

How to Build and Successful Scleral Lens Practice

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Diplomate Cornea Contact Lens and Refractive Technologies of AAO

Disclosures

- CooperVision
- LenTechs
- Boston Sight
- Vyluma
- Euclid

What is a Scleral Lens Practice?

Open to your imagination

Offerings of visually necessary and medical lenses with a focus on scleral lenses

Contact lens are the primary focus,
not the optical

Typified by

- Expertise fitting multiple modalities
- A multitude of fitting sets
- Custom lens offerings



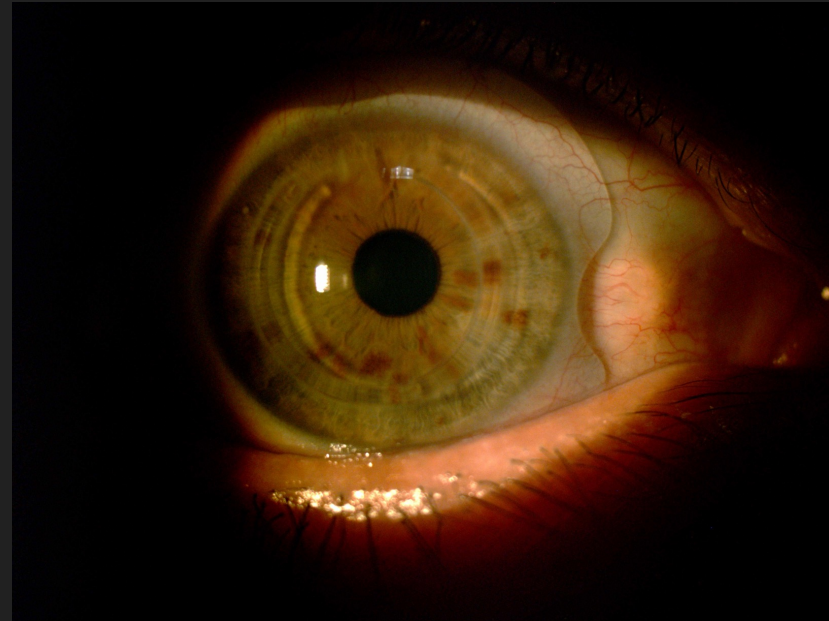
A focus on treating corneal/anterior segment disease

Lenses beyond refraction

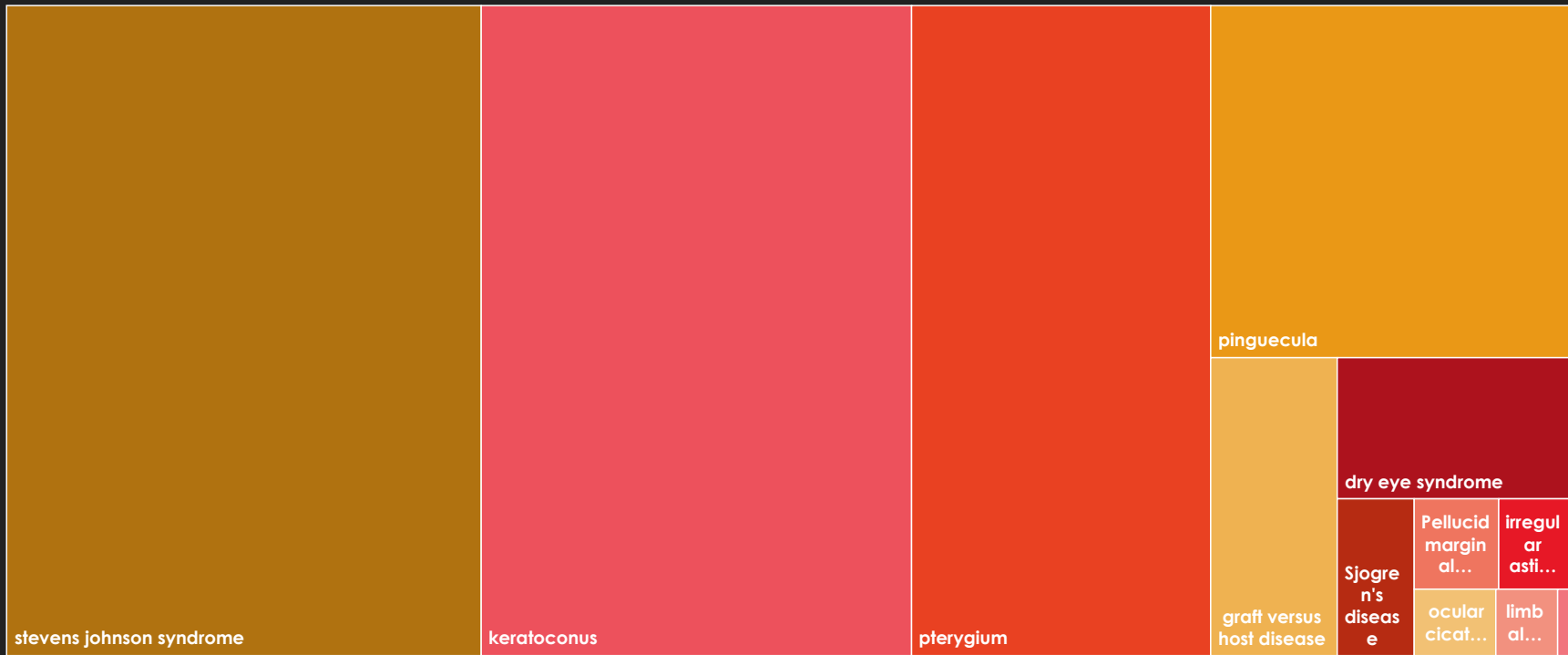
- Treatment
- Rehabilitation
- Protection

