



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



### Continuing Education Course Approval 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

Amended



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CONTINUING EDUCATION COURSE APPROVAL APPLICATION

\$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.

Course Title: Kaiser Permanente Ocular Symposium
Course Presentation Date: 12/02/2016

Course Provider Contact Information

Provider Name: Alisha Truong A
(First) (Last) (Middle)

Provider Mailing Address: Street 10725 International Dr, City Rancho Cordova, State CA, Zip 95670

Provider Email Address: Alisha.Truong@KP.org

Will the proposed course be open to all California licensed optometrists? [X] YES [ ] NO

Do you agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation? [X] YES [ ] NO

Course Instructor Information

Please provide the information below and attach the curriculum vitae for each instructor or lecturer involved in the course. If there are more instructors in the course, please provide the requested information on a separate sheet of paper.

Instructor Name: Peter Wu W
(First) (Last) (Middle)

License Number: A125228 License Type: MD

Phone Number: (916) 784-4185 Email Address: Peter.W.Wu@KP.org

I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.

Signature of Course Provider: [Handwritten Signature]

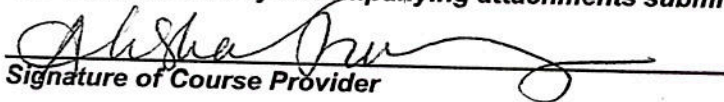
Date

**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> <u>Janis</u> (First) <u>lightman</u> (Last) <u>M.</u> (Middle)	
<b>License Number</b> <u>8909 Therapeutic + Glaucoma</u>	<b>License Type</b> <u>O.D.</u>
<b>Phone Number</b> <u>(916) 784-4185</u>	<b>Email Address</b> <u>Janis.M.Lightman@lp.org</u>

**I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.**

  
Signature of Course Provider

10/14/14  
Date

February 14, 2016

Dear California State Board Officers,

I am applying for approval for 2 CE credits, 1 credit for Cross Linking by Dr. Peter Wu and 1 credit for Scleral Lenses for Scary Corneas by Dr. Janis Lightman for the presentation given on December 2, 2016. All required materials are included in this package. I am resending you an amended application as requested. I am sorry for the inconvenience.

Thank you for your time and effort.

Sincerely,

Alisha Truong, OD

10725 International Drive

Rancho Cordova, CA 95670

E-mail: [Alisha.Truong@KP.org](mailto:Alisha.Truong@KP.org)

# Kaiser Permanente Ocular Symposium

December 2, 2016

Point West

12:30-2:00 Conference Room #6

2:00-5:00 Conference Room #2

12:30-2:00 pm	Travel time and Lunch (honoring our retiree, Brett)	Dr. Ed Denz
2:00-3:00 pm	Cross - Linking	Dr. Peter Wu
3:00-3:45 pm	In house Issue	
3:45-5:00 pm	Scleral Lenses for Scary Corneas	Dr. Janis Lightman

## Corneal Cross Linking

This presentation will educate the practitioners on keratoconus and cross linking. The lecture will start with defining keratoconus and the progression of the disease. The different modalities to correct the problem of keratoconus like contact lenses, intacs, and corneal transplant. The new approved surgery in the USA now is cross linking. The presentation will discuss crosslinking in length, which patients should be referred for the surgery, the pre and post care, and the risks of this surgery.

## Corneal Crosslinking Outline

- I. Keratoconus Background
  - a. Signs/Symptoms
  - b. Progression
  - c. Treatment – Medical
  - d. Treatment – Surgical
- II. Corneal Crosslinking
  - a. Background/Physiology
  - b. Treatment Criteria/Pathway
  - c. Risks
  - d. Procedure

# Corneal Crosslinking

Kaiser Permanente

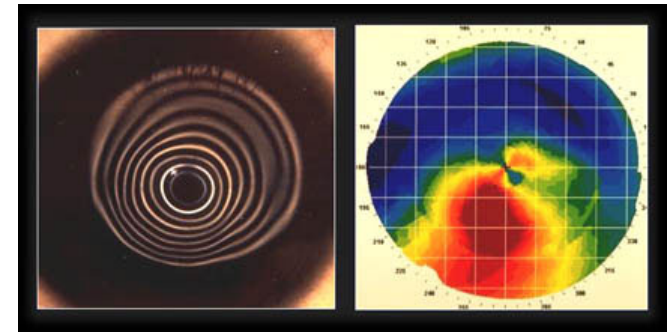
North Valley

Peter W. Wu, MD

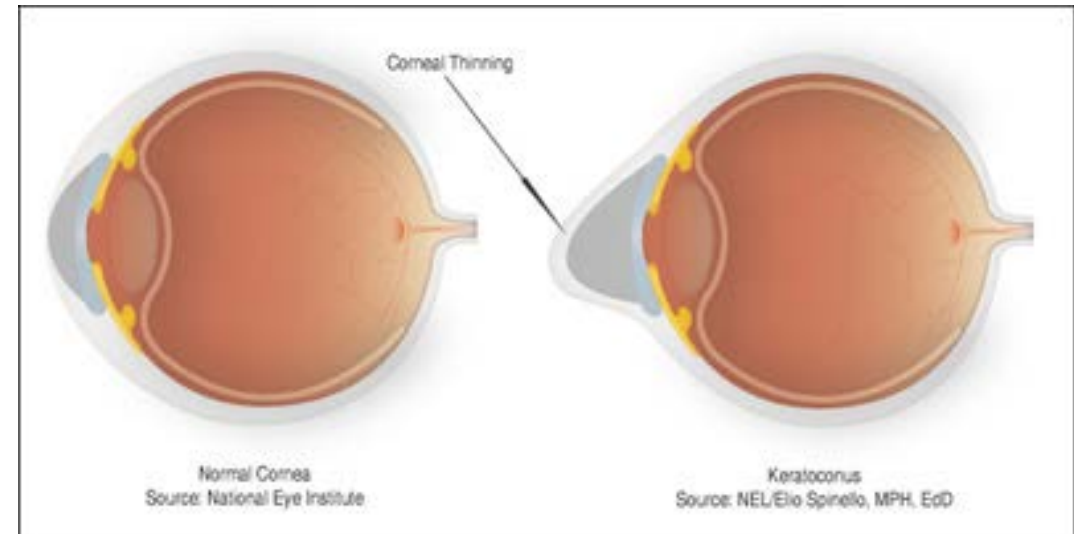




# What is Keratoconus?

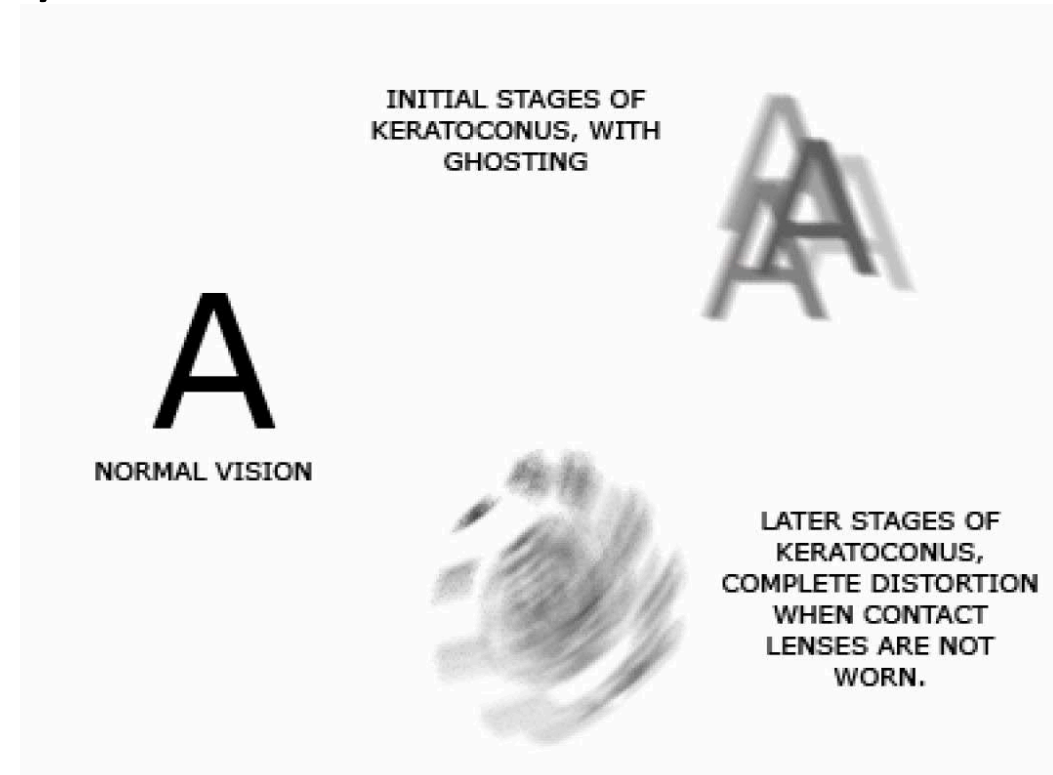


- A common corneal disorder where the central or paracentral cornea undergoes progressive thinning and steepening causing an irregular cone shaped cornea instead of a normal round one.
- 1 in 2000 people
- Risk factors: eye rubbing, sleep apnea
- Exact cause unknown
  - Some associated medical conditions
    - Atopic disease
    - Down Syndrome
    - Ehlers-Danlos Syndrome
    - Marfans Syndrome
    - Osteogenesis imperfecta
    - Craniofacial dysostosis
  - May run in families but no predictable inheritance pattern
- Related disorders: post-LASIK ectasia, pellucid marginal degeneration, keratoglobus



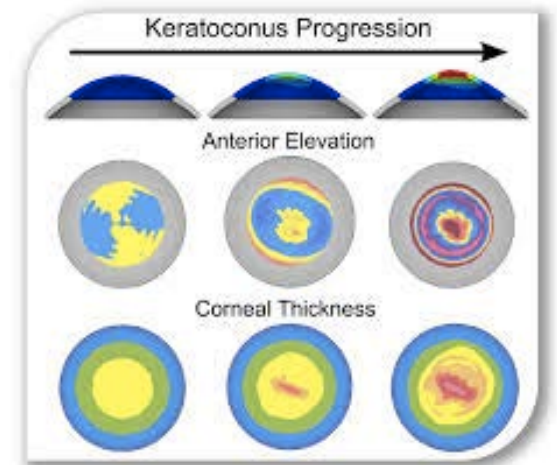
# What are the symptoms?

