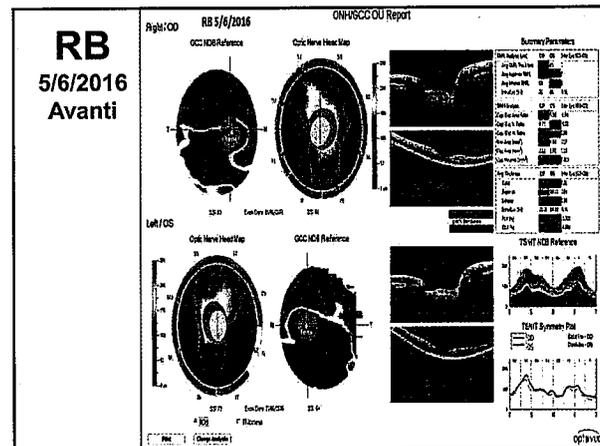
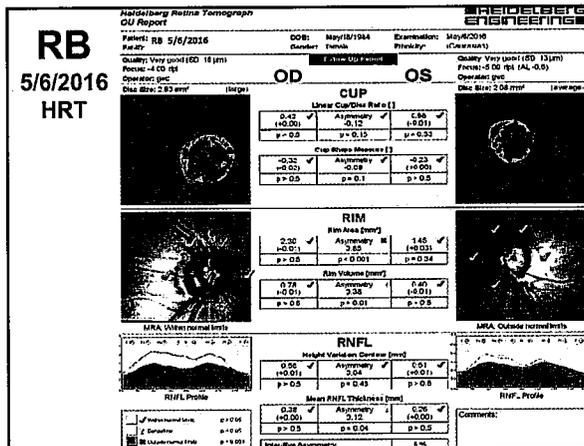
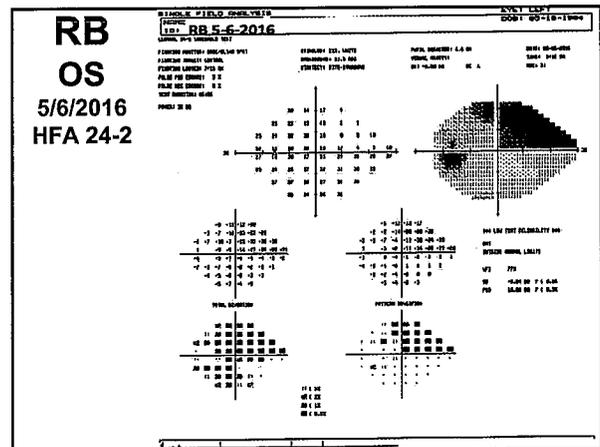
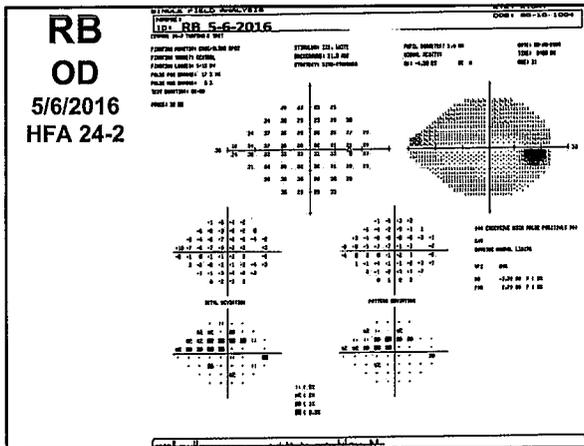
BP/pulse: 112/80 RAS, 62 regular

No apparent change in ONH

HFA 24-2: see printouts

HRT: see printouts

Avanti OCT: see printouts



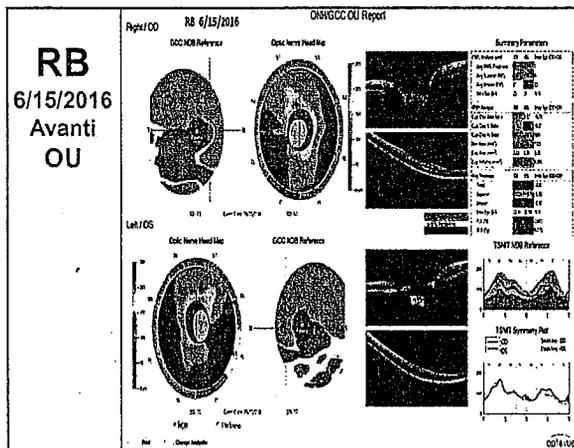
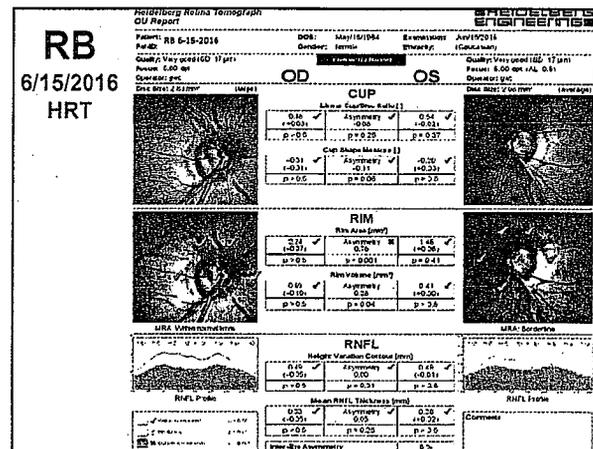
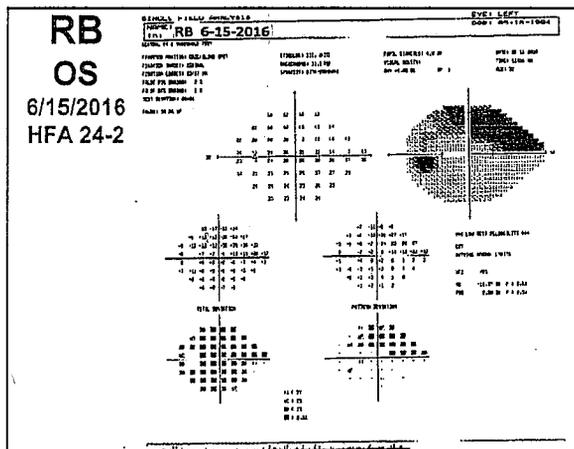
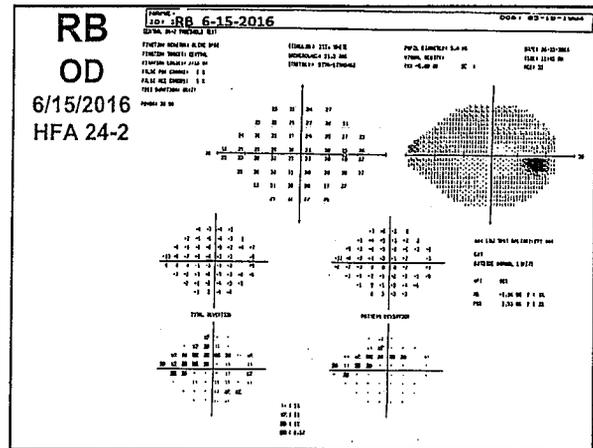
**RB 5/6/2016**

**Assessment:**  
 Lumigan IOP lowering is minimal (but it may be blunting suspected IOP spikes)  
 Clinically ONHs appear to be stable.  
 MUST rule out rapid current progression  
 But to check for progression we need:  
 -Another scan (3 total) to use Avanti Change analysis  
 -Two more scans (3 total) to use HRT TCA progression analysis  
 -1 more 24-2 for HFA GPA progression analysis.

**RB 5/6/2016**

**Management:**  
 Continue Lumigan OU  
 Add dorzolamide q12h OS – first drop upon awakening in am, 2<sup>nd</sup> drop about 12 hours later  
 RTC in 1 month to assess IOP control with dorzolamide and evaluate for progression - VFs, imaging (HRT, OCT)

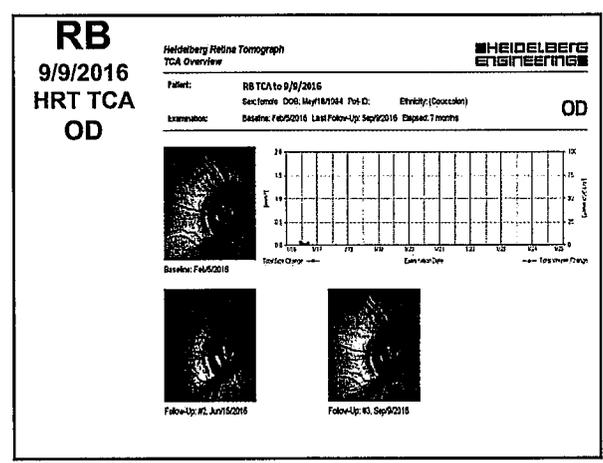
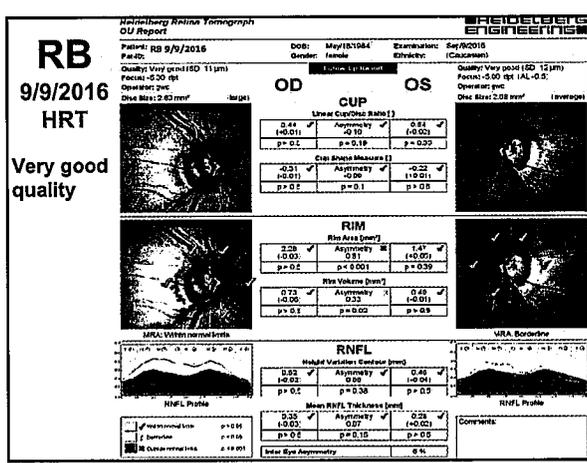
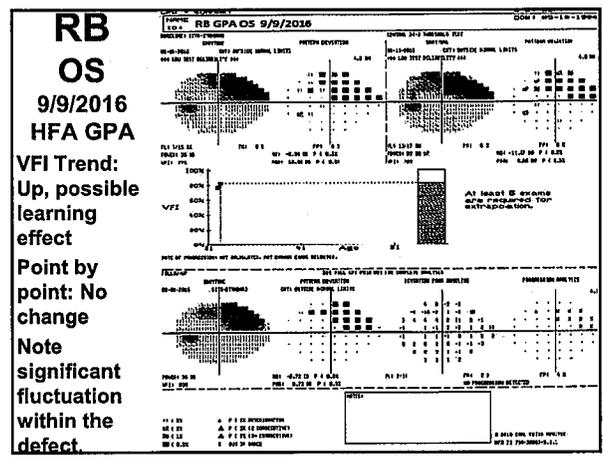
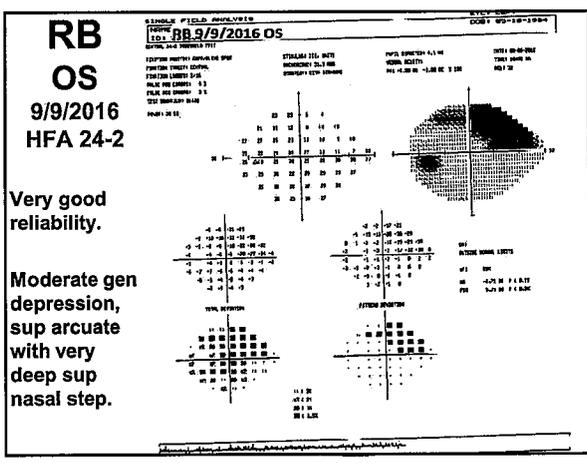
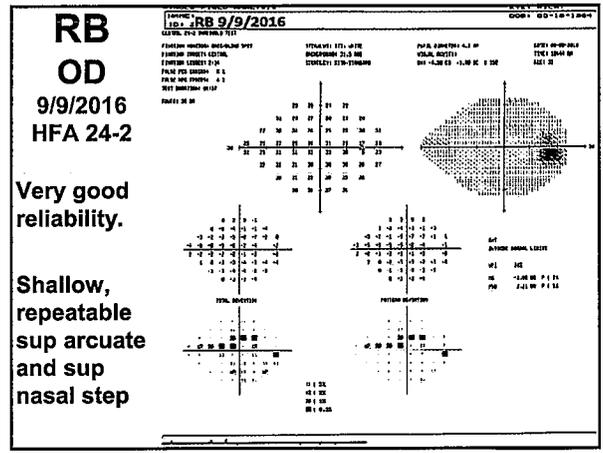
**RB 6/15/2016**  
 Only missed 1 drop. Slight stinging on instillation of dorzolamide.  
 No change in med hx.  
 NCT: 17, 17,19/ 17,13, 14 10:30 am  
 GAT: 18/14 12:10 am (not dilated)  
 CCT (Pachmate): OD: 519 (6.4) OS: 514 (7.6)  
 BP/pulse: 128/68 RAS  
 ONH/RNFL: No apparent change  
 HFA 24-2: see printouts  
 HRT: See printouts  
 Avanti: See printouts

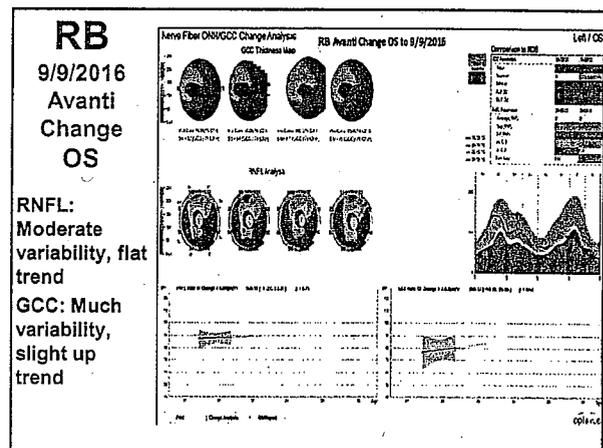
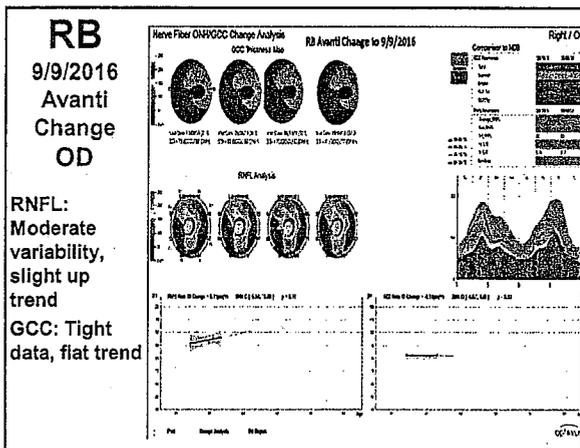
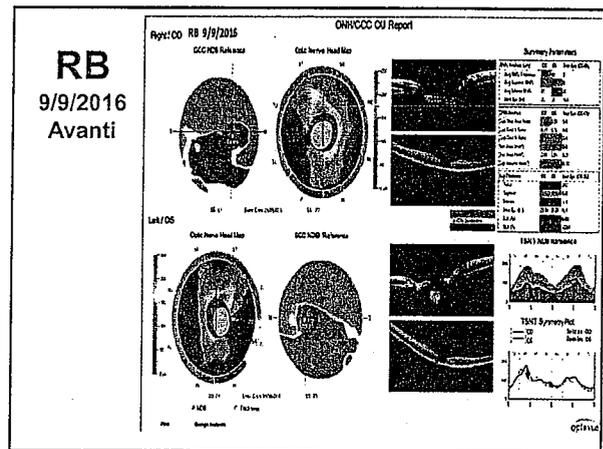
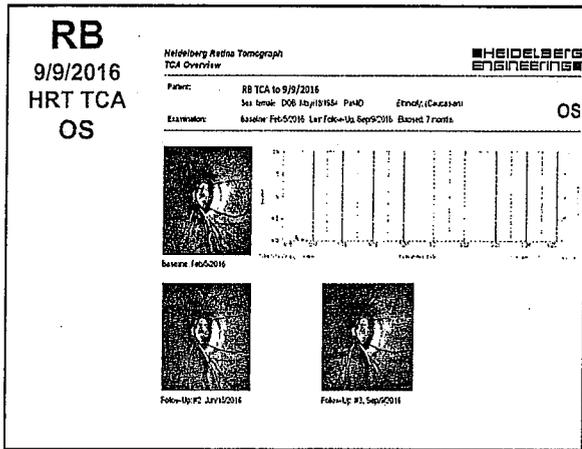


**RB 6/15/2016**  
**Assessment:**  
 Lumigan + Dorzolamide OS IOP lowering is better  
 Discussed lifestyle changes that may affect IOP; advised aerobic activity at least 4 to 5 times/week  
 Clinically ONHs appear to be stable.  
 But need to get imaging and VFs at next exam  
**Management:**  
 Continue Lumigan qhs + dorzolamide q12h OU  
 F/U in 3 months, re-evaluate HFA, OCT, HRT

**RB 9/9/2016**

Missed no drops.  
 No change in med hx.  
 NCT: 19, 16,16/ 16,15, 16 10:30 am  
 GAT: 18/14 11:25 am  
 Pascal DCT: 18.1/17.4 12:05 not dilated  
 BP/pulse: 118/63 RAS  
 ONH/RNFL eval: no change  
 HFA 24-2: See printout  
 HRT: See printout  
 Avanti: See printout