Corneal disease is rare

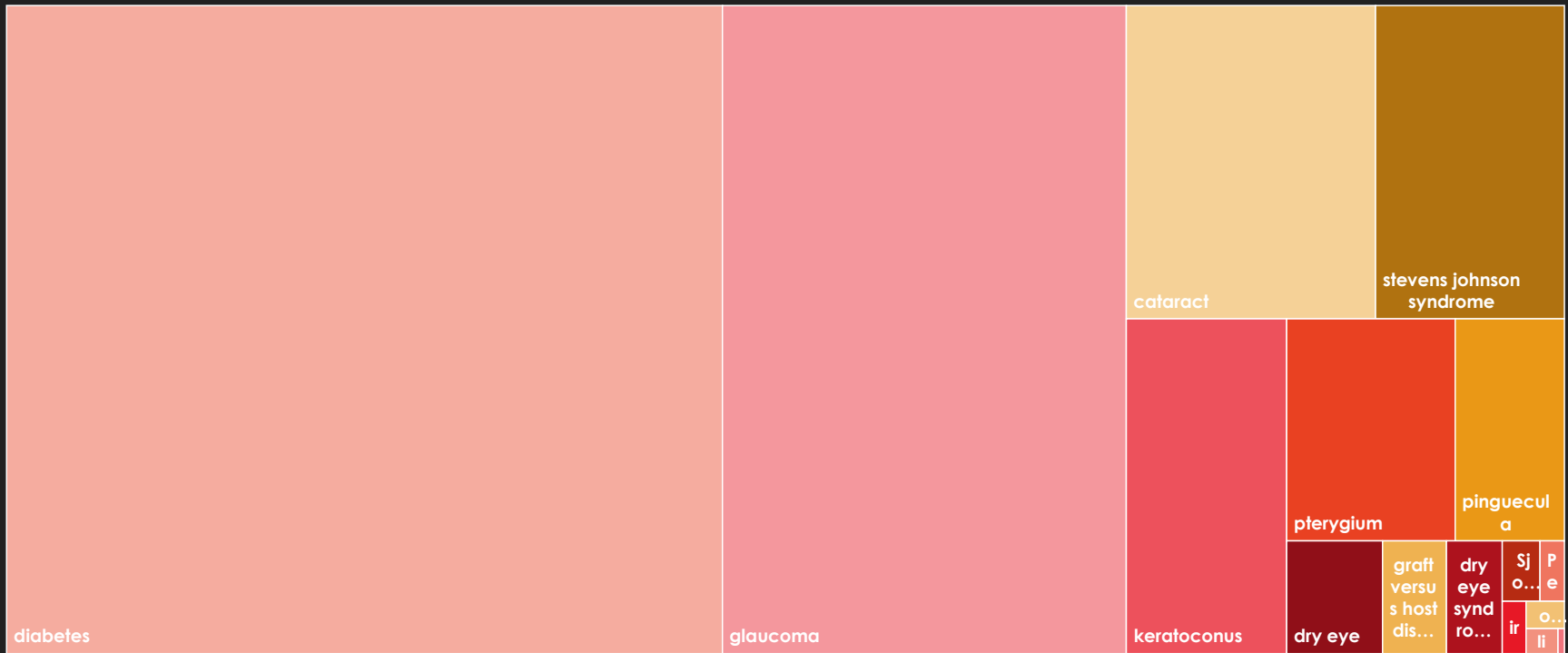
Comorbidities are common