- Early: blurred vision and frequent changes in eyeglasses prescription (or vision that cannot be corrected with glasses)
- Age of onset: typically late teens and early twenties but can start anytime
- Other symptoms:
  - Increased light sensitivity
  - Difficulty driving at night
  - Halos or ghosting around lights (especially at night)
  - Eye strain
  - Headaches and general eye pain
  - Eye irritation, excessive eye rubbing



# Disease Progression and Prognosis

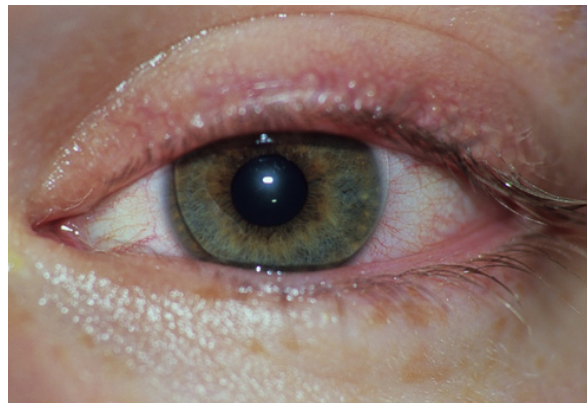
- Typically progresses over a 10-20 year period
- Rate of progression varies
- Severity varies-ranging from mild astigmatism to severe corneal thinning, protrusion and scarring
- Bilateral disease despite extreme asymmetry in some cases





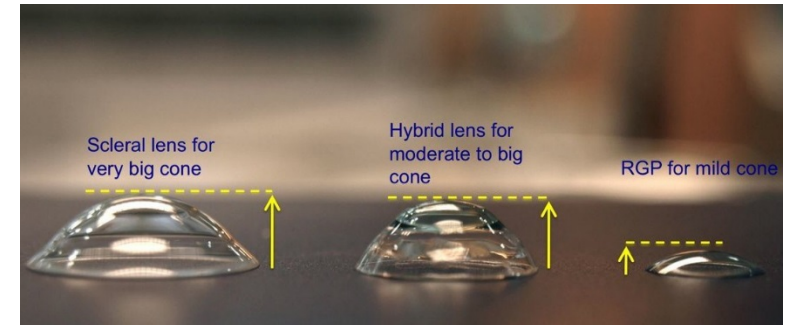
# Treatment-Medical

- Avoid eye rubbing-keep Artificial tears in pocket, allergy drops (zaditor, patanol)
- Treat all ocular surface and allergic disease
- Glasses or toric soft contacts early in disease
- Rigid Gas Permeable Lenses at all stages of disease (even after surgery)





# Contact Lenses

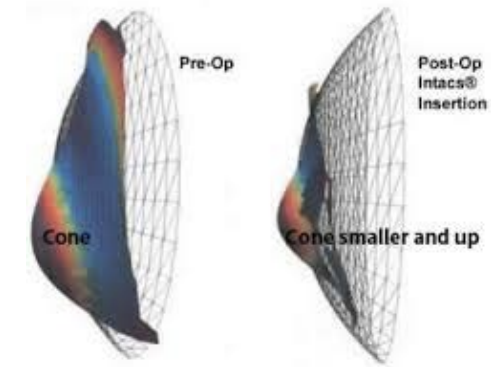
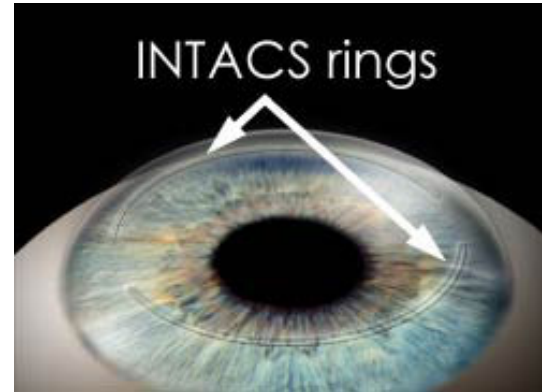


- *Custom Soft Contact Lenses*: These lenses are made-to-order based on detailed measurements of the person's keratoconic eye(s).
- *Gas Permeable Contact Lenses*: Their rigid lens material enables Gas Permeable lenses to vault over the cornea, replacing its irregular shape with a smooth, uniform refracting surface to improve vision.
- *"Piggybacking" Contact Lenses*: this method involves placing a soft contact lens, such as one made of silicone hydrogel, over the eye and then fitting a GP lens over the soft lens.
- *Hybrid Contact Lenses*: Hybrid contact lenses provide the crisp optics of a gas permeable contact lens and wearing comfort that rivals that of soft lenses.
- *Scleral & Semi-Scleral Lenses*: These are large-diameter gas permeable contacts — large enough that the periphery and edge of the lens rest on the "white" of the eye (sclera).



# Treatment-Surgical: Intacs

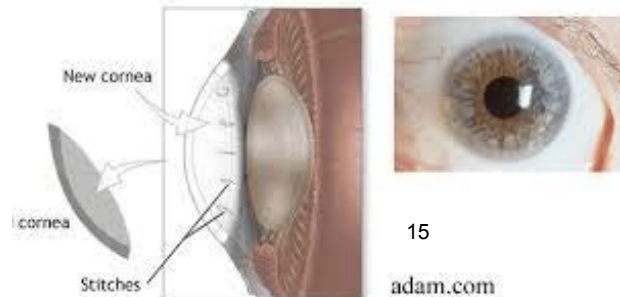
- Intacs intrastromal ring segments



- Stromal pockets in mid-periphery created by custom blade or femtosecond laser
- Segments are placed in these pockets to flatten the cornea
- Main goal is to improve CL fit and comfort
- Intacs might delay but can't prevent a corneal transplant if keratoconus continues to progress.

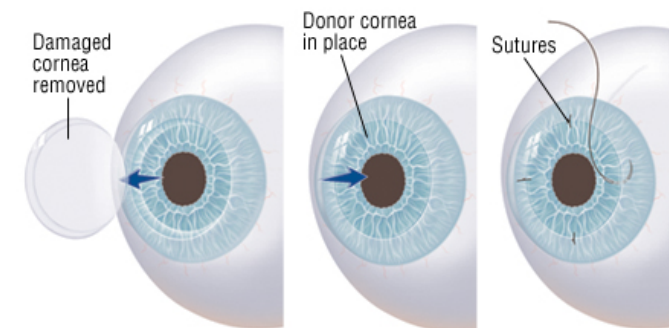
# Treatment-Surgical: Corneal Transplant

- Indications in Keratoconus:
  - Intolerant of contact lens
  - Contact lens no longer gives clear enough vision
- The last remedy to be considered
- Even after a transplant-most likely need contacts or glasses
- This is only necessary in about 10% of patients with KC
- success rate of greater than 90%
- DALK vs PKP



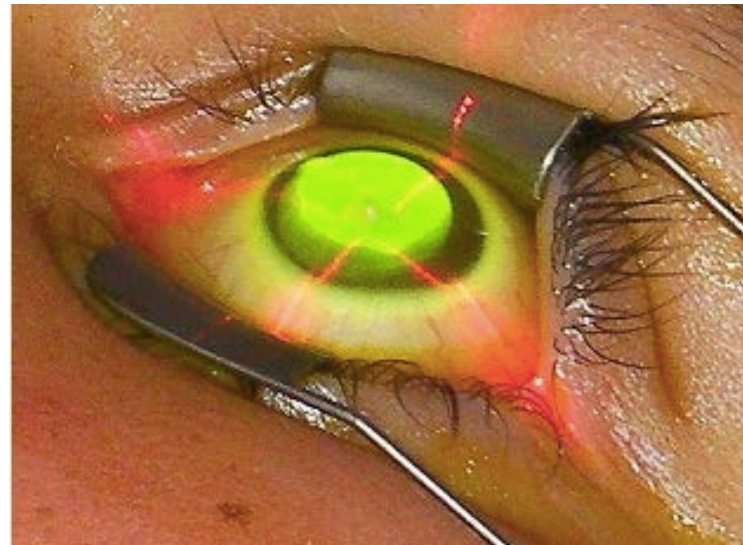
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adam.com



# Corneal Crosslinking (CXL)

- Doctors are performing CXL and successfully treating patients in the United States, as well as at over 400 centers in all 25 European Union nations since 2006
- FDA approved in USA in April 2016
- Uses UV light and a photosensitizer to strengthen chemical bonds in the cornea
- Strengthens corneal tissue to halt the progression of keratoconus

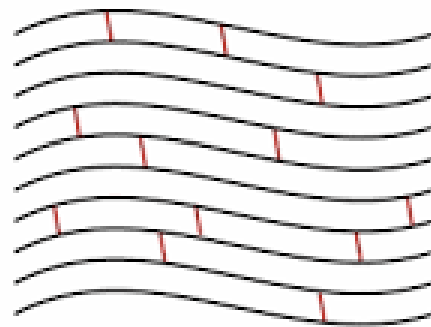




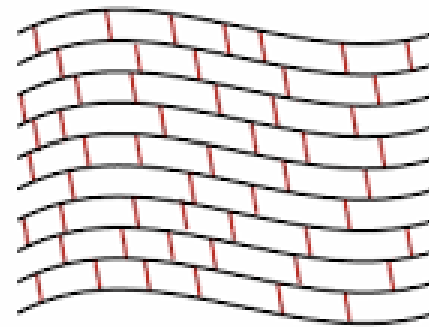
# How Does It Work?