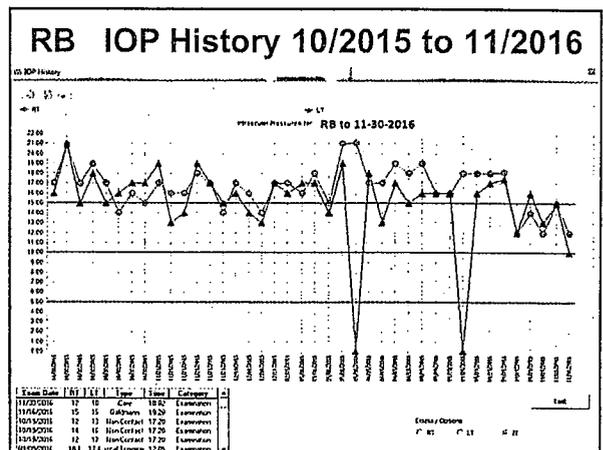




**RB 9/9/2016**

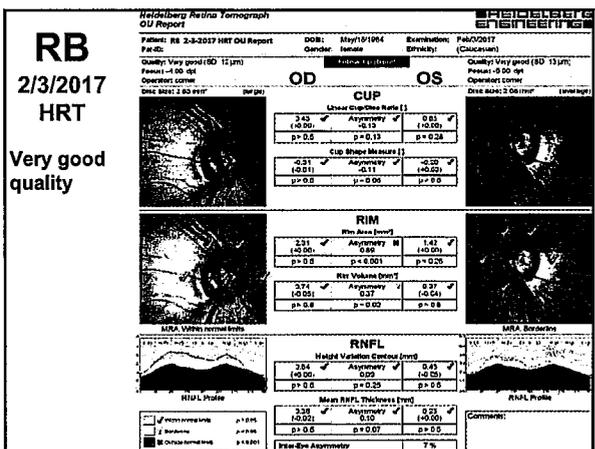
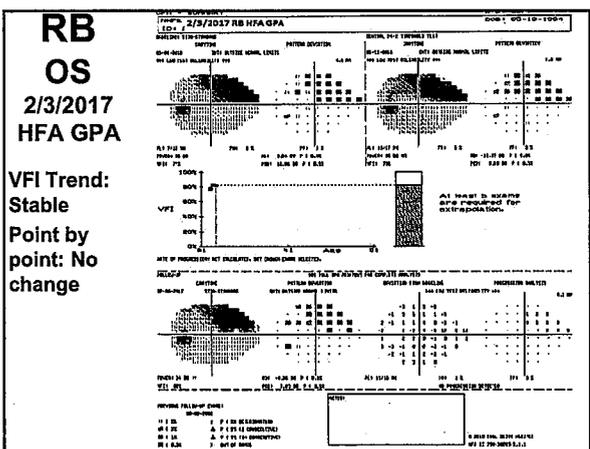
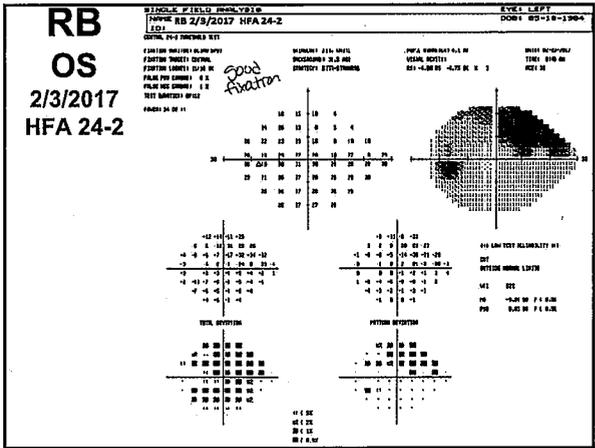
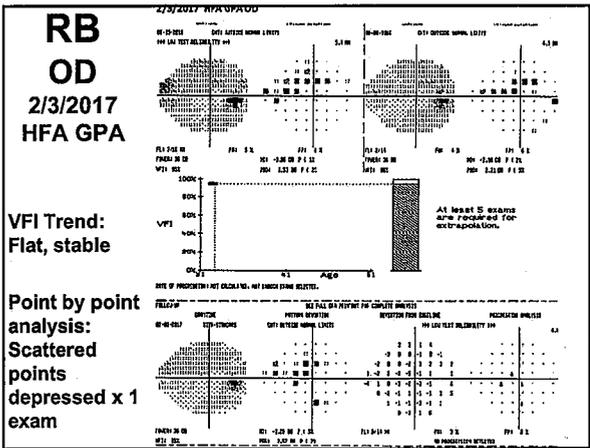
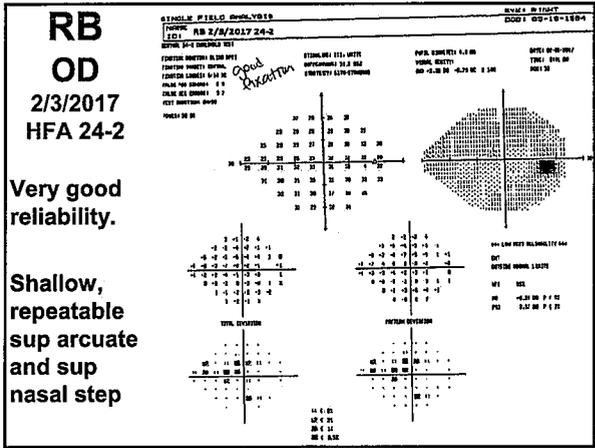
**Assessment:**  
Lumigan + Dorzolamide IOP OU lowering is good  
Clinically ONHs appear to be stable.  
Imaging suggests stability but need another set of scans, VFs

**Management:**  
Continue Lumigan qhs + dorzolamide q12h  
F/U in 3 months, re-evaluate HFA, OCT, HRT



**RB 2/3/2017**

Missed no drops.  
 No change in med hx.  
 NCT: 14, 18, 16/ 14, 16, 16 8:15 am  
 GAT: 15/16 8:55 am not dilated  
 BP/pulse: 122/68 RAS  
 ONH/RNFL eval: no change  
 HFA 24-2: See printout  
 HRT: See printout  
 Avanti: See printout







CURRICULUM VITAE

**GEORGE WILLIAM COMER, O.D., MBA**

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**PERSONAL DATA**

Born: Maysville, Kentucky  
Date of Birth: August 9, 1955  
Marital Status: Married, two children

**EDUCATION**

Maysville Community College, Maysville, Kentucky  
August 1973 to May 1975  
Associate in Science, May 1975

University of Kentucky, Lexington, Kentucky  
August 1975 to May 1977  
Major: Microbiology

**PROFESSIONAL & POSTGRADUATE EDUCATION**

University of Houston College of Optometry, Houston, Texas  
August 1977 to May 1981  
Bachelor of Science in Optometry - (Magna cum Laude), December 1980  
Doctor of Optometry (OD) - (Summa cum Laude), May, 1981

University of California at Irvine, Graduate School of Management  
November, 1997 to December, 1999  
Master of Business Administration (MBA) in Health Care Administration

**POSTGRADUATE CLINICAL TRAINING**

Veterans Administration Medical Center/University of Kentucky College of Medicine, Department  
of Ophthalmology  
Lexington, Kentucky  
July 1, 1981 to June 30, 1982  
Hospital-based optometry residency

**PROFESSIONAL LICENSURE AND CERTIFICATION**

American Board of Optometry Diplomate issued 9/2013  
US Drug Enforcement Administration (DEA) certification for schedule III controlled substances issued  
March 19, 2001 for use under California optometric law.  
Kentucky 959D issued August 27, 1981  
959DT (therapeutic certification) issued January 1988  
Oral TPA, emergency injectable and controlled substance Schedules II, III & IV  
medications certification, issued July 1, 1996  
Enhanced Therapeutic Procedures certification (injections, minor surgical  
procedures) issued August 5, 2013  
Virginia 0601-000997 issued August 12, 1981  
TPA certificate #0118 000616 issued February 19, 1997

California 7772 (topical diagnostic agent permit #3068), issued September 12, 1983.  
 TPA certification issued January 1997  
 Glaucoma certification: May, 2008.

NBEO Part I May 1979  
 NBEO Part II May 1980  
 NBEO Part IIb April 1981  
 IAB Disease Management Examination, April 1986.  
 NBEO TMOD (Treatment and Management of Ocular Disease) Exam, August, 1996  
 Fellowship American Academy of Optometry, December, 1985

### **CURRENT ACADEMIC/ADMINISTRATIVE APPOINTMENTS**

Associate Professor, Southern California College of Optometry  
 August 1990 to present

### **PREVIOUS ACADEMIC/ADMINISTRATIVE APPOINTMENTS**

Chief of Primary Eye Care Service  
 August, 1992 to July, 2012

Chief of Staff, Optometric Center of Fullerton  
 August 1990 to July 2000

Director, Clinical Education  
 August 1990 to August 1992

Assistant professor, Southern California College of Optometry  
 June 1984 to July 1990

Chief, Ocular Disease and Special Testing Service  
 Optometric Center of Fullerton  
 Southern California College of Optometry  
 July 1983 to September 1990

Chief, Primary Care Optometry Service  
 Optometric Center of Fullerton  
 Southern California College of Optometry  
 June 1984 to July 1985

Clinical Instructor in Primary Care Service and Ocular Disease Service  
 Southern California College of Optometry  
 July 1982 to June 1984

### **CURRENT & PREVIOUS PROFESSIONAL CLINICAL EXPERIENCE/DUTIES**

Comprehensive vision/eye health examinations  
 Ocular disease evaluation, diagnosis and management  
 Color vision evaluation  
 Aniseikonia evaluation and management  
 Visual electrophysiology  
 Diagnostic evaluation and management of neurologically impaired

### **CURRENT LECTURE/LAB COURSES**

Lecturer, Course Coordinator and Lab instructor, Ocular Health Procedures I, Course 660. 1983 to present (previously course 626A, 626, 455, 6261) (Lecturer on the following topics: The Comprehensive Eye Exam, Coding and 3rd Party Payers, Pupil Evaluation, Clinical Utilization of Diagnostic Pharmaceutical Agents and Pupil Dilation, Tonometry and Intraocular Pressure Evaluation, Indirect Ophthalmoscopy, Clinical Visual Field Screening and Topical Diagnosis of Visual Field Defects)

Lecturer, and Course Coordinator, Ocular Disease Diagnosis and Management II, Course 762 (previously 712, 722, 7161) from 1983 to present.

(Lecturer in Diagnosis and Management of the Glaucomas and Optic Nerve Disorders)

Lecturer, Ocular Health Procedures II, Course 663 (previously 716A, 722A, 517, 7162), 1987 to present

(Lecturer in Visual Fields: Automated Static Threshold Perimetry: Technique and Interpretation, New Technologies in Visual Assessment, Goldmann Perimetry)

Lecturer and lab instructor, Ocular Health Procedures III, Course 764 (previously 736A, 736, 7361) 1999 to present

(Lecturer on advances in ocular imaging technology, perimetry advances, minor surgical anterior segment procedures)

Lecturer, Clinical Methods II, Course 561  
2002 to 2016

(Lecturer on tonometry techniques such as NCT and basic IOP interpretation in a primary eye care exam; previously lectured on color vision screening in the Primary Care Service using the revised HRR plate test)

Seminar/discussion leader, Ocular Disease Case Management, Course 765 (previously 7360) from 2000 to present

(Facilitate group discussions on a wide range of ocular diseases and disorders with emphasis on practical aspects of diagnosis and management)

Lecturer, Practice Management II, Course 780  
2012 to present

One 2-hour lecture on financial policies and 3<sup>rd</sup> party payers for patients at University Eye Center-Fullerton – review of common payers such as VSP, Eye Med, Medicare and special programs such as Latino Health Access, Altamed Diabetic Evaluations etc.

Lecturer (2015) and lab instructor (2015, 2016), Slit Lamp Exam and Foreign Body Removal for MBKU PA Program

1-1/2 hour lecture and 2 hour lab session with Melissa Contreras 7/30/2015 and Edeline Lu 7/7/2016

### **CURRENT CLINICAL COURSES**

2nd year clinical program:

Optometric Clinical Services III (Fall, 2nd year) – Primary Eye Care Service  
Optometric Clinical Services IV (Winter, 2<sup>nd</sup> year) – Primary Eye Care Service  
Optometric Clinical Services V (Spring, 2<sup>nd</sup> year) – Primary Eye Care Service

3rd year clinical program:

Optometric Clinical Services VI (Summer, 3rd year) – Primary Eye Care Service & Ocular Disease Service  
Optometric Clinical Services VII (Fall, 3rd year) – Primary Eye Care Service & Ocular Disease Service  
Optometric Clinical Services VIII (Winter, 3rd year) – Primary Eye Care Service & Ocular Disease Service  
Optometric Clinical Services IX (Spring, 3rd year) – Primary Eye Care Service & Ocular Disease Service

4th year clinical program

Optometric Clinical Services X (4th year clinical rotations at Eye Care Center) – Primary Eye Care Service & Ocular Disease Service

### **PREVIOUS COURSES TAUGHT**

Lecturer/discussion leader in Clinical Seminars, Course 8090 – Update and Review of Glaucoma Diagnosis and Medical/Laser/Surgical Glaucoma Management – Clinical Case Management (2 hours), yearly from 2000 to 2005

Lab instructor, Ocular Refraction, Spring 2001

Lecturer, Ocular Disease Diagnosis and Management, Course 632 (previously 712, 515)  
(Diagnosis and management of disorders of the Lids, the Crystalline Lens and the Vitreous)

Lecturer and Course Coordinator, Ocular Disease Diagnosis and Management, Course 519  
(Neuro-ophthalmic disorders, neurovascular disease, ocular effects of systemic disease)

Lecturer and Course Coordinator, Optometric Case Analysis & Prescribing II, Course 6360  
(Lecturer in Clinical Case Analysis & Decision-making and in Hyperopia Management) 2004

Lecturer in Ocular Disease, Senior Seminars, Course 610 (Glaucoma - case management)

Lecturer and Course Coordinator, Ocular Disease Senior Seminar Course 630, 1984, 1985, 1986,  
1987

Lecturer, Instructor of Record, Visual Fields Evaluation and Interpretation, Course 502, 1985, 1986

Laboratory Instructor, Lecturer, Instructor of Record, Ocular Disease Detection and Evaluation -  
Clinical Methods Laboratory, Course 492

Laboratory Instructor, Visual Fields Methods, Course 433L

Lecturer, Course Coordinator, Laboratory Instructor, Clinical Medicine, Course 402, Fall 1986, 1987,  
1988

#### **CURRENT ADMINISTRATIVE & COMMITTEE RESPONSIBILITIES**

Faculty Merit Committee  
July, 2014 to July, 2017

#### **PREVIOUS ADMINISTRATIVE & COMMITTEE RESPONSIBILITIES**

Faculty Merit Committee  
Member July, 2007 to July, 2013  
Vice-chair, July, 2011 to July, 2012  
Chair, July, 2012 to July, 2014 – reviewed and substantially updated the fundamental listing of  
meritorious acts used to guide Merit applicants and used in the process of applicant reviews by the  
Merit Committee

Chief, Primary Eye Care Service, Optometric Center of Fullerton/Eye Care Center, July 1992 to July,  
2012

Clinic Council, July, 1983 to July, 2012  
Chair July, 1990 to June. 1998

Faculty Research Committee, 2010-11

Diabetic Retinopathy (EyePacs) Task Force - analyze the feasibility of SCCO managing a state-wide  
diabetic screening by telemedicine program through community health centers. January, 2010 to  
August, 2010

Emeritus Committee – 2008–09

Faculty Ethics Committee – 2008 – 09

Community Clinics Committee – 2008-09

Faculty Information Systems Committee  
July 2003 to 2005

Chair, July 2004 to July 2006

Sabbatical Committee  
July 2005 to July, 2006

Faculty Research Committee  
July 2003 to July, 2005.

ECC Clinic Transition Committee (plan all aspects of the move out of ECC in 7/2003 into temporary a clinic facility and back into ECC in 7/2004) 1/2003- 8/2004

Chair, Safety Committee  
July 2003 to June, 2004

HIPPA Compliance Committee, 2002

Faculty Tenure Committee  
July 1999 to June 2002

Faculty Recruitment Committee  
July 2001 to June 2002

Chair, Insurance "Best Clinical Practice" Committee  
July 2000 to March 2001

Chair, Sabbatical Committee, July 2000 to June 2002

Rx Capture Task Force  
September 2000 to January 2001

Chief of Staff, Optometric Center of Fullerton, July 1990 to June, 2000

SCCO Bookstore Task Force, August 2000 to November 2000.