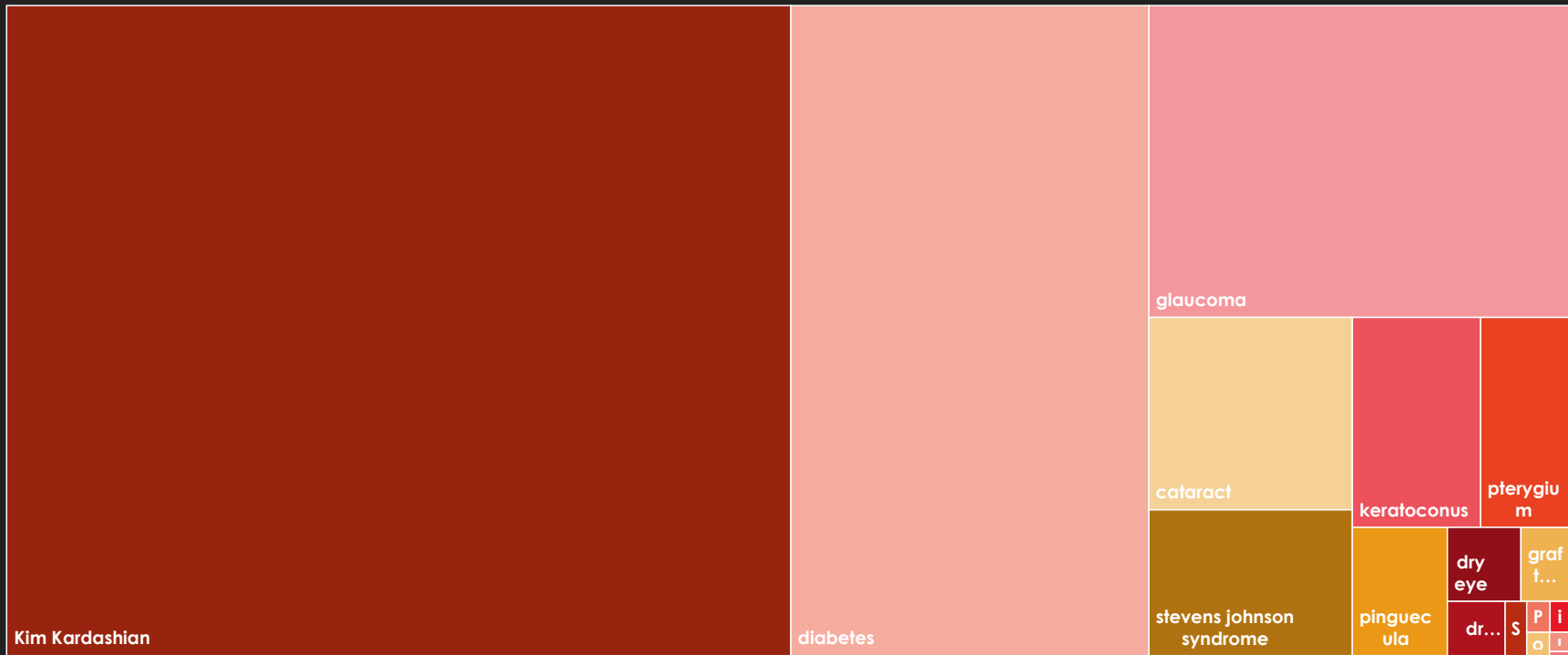
GOOGLE WORD SEARCH VOLUME: USA PRECEDING 12 MONTHS