- Uses riboflavin (vitamin B2) as a photosensitizer and UVA light
- Creates free radicals → form intra- and inter-fibrillar covalent bonds (cross links)
- Increases corneal rigidity of anterior stroma
- Increase in collagen fiber thickness

Before CXL: less crosslinking

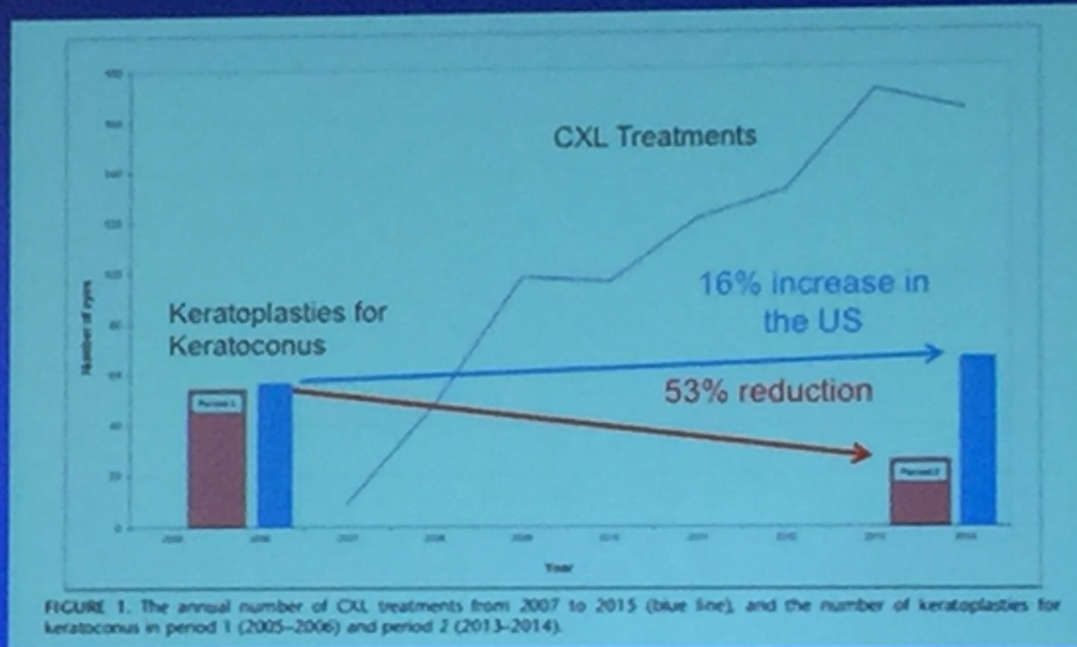


After CXL: more crosslinking



# Long-term Positive Impact of CXL on KC

## Effect of CXL on Keratoplasty for KC Oslo University Hospital



Sandvik et al. Cornea 2015;34:991–995

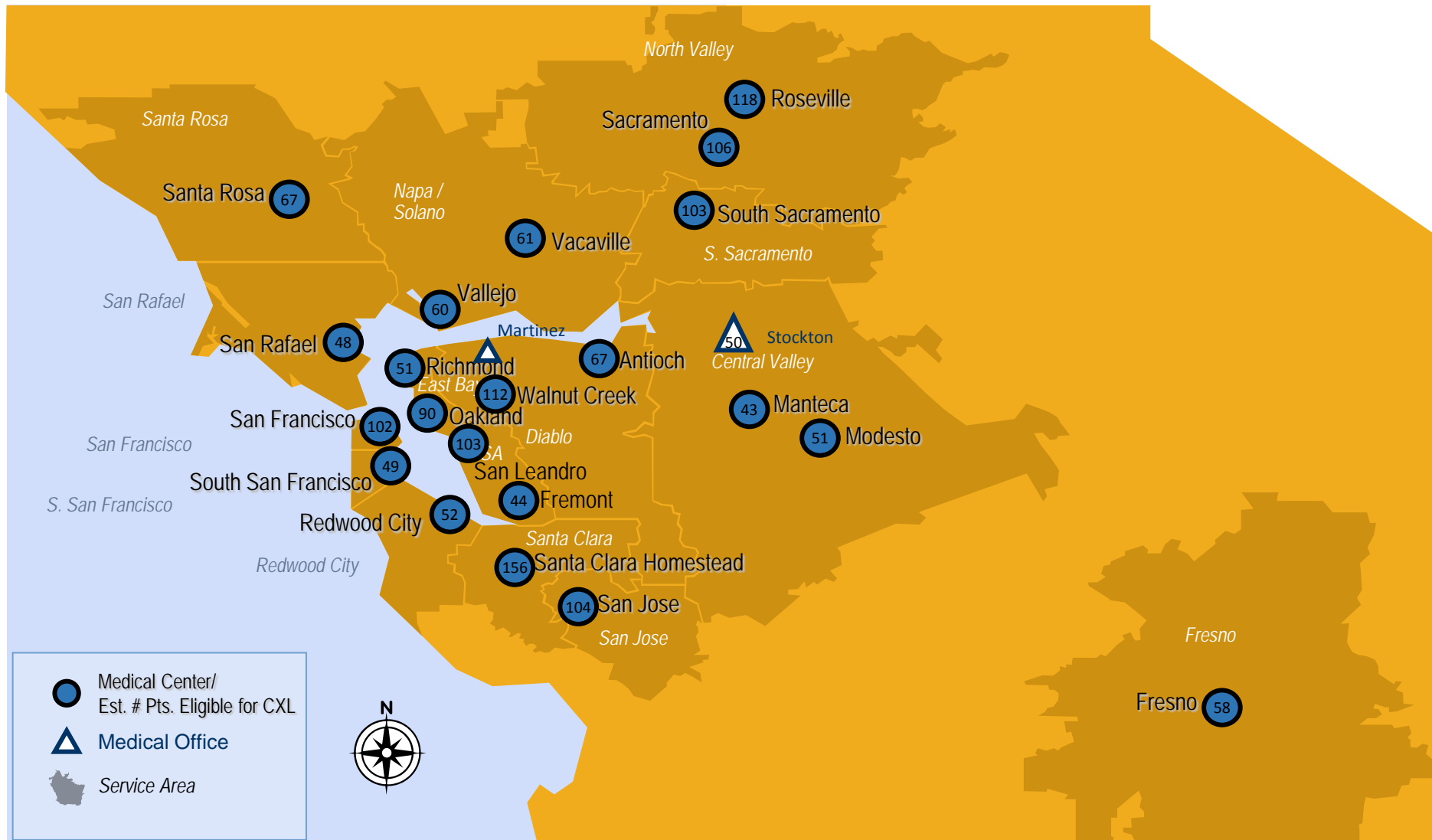
EBAA Statistical Reports 2005–2015

55

CXL has been standard of care in Norway since 2007.

From 2007 – 2015, Norway saw a 53% reduction in keratoplasty (corneal transplant) while the US experienced a 16% increase

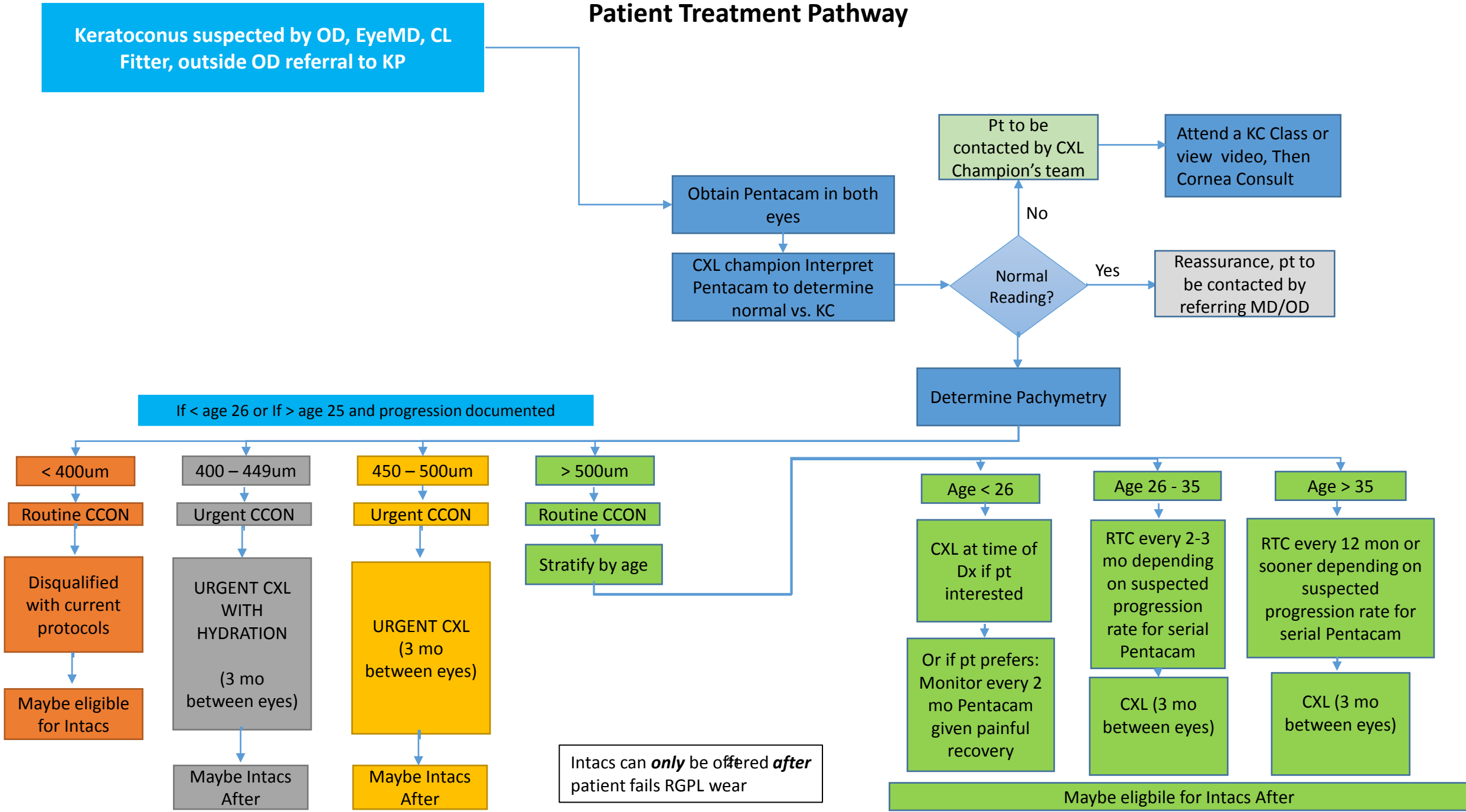
# Location of Patients Eligible for CXL TX (Estimated Backlog, 2016)



# Indications for CXL

Parameter	Change Suggesting Progression
Kmax	$\geq 1.0$ D
Kmax – Kmin	$\geq 1.0$ D
Pachymetry	$\geq 2\%$ decrease
Increase in central corneal power	$\geq 1.5$ D from baseline
Manifest Cylinder	$\geq 1.0$ increase over 2 years
Change in MRx Spherical Equivalent	$\geq 0.5$ D

# Corneal Collagen Cross Linking (CXL) Patient Treatment Pathway



Keratoconus suspected by OD, EyeMD, CL Fitter, outside OD referral to KP

Obtain Pentacam in both eyes

CXL champion Interpret Pentacam to determine normal vs. KC

Pt to be contacted by CXL Champion's team

Attend a KC Class or view video, Then Cornea Consult

Normal Reading?