Faculty Sabbatical Committee  
July 1999 to June, 2000

Member of Eye Care Clinic Task Force, June 1999 to February 2001  
Chair of Patient Care Subcommittee of Eye Care Task, June 1999 to October 1999

Academic Affairs Council, August 1989 to June 2000

Faculty Review Board/Graduation with Honors Committee, 1989 to 2001  
Chair, 1989 to 1998

Faculty Merit and Promotion Committee  
July 1996 to June 1998

Faculty Personnel and Benefits Committee  
Chair, July 1997 to June 1999  
July 1996 to June 1997

Ethics and Professional Standards Committee  
Chair, July 1997 to June 1998  
July 1998 to June 1999

Infection Control Policy Implementation Planning Committee (with Julie Schornack and David Sendrowski)  
June to July 1999

SCCO Refractive Laser Policy Task Force September 1997 to December 1997

Coordinator, TPA Implementation Task Force, Optometric Center of Fullerton, June 1996 to December 1996

Faculty Tenure Committee, July 1995 to July 1996

Academic Standing and Policy Committee, July 1987 to July 1996  
Chair, July 1992 to July 1994

Co-chair, Patient Care Task Force, 1994 to 1995

Curriculum Committee 1988 to July 1992

Merit and Promotion Working Group, 1989 to 1990

Clinical Performance Evaluation Task Force, 1987-1988

Chief, Ocular Disease Service, Optometric Center of Fullerton, 1983-1990

Continuing Education Committee 1982-1985  
Chairman, 1983-1985

Therapeutics Subcommittee of Continuing Education Committee, 1985

Residency Committee, 1983 - 1985

Emergency and Patient Care Standards Committee, 1984 - 1985

Curriculum Committee, 1985 - 1987  
Biomedical Tract Subcommittee of Curriculum, Coordinator, 1986 - 1987

Merit and Promotion Committee, 1987 - 1989

Academic Standing Committee, 1987 - 1996

Faculty Retreat Steering Committee, 1987

#### **OTHER PROFESSIONAL ACTIVITIES: CONSULTANT, EXPERT etc**

Advisory Board Member to Heidelberg Engineering regarding Spectralis glaucoma imaging, meeting on November 12, 2014

Consultant to Gentex Corporation on visual field evaluation in the design of flight masks for various Department of Defense projects July, 2007 to May, 2011.

Allergan Optometric Advisory Board on Lastacraft, Irvine, CA April, 2011.

Consultant to BE Engineering, Kansas City, Missouri on visual field evaluation in the design of flight masks for a Department of Defense project, September, 2007 to September, 2009.

Presentation to Heidelberg Engineering management and sales team on current strategies in glaucoma evaluation and management in optometry, 2 hours, January 26, 2006.

Consultant (on ophthalmic surgical procedures i.e. blepharoplasty, pterygium removal, trabeculectomy etc.) to Utilization Review Committee, Prospect Medical Group 2002 to 2005

Consultant to World Munsell on FDA 510K pre-market approval process and US market analysis for vision testing device and spectacle lens manufacturing process. December, 2001 to April, 2005.

Certified as Consultant to Accreditation Council on Optometric Education (ACOE) August 15, 2001  
Consultant or chair for several COE Accreditation Site Visits - see separate list of Site Visits on page 8 under Service Activities.

Consultant to California State Board of Optometry on optometry licensing exam development: item writing, review of items etc. May 1998 and May 1999.

Expert witness, consultant to LA County Asst. District Attorney regarding professional licensure enforcement actions of California State Board of Optometry, October 1996.

Consultant to Kowa Optimed Inc.

Evaluation of Kowa AP340 Automated Perimeter, Market Consultant, program design and evaluation 1985-1987.

Consultant to California Board of Optometry on professional activities (enforcement) including testimony before administrative law judges on enforcement issues, various cases 1988 to 1998.

Consultant to CooperVision - Surgical/Systems Division. Premarket clinical evaluation of absorbable sutures for wound closure in cataract extraction, 1987.

Consultant in visual evaluation of the neurologically impaired, Western Neuro Care Center Tustin Rehab Hospital, Tustin California. September 1986 to 1996

Consultant item writer National Board of Examiners in Optometry: Ocular Disease Section 1985.

Consultant item writer. IAB Disease Management Examination 1986, 1987.

Consultant to West Los Angeles VA Medical Center Hospital-Based Optometry Residency Program.

Manuscript Referee: Primary Care Optometry and Ocular Disease, *Journal, American Optometric Association* 1984, 1986, 1988, 1989, 1990, 1991, 1996, 1997, 1998, 1999.

Consultant to Coopervision in validation studies of MacKay-Marg style tonometer, 1984.

### **SERVICE ACTIVITIES: PROFESSIONAL, COLLEGE & COMMUNITY**

Student applicant admissions interviewer, interviews performed: 1999: 15 interviews, 2000: 15 interviews, 2001: 16 interviews, 2002: 16 interviews, 2003: 16 interviews, 2004: 21 interviews, 2005-06: 10 interviews, 2006-07: 14 interviews, 2007-08: 14 interviews, 2008-09: 19 interviews, 2009-10: 3 interviews, 2010-11: 34 interviews, 2011-12: 21 interviews, 2012-13: 26 interviews, 2013-14: 18 interviews, 2014-15: 8 interviews to date.

Proctor for many proficiency exams in pre-clinic courses such as Clinical Methods 1 (refractive methods), Clinical Methods II (binocular vision assessment), Clinical Medicine, Ocular Health Procedures I, Ocular Health Procedures II.

Serve as the primary (first doctor called) ECC after-hours urgent on-call doctor virtually continuously (when not out of the local area) since the initiation of this service to our patients in 1989 to 7/ 2013. Multiple urgent to emergent conditions managed ranging (not urgent but very significant to the patient) such as contact lens(es) stuck in eye(s) and posterior vitreous detachments to macula-threatening retinal detachments and central retinal artery occlusion.

Proctor for yearly Fall Quarter 3<sup>rd</sup> Year Clinical proficiency in ECC – in Primary Care and Ocular Disease Services each year since 1984 and in Optical in 2002 and 2003.

Telehealth Committee to determine technology needed to set up diabetic telehealth system and the protocol with a medical group in Pasadena, CA, Huntington Medical Group. Reader of retinal images along with Pat Yoshinaga 12/2015 to 5/2016.

Volunteer faculty optometrist for 1 day (supervised student refractive exams, did eye health evals, consulted with patients etc.) for vision exams provided underserved populations in and around Los Angeles as a part of Remote Area Medical (RAM) 5/1/2010, later called Care Now – 10/22/2011, later called Care Harbor - 9/29/2012, 9/13/2014, 10/17/2015.

Presentation to AltaMed Medical Directors on diabetic eye care that can be provided at the University Eye Center - Fullerton to AltaMed patients, January 20, 2015, to AltaMed primary care physicians on April 21, 2015 in Santa Ana and to AltaMed primary care physicians on June 4, 2015 in Anaheim.

Small group discussion recorder and presenter to the whole group in the discussion of the how to enhance the utilization of clinical services at UEC-Fullerton at the Ketchum College Retreat, February 28, 2014.

Present to local Vision Source ODs on services that ECC Ocular Disease and Special Testing Service can provide to help with their patients on March 18, 2014 in Fullerton, CA.

Coordinate and supervise vision screenings provided by SCCO/ECC at the Brea Wellness Fair at the Brea Community Center, on 9/17/2005, 9/30/2006, 9/26/2009, 4/3/2010, 9/25/2010, 4/2/2011, 9/24/2011, 4/21/2012, 1/19/2013, 9/27/2014.

Faculty supervision of student refractive exams at various Illumination Foundation sponsored events to the serve the homeless population of Orange County including: Santa Ana Armory February 26, 2011, Coastline Community College on May 14, 2011, Fullerton Armory on February 4, 2012, Coastline Community College on March 24, 2012, Santa Armory on January 18, 2014, Fullerton Armory on February 1, 2014 and on February 21, 2015.

Faculty supervisor of the ocular health evaluation portion of eye exams provided to underserved populations in west Fullerton at the Rotary Cares event on: June 16, 2012, June 15, 2013, June 7, 2014, June 20, 2015.

Judge for SCCO Annual Student Research Symposium, May 22, 2013

Optometric Glaucoma Advisory Board – Sucampo Pharmaceuticals regarding prior clinical experience with Rescula, positioning within the glaucoma medication marketplace and strategies for the reintroduction of Rescula to US Market, Dallas, TX, November 16-17, 2012.

SCCO Curriculum on Clinical ONH & RNFL Evaluation presentation at the Glaucoma Educators Meeting, Dallas, Texas July 20, 2012.

Glaucoma Speaker Meeting – Alcon Pharmaceuticals, Boston, MA, November 4, 2011.

Lead faculty in the SCCO Glaucoma Case Management course and Glaucoma Grand Rounds programs, April 2011 to present. Duties, currently shared with Mark Sawamura, include: plan the format of the Rounds program, coordinate faculty presenters in the programs, coordinate the cases and write-ups for the Rounds programs, compile the write-ups for each Rounds program, attend local Board of Optometry meetings to report on SCCO glaucoma courses.

Coordinate/supervise the vision and eye health screening at the SCCO Designer Sunglass Show, May 3, 2008, May 2, 2009, May 8, 2010, May 7, 2011, May 5, 2012, April 20, 2013, April 26, 2014.

Glaucoma Curriculum Committee (reps from SCCO, WUCO, UCB) and California Board of Optometry – to plan the curriculum for the Glaucoma Case Management Course and Glaucoma Grand Rounds course in implementation of CCR Section 1571 (glaucoma certification for California ODs). January, 2011 to June, 2011

ACOE Residency Site Visit Team for the following site visits:

- Columbus/Chillicothe VA Residency Program, December 1, 2004
- James H. Quillen VAMC Optometry Residency program, Mountain Home, Tennessee, April 5, 2006
- Eye Health Partners Optometry Residency program, Nashville, Tennessee November, 2006
- Reno VA Medical Center Optometry Residency program, Reno, Nevada, May 15, 2007
- Malcolm Randall VAMC, Gainesville, Florida, Optometry residency program, August 28, 2008
- Chair, ACOE Site Visit Team – Robert J Dole VAMC, Wichita, Kansas Optometry residency program, May 14, 2009.



- Chair, ACOE Site Visit Team - Louis Stokes Cleveland VAMC, Cleveland, Ohio, Optometry residency program, December 7, 2010

Judge for SCCO Annual Student Research Symposium, May 16, 2010

Lecture/Workshop (Ellerbrock) Committee, American Academy of Optometry, January, 2010 - December, 2012

Eye Health Issues – Cataracts, Glaucoma and Macular Degeneration community presentation at Brea Community Center, January 28, 2010

Presented on glaucoma and optic nerve disease in the SCCO Applied Basic Science course in preparation of our students for Part I, NBEO, January 12, 2010

Diplomate Chair, American Academy of Optometry - Disease Section Diplomate Programs (diplomate programs in Cornea and External Disease, Neuro-ophthalmic Disease, Glaucoma and Vitreo-retinal Disease) December, 2002 to December, 2008.

Unique educational techniques in glaucoma education at SCCO – presentation at Glaucoma Educators Meeting sponsored by Alcon and Optometric Glaucoma Society September 18, 2008.

TLC/Ambulatory Surgery Center Ad Hoc Committee – to evaluate the best use of the space occupied by TLC at that time – April, 2008 to October, 2008.

Moderator, Paper Session – Posterior Segment (with Mark Sawamura) 2008 Annual Meeting of American Academy of Optometry, October 23, 2008.

Equipment interface subcommittee of the EMR Committee (to look at what instruments will need to be interfaced to EMR) September, 2008 to March, 2009

Staff education presentation for ECC Front Desk staff on Primary Care Service, January 23, 2008.

Professional Conduct/Ethics Task Force, 2007

Moderator, Disease (Glaucoma, Disease) Paper Session (with Chuck Kinnard) 2006 Annual Meeting of American Academy of Optometry, December 8, 2006.

Faculty Investigation Committee, December, 2006.

Conducted tours of ECC for local ODs in Alcon/ ECC joint continuing education program at ECC November 9, 2004.

Common Eye Disorders in Adults, 30 minutes – presentation to Public Health Nurses in Orange County at SCCO, November 10, 2004

Presentation to SCCO Faculty: Update on Glaucoma Diagnosis & Management – Hot Issues (1 hour) October 29, 2004.

Presentation to Eye Care Clinic (ECC) faculty at ECC Fall Quarter meeting, ECC Imaging Update (OCT, OPTOS, GDx, HRT) (1/2 hour) at SCCO September 7, 2004.

Conduct tours and question/answer of newly remodeled Eye Care Center for attendees from the CLE group at Ruby Gerontology Center, July 30, 2004.

Conduct tours and question/answer session on newly remodeled Eye Care Center for attendees from Fullerton Business Council conduct June 22, 2004.

Represent SCCO and ECC at the Fullerton Business Expo, Fullerton CA, June 4, 2004.

Roundtable discussion leader on branding Eye Care Clinic with Clinic Council and Reiches-Baird, April 4, 2005

Presentation to Alcon Laboratories reps on Glaucoma Education at SCCO. April 1, 2004.

Member of Bylaws Committee for Optometric Glaucoma Society December, 2002 to December, 2004.

Moderator, Disease (Glaucoma , Perimetry) Paper Session (with Freddie Chang) 2003 Annual Meeting of American Academy of Optometry, December 6, 2003.

ARMD – What's New? Presented for St. Judes Hospital Lunch 'n Learn Program November 20, 2003.

ARMD and Advances in Laser Treatment. Presented as the keynote speaker for the monthly meeting of the OC Hospital Volunteers Santa Ana, CA October 20, 2003.

Eye Disorders as We Age. Presented to Morningside/ Park Vista Senior Community residents. Fullerton, CA, October 15, 2003.

Ocular Effects of Diabetes. Presented at the American Diabetes Association Diabetic Health Fair & Educational Seminar Santa Ana, CA October 4, 2003.

Eye Disorders as We Age. Presented at Brea Community Center . Brea , CA October 15, 2003.

Recent Advances in Old Eye Diseases. Presented to Brea Senior Center, Brea, CA September 25, 2003.

Interview team for Director of External Programs position at SCCO, September, 2003.

Eye Disorders as We Age; What's New at SCCO/ ECC. Presented to First Christian Church of Fullerton , Fullerton, CA September 16, 2003.

ARMD – What's New? Presented at Prestige Assisted Living Center, Yorba Linda, CA September 10, 2003.

What's New in Vision & Answers to Your Vision Questions. Presented at Beckman, Brea, CA August 22, 2003.

ARMD –What's New? Presented to Summerville Senior Citizens Home. July 15, 2003.

Recent Advances in Management of Glaucoma & ARMD Presented to CLE Group at the Ruby Gerontology Center at Cal State University, Fullerton, June 17, 2003.

New Laser Techniques in Eye Care Presented at Nohl Ranch Inn to senior group Anaheim, CA May 28, 2003.

Glaucoma Update. Presented in conjunction with Anaheim Memorial Hospital at Brookhurst Community Center , May 5, 2003.

Wet ARMD and Visudyne Presented at Brookhurst Community Center sponsored by Anaheim Memorial Hospital April 21, 2003.

Clinical Clues to Glaucoma and ARMD for Primary Care Providers Presented to Orange County Public Health Nurses at SCCO April 1, 2003.

Glaucoma and New Laser Treatment: SLT. Presented at St. Judes Medical Center Lunch 'n Learn program. February 6, 2003.

Macular Degeneration. Presented at Emerald Court Senior Residence, December 18, 2002.

Moderator, Disease/ Primary Care Paper Session (with Nick Colatrella) 2002 Annual Meeting of American Academy of Optometry, December 12, 2002.

Glaucoma and New Laser Treatment: SLT. Presented at St. Judes Medical Center Lunch 'n Learn program, October 17, 2002.

Glaucoma: New Treatments. Presented for Anaheim Memorial Hospital at SCCO, September 27, 2002.

Wet Macular Degeneration and Visudyne Treatment. Sponsored by Novartis Pharmaceuticals at Stanton Community Center, Stanton, CA. September 23, 2002.

Macular Degeneration: New Treatments. Presented for Anaheim Memorial Hospital at SCCO, September 6, 2002.

Ultraviolet Radiation – What is it and How to Protect Your Eyes? Presented at Morningside/Park Vista Senior and Assisted Living Residence, Fullerton, CA. August 21, 2002.

Reviewer of Scientific Abstracts submitted for presentation in the Scientific Program of the 2003 Annual Meeting of American Academy of Optometry, August, 2002.

Ultraviolet Radiation – What is it and How to Protect Your Eyes? Presented at Anaheim Community Center for Anaheim Memorial Hospital. June 28, 2002.

Vision Disorders as We Age. Presented to the residents of Emerald Court Senior Residence, Anaheim, CA. June 27, 2002.

Vision Disorders as We Age. Presented to the residents of Nohl Ranch Senior Residence, Anaheim Hills, CA. June 26, 2002.

Glaucoma. Presented at the Anaheim Community Center, Anaheim, CA, June 7, 2002.

Glaucoma. Presented to Ezra Center, Anaheim, CA, May 20, 2002.

Glaucoma. Presented to residents of Morningside/Park Vista Senior Residence, Fullerton, CA. May 9, 2002.

Eye Care Issues as We Age. Presented to residents of Morningside/Park Vista Senior Residence, Fullerton, CA. May 9, 2002.