GOOGLE WORD SEARCH VOLUME: USA PRECEDING 12 MONTHS



GOOGLE WORD SEARCH VOLUME: USA PRECEDING 12 MONTHS



Place and Status within the Profession

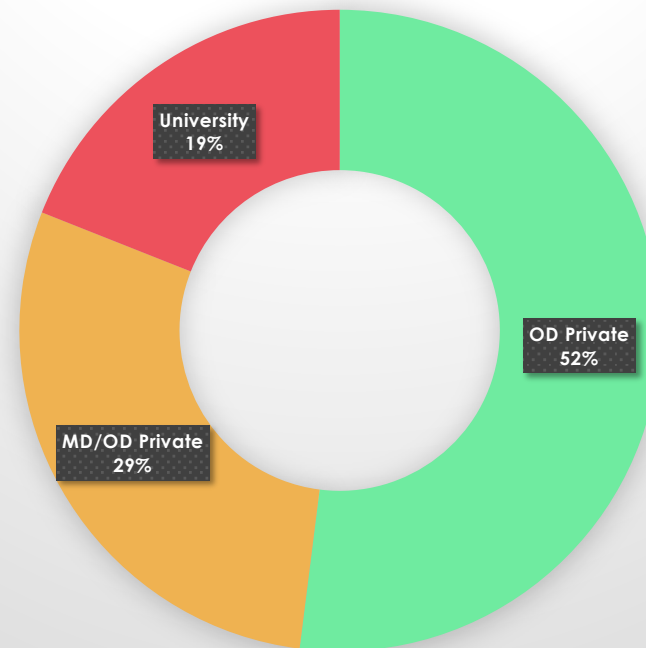
Most CL Specialists practice in OD only private practice

Optometric specialties are not officially recognized

Referrals are commonplace

- **Self referrals**
- MDs
- Peer group referrals
- ODs

Where CL Specialists Practice



How do you start introducing specialty lenses into your practice when you have a typical clinic that serves comprehensive exams, spectacles, cosmetic soft lenses, urgent care etc?

- What are some of the first things you need to do?
- How do you gain patients at first?
- How to schedule patients?



First things you need to do in order to serve specialty lens patients

- Self study
 - Learn about specialty lenses
 - Optics Basics
 - Corneal Disease and Physiology Basics
 - Ocular and Corneal Shape Basics
- Mentorship

How do you gain patients at first?

The patients are already there. You have to recognize who they are and understand how to care for them.



**“The difference between an expert and a non-expert is an expert knows what they are looking at.”
-Clarke Newman**

Possible Patients

- High Ammetropia
- Presbyopia
- Pediatrics
- Dry Eye
- Post Refractive
- Other Irregular Astigmatic Patients



Case 1: Residual refractive error post LASIK

- 35-year-old Hispanic female
- History of high myopia and astigmatism before LASIK surgery at age 25.
- Last 2 years increasing blurry and problems while driving at night
- Given spectacle prescription by my associate and now back since they "don't work"

Details

Recommendations

Notes

Rx

OD

Bal Yes

Sph/Cyl/Axis

-1.00

-0.75

015

OS

Bal Yes

Sph/Cyl/Axis

-1.00

-0.50

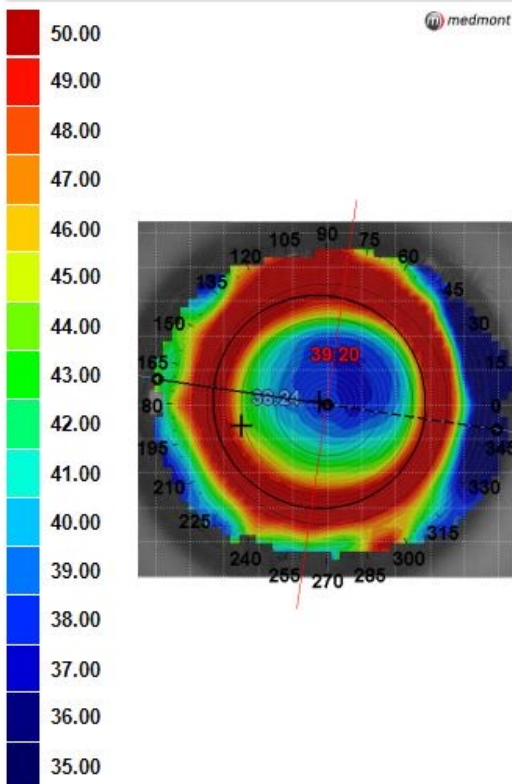
100

Additional Comments:

During the refraction, Pt relates that she's seeing double and that there's a shadow. Pt relates it's also blurry and foggy. As the refraction progressed, she related it was still foggy but there wasn't a shadow. Pt relates that the blurriness and fog is consistent.