Reassurance, pt to be contacted by referring MD/OD

Determine Pachymetry

If < age 26 or If > age 25 and progression documented

< 400um

Routine CCON

Disqualified with current protocols

Maybe eligible for Intacs

400 – 449um

Urgent CCON

URGENT CXL WITH HYDRATION  
(3 mo between eyes)

Maybe Intacs After

450 – 500um

Urgent CCON

URGENT CXL  
(3 mo between eyes)

Maybe Intacs After

> 500um

Routine CCON

Stratify by age

Intacs can **only** be offered **after** patient fails RGPL wear

Age < 26

CXL at time of Dx if pt interested

Or if pt prefers: Monitor every 2 mo Pentacam given painful recovery

Age 26 - 35

RTC every 2-3 mo depending on suspected progression rate for serial Pentacam

CXL (3 mo between eyes)

Age > 35

RTC every 12 mon or sooner depending on suspected progression rate for serial Pentacam

CXL (3 mo between eyes)

Maybe eligible for Intacs After

# Contraindications to CXL

- Corneal thickness < 400um at thinnest point
  - Risk of irreversible endothelial damage from UV
- Keratometry > 58D
  - Increased risk of progression and permanent stromal haze
- Age
  - No proof of safety < 14 or > 65 years old -> off label treatment
  - Often stable over age 40 -> can be treated if documented progression
- Severe corneal scarring or opacification
  - Mild scarring not a contraindication but may not be as effective

# Contraindications to CXL

- Prior herpetic infection
  - Increased risk of corneal melting
- Concurrent infection
- History of poor wound healing
- Severe ocular surface disease (ex. Dry eye)
- Autoimmune disorders
- Pregnancy or breastfeeding

# Crosslinking: Before the procedure

- Updated manifest refraction
- Pentacam (4 Map Topometric) or Topography + Pachymetry
- Treat ocular surface (Artificial tears)



# Treatment Protocol

- Dresden Protocol = current standard
- Valium for sedation
- Epithelium removal
- Pre-soak with riboflavin (Photrex Viscous) for 30 mins
- Check pachymetry at thinnest point
- If  $< 400\mu\text{m}$ , apply thickening agent (Photrex) until CCT  $> 400$
- Treat with UVA for 30 mins while applying riboflavin
- Antibiotics + BCL

# Crosslinking: After the procedure

- Expect pain and tearing for a few days after the procedure
- Pain control with ibuprofen and norco (for breakthrough)
- Follow up visit the next day
- Post operative eye drops start the day after surgery and last for 1 month
- Second visit post op day #5: bandage contact lens comes out
- Final visits: 1 month (optometrist and MD), 3 months, 6 months, 1 year
- Expect follow up testing at most visits past 1 month
- Second eye 3 months later (if applicable)

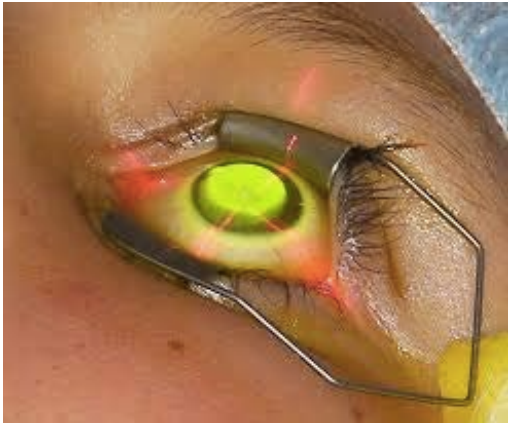
# Risks of CXL

- Continued progression (7.6-9.8%)
- Worsening vision
  - VA often worse in the 1<sup>st</sup> month
  - 2.9% with loss of 2 or more Snellen lines of CDVA
  - Long discussion with patients that are 20/Happy with correction
- Sterile infiltrates (7.6%)
- Central stromal scars (2.8%)
- Stromal haze formation
  - Usually resolves in 3-12 months
  - Permanent haze in 8.6%

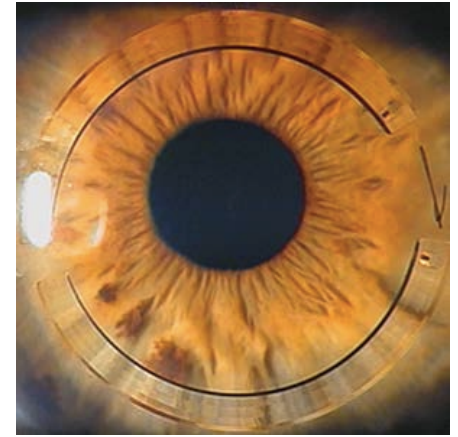
# Risks of CXL

- Infectious keratitis
- Delayed healing (2%)
- Iritis
- Corneal melting
- Increased IOP
- Damage to endothelium
- Damage of UV light to other structures of the eye

→ Main goal is to stabilize the cornea and reduce progression



# Crosslinking AND Intacs



- In certain cases, may complement each other
- Goal of Intacs: Flatten cone and make contour more symmetric to allow for better spectacle corrected vision and contact lens comfort/fitting
- Goal of Crosslinking: Strengthen the cornea to prevent further disease progression over time
- Further studies are needed regarding which is better to do first, but there are studies showing both orders can be successful.

# Conclusions

- CXL uses riboflavin and UVA light to create new bonds between collagen fibers to strengthen the cornea
- >50% reduction in need for corneal transplants
- Main goal is to slow/prevent progression
- CXL is not without risks
- Updated MRx and Pentacam or Topo+Pachy prior to referral

QUESTIONS?

## **Peter W. Wu**

1650 Response Road  
Sacramento, CA 95815  
Work: 916-614-4360  
Cell: 469-583-5863  
Email: peter.w.wu@kp.org

### **RESIDENCY/FELLOWSHIP:**

#### ***Fellowship:***

**Illinois Eye and Ear Infirmary/ University of Illinois at Chicago**, Chicago, IL, 7/2015-7/2016  
Cornea and Refractive Surgery Fellowship - Department of Ophthalmology

#### ***Residency:***

**University of California, Davis**, Sacramento, CA, 7/2012- 6/2015  
Chief Resident, Department of Ophthalmology

#### ***Internship:***

**University of California, Davis**, Sacramento, CA, 7/2011- 6/2012  
Preliminary Year – Department of Internal Medicine

### **EDUCATION:**

#### ***Medical School:***

**Texas Tech University HSC School of Medicine**, Lubbock, TX, 8/2007- 5/2011  
M.D., May 2011

#### ***Undergraduate:***

**The University of Texas**, Austin, TX, 8/2005- 12/2006  
Post-Baccalaureate, Pre-Medicine

**The University of Texas**, Austin, TX, 8/1998- 5/2003

B.S., Electrical Engineering, Cockrell School of Engineering

### **HONORS AND AWARDS:**

- Alpha Omega Alpha Honor Medical Society 2010
- Gold Humanism Honor Society 2010
- Texas Tech University SOM President Priority Scholarship 2007
- Eta Kappa Nu (Electrical Engineering Honors) 2002
- Tau Beta Pi (College of Engineering Honors) 2002



## RESEARCH:

**University of California Davis Eye Center**, Sacramento, CA, 11/2014- 6/2015

Department of Ophthalmology

Advisor: Mark Mannis, M.D.

Manometric and Clinical Comparison of the iCare versus the Tono-Pen Tonometer in Post-Penetrating Keratoplasty Patients

**University of California Davis Eye Center**, Sacramento, CA, 7/2013- 6/2015

Department of Ophthalmology

Advisor: Jennifer Li, M.D. & Mark Mannis, M.D.

Conjunctival Swabs of Potential Corneal Transplant Donors

**Texas Tech University HSC School of Medicine**, Lubbock, TX, 7/2010- 9/2010

Department of Ophthalmology

Advisor: Jay Bradley, M.D.

Comparison of the NeurOptics Pupillometer with the WAM 5500 Binocular Accommodation Instrument in Measurement of the Dark-Adapted Pupil

**University of Texas Southwestern Medical Center**, Dallas, TX, 6/2008- 8/2008

Department of Emergency Medicine

Advisor: Jane Wigginton, M.D.

RESCUE-TBI (Resuscitative Endocrinology: Single-dose Clinical Uses for Estrogen) Trial  
NIFTI-TBI (Non-interventional F-Two Isoprostane- Traumatic Brain Injury) Trial

## PUBLICATIONS:

Bradley JC, Cohn CD, **Wu PW**, Brown SM. Comparison of a Pupillometer with the Pupillometry Function of a Binocular Free-Viewing Autorefractor. *J Cataract Refract Surg.* 2011 Jul;37(7):1257-62. Epub 2011 May 20.

Desai P, Gatson J, Hynan L, Smith J, Idris A, Chaudry I, Lai L, **Wu P**, Schatz D, Wigginton J. Impact of Sex of Lab Animals on Research: Practice and Attitudes. *Shock.* June 2009; 31(7): 22

### *In Preparation:*

**Wu P**, Kelliher C, Hallak J, Azar D,. The Future of LASIK: Femtosecond Laser versus Other Technologies. In: Burkhard R, Gerste R, Schultz T, eds. *Femtosecond Laser Surgery in Ophthalmology.* New York, NY: Thieme Press.

Hallak, JA, **Wu P**, Azar DT. Clinical Investigations and Diagnosis of Endothelial Cell Dysfunction. In: Agarwal A, Kim T, eds. *Endothelial Keratoplasty: Mastering DSEK, DMEK, and PDEK.* New York, NY: Thieme Press.

## ORAL & POSTER PRESENTATIONS:

**Wu P**, Li JY. UC Davis Best of Grand Rounds: Simple Limbal Epithelial Transplantation for Chemical Burn. [Oral presentation] The 38<sup>th</sup> Annual UC Davis Ophthalmology Symposium. 2015 May 15. Napa, CA.

**Wu P**, Li JY, Mannis MJ. Conjunctival Swabs of Potential Corneal Transplant Donors. [Oral presentation] The 3rd Annual Resident and Alumni Symposium, UC Davis Department of Ophthalmology and Vision Science. 2014 June 21.