Chair, Investigative Committee for Ethics and Professional Standards hearings, Feb. – May, 2002.

Presentation to Eastside Christian Church & School employees on vision care at SCCO March 26, 2002.

Presentation to Placentia Lions Club, Glaucoma Screening and Diagnosis, Placentia, CA. January 23, 2002.

Glaucoma. Presented to the residents of Morningside/Park Vista Senior Residence, Fullerton, CA. January 24, 2002.

Blue Sky Retreat, Group 5 facilitator and recorder (Needs of the Ambulatory Surgery Center/Laser Center/Referral Center) January 5, 2002

Program Chair, Disease Section, American Academy of Optometry, December 2001.

Chair, Ad Hoc Committee on Faculty Emeritus Nominations, December 2001.

Moderator, Ocular Disease/Visual Biology Papers (with Brad Fortune) 2001 American Academy of Optometry, December 8, 2001.

Reviewer of Scientific Abstracts in disease submitted for presentation in the Scientific Program of the 2001 Annual Meeting of American Academy of Optometry, August - September, 2001.

Glaucoma & Age-Related Macular Degeneration – What Your Patients Should Know presented to Orange County Public Health Nurses at SCCO, August 7, 2001.

Represent SCCO and ECC at the Fullerton Business Expo at Cal State University of Fullerton, June 15, 2001.

What's New in Macular Degeneration? Presented at St. Jude's Medical Center, February 2001.

Chair, Disease Section, American Academy of Optometry, December 2000 to December 2002

Moderator, The Basis of Future Glaucoma Therapy: Apoptosis and Neuroprotection, AAO/ARVO Joint Symposium, Disease Section/Vision Science Section Symposium at American Academy of Optometry 2000 Annual Meeting, December 11, 2000.

Program Chair, Disease Section, American Academy of Optometry 2000 Annual Meeting, December 2000.

Moderator, Ocular Disease Papers (with Nick Colatrella) 2000 American Academy of Optometry, December 11, 2000.

Vision and eye health care for adults; the Primary Eye Care Service. Presented to Orange County Head Start Nurses and Family Advocates at Eye Care Clinic, SCCO December 1, 2000.

Nutrition and Age-related Macular Degeneration. Presented to residents at Morningside senior community, November 15, 2000.

LASIK and Refractive Surgery. Presented to ESROC at SCCO on September 12, 2000.

Laser Procedures for the Aging Eye. Presented to the seniors group at the Ezra Center, Anaheim, CA on August 6, 2000.

Age-related Macular Degeneration. Presented to the CLE group at Ruby Gerontology Center, Cal State University at Fullerton. July 25, 2000.

Fullerton Chamber of Commerce Business Expo at CSUF – represent OCF, staff booth, June 16, 2000

Program Chair, Disease Section, American Academy of Optometry 1999 Annual Meeting, December 1999.

Editorial Board for *Clinical Eye and Vision Care*, December 1999 to December, 2000.

Moderator, Ocular Disease Papers (with Dwayne Young, OD) 1999 American Academy of Optometry 1:00 to 4:00, December 11, 1999.

Diabetes – What the Patient Should Know About its Effect on Vision and Eye Health presented to health promoters at Latino Health Access, Santa Ana, CA, July 21, 1999.

Faculty doctor for vision screening at Oasis Senior Center in Newport Beach staged by SA Dept. of Community Health, June 12, 1999

Fullerton Chamber of Commerce Business Expo at CSUF – represent OCF, staff booth, June 3, 1999

Faculty doctor for vision screening at Brea Community Center staged by SA Dept of Community Health, April 17, 1999

Automated Threshold Perimetry and Interpretation 2 hours presented to SCCO Faculty in the SCCO Faculty Enhancement Program, January 18, 1999

Visual Field Screening and Interpretation 2 hours presented to SCCO Faculty in the Faculty Enhancement Program, January 11, 1999

First Vice-Chair of Disease Section, American Academy of Optometry, December 1998 to December 2000.

- SCCO Dispensary Task Force, October 1998 to January 1999
- Faculty doctor at SA Community Health Vision Screening at Fullerton Senior Center, July 11, 1998
- Building Coordinator for Eye Care Clinic on SCCO Emergency Response Team (ERT) 1998 to 2000  
ERT from 1998 to 2000.
- Fullerton Chamber of Commerce Business Expo at CSUF – represent SCCO (along with Dennis Hollow and Bill Heaton), June 16, 1998
- Faculty doctor for vision screening at Western University of Health Sciences, Pomona, January 18, 1998
- Ocular Disease/Visual Biology Papers - Moderator (with Pirette Dayhair-Barker), 1997 American Academy of Optometry, December 13, 1997.
- Department of Consumer Affairs, Investigator training, California Board of Optometry, Presentations on ophthalmic equipment, appropriate components of an optometric examination, and spectacle prescription release at SCCO, July 15, 1997.
- "Diabetes' Effect on Eye and Vision", presentation to health promoters at Latino Health Access, Santa Ana, California, July 18, 1997.
- Presentation on the opportunities in the optometric profession and panel discussion to pre-health undergraduate students at UCI Medical School, 11:30 to 2:00, April 26, 1997.
- Second Vice-chair of Disease Section, American Academy of Optometry, December 1996 to December 1998.
- "Your Eyes and Vision" presented to 1st grade class at Eastside School (Mrs. Lees), October 11, 1996.
- Site Coordinator for California State Board of Optometry Licensure Examination at SCCO, July 1996.
- Consultant to Diplomate Examination Construction Committee - Ocular Disease/Primary care Section, American Academy of Optometry, December 1996 to December 1998.
- Lead Examiner - Biomicroscopy/Goldmann Tonometry, 1995 California State Board of Optometry Exam, July 1995, Berkeley, California.
- Faculty doctor for Vision Screening by SA Dept. of Community Health Buena Park Silverado Days, 12:00 to 5:00, October 18, 1997
- Staff SCCO booth at Vision Expo, September 13, 1997
- "Operation Stand Down 1997" Veteran Stadium Long Beach City College, Long Beach Health Fair for Veterans by Veterans Administration, 12 - 5 pm, June 20, 1997 (faculty doctor for SA Community Health Dept.)
- Oasis Senior Center Health Fair, 8 - 11:30 am, April 19, 1997 (faculty doctor for SA Community Health Dept.)
- The Scope of Optometric Practice; Optometric Services at Optometric Center of Fullerton  
Presentation to CSUF Student Health Service Professional Staff (staff physicians, RNs etc.) with Dr. Richard Hopping, February 29, 1996.
- Diabetic Retinopathy - What the Patient Should Know and Do  
Presentation to nurses, health counselors and administrators at Latino Health Access, Santa Ana, California, May 15, 1996.
- COA CE Committee and 1997 Annual Congress CE Sub-committee, July 1996 to 1997.
- Oasis Senior Center, 8 am - 2 pm, April 29, 1995 (faculty doctor for SA Dept. of Community Health)

Presentation to California Nurses Association on ophthalmoscopy and systemic health findings, San Diego, California, November 18, 1994.

Glaucoma: Current Concepts in Diagnosis and Management  
Invited lecturer to Allergan Pharmaceutical optometric marketing group. Irvine, California, May 21, 1994.

Site Coordinator for California State Board of Optometry Licensure Examination at SCCO, July 1994

Consultant in test construction, item writer in ocular disease, primary care optometry and health assessment to California State Board of Optometry, 1987 to 1994.

Causes of Impaired Vision in the Young.  
Presented to the Annual Meeting of the Teachers of the Blind and Visually Handicapped, Costa Mesa, California, April 23, 1994.

Presentation before California Council of the Blind regarding proposed therapeutic legislation AB2020 November 6, 1993.

Presentation before the West Covina Chamber of Commerce re: COA TPA bill, June 1, 1993.

Presentation at 1993 Faculty Retreat, "OCF Absence Policy and Monitoring Student Attendance", February 15, 1993.

Site Coordinator for NBEO, Clinical Skills Examination, May 15-16, 1993.

Testimony before the California Assembly Health Committee regarding TPA bill, 1992. Background work, preparation of materials for COA and legislators, lobbying, meetings with numerous legislators, 1992, 1993.

Presentation to editorial staff of Orange County Register and to editorial staff of Contra Costa Times re: TPA bill (AB2020), 1993.

Association of Schools & Colleges of Optometry (ASCO), National Curriculum Conference Summit on Optometric Education, Denver. Ocular Biology/Disease Task Force, Sensory and Motor Pathways Subcommittee Chairman.

Sunglasses are More Than Shades: UV and Your Eyes  
Presented at Save Your Vision Week - SCCO Open House, March 8, 1992.

Coordinator, Optometric Center of Fullerton, Save Your Vision Week - SCCO Open House March, 1992; March 14, 1993, March 16, 1994.

Coordinator Back to School Open House, Optometric Center of Fullerton, September 27, 1992 and October 24, 1993.

Consultant in test construction in visual field evaluation and interpretation to Washington State Board of Optometry 1989.

Answers to Common Questions about Eyecare, McDonnell Douglas Co., Long Beach, California, August 30, 1988.

Optometric consultant to the office of Attorney General, Bureau of Medi-Cal Fraud and Patient Abuse, December 1988 to 1998.

COA Annual Congress CE Committee, 1985, 1986.

SCCO FTC Working Group (planning testimony for FTC hearing regarding proposed Eyeglass II), 1985.

COA Annual Congress CE Committee, 1985, 1986

Optometric expert witness and consultant to TASA (Technical Advisory Service to Attorneys), 1987 to 2004.

Educational Aspects of Therapeutic Legislation. Presented to San Diego Optometric Society, April 16, 1985.

Ocular Trauma and First Aid. Presented to the Athletic Trainers Department. California State University of Fullerton, March 1985.

### **AWARDS AND HONORS**

American Optometric Foundation/Corning Scholarship Award, November 1978.

Better Vision Merit Award, May 1981.

Phi Kappa Phi (National Academic Honor Society).

Beta Sigma Kappa (National Optometric Honor Society).

Fellowship, American Academy of Optometry, December 1985.

Teacher of the Year Award. Presented by Senior Class, May 1987.

Prentice Society, 1992.

Golden Tamale Award presented by Latino Health Access (for service to the Latino diabetic community), October 2000.

Founding member, Optometric Glaucoma Society, 2001

Walter Chase Faculty Teaching Award, 2008

### **PROFESSIONAL MEMBERSHIPS**

American Academy of Optometry, Fellow

California Chapter of American Academy of Optometry

American Optometric Association

California Optometric Association, Orange County Society

Kentucky Optometric Association

Southern Council of Optometry

American Public Health Association, Vision Care Section

American Optometric Foundation

### **PERSONAL AND PROFESSIONAL REFERENCES**

Furnished upon request.

### **SCIENTIFIC PRESENTATIONS**

Binocular Summation with Monovision Contact Lens Correction for Presbyopia, General Program, American Academy of Optometry, Orlando, Florida, December 1981.

Binocular Summation in Monovision Contact Lens Patients, National Research Symposium on Contact Lenses, Dallas, Texas, August 27, 1982.

Contrast Sensitivity Function as an Index of Binocularity in Monovision Contact Lens Wearers. Orange County Chapter of American Academy of Optometry, April 27, 1983.

Adult Onset Foveomacular Vitelliform Dystrophy of Gass, Ocular Disease Section Report, American Academy of Optometry, Houston, Texas, December 11, 1983.

Incorporation of Automated Visual Field Testing Into the Optometric Educational Curriculum, Vandervort R., Comer G., Section on Optometric Education, American Academy of Optometry, St. Louis, Missouri, December, 1984.

Sixth Nerve Palsy With Infrequent Diplopia From Idiopathic Intracranial Hypertension, Comer G., Vandervort R., Hendrick A. Poster Presentation, American Academy of Optometry, St. Louis, Missouri, December, 1984.

Optometric Nerve Hypoplasia and its Diagnostic Dilemmas. Comer G., Townsend J., Poster Presentation, American Academy of Optometry, Atlanta, Georgia 1985.

Relative Hypoplasia of the Optic Nerve. Townsend J., Comer G., Section on Disease, American Academy of Optometry, Atlanta, Georgia, 1985.

Migraine-Mimicking Occipital AV Malformation with Unilateral Papilledema. Comer G., Stephey D. Section on Disease, American Academy of Optometry, Toronto, Canada. December 13, 1986.

Photodocumentation of Corneal Farinata. Paugh J., Comer G. Poster presentation, American Academy of Optometry, Toronto, Canada. December 13, 1986.

Pigmented Mobile Vitreous Cyst. Levoy R., Townsend J., Comer G., Sendrowski D., Selvin G., Williams D. Video/Poster Presentation, American Academy of Optometry, Toronto, Canada. December 13, 1986.

Acute Pancreatitis Resulting in Significant Vision Loss. Comer, G., Stephey D. American Academy of Optometry, Toronto, Canada. December 16, 1986.

The Tilted Disc and its Diagnostic Dilemmas. Comer G., Stephey D., American Academy of Optometry, Toronto, Canada. December 16, 1986.

Familial Exudative Vitreoretinopathy: Differential Diagnosis of Dragged Discs. Stephey D., Comer G. Poster Presentation, American Academy of Optometry, Toronto, Canada. December 16, 1986.

Iridocorneoendothelial Syndrome: Diagnosis and Management. Stephey D., Comer G. Poster Presentation, American Academy of Optometry, Toronto, Canada, December 16, 1986.

The Cup to Disc Ratio Assessment: Dilated versus Undilated Conditions. Reza C., Townsend J., Comer G. General Program, American Academy of Optometry, Toronto, Canada. December 13, 1986.

Clinical Evaluation of the Tono-Pen Tonometer. Comer G., Stephey D., Shirola S. General Program, American Academy of Optometry, Denver Colorado, December 5, 1987.

A Clinical Comparison of the Threshold-Related and Single Intensity Strategies on the Humphrey Field Analyzer. Sherlock L., Tassinari J., Comer G. General Program, American Academy of Optometry, Denver Colorado, December 5, 1987.

Differential Diagnosis of Arcuate Field Loss in Young Patients. Sendrowski D., Comer G., Stephey D. Poster Presentation, American Academy of Optometry, Denver, Colorado, December 8, 1987.

Resolution of Early Glaucomatous Visual Field Loss by Changing Hypertensive Medications. Chattel S., Townsend J., Gaines R., Mitchell M., Selvin G., Comer G. Poster Presentation, American Academy of Optometry, Denver, Colorado, December 8, 1987.

Neurovisual Dysfunction in the Head Injured. Southwest Conference on Head Injury. Lake Tahoe, January 12, 1988.

Optometric Services to the Neurologically Impaired. Houston Conference on Neuro Trauma. Houston, Texas, February 15, 16, 1988.

Optometric Visual Assessment and Management of the Neurologically Impaired Patient. Staff In-Service, Western Neuro Care Center, Tustin, California, November 5, 1988.

Differential Diagnosis of Amelanotic Melanoma. Sendrowski D., Comer G., Bezan D., Poster Presentation, American Academy of Optometry, Columbus, Ohio, December 12, 1988.

Spectrum of Visual Field Loss due to Drusen of the Optic Nervehead. Bezan D., Comer G., Sendrowski D., Poster Presentation, American Academy of Optometry, Columbus, Ohio, December 12, 1988.

Clinical Comparison of Direct Ophthalmoscopy to Retinal Photography in the Detection of Retinal Nerve Fiber Layer Loss.



Comer G., Sendrowski D., Bezan D., Pirotte M., Robinson M., Poster Presentation, American Academy of Optometry, Columbus, Ohio, December 12, 1988.

An Unusual Presentation of CMV Retinitis. Sendrowski, D., Nishimoto, J., Comer, G. Poster Presentation, American Academy of Optometry, New Orleans; December 11, 1989.

The Influence of Refractive Accuracy on Threshold Measurements with the Humphrey Field Analyzer. Comer G, Sendrowski D, Nishimoto J, Carlson G, Montierth T. Poster Presentation, American Academy of Optometry, New Orleans, December 9, 1989.

The Role of IOP in Glaucoma.

Invited Panel Presenter, Glaucoma Symposium, Ocular Disease Section. American Academy of Optometry, Nashville, December 8, 1990.

Tuberous Sclerosis on Bourneville's Disease: A Case Report.

Abel G, Sendrowski D, Comer G, Nishimoto J. Poster Presentation (Ocular Disease). American Academy of Optometry, Nashville; December 9, 1990.

Congenital Encephalomalacia of the Occipital Lobes.

Sendrowski D, Abel G, Comer G, Nishimoto J. Poster Presentation (Ocular Disease). American Academy of Optometry, Nashville; December 9, 1990.

A Clinical Validation Study of the Interzeag Octopus 1-2-3 Automated Perimeter.

Comer G, Sendrowski D, Miller K, Smith S. Primary Care/Public Health Paper Presentations, American Academy of Optometry, December 14, 1991.

The Effect of Tear Film Loss on Contrast Sensitivity.

Comer G, Chase W. Poster Presentation (Optics and Refraction), American Academy of Optometry, December 13, 1994.

A Clinical Comparison of the Dicon TKS 4000 Perimeter and Humphrey Visual Field Analyzer Using a Brief Screening Test.