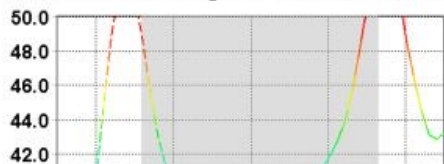
With the final refraction, pt relates fog and slight shadow.

25-Feb-2021 2:29:35 PM; Right - Tangential Power

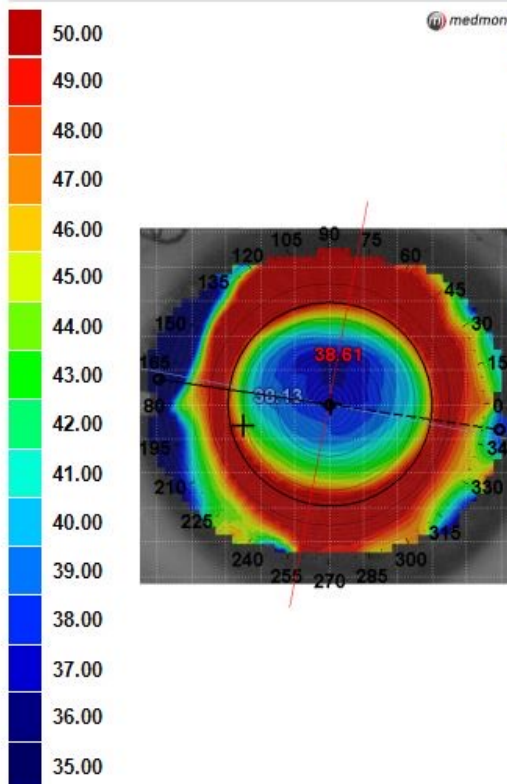


Flat K	38.24 D @ 172 °
Steep K	39.20 D @ 82 °
ΔK	0.96 D
Flat e	0.66 @ 172 °
Steep e	0.70 @ 82 °
IS Index	1.38 D
SAI	1.73
SRI	0.79
Pupil: Width	6.2 mm
Pupil: Area	30.1 mm ²
HVID	mm
TFSQ	0.149
TFSQ Central	0.152

Standard Power 57 mm Angle: 194° Power: 45.94 D

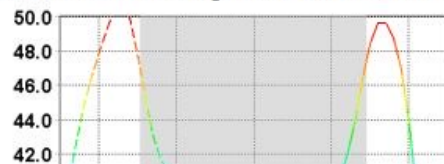


25-Feb-2021 2:29:52 PM; Left - Tangential Power

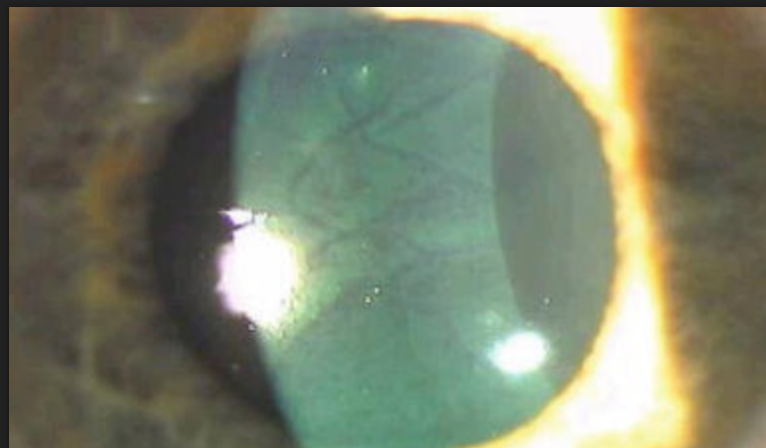


Flat K	38.13 D @ 169 °
Steep K	38.61 D @ 79 °
ΔK	0.48 D
Flat e	0.65 @ 169 °
Steep e	0.73 @ 79 °
IS Index	1.12 D
SAI	1.65
SRI	0.78
Pupil: Width	5.9 mm
Pupil: Area	27.5 mm ²
HVID	mm
TFSQ	0.260
TFSQ Central	0.333