**Wu P**, Cortes DE, Li J, Chen M, Mannis MJ. Epithelial Basement Membrane Dystrophy: A Study with in vivo Confocal Microscopy and High-Resolution Anterior Segment Optical Coherence Tomography. [Poster] ARVO Annual Meeting. 2013 May 5. Corneal Epithelium and Imaging I. Seattle, WA

**EXTRACURRICULAR ACTIVITIES:**

**Volunteer, Paul Hom Asian Free Clinic**, Sacramento, CA, 7/2011- 5/2015

- Performed annual eye exams for the indigent and immigrant Asian population of Sacramento

**Co-Founder, Texas Tech HSC Student-Run Free Clinic**, Lubbock, TX, 12/2007- 6/2009

- Founded local free clinic for indigent and working poor families with over 800 patient visits in its first year of inception
- Drafted proposals and protocols for the clinic
- Procured medical equipment, supplies, and clinic space
- Collaborated and met with TTUHSC administration to obtain official approval of the clinic

**DJ, KVRX Radio**, Austin, TX, 8/1998- 5/2003

**WORK EXPERIENCE:**

**PQD International**, Operations Engineer, Plano, TX, 7/2003- 6/2005

- Maintained communications and negotiations between customers and suppliers in China
- Analyzed and evaluated customer designs

**IBM**, Intern – Regatta Lab – Product Engineering, Austin, TX, 1/2002- 8/2002

- Characterized and analyzed high-end computer processors for IBM servers

**Texas Instruments**, Intern- Product Engineering, Dallas, TX, 8/2000- 12/2000

- Developed and tested recently fabricated computer chips

**LANGUAGES:**

English: native language, Spanish: proficient, Chinese (Mandarin): basic

## Scleral Lens for Scary Corneas

This continuing education presentation will show the practitioners and doctors of optometry different cases of patients with keratoconus and how to fit contact lenses successfully for these patients. Some of these cases are patients with severe keratoconus or patients who had gone through unsuccessful corneal surgeries and still needed specialty contact lens fitting. This presentation will expose the practitioners to certain scary corneas that could be manageable with scleral lenses.

## Scleral Lens for Scary Corneas---Outline

- I. Scleral lens fitting principles
- II. Indication for Scleral lenses
- III. Case Study
  - a. Case 1: RGP/piggy back/bitonic lenses
  - b. Case 2: Fuch's Dystrophy
  - c. Case 3: Lattice Dystrophy
  - d. Case 4: RK/LASIK/PK/DSEK
  - e. Case 5: LASIK
  - f. Case 6: Post LASIK Ectasis
  - g. Case 7: Hx of Crosslinking
  - h. Case 8: Keratonus/PK/Strabismus surgery
  - i. Case 9: LASIK/FUCH'S/DMEK/Plaquenil
  - j. Case 10: neurotrophic ulcer/post cataract surgery
  - k. Case 11: PK OD, advanced keratoconus OS
  - l. Case 12: Terrien's disease
  - m. Case 13: Severe dry eyes
  - n. Case 14: Keratoprosthesis
  - o. Case 15: SP LASIK/ectasia/IOL/Dry eyes

## Scleral Lens; Power Point Slide notes

### Scleral Lenses for Scary Corneas

- I. Scleral Lens fitting Principles
  - A. Vault the cornea 250-300 microns
  - B. Clear the Limbus
  - C. Land on the Sclera without Impingement or conjunctival drag
  - D. Maintain Saline without bubbles or leakage
  - E. Avoid fogging, keep oxygenated; reinsert every 4 hours with fresh saline
  - F. Care: pharmacy rx sterile saline, ClearCare, lobo optimum cleaner
  
- II. Indications for Scleral Lens Use
  - A. Keratoconus and Pelucid Marginal degeneration– when steepest lenses will not remain centered (and cornea not thin enough to perforate). When vision after Intacs, Cross-Linking and Thermal or Conductive Keratoplasty is still not adequate
  - B. Corneal Transplants and lamellar Transplants– when toricity and irregularity makes fitting with an rgp sphere or bitoric not successful
  - C. Severe Dry Eyes – when artificial tears, Restasis and Serum tears are not enough to treat the ocular surface disease
  - D. Corneal Scars – to provide a smooth, regular refracting surface when the cornea is very flat due to the scar and/or concurrent dryness occurs.
  - E. Corneal Neovascularization from Hybrid lenses – remove the hybrid lenses and refit with sclerals
  - F. Irregular Astigmatism from Radial Keratotomy with/without neovascularization
  - G. Neurotrophic corneal ulcerative Scarring due to HZO or medicamentosa/medication sensitivity
  - H. Exogenous Sources: Chemical Injury or Graft vs Host Disease

### Case #1 K.Y. Radial Keratotomy with radial and Circular Incisions

tried rgp and piggyback and bitoric; poor stability with all lenses per pt.

Oc hx:

1. s/p RK OU
2. Cupping Ou: High myopia and staphyloma ou

Wearing

OD +1.00 -2.50 x 76 20/40

OS +4.25 -7.25 x 108 20/60

Slit Lamp

OD 3 Circular scars At appx 3mm and 4mm from center with 4.0 oz

Os Has 4 RK cuts and and 2 AK cuts with a circular cut

Tpog: OD 41.33/ 39.36 OS 37.76 / 35.57

1. Irregular Astigmatism OU sp RK OU (circular od), h/o high myopia
  2. Glaucoma suspect with tilted discs ou – ref oph/cornea
- Order ICD 16.5 Paragon HDS 100  
OD 4100 / 16.5 / -13.00 / 47.00 bc, LCZ +2 SLZ -2 Dot right

OS 4100 / 16.5 / -13.00 / 47.00 bc SLZ -2

Visit #2: VA ccl

OD 20/70+ over-ref: +1.00 20/30-

OS 20/30+ Over-ref: -0.25 20/30+

CI fit eval

OD Vaults 250, good edges

OS Vaults 250, tight edge with, mild impingement nasally with conj drag

order cl rx 1/28/16;

OD 4100 / 16.5 / -12.00 / 47.00 bc, LCZ +2 SLZ -2 drill Dot right

OS 4100 / 16.5 / -13.25 / 47.00 bc SLZ -3

Main change is to loosen the Scleral landing zone (from SLZ -2 to SLZ -3)

Visit #4 moderate redness on outer edges at end of day

cl rx 2/24/16; ICD Paragon HDS 100

OD ICD 14.5 3700 micron sag ( bc 7.34) / -11.00 / 14.5 diam / LCZ +5 / SLZ -1 Dot right

OS ICD 16.5 4100 micron sag (bc 7.19) / 16.5 / -13.50 / SLZ -4

CI fit eval (wear time 3 hr today)

OD Vaults 250, mild/mod conj drag, tight edges; no limbal clearance

OS Vaults 250, mild/mod conj drag, tight edges; mild inf limbal clearance

**scleral cl's still tight; reorder looser limbal and scleral landing zones**

OD ICD 14.5 3700 micron sag / -12.00 D power / 14.5 diam /0.40 ct / **LCZ +8 / SLZ -3** Dot right

OS ICD 16.5 4100 micron sag (bc 7.19) / 16.5 / -13.50 / Ct 0.40 / **LCZ +3 / SLZ -6**

Visit #5 Indentation rings, hard to remove, vision seems "tilted"; tight edges:

Order: OD ICD 14.5 3700 micron sag / BC 7.34 / -12.00 D power / 14.5 diam /0.40 ct / PCCZ -2 / LCZ +8 / SLZ -4 Dot right

OS ICD 16.5 4100 micron sag (bc 7.19) / 16.5 / -14.00 / Ct 0.40 / PCCZ -2 / LCZ +3 / SLZ -7

Now changed the PCCZ (peripheral clearance zone) from standard to PCCZ -2 to lift off the periphery which will then lift of the limbal and the scleral landing zones

Photos: 5/16/16

Visit #6 wear time 5 hrs, pink/red horizontal line, indentation ring but easier to remove

OD vaults 250, adequate limbal clearance, very tight edges

OS vaults inferiorly, flat/touch superior cornea, Very good limbal clearance, tight edges

Plan:

OD add the over-refraction and change the LCZ from +8 to +9 and SLZ from -4 to -6 (loosen)

OS raise PCCZ to zero and flatten the periphery further from SLZ-7 to -8

Visit #7 : new cl's still indenting: flatten peripheral system more:

ICD paragon hds 100

OD ICD 14.5 3700 micron sag / BC 7.34 / -12.00 D power / 14.5 diam / 0.40 ct / PCCZ -3 / LCZ +10 / SLZ -8 Dot right  
OS ICD 16.5 4100 micron sag (bc 7.19) / 16.5 / -14.00 / Ct 0.40 / PCCZ -1 / LCZ +4 / SLZ -9

Visit #8 still tight edges, OS sup/temp touc; tried to order toric pc's but lab could not make on this lens

Visit #9, now in SLZ -11; discussed with lab: RK eye is Oblate and these are Prolate lenses: won't work, need Zenlens (check on this). Reorder as /surgilens with +5 piggyback scl. Tried this but was not as comfortable as sclerals so will go back to Sclerals and try again.

**Case #2 SDC** Fuch's at young age, PK's, compression sutures, multiple rejections, h/o scleritis and IOL's, extreme dry eyes-serum tears. Wants monovision. Pt works in Africa many months/yr. with min sanitation

Va ccl od 20/40 os 20/50 shadowy  
Oxycon Dark Green/dot (will bring to Africa – easier to manage)  
OD 6.62 (51.00) / -8.25 distance / 0.15 / 9.2 / 6.4 / 9.5 x 0.4 / 11.5 x 0.3  
OS paraperm O2 7.45 / -3.00 distance / 9.4 / ct 0.18 / 10.5 x 0.5 electric/dark blue

Slit Lamp:

od graft clear with x suture at 3;00  
Os graft with x suture at 2;00, 3;00 and 8;00

First sclerals:

OD	ICD 16.5	4500 / 16.5 / -4.50 / 49.00 bc	slz -2	Dot right (distance)
OD	ICD 16.5	4500 / 16.5 / -2.50 / 49.00 bc	slz -2	Dot right (near)
OS	ICD 16.5	4500 / 16.5 / -4.75 / 49.00 bc	slz -2	

CI fit eval:

OD Clears well, vaults well, tight edges  
OS no fluorescein able to get under lens, tight edges

Order:

OD slz -4 LCZ +5 Dot right (distance)  
OS slz -3 LCZ +5 (distance)

Now easier to remove but still has indentation ring and lenses fog even when not using serum tears. (photos)

Re-ordered with LCZ +5 and SLZ -6 which fit well but pt suffered central abrasion Left eye (grand-daughter's fingernail) few days prior to trip to Africa. Treated with Superficial Keratectomy, bandage scl and Zymaxid qid; healed, went to Africa

Returned: scleral lens did well during trip; later c/o intolerance to all rgp/scleral lenses OD despite very good fit. Planning repeat PK OD

**Case #3 RGD Lattice dystrophy, recurrent in PK (od x 2 os x3), h/p PTK's and IOL's**

8/18/14 Pt west clinic: around 3:45 pm today, patient was playing golf and was hit by moving golf cart at his left eye. **IOL was stuck to his glasses** (brought in), OS very blurry, pain, watering.