Abel G, Sendrowski D, Comer G, Sanchez F. Poster Presentation (Primary Care & Ocular Disease), American Academy of Optometry, San Diego, December 12, 1994.

A Clinical Comparison of the XPERT NCT and the Goldmann Tonometer.

Comer G, Kelsey E, King D. Poster Presentation (Primary Care & Ocular Disease), American Academy of Optometry, San Diego, December 12, 1994.

Symposium: Clinical Challenges in Neuro-ocular Disease.

Invited panel member, Ocular Disease Section, American Academy of Optometry, New Orleans, December 11, 1995.

The Effect of Gonioscopy on Threshold Perimetry with Celluvisc in Normal Subjects.

Comer G, Nishimoto J, Huynh T, Vuong H. Poster Presentation (Primary Care Poster), American Academy of Optometry, Orlando, December 9, 1996.

Clinical Comparison of the Welch-Allyn/Humphrey Frequency Doubling Parimeter and the Humphrey Field Analyzer

Tri C, Waski A, Quinton S, Nickle C, Comer G. American Academy of Optometry, December 13, 1998.

The Effect of Utilizing Celluvisc with Gonioscopy on Performing Threshold Visual Fields

Atiz M, Wu M, Comer G, Nishimoto J, DeLand P. Poster Presentation (Primary Care Posters), American Academy of Optometry, December 13, 1998.

Frequency Doubling Perimetry and Spherical Blur

Jackson R, Denny M, Comer G. Poster Presentation (Primary Care Posters), American Academy of Optometry, December 13, 1998.

A Comparison of the Octopus Tendency Oriented Perimetry (TOP) Strategy and Normal Strategy  
Gore, A, McCleary D, Comer G. Poster Presentation (Primary Care Posters), American Academy of Optometry, December 13, 1998.

Clinical Evaluation of the Interzeag Octopus 1-2-3 Qualitative Screening Test  
Lutz S, Garrett J, Comer G. Poster Presentation (Primary Care Posters), American Academy of Optometry, December 13, 1999.

Clinical Comparison of the Efficacy of the Welch-Allyn/Humphrey Frequency Doubling Perimeter Screening Protocols and the Humphrey Field Analyzer in the identification of Glaucomatous and Normal Visual Fields  
Comer G, Tiet J, Vorasurun S. Poster Presentation (Disease Posters), American Academy of Optometry, December 13, 1999.

A Comparison of IOP-Reducing Effect of Latanoprost and Timolol in Ocular Hypertension and Primary Open-Angle Glaucoma  
Ma H, Hui S, Ping-Yu L, Comer G, Ma A. Paper Presentation Ocular Disease Paper Session, American Academy of Optometry, December 11, 1999.

A Repeatability and Reliability Comparison Between Threshold Visual Fields With and Without the Use of Celluvisc™ for Gonioscopy  
Nishimoto J, Comer G, De Land P. Paper Presentation Primary Care Paper Session, American Academy of Optometry, December 10, 2000.

Repeatability of the Global Indices of the Humphrey FastPac® Testing Algorithm  
Comer G, Nishimoto J, De Land P, Lai K, Sarac L. Paper Presentation in Primary Care Paper Session, American Academy of Optometry, December 10, 2000.

Clinical Comparison of the Nidek NT-2000 Non-contact Tonometer and the Goldmann Applanation Tonometer  
Comer G, De Land P, Hsu V, Mach-Hung J. Poster Presentation American Academy of Optometry, December 9, 2001.

Shortcomings of Current Visual Field Instruments  
Invited presenter at AAO/ARVO Symposium, Visual Field Defects in Glaucoma at American Academy of Optometry 2001 Annual Meeting, December 7, 2001.

The Ocular Easyfield Perimeter in Vision Field Screening: Specificity and Sensitivity to Glaucoma and other Causes of Field Loss  
Comer G, Sendrowski D, Felstedt T, Wills G. Paper Presentation in Disease and Primary Care. American Academy of Optometry 2002 Annual Meeting, December 12, 2002.

Comparison of Optic Nerve Rim Tissue Between Healthy Caucasian and Hispanic Populations Using the HRT II  
Sendrowski D, Comer G. Poster presentation American Academy of Optometry 2003 Annual Meeting, December 5, 2003.

The Impact of Eyelids on the Agreement Between the Proview Tonometer and the Goldmann Applanation Tonometer: Ethnic Variables  
Sawamura M, Comer G, Nagayama E, Kim H. Poster Presentation American Academy of Optometry 2003 Annual Meeting, December 5, 2003.

Optometric Clinical Drug Trial – Experience in an FDA Phase 3 Trial (Gatifloxacin)  
Disease Section Symposium, American Academy of Optometry 2005 Annual Meeting, December 11, 2005.

Disease Section Symposium: A 3-Pronged Diagnostic Approach in Imaging Glaucoma – HRT, GDx and OCT, 3 hours with Mark Sawamura and Andrew Pilon.

Disease Section Symposium: Contemporary Disease Management – Point/Counterpoint with Joe Sowka, Judy Tong, Mark Sawamura. October 22, 2008.

Normal Aging Characteristics of the Heidelberg Edge Perimeter

Ho Y, Artes P, Chaglasian M, Comer G, Fingeret M, Twa M, Prokopich C, Dumbleton K, Flanagan J  
Poster presentation at ARVO May 7, 2009.

The iVue Normal Database: Methodology and Distribution of OCT Parameters

George Comer, Pinakin Davey, Jorge Cuadros, John Lawrenson, David Garway-Heath, Michael Chaglasian, Priya Dabasia, Qienyuan Zhou, Larry Alexander  
Paper presentation at American Academy of Optometry 2013 Annual Meeting, October 24, 2013.

Interpretation of OCT: Roundtable Presentation in the Glaucoma SIG with Michael Sullivan-Mee, Mitch Dul. October 26, 2013Fundus Autofluorescence in the Evaluation of Retinitis Pigmentosa: Structure Function Correlations

George Comer, Ramon Bhakrhi  
Poster Presentation at American Academy of Optometry 2014 Annual Meeting, November 14, 2014.

**OPTOMETRIC CONTINUING EDUCATION LECTURES PRESENTED**

"Hereditary Early-Onset Macular Dystrophy: Stargardt's versus Vitelliform Macular Dystrophy."

Clinical Grand Rounds in Optometry, Southern California College of Optometry, November 14, 1982.

"Senile Degenerative Retinoschisis versus Retinal Detachment: Clinical Differentiation."

Clinical Grand Rounds in Optometry, Southern California College of Optometry, April 17, 1983.

"Identification and Diagnosis of the Patient with Occlusive Cerebrovascular Disease."

California Optometric Association Congress, Anaheim, California, February 1984.

"Visual Fields Testing for the Paraoptometric," and "A Basic Review of Glaucoma for the Paraoptometric".

California Optometric Association Congress, Anaheim, California. February, 1984.

"ONH Evaluation in the Early Diagnosis and Differential Diagnosis of Glaucoma."

California Optometric Association Congress, Reno, Nevada, February 14, 1985.

"Optimizing the Effectiveness of Your Automated Perimeter."

California Optometric Congress Association, Reno, Nevada, February 1985.

"A Basic Review of Glaucoma." (Paraoptometrics),

California Optometric Congress Association, Reno, Nevada, February 1985.

"Cerebrovascular Disease for the Optometrist."

Southern California College of Optometry, March 12, 1985.

"AIDS: An Optometric Perspective."

Southern California College of Optometry, January 26, 1986.

"Advanced Biomicroscopy."

Larkin, M., Comer, G., Secor, G.

California Optometric Association Congress, Long Beach, California, February 14, 1986.

"Recent Advances in Glaucoma Detection and Diagnosis."

California Optometric Association Congress, Long Beach, California, February 15, 1986.

"Automated Visual Field Testing." (Paraoptometrics)

California Optometric Association Congress, Long Beach, California, February 16, 1986.

"Use of the Automated Perimeter as an Effective Screening and Diagnostic Tool."

California Optometric Association Congress, Long Beach, California, February 17, 1986.

"Binocular Indirect Ophthalmoscopy: Beginning to Advanced Procedures."

Southern California College of Optometry, 6 hours, April 27, 1986.

"Binocular Indirect Ophthalmoscopy Workshop."

Omni/Arizona Optometric Association, 8 hours, Omni Eye Service Phoenix, Arizona, April 20, 1986.

"Visual Field Evaluation: Diagnostic Keys." (1 1/2 hours)

Arizona Optometric Association Congress, Phoenix, Arizona, May 27, 1986.

- "Retinal Vascular Disease." (2 hours )  
Arizona Optometric Association Congress, Phoenix, Arizona, May 27, 1986.
- "Diagnosis and Management of Systemic and Neurological Ocular Disease."  
Southern California College of Optometry, 6 hours, June 8, 1986.
- "Binocular Indirect Ophthalmoscopy: Advanced Technique."  
Southern California College of Optometry, 6 hours, July 13, 1986.
- "AIDS: An Optometric Perspective."  
Optometric Center of Los Angeles, 4 hours, July 27, 1986.
- "Reduced Visual Acuity - Why?"  
Inland Eye Center in conjunction with Southern California College of Optometry, October 15, 1986.
- "Automated Perimetry in Clinical Optometric Practice"  
Rio Hondo Optometric Society, April 28, 1987.
- "Visual Field Defects: Diagnostic Evaluation"  
Rio Hondo Optometric Society, June 23, 1987.
- "Ocular Therapy Workshop."  
White G., Comer G., Townsend J., Jew R. Optifair West, 4 hours, September 10, 1987.
- "Binocular Indirect Ophthalmoscopy."  
Potter J., Comer G. Optifair West, 4 hours, September 12, 1987.
- "Glaucoma Evaluation and Diagnosis."  
Arizona Optometric Association Midyear Meeting, 2 hours, Sedona, Arizona, November 7, 1987.
- "Automated Perimetry Clinical Utilization."  
Arizona Optometric Association Midyear Meeting, 2 hours, Sedona, Arizona, November 7, 1987.
- "Optic Nervehead Anomalies."  
Central Arizona Optometric Society Meeting, 1 hour, January 19, 1988.
- "AIDS: An Optometric Perspective."  
Southern California College of Optometry, 3 hours, January 24, 1988.
- "Glaucoma - Pathogenesis and Diagnostic Evaluation."  
SCCO Faculty TPA Course, 3 hours, April 6, 1988.
- "Glaucoma - Initial and Early Management Decisions."  
SCCO Faculty TPA Course, 3 hours, April 11, 1988.
- "Optic Nervehead Evaluation in Glaucoma Management."  
Southern California College of Optometry, 1 1/2 hours, June 11, 1988.
- "Ophthalmic Ultrasonography."  
Southern California College of Optometry, 3 hours, June 12, 1988.
- SCCO TPA Course Clinical Rounds and Clinical Workshops  
SCCO Faculty TPA Course, Southern California College of Optometry, June through August, 1988.
- "Automated Perimetry: Buying and Utilizing."  
Optifair West, Long Beach, California. 4 hours, September 25, 1988.
- SCCO DPA Course - Clinical Utilization of Diagnostic Pharmaceutical Agents.  
Southern California College of Optometry DPA Course, numerous personal, clinical tutorials in 1987, 1988, 1989, 1990.
- "Grand Rounds in Vascular Disease".  
SCCO Alumni Homecoming, Southern California College of Optometry, 3 hours, October 26, 1988.
- Arizona TPA Clinical Workshops.  
Arizona TPA Course, Phoenix and Tucson, October 9; October 22; November 19, 1988.
- "Age-Related Macular Disease."  
COA Fall Pathology Seminar, San Diego, 2 hours, November 6, 1988.
- "Age-Related Macular Disease Diagnosis and Current Management"  
Southern California College of Optometry, 3 hours, December 4, 1988.
- "Including Ophthalmic Photography in Your Practice."  
Bezan D, Comer G, Larkin M. Southern California College of Optometry, 4 hours, January 14, 1989.
- "Automated Perimetry."

- Lecture and Workshop, 4 hours, April 9, 1989, Vision Expo West, Anaheim, California.
- "Binocular Indirect Ophthalmoscopy."  
Lecture and Workshop, 3 hours, April 9, 1989, Vision Expo West, Anaheim, California..
- "Anterior Segment Procedures."  
Lecture and Workshop, 3 hours, April 8, 1989, Vision Expo West, Anaheim, California.
- Glaucoma Case Review. Orange County Optometry Society Meeting, 1 hour, Anaheim, California, April 18, 1989.
- Age-Related Macular Disorders. San Gabriel Valley Optometry Society Meeting, 2 hours, Pasadena, California, May 10, 1989.
- "Co-Management of Glaucoma, Co-Management of Cataracts."  
Lecture and Workshop, 4 hours, San Diego, April 27, 1989.
- "Glaucoma Management."  
Colorado TPA Course, 8 hours, Denver, Colorado, May 5, 16, 1989.
- "Co-Management of Glaucoma" Lecture and Workshop  
Montana Optometric Association, Butte, Montana, May 13, 1989.  
Orange County Optometric Society, Anaheim, California, August 13, 1989.  
Wisconsin Optometric Association Meeting, LaCrosse, Wisconsin, September 21, 1989.
- "Basic to Advanced Binocular Indirect Ophthalmoscopy."  
Comer G, and Stephey D.  
Southern California College of Optometry, 6 hours, May 11, 1989 and September 16, 1989.
- "Clinical Evaluation of the Optic Nerve in Glaucoma."  
Southern California College of Optometry, 1 1/2 hours, Fullerton, California, September 17, 1989.
- "Glaucoma Diagnosis and Management." Lecture and Labs,  
"Visual Field in Glaucoma" Workshop  
Arkansas Optometric Association Annual Meeting, 4/hours/4 hours/4 hours, Eureka Springs, Arkansas, October 6 and 7, 1989.
- "Automated Perimetry: Interpretation of Screening and Quantitative Tests," 2 hours
- "Clinical Examination of the Retinal Nerve Fiber Layer", 1 hour  
Nebraska Optometric Association Annual Convention, Kearney, Nebraska, October 14, 1989.
- "Clinical Grand Rounds in Age-Related Macular Disorders"  
SCCO Alumni Homecoming Program, 3 hours, Southern California College of Optometry, Fullerton, California, October 22, 1989.
- "Practical Utilization and Interpretation of Automated Static Threshold Perimetry"  
1989 Annual Ellerbrock Program/American Academy of Optometry, 1hour, New Orleans, Louisiana, December 7, 1989.
- "Interpretation of Automated Perimetry: Screening and Threshold"  
Rio Hondo Optometric Society, 1 1/2 hours, January 23, 1990.
- "Co-Management of Glaucoma"  
California Optometric Association Annual Meeting, 1 1/2 hours, Disneyland Hotel, February 16, 1990.
- "Basic Utilization of the Automated Perimeter" (Vismed sponsored)  
California Optometric Association, Disneyland Hotel, February 18, 1990.
- "Utilization and Interpretation of Automated Perimetry" (Octopus sponsored)  
Nevada Optometric Association Annual Meeting, Lake Tahoe, Nevada, February 25, 1990.
- "Advanced Binocular Indirect Ophthalmoscopy", Lecture/Workshop  
Southern California College of Optometry, 6 hours, March 10, 1990, April 29, 1990.
- "The Optic Nervehead and Retinal Nerve Fiber Layer in Glaucoma"  
Southern California College of Optometry, 3 hours, March 11, 1990.
- SCCO TPA Course  
Lectures in Glaucoma, Labs, Rounds, February-March 1990; July 1990.
- "Automated Perimetry in Glaucoma: Detection and Glaucoma Management"  
Orange County Optometric Society - Pathology Seminar, 2 hours, Irvine, California, August 18, 1990.
- "Cerebrovascular Disease"  
Southern California College of Optometry, 1 1/2 hours, August 26, 1990.
- "Glaucoma Suspect vs. Glaucoma"

- Asian American Optometric Society, L.A., California, 2 hours, October 11, 1990.
- "Clinical Grand Rounds in Glaucoma"  
SCCO Alumni Homecoming Program, 3 hours, October 21, 1990.
- "Clinical Grand Rounds in Glaucoma"  
COA Pathology Seminar, 4 hours, November 3, 1990.
- "Automated Perimetry in Glaucoma Detection"  
San Fernando Valley Optometric Society, 2 hours, November 18, 1990.
- "Practical Use and Interpretation of Automated Threshold Perimetry"  
SCCO, 3 hours, December 2, 1990.
- "Practical Interpretation of Automated Threshold Perimetry"  
1990 Annual Ellerbrock Program/American Academy of Optometry, 1 hour, Nashville, Tennessee, December 7, 1990
- "Retinal Photography and Perimetry in Practice"  
San Diego Optometric Society, 2 hours, January 30, 1991.
- "Practical Interpretation of Automated Threshold Perimetry," 2 hours,  
"Retinal Nerve Fiber Layer Evaluation," 2 hours, North Central Congress of Optometry, February 1, 1991
- "DPA Workshop: BIO, Volk Lenses, Tonometry Gonioscopy"  
SCCO Diagnostic Pharmaceutical Course; 12 hours, March 2/3, 1991
- "Binocular Indirect Ophthalmoscopy Workshop"  
Sendrowski, D. and Comer G.  
Southern California College of Optometry, 3 hours, April 14, 1991
- "Systemic and Ocular Emergencies Workshop"  
Sendrowski D. and Comer G.  
Southern California College of Optometry, 3 hours, May 19, 1991
- "Automated Perimetry in Visual Field Screening: Strategies for Use and Interpretation"  
Rio Hondo Optometric Society, 1 1/2 hours, May 28, 1991.
- SCCO TPA Course  
Glaucoma Management, 9 hours; Labs and Clinical Rounds in Glaucoma, Anterior Segment and Posterior Segment Disease, July 1991.
- "Flashes and Floaters: Clinical and Legal Implications"  
Orange County Optometric Society Seminar, 1 hour, August 10, 1991.
- "Glaucoma Diagnosis and Management"  
Southern California College of Optometry, 4 1/2 hours, August 18, 1991.
- "Automated Threshold Perimetry: Use and Interpretation"  
Lecture/Workshop Vision Expo/SCCO Mini University, 4 hours, September 21, 1991.
- "Pupil Testing for the Paraoptometric", 2 hours  
"Automated Threshold Perimetry: Use and Interpretation", 2 hours  
"Retinal Nerve Fiber Layer Evaluation", 2 hours  
North Central Congress of Optometry, January 31, February 1, 1992.
- "Interpretation of Automated Perimetry"  
Asian American Optometric Society, Las Vegas, February 9, 1992.
- "Diagnosis and Medical Management of the Glaucomas"  
SCCO TPA Course, 9 hours, Fresno, February 6, 7, 1992.
- "New Developments in Perimetry for Glaucoma Detection", 15 mins  
"Use and Interpretation of Automated Threshold Perimetry", 2 hours  
"Use of Retinal Nerve Fiber Layer Evaluation in Glaucoma Diagnosis and Management", 2 hours  
Southwest Council of Optometry, Dallas, March 13-15, 1992.
- "Automated Threshold Perimetry - Interpretation", 3 hours  
SCCO CE Course at Brentwood, VA, March 29, 1992.
- "Use and Interpretation of Threshold Perimetry in Glaucoma Management"  
Indiana Optometric Association Meeting, Indianapolis, April 29, 1992.
- Grand Rounds in Glaucoma, Anterior Segment Disease and Posterior Segment Disease Laboratories  
in Therapeutic Techniques  
SCCO TPA Course - Fresno, May 16-17, 1992.