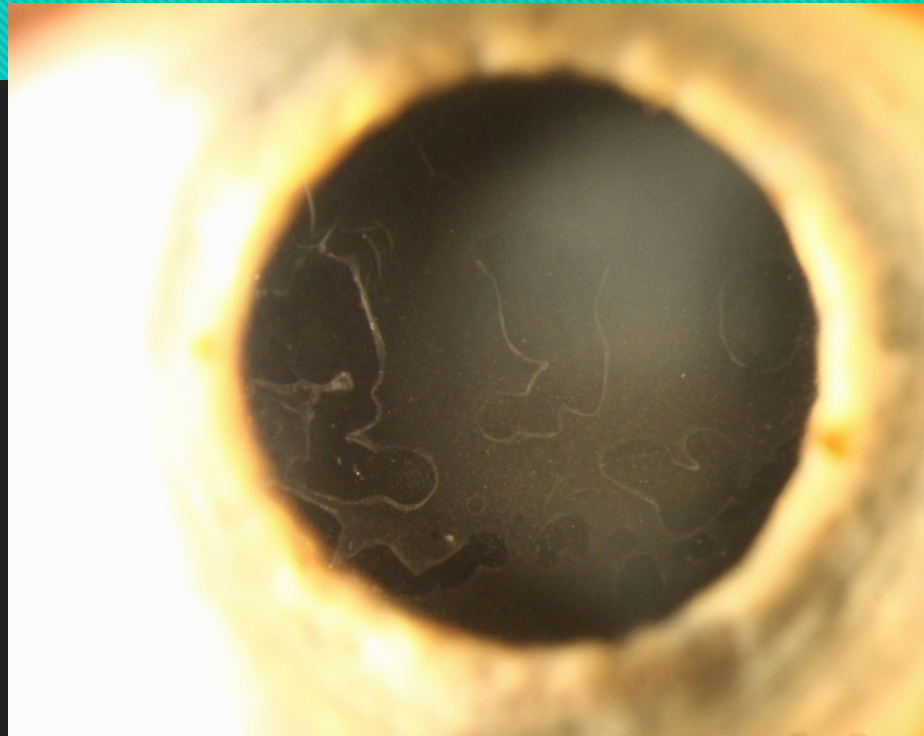
Standard Power .57 mm Angle: 194° Power: 45.46 D



Case 1: Residual refractive error post LASIK



Flap Striae OU



LASIK visual complications

- Glare
- Halos
- Double Vision

Review > [Surv Ophthalmol.](#) Sep-Oct 2001;46(2):95-116.

doi: 10.1016/s0039-6257(01)00254-5.

LASIK complications: etiology, management, and prevention

[S A Melki](#)¹, [D T Azar](#)

Affiliations + expand

PMID: 11578645 DOI: [10.1016/s0039-6257\(01\)00254-5](#)

Abstract

Laser in situ keratomileusis (LASIK) is a rapidly evolving ophthalmic surgical procedure. Several anatomic and refractive complications have been identified. Anatomic complications include corneal flap abnormalities, epithelial ingrowth, and corneal ectasia. Refractive complications include unexpected refractive outcomes, irregular astigmatism, decentration, visual aberrations, and loss of vision. Infectious keratitis, dry eyes, and diffuse lamellar keratitis may also occur following LASIK. By examining the etiology, management, and prevention of these complications, the refractive surgeon may be able to improve visual outcomes and prevent vision-threatening problems. Reporting outcomes and mishaps of LASIK surgery will help refine our approach to the management of emerging complications.

Review > Curr Opin Ophthalmol. 2015 Jul;26(4):243-8. doi: 10.1097/ICU.0000000000000173.