- Pt standing next to golf cart, driver turns on cart, hits pt in head, corneal transplant opens up and IOL falls out onto patients glasses! Pt recovers IOL, covers eye tightly with hand,

**SLE:**

LLL: left upper eyelid with large hematoma at brow

Cornea: Clear graft OD, 2 compression sutures in place

Ruptured nasal half of graft OS with broken sutures and vitreous and pigment protruding onto corneal surface/lashes

iris: r/r OD; dilated with nasal iris capture at corneal rupture

Lens: PCIOL with clear pc OD

aphakic OS (pt brought in his 3 piece IOL which had fallen onto glasses from OS)

Left eye is dilated due to prolapsed iris thru corneal wound, but poor view to retina: appears grossly flat but too blurry to view

Left ruptured globe (dehisced corneal transplant) with prolapse of intraocular tissue. Patient now aphakic since extruded his PCIOL OS. Roseville OR; ruptured globe repair stat

8/20/14; Vitreous heme, high risk of RD discussed

8/12/15 (1 yr later)

Visual acuity

OD cG: 20/60-1 ph: 20/50

OS sc: 20/500 ph: 20/150-1

refraction:

OD +2.00-6.00 x 020 20/40+2

OS +12.00 -1.00 x 180 20/80-, rx plano over cl

Add+3.00 pal/transition

Slit lamp;

OD graft with gr 1 recurrent lattice, sutures a 3;00/9;00, pc IOL

OS graft clear, irreg, dil pupil, aphakic

Keratometry: OS 40.75 / 48.75 @ 98 Mires sl irreg

Order: : Paragon HDS OS 4500 / +5.00 / 16.5 diam / SLZ -2

9/21/15: Pt very happy with new cl OS and may want scleral cl od also. Good comfort and vision ccl OS, able to wear 8-12 hours/day. Right eye has been very irritated for past week, worse past 2 days, using art tears very often; pt has 1.5 mm corneal abrasion OD (tx e'mycin)



Scleral lens: ICD 16.5 Paragon HDS OS 4500 / +5.00 / 16.5 diam / SLZ -2

Cl fit eval: OS Vaults well, lands well, no scleral impingement, mild coating

Cl fitting OD put cl os on OD: ICD 16.5 Paragon HDS OS 4500 / +5.00 / 16.5 diam / SLZ -2  
Vaults well, lands well, mild scleral impingement

Over-ref; -10.50 20/40

1. Erythromycin ung bid OD for one week for corneal abrasion

2. order scler cl od, continue with current cl os

**OD: ICD 16.5 Paragon HDS 4500 / -4.50 / 16.5 diam / SLZ -3**

OS ICD 16.5 Paragon HDS OS 4500 / +5.00 / 16.5 diam / SLZ -2

f/u; cl od great, cl os tight; refit to SLZ -4

11/15 VA ccl od 20/20 os 20/50+2 dry eyes but can't use serum tears due to h/o HepC  
Max fit, photos

#### **Case #4 E.E. (RK/lasik/pk/DSEK)**

Jan.2008:RK 1995, Lasik 2006 with hazy vision, using Restasis and Refresh Liquigel, c/d 0.7/ 0.5, IOP 26/30, pachy 398/485; tx with levo BID OU; IOP 7/7 (later changed to timolol then cosopt)

1/14 ; advanced glaucoma, early cataracts

5/16 Dsek/IOL od

OD sc 20/250

OS cc 20/40-

Manifest ref:

OD +5.00 -2.50 x 160 20/125-, rx plano -2.50 x 160 OK to  
change OD only

OS -8.25 -1.25 x 005 20/40-

Add +2.50 pal

va ccl OS 20/30-+

Contact Lens Prescription: 1/14

OD Boston XO GBL 7.42 /45.50 / -19.75 / 0.15 / 11.0 / 8.8 oz / 10.5x0.5 / 12.5x0.4

Green/dot (not wearing now)

OS oxy f-30 Surgilens: 8.33 (40.50) / -9.00 / 0.15 / 10.2 / 8.2 oz/ 8.5 x0.4 / 10.8x0.4 Blue

Current cl fit eval: OS sup lid attachment, aligns, moves well

Keratometry OD: 40.25 / 48.50 @ 90 Mires sl irreg.

Slit lamp;

OD 2 scleral sutures at 9:00 with PK with clear DSEK lenticule - all clear, pc IOL

OS 6 RK with 3 AK scars, 4.0 oz with dense central stromal scarring, gr 2 nsc

**Glasses rx:**

OD plano -2.50 x 160  
OS -8.25 -1.25 x 005 20/40-  
Add +2.50 pal

Contact lens rx 9/15/16

OD ICD Paragon HDS : 16.5 / 5400um sag / -4.50 D / bc 49.00 / SLZ -2  
OS OS oxy f-30 Surgilens: 8.33 (40.50) / -9.00 / 0.15 / 10.2 / 8.2 oz/ 8.5 x0.4 / 10.8x0.4 Blue

Photos taken with trial cl OD and surgilens OS

**Case #5 C.C. 6/16/15 Lasik OD '01**

**PK OU for KC X 1990's by Dr.Moore** FH: mom and son have KCN; wearing GBL and bitoric  
first scleral cl rx sl tight os and over-ref needed ou; Reorder adding PCCZ +3 and SLZ -3 to OS

OD 5100 / 16.5 / -13.00 / 55.00 PCCZ +3 SLZ -2 Dot  
OS 5100 / 16.5 / -14.50 / 55.00 PCCZ +3 SLZ -3

Next visit: OD comfortable, great vision, not fogging OS clear, fogs in 2 hrs then milky vision

Next visit: od great OS foggy,, must remove after 5 mins, uses old rgp, clears up after 30 mins

PK ou, central hazy scarring os; Scleral cl os vault too high; redo to flatter sag

OS 4900 sag / 16.5 / -11.50 / PCCZ standard, SLZ -3 Keep to clear limbus

Next visit: Os graft clear with inf central scarring but max cl fit and pt very happy

3 mos later: : blurry VA OD since 2 nights ago. + FB sensation OD intermittent. Patient started taking Prednisolone OD BID for possible rejection

SLE: OD PK with significant edema (including MCE and ectasia at inferior 1/3) no staining, no KP or infiltrates; OS PK no staining but round area of apical scarring with maps

focal corneal edema inferiorly OD.. rejection vs. Failure vs. Scleral lens related.

Plan:1. Prednisolone acetate 1% every 2 hours while awake OD 2. No contact lens wear at all OD until cleared by cornea dr.

Next day: focal corneal edema inferiorly OD - Likely failed graft

Plan: prednisolone acetate 1% OD 4 times per day, Muro 128 OD 4 times per day

1/20/16 s/p DSEK OD

5/2/16 3 s/p phakic DSEK OD wearing original right scleral and newest left Very happy. Pt insists on scleral cl's rather than glasses so he's comfortable on motorcycle.

Wearing OLD right 7/14/15; Sag 5.50 / -13.00 / 0.30 / 16.5 / PCCZ +3.00 / SLZ -2.00 (no bc listed, fits better than new cl with bc of 6.03)

Wearing: new left: 10/2/15 Order # NW8124 Sac 4.90 / B.c. 6.49 / -8.75 / ct 0.30 / 16.5 / SLZ -3.00

CI fit eval;

OD vaults well 250 microns , lands well, no conj impingement

OS vaults well 250 microns , lands well, no conj impingement

Od; graft clear with dsek lenticule in good position

Os graft clear with inf central scarring

Lens; gr 1+ ns ou

(photos 6/13/16)

**Case #6 J.V.** post-lasik ectasia/keratoconus

months of irritation of left upper lid. Uses coconut oil on lids which helps the chapped feeling but lids very sore. Nausea with glasses. Has tried several cl's with last dr. In bay area. Pt sensitive to/allergic to flourescien dye. Uses non-preserved art tears, refresh PM, omega-3's.

Ocular history:

Dx'ed with keratoconus post lasik (2005) OU

-Currently wearing OS cl only, hybrid rgp/scl with AV 1 day underneath. Signs of NV OS. Pt has worn scleral lens successfully in the past.

Intacs intrastromal ring OD. Unable to be fit with any contact lens OD post Intacs.

Mild PSC OD-monitor

Dry eyes, punctal plugs,

Ocular meds:

1. Lotemax ointment; has used once/wk

2. Preservative free artificial tears individual vials Refresh Optive every 2 hours and as needed. **-Allergan Refresh PM ointment** daily at bedtime.

-Good lid hygiene. Use warm compresses and lid scrubs in the morning and at night to keep lids clean. Uses Ocusoft lid scrubs

-Omega 3 supplementation 2 capsules/day using 1 capsule(1000 mg) fish oil and 1 capsule(1000 mg) flaxseed oil taken with food

Fhx: father=RD

CI rx:

OD SynergEyes BC 7.00, DIA 8.0, POWER -10.50

OS SynergEyes BC 7.20, DIA 8.5, POWER -7.25

Piggyback: acuvue one day disposable/plano Current cl care: ClearCare

Slit lamp;

Lids: od wnl OS gr 2+ , irritated, mild crusts/indurated

OD inf thinning, central vertical scarring with Intacs in good position

OS 0.5-1.0 mm neovascularization 360, lasik flap, pinpoint scar 11;00 periphearl

**ASSESSMENT:**

1. Sp lasik with keratoconus ou, intacts OD
2. Corneal neovascularization due to tight, hybrid contact lenses
3. Chronic blepharitis, exacerbated by use of coconut oil despite use of appropriate care such as ocusoft lid scrubs and warm compresses.
4. Chronic Dry eyes

**PLAN:**

1. Advised to d/c use of Lotemax and coconut oil. Advised to d/c all care around eyes other than washing with water, avoid all cosmetics around eyes and face. Discussed risk of Inc IOP and cataracts with use of lotemax,

2. Order scleral lenses: ICD

OD 4500/ 16.5 / -5.00 / 4900 bc SLZ -2

OS 4400/16.5 / -4.00 / 55.00 bc LCZ +5 SLZ -3

Visit #2; c/o fogging, tightness; OS flattened edge to SLZ -5

Vist #3; stopped wear due to discomfort/fogging; pt had been soaking in Generic RGP multipurpose instead of ClearCare system and was using preserved saline. Re-educated

Visit #3 good comfort, great vision, wears all day, no problems.