- "Stump the Stars - Clinical Case Rounds"  
Comer, G and Sendrowski, D  
Long Beach Optometric Society, June 7, 1992.
- "Diagnosis and Medical Management of the Glaucomas", 9 hours  
"Coordinator/Lecturer Glaucoma Clinical Grand Rounds," 4 hours  
Instructor in Grand Rounds on Anterior Segment Disease, Posterior Segment Disease, Lab Instructor, Neuro, Orbital Trauma, B scan Ultrasonography, VF Interpretation, SCCO Summer Therapeutics Course, July 13-26, 1992.
- "Clinical Case Rounds in Neuro-ocular Disease", 2 hours  
SCCO Alumni Homecoming, SCCO, October 2, 1992.
- "Flashes, Floaters and PVDs", 1 hour  
"Retinal Nerve Fiber Layer Evaluation", 2 hours  
"Automated Threshold Perimetry: Use and Interpretation", 2 hours  
Lab instructor in Basic Automated Perimetry, Binocular Indirect Ophthalmoscopy, Vision Expo, Anaheim, October 15-17, 1993.
- "Photo Rounds in Case Management of Glaucoma", 2 hours  
"Advances in Glaucoma Management" with L. Semes, L. Gray, 2 hours  
California Optometric Association Ocular Disease Symposium, Palm Springs, October 31, 1992.
- "Glaucoma Diagnostic Evaluation and Medical Management"  
Southern California College of Optometry, February 7, 1993.
- "Advanced Automated Threshold Perimetry", 2 hours  
"Pupil Testing and Evaluation", 1 hour  
Southern Educational Congress of Optometry, Atlanta, February 26, 1993.
- "Case Rounds in Glaucoma Diagnosis and Management", 2 hours  
"Use & Interpretation of Automated Threshold Perimetry", 2 hours  
Nebraska Optometric Association Spring Conference, March 24, 1993.
- "How Would You Interpret These Visual Fields?", 2 hours  
Contact '93, Anaheim, July 16, 1993.
- "Diagnosis and Management of the Glaucomas", 9 hours  
"Coordinator and Lecturer in Glaucoma Annual Grand Rounds", 4 hours  
Lab Instruments in Visual Field Interpretation in Glaucoma Management, 4 hours  
Instructor in Clinical Rounds on Retina and Anterior Segment Disease  
SCCO Summer Therapeutics Course, July 12-25, 1993.
- "Diagnosis and Management of the Glaucomas", 8 1/2 hours  
Arizona/ACCO Therapeutics Course, August 28, 1993.
- "Visual Field Case Presentations", 1 1/2 hours  
San Diego Naval Base, September 27, 1993.
- "Malignancies of the Eyelids", 1 hour  
1993 SCCO Alumni Homecoming, October 2, 1993.
- "Retinal Nerve Fiber Layer: Evaluation and Management", 2 hours  
"Flashes, Floaters and PVDs", 1 hour  
"Threshold Perimetry: Use & Interpretation Lecture & Workshop", 3 hours  
1993 Vision Expo, Anaheim, October 7-10, 1993.
- "Diagnosis and Management of the Glaucomas", 8 1/2 hours lecture  
TPA labs: Cranial Nerve Evaluation, Evaluation for Orbital Trauma, Interferometry and Potential Acuity  
Mentor-Pre-Op Acuity Evaluation, Visual Fields in Glaucoma Diagnosis and Management  
Lecturer and Coordinator - Glaucoma Grand Rounds, 4 hours  
TPA Grand Rounds: Retina, Anterior Segment Disease  
San Diego Optometric Society/ SCCO TPA Course, October/November, 1993.
- Visual Fields Case Rounds, 2 hours  
Long Beach Optometric Society, Long Beach, December 2, 1993.
- "Glaucoma: Diagnosis and Management", 10 hours  
SCCO TPA Course, Fullerton, January 11, 18, 25 and February 1, 1994.
- "Diseases of the Lids", 8 hours and "Glaucoma: Diagnosis and Management", 8 hours  
SCCO TPA Course, Denver, Colorado, February 5 and 6, 1994.
- "Interactive Rounds in Visual Field Diagnosis", 2 hours  
San Diego Optometric Society, San Diego, California, February 17, 1994.
- SCCO TPA Course Grand Rounds: Posterior Segment Disease (4 hours), Anterior (4 hours), Glaucoma (3 1/2 hours)

George W. Comer

- Fullerton, California, March 18, 19 and 20, 1994.
- "Glaucoma: Diagnosis and Management", 8 hours  
SCCO TPA Course/Tri-County Optometric Society, April 25, 1994.
- SCCO TPA Course Grand Rounds: Posterior Segment Disease, Anterior Segment Disease, Glaucoma (10 hours)  
Fullerton, California, July 30 and 31, 1994.
- "Visual Field Interpretation", 1 hour  
LA County Optometric Society Meeting, Los Angeles, California, August 15, 1994.
- Automated Static Perimetry (3 hours); Flashes, Floaters and PVDs (2 hours), Eyelid Disorders (3 hours), VF Case Rounds (2 hours)  
Optometric Seminar at Sea by San Diego Optometric Society, September 4 to 11, 1994.
- "Computerized Perimetry in Glaucoma: Use and Interpretation", 3 hours  
New Mexico Optometric Association Mid-Year Convention Meeting, Riudosa, NM, September 17, 1994.
- "Recent Advances in Glaucoma", 2 hours  
SCCO Alumni Reunion Weekend, Fullerton, California, October 14, 1994.
- "Flashes, Floaters and PVDs", 1 hour  
"Advanced Visual Field Analysis in Glaucoma", 2 hours  
Vision Expo, Anaheim, California, November 17 and 19, 1994.
- Pupil Dilation and DPAs, Slit Lamp Biomicroscopy, Pupil Evaluation, Intraocular Pressure Evaluation, Binocular Indirect Ophthalmoscopy, Gonioscopy, 10 hours  
SCCO Diagnostic Pharmaceutical Agent (DPA) Course  
SCCO Fullerton, California, January 22 and February 4, 1995.
- Fundus Evaluation Techniques - BIO and Volk Funduscopy, 1 1/2 hours  
Rio Hondo Optometric Society, September 26, 1995.
- "Flashes, Floaters and PVDs", 1 hour  
"Advanced Visual Field Analysis in Glaucoma", 2 hours  
Vision Expo, Anaheim, California, October 1, 1995.
- Glaucoma Therapeutic Management, 9 hours  
SCCO TPA Course, CSUF, Fullerton, California, March 23, 15 and 31, 1996.
- "Visual Field Evaluation/Interpretation in Glaucoma Management", 5 hours  
Indian Health Service Optometry Annual Meeting, April 25, 1996.
- Glaucoma Case Rounds (3 hours); Visual Field Rounds (2 hours).  
CE at Sea by San Diego Optometric Society, May 23 and 24, 1996.
- Glaucoma Case Presentations (2 hours), Glaucoma: Therapeutic Management (9 hours)  
SCCO Fullerton, California, June 24, 25 and 26, 1996.
- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, Encino, California, July 27 and 28, 1996.
- Visual Fields Case Rounds, 2 hours  
Orange County Optometric Society, Irvine, California, August 18, 1996.
- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, San Diego, California, October 5, 1996.
- TPA Case Presentations; Glaucoma: Therapeutic Management, 11 hours  
Fullerton, California, November 16 and 17, 1996.
- TMOD Exam Review (Glaucoma - 2 hours/2 hours)  
SCCO December 1, 1996.
- Glaucoma: Therapeutic Management; Case Presentations, 11 hours\*  
SCCO TPA Course, Sacramento, California, February 8 and 9, 1997.
- Glaucoma - Recent Advances in Diagnosis and Management, 2 hours  
Threshold Perimetry Interpretation, 2 hours  
Optometric Ski - Nevada Optometric Association, Lake Tahoe, February 25, 1997.
- Glaucoma: Therapeutic Management, 10 hours  
SCCO TPA Course, Claremont, California, April 13 and 14, 1997.
- Glaucoma: Recent Advances in Medical Management, 1 1/2 hours  
South Bay Optometric Society, May 22, 1997



- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, Van Nuys, California, June 28 and 29, 1997.
- Glaucoma: Therapeutic Management, 10 hours  
SCCO TPA Course, Fullerton (Days Inn), July 28 and 29, 1997.
- TMOD Exam Review - Glaucoma, 2 hours  
SCCO Fullerton, California, August 3, 1997
- Clinical Decisions on Glaucoma Management, 2 hours  
Orange County Optometric Society Annual Pathology Seminar, Irvine, California, August 10, 1997
- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, San Diego, California, November 16 and 17, 1997.
- TMOD Examination Review - Glaucoma, 2 hours  
SCCO Fullerton, California, November 23, 1997.
- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, Fullerton, November 1,2, 1998
- TPA Labs – Cranial Nerve Evaluation; Fundus Lenses  
SCCO TPA Course for Hawaii Optometric Association, September 3,4, 1998
- Glaucoma: Therapeutic Management, 9 hours, September 11,12, 1998  
Disease Management for Therapeutics, 3 hours, September 13, 1998  
Ocular Emergencies Lab  
SCCO TPA Course for Hawaii Optometric Association
- Nerve Fiber Layer Analysis, 1 hour  
Orange County Optometric Society Annual Pathology Seminar, August 16, 1998
- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, Fullerton, February 28 and March 1, 1999
- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, Fullerton, June 27, 28, 1999
- Glaucoma: Therapeutic Management, 9 hours  
SCCO TPA Course, Fullerton, June 27, 28, 1999
- Glaucoma Management Review and Update  
Rio Hondo-Las Vegas Seminar, Las Vegas, June 31, 1999
- TMOD Review – Glaucoma, 2 hours  
SCCO, July 25, 1999
- Nerve Fiber Layer Analysis, 1 hour  
SCCO Alumni Reunion at SCCO, October 10, 1999
- TMOD Review – Glaucoma, 1 hour  
SCCO, November 14, 1999
- TPA Glaucoma Update, 2 hours  
SCCO, December 5, 1999
- Neuroprotection and Glaucoma, 2 hours  
SCCO, March 19, 2000.
- Labs on anterior segment procedures, pre- & post op cataract evaluation  
Lectures on glaucoma diagnosis and management, therapeutics in practice (11 hours)  
TPA Course, Toronto Canada  
June 10 to 12, 2000
- Glaucoma Therapeutic Management (9 hours)  
SCCO TPA Course, Fullerton, CA  
July 24,-25, 2000.
- Glaucoma Rounds (2 hours) – coordinator & presenter  
Cataract Rounds (2 hours) – presenter  
Retinal Rounds (2 hours)– presenter  
Neuro Rounds (2 hours) – presenter  
Grand Rounds for SCCO TPA Course (for Canadian TPA Program):  
SCCO, July 21, 2000.

TMOD Review – Glaucoma (1 ½ hour)  
SCCO, August 6, 2000.

Glaucoma Update (2 hours)  
Presented to Northern California Kaiser-Permenente optometrists, Berkeley, CA. October 28, 2000

Current Strategies in Glaucoma Diagnosis (2hours)  
Glaucoma Case Round (1hour)  
Glaucoma Laser Treatment & Surgical Management. (1hour)  
COA Pathology Symposium in Monterey CA, November 10 – 12, 2000

Update on Glaucoma Meds, (2 hours)  
SCCO, December 3, 2000.

SCCO Glaucoma Course, (10 hours)  
SCCO, February 16 – 18, 2001.

Glaucoma Evaluation (1 hour)  
Early Decisions in Glaucoma Management (3 hours)  
Clinical Cases in Glaucoma Management (3 hours)  
Case Presentations in Glaucoma Management (3 hours)  
UC Berkeley/SCCO Joint Glaucoma Course at COA Annual Congress, March 16- 18, 2001

Recent Advances in Autoperimetry (1 hour)  
COA Annual Congress, Sacramento March 17, 2001.

New Technology in Glaucoma Diagnosis & Management (1 hour)  
SCCO, April 29, 2001.

Lacrimal Dilatation and Irrigation Workshop (3 hours)  
SCCO, May 6, 2001.

Glaucoma Diagnosis and Management (9 hours)  
SCCO, June 2001.

SCCO Glaucoma Course (9 hours)  
SCCO, July 22-23, 2001.

TMOD Review- Glaucoma Review (1 ½ hours)  
SCCO, July 29, 2001.

Glaucoma Case Rounds  
Pathology Symposium, Orange County Optometric Society, August 12, 2001.

Visual Fields in Glaucoma (2 hours)  
SCCO Alumni Reunion, October, 2001.

SCCO Glaucoma Course (9 hours)  
Valley Presbyterian Hospital, Van Nuys, November 10 – 11, 2001.

SCCO Glaucoma Course (9 hours)  
San Diego, November 17 – 18, 2001.

SCCO Diagnosis, Treatment & Management Course (9 hours)  
Fullerton, California, January 9-11, 2002

SCCO Diagnosis, Treatment & Management Course (9 hours)  
Ventura, California, January 19-21, 2002.

SCCO Diagnosis, Treatment & Management Course (9 hours on current diagnostic strategies, target IOPs, initial medical management, medications changes, monitoring for progression, decision-making)  
Fullerton, CA February 9-11, 2002.

Glaucoma Management Case Rounds (3 hours)  
Fullerton, California, April 14, 2002

SCCO Therapeutic Management Course (4 hours on legal issues, coding for 3<sup>rd</sup> party payment, infection control, practice issues in setting up therapeutic practice)  
Fullerton, California, June 1, 2002

SCCO Diagnosis, Treatment & Management Course (9 hours on current diagnostic strategies, target IOPs, initial medical management, medications changes, monitoring for progression, decision-making)  
Fullerton, CA June 16-17, 2002.

SCCO Diagnosis, Treatment & Management of Glaucoma Course (9 hours on current diagnostic strategies, target IOPs, initial medical management, medications changes, monitoring for progression, decision-making)

Fullerton, California, July 21-23, 2002.

Pupil Testing: Techniques and Strategies (2 hours)

First Line Glaucoma Medications (1 hour)

Antibiotic Review (1 hour)

Vision Expo West, Las Vegas, Nevada, September 12-14, 2002.

SCCO/Jules Stein Continuing Education Program – New Technologies in Retinal and Optic Nervehead Imaging (30 minutes)

Fullerton, California, January 19, 2003.

SCCO Diagnosis, Treatment & Management of Glaucoma Course (9 hours on current diagnostic strategies, target IOPs, initial medical management, medications changes, monitoring for progression/change in the ONH/RNFL or VF)

Fullerton, California, February 8 -10, 2003.

SCCO Diagnosis, Treatment & Management of Glaucoma Course (9 hours on current diagnostic strategies, target IOPs, initial medical management, medications changes, monitoring for progression for change in the ONH/RNFL or VF)

Fullerton, California, June 6, 2003.

John Griffin Continuing Education Program – Visual Field Loss in Glaucoma (1 hour)

Fullerton, CA June 7, 2003.

SCCO Therapeutic Management Course (9 hours on glaucoma diagnosis & management)

Fullerton, CA June 6, 2003. (4 hours on legal issues, coding for 3<sup>rd</sup> party payment, infection control, practice issues in setting up therapeutic practice)

SCCO Therapeutic Management Course (9 hours on glaucoma diagnosis & management)

Fullerton, CA June 22-23, 2003.

SCCO Diagnosis, Treatment & Management of Glaucoma Course (9 hours on current diagnostic strategies, target IOPs, initial medical management, medications changes, monitoring for progression for change in the ONH/RNFL or VF)

Fullerton, California, July 12-14, 2003.

How Clinical Trials in Glaucoma Impact Diagnosis and Management (3 hours)

Fullerton, CA July 19, 2003.

New Technologies in Glaucoma (2 hours)

New Mexico Optometric Association Mid-year Meeting, Angelfire, NM October 27, 2003.

Using the Results of Prospective, Multi-center Randomized Clinical Trials in Glaucoma Management Today (2 hours)

Evaluating Optic Nerve in Glaucoma: ONH Imaging Today (2 hours)

Fullerton, CA February 29, 2004.

SCCO Diagnosis, Treatment & Management of Glaucoma Course (9 hours on current diagnostic strategies, target IOPs, initial medical management, medication changes, monitoring for progression for change in the ONH/RNFL or VF)

Fullerton, California, July 10-12, 2004.

Glaucoma Mini Rounds (1 hour)

Anterior Segment Rounds (1 hour)

Orange, California sponsored by Alcon Laboratories July 14, 2004.

Glaucoma Mini Rounds (1 hour)

Anterior Segment Rounds (1 hour)

San Diego, California sponsored by Alcon Laboratories July 14, 2004.

Glaucoma Update (2 hours)

Fullerton, California, July 17, 2004.

4<sup>th</sup> Generation Fluoroquinolones

Sponsored by Alcon, Fullerton, California August 17, 2004

New Technologies in Glaucoma (2 hours)

Fullerton, California August 22, 2004

Case Challenges in Glaucoma Diagnosis & Management (2 hours)

Inland Empire Health Plan – Optometry, San Bernardino, CA October 17, 2004.

Case Challenges in Glaucoma Diagnosis & Management (1 hour)

Case Rounds in Anterior Segment Disease (1 hour)

San Fernando Valley Optometric Society October 24, 2004.

Ocular Infection – Anterior Segment Case Rounds (2 hours).

Alcon / SCCO joint program for local ODs at SCCO, Fullerton, CA November 9, 2004.

Case Challenges in Glaucoma Management (2 hours)

New Technology in Glaucoma (2 hours )

Invited lectures at Nebraska Optometric Association Spring Conference April 3, 2005

- Optic Nerve Imaging Today (2 hours)  
Glaucoma Case Rounds (1 hour)  
SCCO South Bay CE - Torrance, CA August 7, 2005
- Anti-infective options (1 hour)  
Alcon & ECC CE program for local ODs, November 19, 2005.
- Anterior Segment Grand Rounds (1 hour)  
Technology in Posterior Segment Disease (1 hour)  
San Diego Optometric Society, April 20, 2006
- OCT in Clinical Decision-making (1 hour)  
Jules Stein Eye Institute – SCCO CE program, February 12, 2006
- Anterior Segment Case Rounds (2 hours)  
Tulare-Kings County Optometric Society Meeting , February 21, 2006
- Glaucoma Update (1 hour)  
Inland Empire Optometric Society meeting, March 26, 2006.
- HRT in Glaucoma Detection and Management (1 hour)  
SCCO Technology Continuing Education Program, April 23, 2006
- Anti-infective Options Today (2 hours)  
Glaucoma Case Rounds (2 hours)  
Visalia, CA May 6, 2006
- Fourth Generation Fluoroquinilones (1 hour)  
Jules Stein Eye Institute CE Program, Los Angeles, CA May 7, 2006.
- Glaucoma Case Challenges (2 hours)  
How to Maximize Perimetry in Glaucoma (1 hour)  
National Glaucoma Society Meeting, Newport Beach, CA July 7, 2006.
- New Diagnostic Technologies In Posterior Segment Disease (2 hours)  
SCCO South Bay CE Forum, August 13, 2006.
- Glaucoma Update (2 hours)  
Alcon sponsored CE program, Fullerton, CA November 14, 2006.
- SCCO 24 Hour Glaucoma Course (9 hours)  
SCCO, Fullerton, CA November 18-19, 2006.
- Ins & Outs of VFs Interpretation (1 hour)  
SCCO, Fullerton, CA March 3, 2007
- Dilemmas in Diagnostic Imaging (1 hour)  
SCCO, Fullerton, CA October 13, 2007
- Current Concepts in Imaging (2 hours)  
Tri-county Optometric Society, October 20, 2007
- SCCO 24 Hour Glaucoma Course (9 hours)  
SCCO, Fullerton, CA Nov 30 to Dec 1, 2007
- Glaucoma Case Rounds (2 hours)  
What New in Imaging for Glaucoma (2 hours)  
National Vision Group – 2007 National Meeting, Los Angeles, CA December 9, 2007
- Dry Eye (2 hours)  
Allergan-sponsored CE program for local ODs, Anaheim, CA January 21, 2008
- Current Technology in Optic Nerve Imaging (1 hour)  
SCCO Fullerton, CA August 24, 2008.
- The View – Dry Eye Course  
Allergan-sponsored CE program for local ODs, SCCO Fullerton, CA September 11, 2008.
- Glaucoma Management – lead/facilitate roundtable discussion on problems in glaucoma management  
Allergan-sponsored program for local ODs, Costa Mesa, CA March 23, 2009
- Glaucoma Management – lead/facilitate roundtable discussion on problems in glaucoma management  
Allergan-sponsored program for local ODs, Westwood, CA March 30, 2009
- Rapid Fire Case Rounds - Cases on Glaucoma Diagnosis and Treatment issues

SCCO Fullerton, CA May 17, 2009.

Glaucoma Management – lead/facilitate roundtable discussion on problems in glaucoma management  
Allergan-sponsored program for local ODs, San Diego, CA May 19, 2009

Clinical Case Challenges in Glaucoma (2 hours)  
Glaucoma Case Rounds (1 hour)  
Hands-on Lab on Use of OCT for Glaucoma (1 hour)  
Fresno, CA August 8, 2009

SCCO 24 Hour Glaucoma Course (My part is 8 hours)  
SCCO, Fullerton, CA August 21 to 23, 2009

Current Concepts in Threshold Visual Field Interpretation: Detecting and Recognizing Progression (1 hour)  
American Academy of Optometry – Ellerbrock CE program November 13, 2009.

Vision Field Progression: Detection & Analysis (1 hour)  
Jules Stein Eye Institute and SCCO Joint CE program, January 10, 2010

Applying OCT to Glaucoma Management (2 hours)  
SCCO – Indian Health Service CE Program, Fullerton, CA May 11, 2010

Clinical Cases with OCT Imaging (2 hours)  
OptoVue-sponsored CE for local ODs, Berkeley, CA May 25, 2010

New Developments in the Correlation of Structure to Function in Glaucoma (2 hours)  
SCCO Focus on Technology CE Program, Fullerton, CA June 12, 2010.

Key Decisions in Glaucoma Management (2 hours)  
Allergan-sponsored CE for local ODs in Spokane, Washington September 23, 2010.

What do the Images Tell You? (2 hours)  
SCCO CE program, Fullerton, CA October 24, 2010.

Current Concepts in Visual Field Progression: Detection, Analysis, Management (1 hour)  
American Academy of Optometry – Ellerbrock CE program November 20, 2010.

SCCO 24 Hour Glaucoma Course (8 hours)  
SCCO, Fullerton, CA June 10 to 12, 2011

SCCO Case Management (16-hour) Course for Glaucoma Certification in California (5 hours)  
SCCO, Fullerton, CA May 5 & 6, 2011  
SCCO, Fullerton, CA August 20-21, 2011  
SCCO, Fullerton, CA October 1-2, 2011  
COA Monterey Symposium November 10-11, 2011  
SCCO, Fullerton, CA February 18-19, 2012  
COA OptoWest, Indian Wells, CA April 13-14, 2012  
SCCO, Fullerton, CA June 2-3, 2012  
SCCO, Fullerton, CA October 6-7, 2012  
COA Monterey Symposium, November 8-9, 2012  
SCCO, Fullerton, CA February 16-17, 2013  
COA OptoWest, Indian Wells, CA April 4-6, 2013  
SCCO, Fullerton, CA June 8-9, 2013  
SCCO, Fullerton, CA February 15-16, 2014  
SCCO, Fullerton, CA August 23-24, 2014.  
SCCO, Fullerton, CA June 13-14, 2015

SCCO Glaucoma Grand Rounds Clinical Program for Glaucoma Certification in California (16 hours, live patients)  
SCCO, Fullerton, CA September 18-19, 2011.  
SCCO, Fullerton, CA November 20-21, 2011  
SCCO, Fullerton, CA December 10-11, 2011  
SCCO, Fullerton, CA January 14-15, 2012  
SCCO, Fullerton, CA March 11-12, 2012  
SCCO, Fullerton, CA April 15-16, 2012  
SCCO, Fullerton, CA July 15-16, 2012  
SCCO, Fullerton, CA November 18-19, 2012  
SCCO, Fullerton, CA March 10-11, 2013.  
SCCO, Fullerton, CA July 14-15, 2013.  
SCCO, Fullerton, CA September 8-9, 2013.  
SCCO, Fullerton, CA December 8-9, 2013.  
SCCO, Fullerton, CA March 2-3, 2014.  
SCCO, Fullerton, CA May 4-5, 2014.  
SCCO, Fullerton, CA October 12-13, 2014.  
SCCO, Fullerton, CA August 16-17, 2015

- Perimetry Today: Use and Interpretation (2 hours)  
Asian American Optometric Society, Cerritos, CA July 31, 2011.
- Glaucoma Imaging Today (2 hours)  
COA Monterey Symposium, Monterey, California November 12, 2011
- OCT and Glaucoma (1 hour)  
PEN meeting Westlake, CA June 7, 2012.
- Launching Your Glaucoma Practice (1 hour)  
Treating Glaucoma without High Tech Instruments (1 hour)  
SCCO, Fullerton, CA July 7, 2012
- Launching Your Glaucoma Practice: Clinical Evaluation of the ONH & RNFL (2 hours)  
SCCO, Fullerton CA November 4, 2012
- Launching Your Glaucoma Practice: Identifying & Overcoming Barriers; Billing & Coding for Glaucoma Management (2 hours)  
SCCO, Fullerton CA January 12, 2013
- Launching Your Glaucoma Practice: Diagnosing Glaucoma with & without High Tech Instruments (2 hours)  
SCCO, Fullerton, CA March 9, 2013.
- Clinical Pearls for Glaucoma Certified ODs: Beat the OCT – ONH, RNFL Evaluation  
SCCO, Fullerton, CA October 6, 2013.
- OCT in Glaucoma Diagnosis and Management  
IHS Annual Meeting at SCCO, Fullerton, CA June 3, 2014
- What's New in OCT Imaging? (1 hour) and Imaging Potpourri (1 hour)  
SCCO/Ketchum University, Fullerton, CA May 31, 2015
- Diagnostic Imaging Today (30 minutes)  
MBKU/USC CE program at SCCO/Ketchum University, Fullerton, CA September 12, 2015.
- Gonioscopy lab for Kaiser Permanente optometrists (2 hours)  
SCCO/Ketchum University, Fullerton, CA November 7, 2015
- Glaucoma Case Challenges (2 hours)  
San Diego Optometric Society meeting, San Diego, CA February 18, 2016
- Challenging Glaucoma Cases (1 hour)  
IHS Optometry meeting at SCCO/Ketchum University, Fullerton, CA June 7, 2016
- Glaucoma Case Challenges (1 hour)  
SCCO/Ketchum University Anaheim, CA
- New Glaucoma Drugs in the FDA Pipeline (30 minutes)  
SCCO/Ketchum University, Fullerton, CA August 21, 2016.
- Glaucoma Case Conundrums (1 hour)  
SCCO/Ketchum University Anaheim, CA
- Clinical Evaluation of the Optic Nervehead & RNFL (2 hours) ; What's New in Glaucoma (1 hour)  
California Optometric Association – Monterey, CA November 18, 2016
- Glaucoma Case Challenges (2 hours)  
California Optometric Association – Monterey, CA November 19, 2016

## **PUBLICATIONS**

- Loshin D., Loshin M., and Comer, G.: Binocular Summation with Monovision Contact Lens Correction for Presbyopia. International Contact Lens Clinics, 9:161, 1982.
- Comer G.: Retinal Photography, Selecting Equipment to Meet Your Needs. Optometry Times, 4/3:13, 1986.
- Comer G. and Townsend J.: Relative Hypoplasia of the Optic Nerve. Journal, American Optometric Association, 58(6):494-498, 1987.
- Sendrowski D., Townsend J., Selvin G., Comer G., Levoy R., Williams D: Unilateral Pigmented Mobile Vitreous Cyst. Journal, American Optometric Association, 58(7):656-659, 1987.

Comer G., Tassinari J., Sherlock L.: A Clinical Comparison of the Threshold-Related and Single Intensity Strategies on the Humphrey Field Screener. *Journal, American Optometric Association*, 59(8): 605-609, 1988.

Visual Fields: Clinical Case Presentations. Townsend J., Selvin J., Griffin J., Comer G. Stoneham, MA Butterworth/Heinemann, 1991

Exophthalmometry in Diagnostic Procedures in Optometry. Amos J., Bartlett J., Eskridge B., Editors. Lippincott, Philadelphia, 1991.

"Visual Field Screening" in Clinical Optometry. Joe Benjamin, O.D., Ph.D. editor Lippincott-Raven, Philadelphia, 1999.

### **SUBMITTED FOR PUBLICATION**

"Optometry in Managed Care" in *Innovations in Patient Care.* Byrn Henderson, M.D., J.D. and Melanie Goodman, R.N., M.N., P.N.P., J.D. editors.

### **PUBLISHED ABSTRACTS**

Binocular Summation with Monovision Contact Lens Correction for Presbyopia.

Loshin DS, Loshin MS, Comer G. *Am. J. Optom and Phys. Optic.* 58 (11):1050, 1982.

Chronic Progressive External Ophthalmoplegia in Kearns-Sayre Syndrome.

Comer G, Vandervort R. *Am. Acad. Optom. Program* 100P, 1984.

Incorporation of Automated Threshold Visual Field Testing into an Optometric Curriculum.

Vandervort R, Comer G. *Am. Acad. Optom. Program*, 10SP, 1984.

Comparison of the Cup/Disc Ratio Determined by Direct Ophthalmoscopy Under Dilated and Undilated Conditions.

Reza C, Townsend J, Comer G. *Am J. Optom. and Phys. Optics* 63 (10): 15P, 1986.

Photodocumentation of Corneal Farinata.

Paugh J, Comer G. *Am. J. Optom. and Phys. Optics.* 63 (10):23P, 1986.

Pigmented Mobile Vitreous Cysts.

Levoy R, Townsend J, Comer G, Sendrowski D, Selvin J, Williams D. *Am. J. Optom. and Phys. Optics.* 63 (10): 26P, 1986.

Acute Pancreatitis Resulting in Significant Visual Loss

Stephey D, Comer G. *Am. J. Optom. and Phys. Optics.* 63 (10):116P, 1986.

Tilted Disc Syndrome and its Diagnostic Dilemmas.

Comer G, Townsend J, Stephey D. *Am. J. Optom and Phys Optics.* 63 (10):117P, 1986.

Clinical Evaluation of the Tono-Pen Tonometer.

Shirola S, Comer G, Stephey D. *Am. J. Optom. and Phys. Optom.* 64 (10):13P, 1987.

A Clinical Comparison of the Threshold-Related and Single Intensity Strategies on the Humphrey Central Forty Point Test.

Sherlock L, Tassinari J, Comer G. *Am. J. Optom. and Phys. Optics.* 64 (10):13P, 1987.

Differential Diagnosis of Arcuate Field Loss in the Young Patients.

Sendrowski D, Comer G, Stephey D. *Am. J. Optom. and Phys. Optics.* 64 (10):114P, 1987.

The Spectrum of Visual Field Defects Associated with Optic Nervehead Drusen.

Bezan D, Comer G, Sendrowski D. *Am. J. Optom. and Phys. Optics.* 65 (10):102P, 1988.

A Comparison of Direct Ophthalmoscopy and an Optimized Photographic Technique in the Detection of Retinal Nerve Fiber Layer Loss.