Vist #4 blepharitis; cls fit well, photos

**Case #7 J.E.** occupation; PG&E ground landscaper, wears protective eyewear full time

Keratoconus OU, dx age 18 (pt thinks started age 12)

Holcomb C3-R Crosslinking OU 4/14/2014

Intacs and Conductive Keratoplasty OD 4/14/2014

Family History: Ocular Glaucoma - father

Visual acuity

OD ccl: 20/50

OS cCL: 20/40

OD ICD 16.5 / 4100 um / 16.5 diam / -16. 50D power / 47.00 b.c. And Minus 2 on scleral landing zone

**OS: C Cone Optimum Comfort , RGP Cone Lens 47.62 /10.0 / -14.00 Blue**

**Photos 11/24/15, consider DALK OS last seen 1/11/6 doing well**

**Case #8 R.K.** Kcn/PK/strab surgery/orbital asymmetry

5/18/16; current cl's

OD F60 44.25/-3.75 / 48.75/-10.50 / 10.5 Blue

OS burger kone; 6.14 (55.00) / -18.00 / 0.15 / 8.7 / 6.4 / 8.00 x 0.6 / 9.8 x 0.3

OD sup lid attachment, irreg pattern, inf touch, sup dimple/veil staining

OS sup lid attachment, irreg touch pattern

OD graft clear with endothelial pigmetn dusting gr 1 with gr 1+ guttata

OS graft clear with inf hazy scarring 5;30-9;00 endothelial pigment dusting, gr 1+ guttata

Lens; gr 1-2+ ns

Scleral refit: small eyes, use "mini" very difficult to insert; use 14.5 diam.

First cl edge tight, flatten SLZ from -3 to -4; great fit/comfort/vision 20/20, 20/25

Photos/insertion device invention

**Case #9 C.G.** sp lasik/fuch's/DMEK/plaquenil Eye meds: PF OS qd Refresh tears OU prn  
Rgp cl's decenter superiorly and can't tolerate after a few hours

OS Paraperm O2 8.10 / +4.25 / 10.2 / 12.5 x 0.5 Dark blue

Cornea clr, lenticule attached, flap in position, sutures intact

ICD Paragon HDS 16.5 / 4200 / -1.00 / 49.00 bc

comfortable but vision fluctuates a little, some days foggy va OS cCL: 20/40+

after Yag: Manifest ref: OD +1.75 -2.50 x 120 20/25

cl tight edge; flatten with SLZ -2; great fit/comfort/vision (photos)

**Case #10 D.C.** Developed neurotrophic ulcer OS post cataract surgery (bleph/dry/chalazian)  
9/8/15 closes OS to avoid headaches (anisometropia)

Eye meds: FML OD once a day for 1 week, Restasis OU BID Ref tears 10 x per day

Spectacle Prescription

OD: +0.25 -0.50 x 171° 20/40

OS: +1.00 -0.75 x 090° 20/200

OD clear, vogts limbal girdle, gr 2 ns, mild ebmd superiorly

OS moderate, large stromal scar, pc IOL

OD cG: 20/25+2

OS scleral lens: 20/30-2 with current glasses on top of scleral lens: 20/25+2

Cl rx: 9/8/15; ICD 16.5 scleral Paragon HDS 4200 / 16.5 / -1.75 / bc 49.00

Cl fit eval; vaults well, aligns/lands well, no scleral impingement, no limbal injection

9 mos later: About 2-3 x per week, gets a lot of mucous on the lens, has to remove and clean lens and reinsert. Awaiting Serum tears. Using Blink for contacts and Refresh non-preserved for right eye. Able to wear cl for 12 hours per day and sees better. Even seeing better sc after scleral use.

Working on dry eye issues before consideration of cat surgery OD.

Oc meds: optive advance q 20 mins, celluvsc at bedtime, Omega-3 supplements (TheraTears brand tid), awaiting serum tears on order

Cl fit eval; vaults well, aligns/lands well, mild scleral impingement, no limbal injection; raise edge, use SLZ -2

**CASE #11 R.A.**

6/2/14 sp PK od ,Advanced keratoconus OS with current cl flat

Refraction: O.D. -6.00 -2.50 x 130 20/25 ;

OD graft clear with running suture and 9 sup/nasal interrupted sutures

OS apical thinning and scarring

after suture removal: OD -10.50 -2.00 x 130 20/30

Had bitoric, piggyback; refit to sclerals:

OD ICD 16.5 Paragon HDS 100 4400 microns / 16.5 / -20.00 D / 55.00 bc /slz -3 / dot right

OS ICD 16.5 / 4500 um / 16.5 / -13.50 D / bc 49.00 / SLZ -7

**Case #12: G.H. (MD) Terrien's disease, multiple PK's, glaucoma (steroid/surgical)**

Visual acuity

OD cc: 20/ 80- snellen

OS cc: 3/ 700 Feinbloom low vision chart

Wearing: AirOptix night and Day 8.6/ 13.8 / plano

rx

OD -1.00-5.00 x 180 20/80-

OS PLano

OD graft clear with buried sutures at 9;00, mild inf neovasc at 4;00 with scl/bandage

OS lateral tarsorrhaphy, failed graft

First cl : OD Boston EO electric blue 7.35 / -3.50 / 9.0 / 10.0 x 0.4 for piggyback successful for 1 yr so suggested scleral

ICD 16.5 Paragon HDS OD 4500 / 16.5 / -6.50 / bc 49.00 (6.89) slz -2

cl fit:: vaults well 250 microns, good edge system, no conj drag

Slit lamp exam:

Ocular adnexae: wnl right eye, lateral tarsorrhaphy left eye

Conj; white and quiet right eye, OS gr 3+ injection

Cornea:

OD PK with mild nasal neovasc.; upon removal of cl, has mild gr 1 nasal edema

OS Opaque PK with large central infiltrate and defect

Iris: round and reactive right eye

Lens: pciol OU

**ASSESSMENT:**

1. PK with corneal ulcer OS

2. PK with scleral cl OD with mild edema with use of well-fitting scleral cl

ok'd to use scleral cl od for 4 hours/day per cornea MD

4 months later:

1. Persistent epi defect OS even with tarso and prokera ring - may need gunderson flap in future

2. S/p PKP OD - CCT stable (slightly better) on increased prednisolone acetate 1%  
- Patient did not take well to scleral lens (fogged too fast)

prednisolone acetate 1% to 4 times per day OD

**Re-try piggyback lens OD - limited wear - removing BCL every day**

Moisturize the eye a lot with PFAT's

**Case 13: S.M.**

h/o Bone Marrow Transplant with severe dry eyes due to graft/host disease and is using serum tears./art Tears; recurrent sub-conj hemes even before cl use.

Cl rx 5/19/16: OS ICD 16.5 Paragon HDS Sag 4100 / 16.5 / PLano / 47.00 bc / SLZ -3

**Case 14 B.C.: Keratoprosthesis; h/o Aniridia/glaucoma/corneal scarring**

Pt here with dog, last visit 1-06, had stem cell graft but did not feel comfortable staying on oral Cyclosporine

SLE:

OD: vascularized cornea, 2 tubes, pciol

OS: prosthesis

Imp:

1. Monocular OD, aniridia, tubes, stem cell failure

Refer to Dr.Schwab for stem cell transplant

2015: dec vision, dec ability to do ADL's, monocular with prosthesis OS

- Pseudophakic OD

- History of tube shunt with good IOP OD

- Limbal stem cell dysfunction status post limbal stem cell transplant 2008 which has failed.

- Excellent Schirmer's OD > 35 mm wetting at 5 minutes without anesthesia

- Densely scarred and 4 quadrant vascularized cornea OD

March 2016: UCSF: Boston Keratoprosthesis

6/20/16: Currently vision is improving and is good for near (able to read 18 font and computer font) but wants max distance vision with near correction over. CI is comfortable but it gets very dry and often feels "coated". Has used PF drops to rewet it (will ask dr. Rose - discussed non-preserved art tears), uses clean warm wash cloth to clean off lashes. Had stopped Fox shield, va got a little worse, restarted and vision getting better. Vision slowly improving - colors on tv just starting to come back.

Oc meds: Vancomycin qid, polytrim qid, Pred forte qid OD

Visual acuity

OD Keratoprosthesis and bandage scl: 20/500 Reads 3.0 M (24 point)

OS sc: prosthesis

Current cl rx: Westcon Horizon Large Diameter 55% 9.8 / plano / 20.0 diam.

Over-ref: -6.00 20/400 Reads 3.0 M

CI fit eval: fits well, good coverage, no edge lift, not coated.

Slit lamp;

OD keratoprosthesis clear with interrupted sutures with mild neovascularization along sutures approaching g/h interface, some crossing.

**ASSESSMENT:**

Keratoprosthesis OD with well-fitting bandages SCL with max va 20/400 today

Plan; continue with current cl (plano) and order Westcon Horizon Large Diameter 55% 9.8 / -6.00 / 20.0 diam.

Discussed with pt, changing power to increase distance va may decrease near va; will work on near reading glasses, low vision aids after pt wearing new lens.

Discussed cl dryness ; pt to ask dr. Rose about use of non-preserved art tears as non-preserved cl solns are not available.

8/12/16: VA w/cc Rx OD 20/200-3

**Case #15: S.N. sp Lasik/Ectasia/Pk /IOL /dry eyes**

rx

O.D. plano -2.50 x 023 20/30+2

O.S. +0.75-3.00 x 032 20/30- Add +2.00 pal

VA ccl

OD 20/25- over-ref: -0.50 20/25-

OS 20/30 Over-ref; -0.50 20/20-



CI rx 12/31/15 order # O35162

OD 7.00 / -4.75 / 9.0 / ct 0.13 / 7.8 oz / 9.3 x 0.4

OS Bitoric: 7.50 / 7.03 / -1.00 / -4.00 / ct 0.19 / oz 7.7 / 9.0 diam / 9.6 x 0.45

CI fit eval;

OD sup lid attachment, aligns , mild peripheral intermittant touch, drops to lower lid, stable to lateral gaze

OS sup lid attachment, aligns, Rotates, Decenters and bubbles with quick lateral gaze and appears tight, then drops and hits lower lid

Refit to scleral

ICD 16.5 / 4500 / 16.5 / -5.50 / 49.00 bc / slz -2 dot right

ICD 16.5 / 4500 / 16.5 / -5.50 / 49.00 bc / slz -2

Next visit: Vision ccl OU very good

Comfort good but redness noted. Has some lens awareness OS (more than OD). Has been able to wear for 6 hours (jsut got cl's 8/11/16)

These are much more comfortable than any previous cl's

reorder as:

ICD 16.5 / 4500 / 16.5 / -5.00 / 49.00 bc / slz -4 dot right

ICD 16.5 / 4500 / 16.5 / -5.50 / 49.00 bc / slz -4

Next visit:

CL OD: good vision but some dryness and sometimes hard to remove

CL OS; vision mostly good but some blur and sometimes hard to remove

Context: broken suture removed OS

CI fit eval;

OD vaults 250, min limbal clearance, wide LCZ, mild conj drag

OS vaults 250, min limbal clearance, wide LCZ, mild conj drag

(photos taken)

Lenses large for small eyes, need to raise limbal clearance zone and flatten edges;

Order:

ICD 16.5 / 4500 / 16.5 / -5.00 / 49.00 bc / LCZ +5 / slz -5 dot right

ICD 16.5 / 4500 / 16.5 / -6.00 / 49.00 bc / LCZ +5 / slz -5

### **Case #15 J.K.**

1. Irregular astigmatism due to Scarred, Vascularized Radial Keratotomy OU (hybrid cl's)

2. VA increases with scleral cl OD, min inc va OS ? Etiology of dec VA OS; unable to obtain adequate OCT images os despite IOL OS

3. Cataract OD, IOL OS

Plan; Order ICD 16.5 Paragon HDS

OD 4700 / -12.25 / 50.00 bc / PCCZ +1 / LCZ +2 / SLZ -2

OS 5300 / -22.00 / 56.00 bc / PCCZ +2 / LCZ +3 / SLZ -3

Visit #2

CL OD: feels very good, vision good, better than old pair, no redness after removal

CL OS: vision not better with cl than without and was very tight and hard to remove so is not wearing it much. Has not worn for 5 days - eye feels sore/fb sensation.

VA ccl

OD ccl 20/30 Over-ref: +0.50 20/25

OS sc 20/300 ccl 20/125+ Over-ref: +2.00 20/100+

CI fit eval

OD vaults 300 microns, clears limbus well, trace tight edge

OS vaults 300 microns, clears limbus in some areas, not all, mild tight edge

Slit lamp;

OD 8 incision, Tcuts with scarring and most cuts vascularized, 2+ns

OD 16 incision, Tcuts and paracentral with scarring and most cuts vascularized, IOL

Order sl looser edges OU

CI rx 9/6/16 ICD 16.5 Paragon HDS

OD 4700 / -11.75 / 50.00 bc / PCCZ +1 / LCZ +2 / SLZ -3

OS 5300 / -20.00 / 56.00 bc / PCCZ +2 / LCZ +4 / SLZ -4

Visit #3

CL OD: feels very good, vision good, no redness after removal and more comfortable

CL OS: feels good, vision a little better than with nothing but not good. No redness or indentation ring. C/o more glare with scleral cl than synergeyes when facing the sun.

VA ccl

OD ccl 20/30 Over-ref: +0.75 20/25+2

OS ccl 20/150

CI fit eval

OD vaults 300 microns, clears limbus well, trace tight edge

OS vaults 300 microns, clears limbus trace tight edge (photos)

reorder OD only with over-refraction and sl looser edge

OD 4700 / -11.00 / 50.00 bc / PCCZ +1 / LCZ +2 / SLZ -4

OS 5300 / -20.00 / 56.00 bc / PCCZ +2 / LCZ +4 / SLZ -4

## **Janis Miller Lightman, O.D. , F.A.A.O.**

Optometric License: California TPG #8909 (Therapeutic and Glaucoma)

### ***Employment***

Clinical Instructor of Optometry, Senior Optometrist, University of California, Davis Medical Center, Department of Ophthalmology and Vision Science.  
Cornea and External Ocular Disease, Contact Lens and Low Vision Services, Sept.1988 to December, 1998

Kaiser Permanente Medical Group, Sacramento, January 1997 to present.  
U.C. Berkeley Clinical Externship Attending Optometrist 1998-present

### ***Education***

July 1987- June 1988 Optometric Residency in Geriatric and Hospital Based Optometry, West Los Angeles V.A. Medical Center, Southern California College of Optometry.

Sept. 1983- June 1987 New England College of Optometry, Doctor of Optometry

Sept. 1979 -May 1983 Brandeis University, Bachelor of Arts in the Biological Sciences

### ***Honors and Awards***

Fellow of the American Academy of Optometry, December 1990

California Optometric Association Contact Lens Symposium Photography Contest, third prize, May 1989 and 1990.

American Optometric Association "Optometric Recognition Award,"  
1988, 1989.

Beta Sigma Kappa Optometric Honor Society, 1987.

Nikon National Optometric Student Award, Second Prize 1984. Awarded a new Nikon Lensometer

### ***Committee Appointments***

Chair, Geriatrics Committee of the Low Vision Section of the American Optometric Association, December 1989- June 1990.

Member, Contact Lens Evaluation in Keratoconus (CLEK) Study Group, December 1988 to 1994.

Technical Editor, "Insight," newsletter of the Sacramento Valley Optometric Society, Sept. 1988 to 1994.

California State Highway Patrol, Vision Standards Examiner, Sept.1997 to 1998

### *Memberships*

Fellow of the American Academy of Optometry

Union member of IFPTE Local 20 AFL-CIO affiliate

Hadassah Medical Organization

### *Presentations and Lectures*

1. Hyperopic Refractive Error Shifts and Lenticular Changes from the Use of Glyburide, a Potent Second Generation Oral Hypoglycemic Agent, Poster, American Academy of Optometry, Columbus, Ohio, Dec. 11, 1988.
2. TriVisual Services Low Vision Workshop, California State Capitol, March 4, 1989.
3. American Optometric Association Geriatric Optometry Questionnaire. Poster, American Academy of Optometry, Nashville TN, Dec. 10, 1990.
4. The Evolution of Contact Lenses. U.C. Davis, Department of Ophthalmology, December 18, 1990.
5. Introduction to Low Vision Rehabilitation., UCDCMC, Jan. 28, 1991.
6. Therapeutic Uses of Rigid Gas Permeable Contact Lenses. Sacramento Valley Optometric Society, April 16, 1991
7. Therapeutic Uses of Rigid Gas Permeable Contact Lenses. U.C.D.M.C., April 29, 1991.

8. Therapeutic Uses of Rigid and Soft Contact Lenses. The Sacramento Valley Fourth Annual Ocular Symposium, Sept. 19, 1992.
9. Contact Lenses in the Workplace. Grand Rounds - UCDCM Dept. of Occupational and Environmental Medicine, March 2, 1993.
10. Albinism and Its Ocular Manifestations. Annual Meeting of the CA Transcribers and Educators of the Visually-Impaired, April 3, 1993.
11. Sizing Up the Hard to Fit Eye. UCDCM Dept. of Ophthalmology Annual Symposium, May 22, 1993.
12. Vision and Aging. U.C.D. Geriatrics course, June 10, 1993.
13. Low Vision Clues: When Low Vision O.D. Turns Low Vision Mom. U.C.D.M.C., Dept. of Genetics., July 15, 1993.
  14. Lightman J and Marshall D. Clinical Evaluation of Base Curve and Power Determination by Age in Pediatric Aphakia Due to Congenital Cataract. Lecture, Contact Lens Section Meeting of the American Academy of Optometry, December 12, 1993.
15. Pediatric Contact Lenses and Low Vision: In-Service to Sacramento Educators of the Visually-Impaired, May 4, 1994.
16. Lightman and Marshall. Analysis of Annual Quantities of Contact Lenses Needed to Correct Pediatric Aphakia. Poster presented at the Annual Meeting of the American Academy of Optometry, San Diego, December 13, 1994.
17. The Management of Contact Lens Correction in Children with Congenital Cataracts. Lecture Presentation to the 1995 Association of Educators and Rehabilitation of the Blind and Visually Impaired Southwest Regional Conference, July 20, 1995.
18. Early Behaviors That Signal Visual Impairment in Infants. Lecture Presentation to the 1995 Association of Educators and Rehabilitation of the Blind and Visually Impaired South West Regional Conference, July 20, 1995.
19. Contact Lens Correction of Pediatric Aphakia. Lecture to the Sacramento Valley Optometric Society, January 16, 1996.
20. Low Vision Rehabilitation Grand Rounds: presented four patients with a variety of ocular conditions to be discussed by guest speaker, Don Fletcher, MD.

21. American Academy of Optometry, Ellerbrock Continuing Education Lecture: Rated X: Low Vision Uncovered. Orlando, Florida, December 5, 1996.
22. National Keratoconus Foundation: Patient Education Seminar on Keratoconus. Lecture: Specialized Contact Lenses for Keratoconus. Sacramento, Ca, October 18, 1997.
23. American Academy of Optometry, Ellerbrock Continuing Education Lecture: Lazy Eye and the Busy Parent. San Antonio, Texas, December 13, 1997.

### *Publications*

1. Miller J. Weighing the Benefits Versus Risks of Optometric Diagnostic Pharmaceutical Agent Use, New England Journal of Optometry, Vol. XXXVII No.2, October 1985.
2. Tait C., Miller J., Cycowicz Y., Sohmer H., Experimental Analysis of the Source of the ABR Wave II. Archives of Otorhinolaryngology, 1987; 244(1); 26-29.
3. Lightman, J M, Townsend J, Selvin G. Ocular Effects of Second Generation Oral Hypoglycemic Agents, Journal of the American Optometric Association, Vol. 60, Number 11: 849- 853, November 1989.
4. Serdahl C, Mannis M, Shapiro D, Zadnik K, Lightman J, Pinilla C: Infiltrative Keratitis Associated with Disposable Soft Contact Lenses. Archives of Ophthalmology, Vol. 107, No.3: 322-323, March 1989.
5. Lightman J and Rosenbloom A. Geriatric Optometry Questionnaire. Journal of the American Optometric Association, 1991; 62: 472 -474.
6. Mannis M, Lightman J and Plotnik R. Corneal Topography Measurements in Posterior Keratoconus. Cornea 11 (4): 351 - 354, 1992.
7. Fink JD, Richter PR, Lightman JM, Kock M, Scagliotti RH, Murphy CJ. Retention Rates of Four Therapeutic Soft Contact Lenses in Mesocephalic Dogs. Veterinary and Comparative Ophthalmology, Vol. 4, No. 1 pages 3 - 6, Spring 1994.
8. Lightman. Book Review: The Management of Visual Impairment in Childhood. American Journal of Ophthalmology, Series 3, Vol.118, No.6, pages 825 - 826, December 1994
9. Lightman. Book Review: Blindness and Children: An Individual Differences Approach. American Journal of Ophthalmology, Series 3, Vol.119, No.6, page 822, June 1995.

10. Lightman J and Marshall, D. Clinical Evaluation of Back Optic Radius and Power Determination by Age in Pediatric Aphakia Due to Congenital Cataract Fitted with a Silicone Elastomer Contact Lens. *Optometry and Vision Science*, Vol. 73, Number 1, pages 22- 27, January 1996. Also reprinted in *Contact Lens Update*, Vol.15, No.3, May/June 1996.

11. CLEK (member): Zadnik K, Barr J, Gordon M and Edrington T. Biomicroscopic Signs and Disease Severity in Keratoconus. *Cornea* 15 (2): 139-46. 1996.