- Comer G, Sendrowski D, Robinson M, Pirotte M. *Am. J. Optom. and Phys. Optics*. 65 (10): 103P, 1988.
- The Influence of Refractive Accuracy on Threshold Measurements with the Humphrey Field Analyzer.  
Comer G, Sendrowski D, Nishimoto J, Carlson G, Montierth T. *Am. J. Optom. and Phys. Optics*. 66 (10):155, 1989.
- An Unusual Presentation of CMV Retinopathy.  
Sendrowski D, Nishimoto J, Comer G. *Am. J. Optom. and Phys. Optics*. 66 (10):249, 1989.
- Tuberous Sclerosis or Bourneville's Disease: Case Report.  
Abel G, Sendrowski D, Comer G, Nishimoto J. *Optometry and Vision Science* 67 (10) Suppl:132, 1990.
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- The Effect of Gonioscopy on Threshold Perimetry with Celluvisc in Normal Subjects.  
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- A Comparison of the Octopus IOP Strategy and Normal Strategy  
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The Impact of Eyelids on the Agreement Between the Proview Tonometer and the Goldmann Applanation Tonometer: Ethnic Variables.

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## **RESEARCH**

*A Phase III Randomized, Double-Masked, Parallel Study to Compare the Safety and Efficacy of 0.3% Gatifloxacin Ophthalmic Solution to 0.3% Ofloxacin Ophthalmic Solution In the Treatment of Acute Bacterial Conjunctivitis.* – FDA Phase III multi-center (38 centers) trial. Subinvestigator (principal investigator John Maher, MD) Duties included compilation of FDA Form 1572, preparation of study site, training of subinvestigators and act as primary resource for other subs, interface with the clinical laboratory, inventory and maintenance of study medication and supplies, distribution of study announcements to potential subjects and potential referrers, submission to and correspondence (submissions for approval and reports of protocol deviations) with IRB, recruitment/enrollment/follow-up of subjects, maintenance of various logs (drug inventory, deviations, pregnancy test, subject screening/enrollment, master subject etc.), maintenance of Study File Notebook, meeting with site monitors, review and maintenance of Case Report Forms and Source Document worksheets, documentation of adverse events and assigning severity and cause, answering queries, budget control. Revenue generated \$35,500. May 2001 to December 2001.

*Phase III Multicenter Trial to Evaluate the Safety and Efficacy of Moxifloxacin Ophthalmic Solution 0.5% vs Non-preserved Vehicle for Treatment of Bacterial Conjunctivitis* – FDA Phase III Trial. Subinvestigator. Principal investigators: Judy Tong, Robert Lingua, Duties included data collection, completion of Case Report Forms and Source Documentation worksheet, identification and documentation of adverse events.

Characterization of Dry Eye Conditions. Co-investigator with Jerry Paugh. Investigator driven. Screening and characterization study to develop a panel of dry eye subjects for participation in clinical investigations. May 2003 to July 2004.

SCCO Principal investigator for *Heidelberg Edge Perimeter (HEP) Normal & Glaucoma Patient Study* to develop the normative database for the HEP and HEP/HRT correlation. Seven centers internationally. Duties included development of protocol for SCCO site, budget development, development of IRB submissions and correspondence, development of materials for announcing the study, subject recruitment/enrollment and follow-up, recruitment and training of research assistants in the collection of data, review data to ensure compliance with protocol, identification of protocol violation and reporting to IRB, completion of Case Report Form and Source Document Worksheets,

maintenance of Study File Notebook, meeting with site monitors, budget control. Data was submitted to FDA for review by Heidelberg Engineering. April, 2007 to May, 2010. Grant: \$47,000.

SCCO Principal investigator for *iVue Normal Database Study* to develop the normative database for the *iVue Optical Coherence Tomographer (OCT)* and for the *i-Wellness screening program*. Five centers in US. Duties included development of protocol for SCCO site, budget development/negotiating of reimbursement (grant, *iVue* instrument for ECC), development of IRB submissions and correspondence, development of materials for announcing the study, coordination of subject recruitment/enrollment to meet the goals for gender and age, recruitment and training of research assistants in the collection of data, review all data to ensure that no abnormal subjects are enrolled, review all data to ensure compliance with protocol including quality/reliability indicators, identification of protocol violation and reporting to IRB, completion of Case Report Form and Source Document Worksheets, maintenance of Study File Notebook, meeting with site monitor on weekly basis, budget control. July 2011 to May 2012. Grant: \$36,000.

Contrast Sensitivity in Age-Related Maculopathy. Principal investigator: William Ridder. Co-investigator along with Patrick Yoshinaga. Determined the protocol in the use of various clinical instruments such as retinal camera, OPTOS, threshold perimetry, OCT etc., recruited and performed clinical testing (OCT, HFA threshold VFs, MPOD, retinal photos, MPOD testing etc) on all subjects. Staged AMD in retinal photos of AMD subjects. October, 2013 to July, 2015.

SCCO Principal Investigator for *Topcon 3D OCT -1 Maestro Reference Database Study II* to develop the normative database for the Topcon Maestro OCT. Eight centers internationally. Duties included development of protocol for SCCO site, budget development/negotiating of reimbursement, development of IRB submissions and correspondence, development of materials for announcing the study, coordination of subject recruitment/enrollment to meet the goals for gender and age, training of research assistants in the collection of data, initial monitoring of all collected data to ensure that all subjects met the inclusion/exclusion, review all data to ensure compliance with protocol including OCT quality indicators, identification of protocol violation and reporting to IRB, completion of Case Report Form and Source Document Worksheets, maintenance of Study File Notebook, meeting with site monitor on weekly basis, budget control. May, 2015 to November, 2015. Grant: \$72,500.

Follow-up on Age-Related Macular Degeneration Clinical Study. Principal investigator: William Ridder. Co-investigator along with Patrick Yoshinaga and Caren Oquindo. Recruiting and performing clinical testing (OCT, HFA threshold VFs, MPOD, retinal photos etc) on subjects. July, 2016 to July 2018

#### **FACULTY ADVISOR TO STUDENT RESEARCH PROJECTS**

Comparison of the cup-disc ratio determined by direction ophthalmoscopy under dilated and undilated conditions, 1986

Reza, Carmen (John Townsend - co-advisor)

Survey of patient response to pupillary dilation, 1986

Barnes, Charlotte; Hao, Stanley

Evaluation of actual optic nerve head size using a photographic technique, 1986

Freeman, Greg (Richard Hemenger - co-advisor)

IRAs vs. Snellen acuity in normals, 1987

Bettleheim, Eric; Bittner, Debbie

Visual field screening: A comparison of threshold-related and single intensity testing strategies, 1987

Tassinari, John; Sherlock, Leland

The accuracy of the Potential Acuity Meter in normal eyes, 1987

Kemmerer, LF; Valentine, Lisa

A clinical comparison between the Tono-pen tonometer and the Goldmann applanation tonometer, 1987

Shirola, Steve

- A clinical comparison of the Keeler Pulsair Tonometer and the Goldmann Applanation Tonometer, 1988  
Kohorst, Keith; Lawyer, John
- A clinical comparison of ophthalmoscopy and optimized photographic techniques in the detection of RNFL loss, 1988  
Robinson, Monica; Pirotte, Mary (David P. Sendrowski - co-advisor)
- Clinical comparison of the Amsler grid to the Potter diamond chart as a self-assessment monitor in ARMD patients, 1988  
Stevens, Sandra; Wells, Melinda
- The effects of yellow filters used during fundus photography, 1988  
Safarik, Jeff; Lee, Clifford (Richard Hemenger - co-advisor)
- The influence of refraction accuracy on static threshold measurements with the HFA, 1989  
Carlson, Geoffrey; Montierth, Tracy
- Retinal photography: A survey of practicing optometrists in California, 1989  
Ogata, Wayne; Reese, Timothy
- The ocular lenses in the binocular indirect ophthalmoscope: can they cause problems for pre-presbyopic examiners?, 1989  
Eastlake, John (Debbie Bezan - co-advisor)
- A clinical comparison between the Keeler Pulsair handheld non contact and GAT, 1989  
Denison, Allen; Skinner, Mark
- A clinical comparison of the Tono-pen II hand-held tonometer to the GAT, 1990  
Anagnost, Mary; Tjandra, Esther
- Comparing the efficacy of videotape and lecture presentations on the detection and localization of RNFL defects, 1990  
Kendall, Ken; Kell, Hale
- Goldmann applanation tonometry over Acuvue disposable lenses, 1990  
Ford, Troy; Haas, Vicky (Tim Edrington - co-advisor)
- The relationship between the stereo-base length and perceived cup/disc, 1990  
Chan, Carlton; Richmond, Eric (Debbie Bezan - co-advisor)
- A clinical validation study of the Interzeag Octopus 1-2-3 automated perimetry, 1991  
Miller, K; Smith, Stan
- A clinical evaluation of visual field screening tests with the new Dicon TKS 4000 and HFA in a normal population, 1991  
Perez, Maria; Vander Zee, Gary
- The effect of inaccurate cylinder correction on static threshold measurements with the HFA, 1991  
Gittins, Scott; Vander Zee, Larry
- How well do your patients know you? A survey conducted at the OCF to determine patients knowledge of the optometric profession, 1992  
Shapiro, David; Micknich, Bret
- A clinical comparison of Xprt NCT and Goldmann tonometry, 1994  
Kelsey, Easton; King, David
- A comparison of the visual field results between the standard 30-2 threshold field and the Fast Pac software of the HFA in a glaucoma population, 1994  
Velasquez, Rowena; Andersen, Scott
- The prevalence of dilation as a part of a comprehensive eye exam in the state Of Hawaii, 1995

Fujimoto, Lane; Yang Richard

Performance of visual fields in different modes of practice: a comparative study, 1995  
Radaneata, Cristian; Trainor, Dan

Status of accommodation with the non-contact tonometer, 1995  
Amano, Nancy; Hanson, Lisa

Clinical comparison of Canon T-2 Tonometer and Goldmann applanation tonometer, 1997  
Byun, Sylvia; Jean, Lim

The effect of cylinder error on automated threshold measurement with the Octopus field analyzer, 1997  
Rogers, Laura; Shin, Yoona

A comparison of patient experience at the Optometric Center of Fullerton versus previous optometric care, 1998  
Dinh, Kim

Patient satisfaction with dispensed eyewear: A comparative survey of patient satisfaction with dispensed eyewear offered at the Optometric Center of Fullerton and outside dispensaries, 1998  
Junker, Cheryl; Lee, Yvonne

Clinical Evaluation of the Interzeag Octopus 1-2-3 Qualitative Visual Field Screening Test, 1998  
Lutz, Shannon; Garrett, Jeffrey

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Karouna, Chanchai; Kondo, Tracy; Patel, Nimesh

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Yee, Serena; Thein Regina

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Nickle, Chelle; Quinton, Spencer

Frequency doubling perimetry and spherical blur, 1999  
Jackson, Russell; Denney, Mark

The use of a Kleenex eye patch instead of opaque occlusion gives increased threshold sensitivity during automated threshold perimetry, 1999  
Huynh, Thu; Tran, Van

The Effect of Spherical Blur on an Older Patient Population on the Welsh-Allyn Frequency Doubling Perimeter, 2000  
Houghton, Richard; Hurly, Adrienne

Effect of the Perimetrist on the Visual Field Results Reliability Using the Humphrey SITA Perimetry, 2000  
Riley, James; Turk, Tony

Clinical Comparison of the Welsh-Allyn/Humphrey Frequency Doubling Perimetry Screening Protocols to the Humphrey Field Analyzer in the Identification of Glaucomatous and Normal Visual Fields, 2000  
Tiet, Jenny; Vorasarun, Sariya

The Effect of Dilated Pupil on Humphrey Automated Perimetric Screening Fields, 2000  
Lee, Betty; Nguyen, Natalie

An Analysis of the Non-captured Prescription Population at the Eye Care Clinic, 2000  
Kwan, Nancy; Lin, Henry

Heat Shock Protein Expression in a Rat Glaucoma Model, 2000

- Chu, Joanne  
How Effective are Letters in Decreasing the Rate of No-Shows, 2000  
Booth, Amy
- A Comprehensive Survey Assessing Patient Satisfaction with the Different Aspects of Services at the Optometric Center of Fullerton, 2001  
Chen, Jana; Yu, Mike
- High Blood Pressure: Referral Compliance at OCF, 2001  
Chang, Kari; Fuemmeler, Renee
- Octopus Tendency Oriented Perimetry: Is this New Threshold Program Repeatable?, 2001  
Hsu, Amy; Phan, Tri
- The Efficacy of the Screening Protocol of the Frequency Doubling Technology in the Identification of Visual Field Abnormalities, 2001  
Nyugen, Maggie; Pham, Tram
- A Clinical Comparison of the Topcon CT80™ Tonometer to the Goldmann Applanation Tonometer, 2001  
Pham, Thao; Ngoc, Trinh
- A Study of Why Patients Choose to Purchase Eyewear at the Optometric Center of Fullerton vs. a Mall-Based Practice, 2001  
Ong, Tiffany
- The Effects of Gonioscopy on Automatic Static Threshold Perimetry in Glaucomatous Patients, 2001  
Huang, Esther; Steed, Cory (John Nishimoto, co-advisor)
- What Factors Affect the Return Rate of Patients – Analysis of Demographics, Payer Type etc. 2002  
Johnson, Gary
- A Clinical Comparison of the Nidek NT-2000 and the Goldmann Applanation Tonometer, 2002  
Hsu, Vanessa; Mach-Hung, Jenny
- A Clinical Evaluation of the Oculus Easyfield™ Perimeter, 2002  
Felstedt, Tom; Wills, Geoff
- The Effect of Background Noise on Threshold Perimetry Using the Humphrey Field Analyzer 30-2 SITA-Fast Program, 2002  
Tien, Alfred; Yam, Brian
- A Clinical Comparison of the Canon TX-10 Non-contact Tonometer with the Goldmann Applanation Tonometer, 2002  
Lee, Yuwen; Park, Julie; See, Jayne
- The Impact of Eyelids on the Agreement Between the Bausch & Lomb Proview™ Tonometer and the Goldmann Applanation Tonometer: Ethnic and Age Variables, 2003  
Kim, Hetty; Nakayama, Erin (Mark Sawamura, co-advisor)
- Identifying Retinal Anomalies: An Accuracy and Ease of Use Comparison of Clinical Assessment with the Welch Allyn Coaxial Direct Ophthalmoscope and the Welch-Allyn PanOptic™ Ophthalmoscope, 2003  
Shah, Kunal; Todd, Smith
- Proview™ Tonometry Compared with Goldmann Tonometry, 2003  
Huang, Diana; Vu, Dawn
- An Analysis of the Causes of Patient Defection at the Eye Care Clinic, 2003  
Kohls, Justin; Kohls, Michelle (John Nishimoto, co-advisor)

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King, Karen; Stuart, Ryan (Mark Sawamura, co-advisor)

Why do Patients Fail to Return for their Recommended Dilated Retinal Exam, 2004

Nguyen, Andrea; Lee, Charlene

An Evaluation of the Central Corneal Thickness of Non-diabetic Latino patients vs. diabetic Latino patients and the impact of diabetes on pachymetry and Goldmann tonometry, 2005.

Ho, Anne; Kwong, Susan; Wong, Trong (Judy Tong and Mark Sawamura co-advisors)

Website Marketing in Optometry: An Independent Study, 2005.

Galvan, Brent; Ypma, Troy.

The Effect of Goldmann Applanation Tonometry on Central Corneal Thickness Measurements, 2005

Moulton, Jason; Gowen, Joseph.

Patient Education Materials on Glaucoma, 2006.

Felestian, Carol

Neuroprotective Effects of Drugs Currently Approved in the U.S. by the FDA to Treat Glaucoma: A Review of the Current Literature, 2006.

Girffith, Robert

A Systemic Approach to Treating and Managing Primary Open Angle Glaucoma, 2006.

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Medical Treatment Patterns of Optometrists and Ophthalmologists for Primary Open Angle Glaucoma: A Survey, 2007

Dirks, Zachary Blake

The Effectiveness of a Spanish Guide on Efficiency and Quality of Care for Hispanic Patient Examinations, 2007.

Narvaez, Lauren

A Survey of the Uncaptured Spectacle Prescription Population at the Eye Care Center, 2008

Jung, Jennifer

Conformance with Patterns of Care for Primary Open Angle Glaucoma at the Eye Care Center, 2009.

Riad, Mariette; Trinh, Thanh

The False Positive Rate of Optovue RTVue Ganglion Cell Complex Scan, 2009

Omoto, Robert; Vo, Eric

The Effect of Gonioscopy Using Carboxymethylcellulose Upon SITA Standard Threshold Perimetry on the Humphrey Field Analyzer, 2009.

Khakshooy, Angela; Sheck, Anita

The Effects of Corneal Properties on Intraocular Pressure Measured by Goldmann Applanation and Dynamic Contour Tonometry: A Literature Review, 2012

Duong, Carolyn; Merino, Ramon

Alternatives to Standard Automated Perimetry in the Assessment of Visual Field Loss in Patients with Glaucoma, 2012.

Kuhn, Jamie; Tung, Jan

Guide for Reading and Interpreting Optical Coherence Tomography (RTVue) for Beginning Clinical Interns, 2012.

Tong, Karen; Duran, Phillip