Advances in scleral lenses for refractive surgery complications

Amy Parminder ¹, Deborah S Jacobs

Affiliations + expand

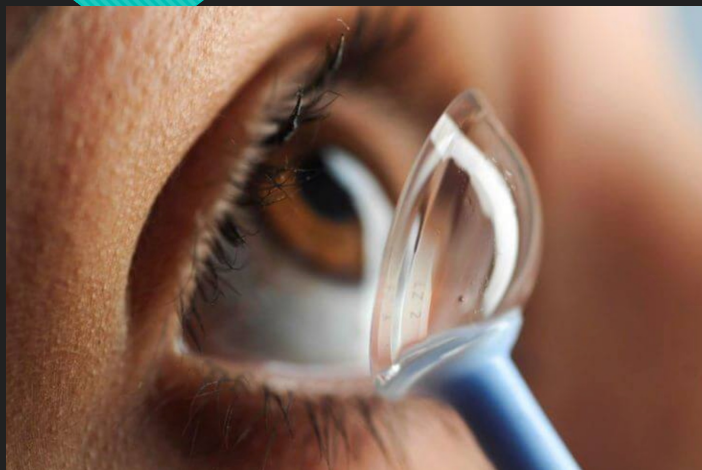
PMID: 26058019 DOI: 10.1097/ICU.0000000000000173

Abstract

Purpose of review: The last two decades have brought advances in materials and manufacturing of large diameter rigid gas-permeable contact lenses, and a greater appreciation of the role of scleral lenses for therapeutic indications. The purpose of this review is to provide an update on the use of rigid gas-permeable scleral lenses in the management of patients with complications after refractive surgery.

Recent findings: There are recent reports on clinical experience with specific scleral lens designs from single institutions in cohorts that include patients who have undergone refractive surgery. Typically, these are patients with 'irregular corneas' after radial keratotomy or LASER assisted in-situ keratomileusis, but patients with keratectasia, dry eye syndrome, and corneal neuralgia are also reported. Visual outcomes and wearing success rates are high in these reports, although outcomes for refractive surgery patients are not reported separately.

Summary: Clinicians who encounter patients with complications after corneal refractive surgery should be aware of advances in scleral lenses. Scleral lenses are an alternative to surgical intervention in patients who might otherwise be considered poor contact lens candidates.



Scleral Lens Evaluation

48.00	-3.00					18.0
46.00	-2.00					18.0

Contact Lens Trial ×

[Details](#) [Performance](#) [Comments](#)

od Comments

***Decrease vault by 250um
decentered inferiorly
300um-350um vault centrally
edges look fine

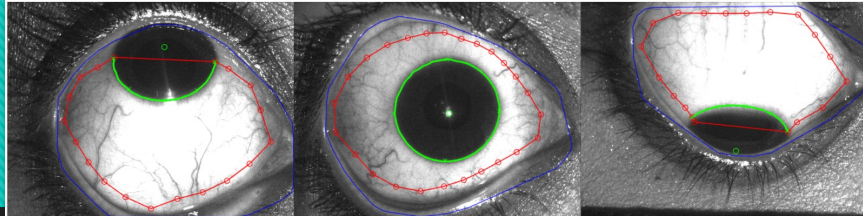
ORx: -11.75 20/30-2
SCOR: -11.00 -.75 x90 20/20-1

os Comments

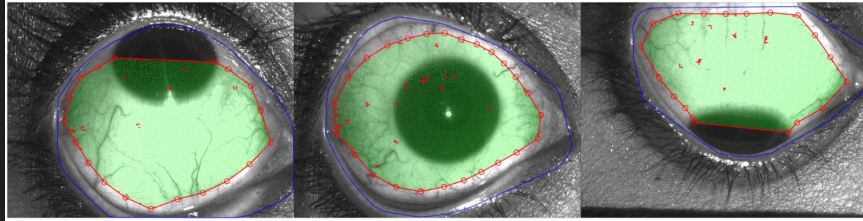
***Add 2D more reverse geometry, collapse vault by 100 microns
300um vault
edges look fine
peripheral vault close

ORx: -8.25 20/40
SCOR: -8.25 -.75 x135 20/20-1

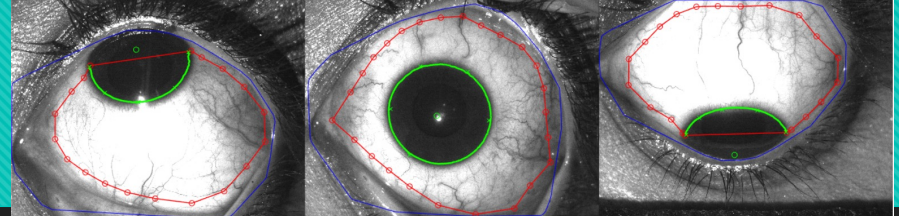
Limbal and Scleral Identification



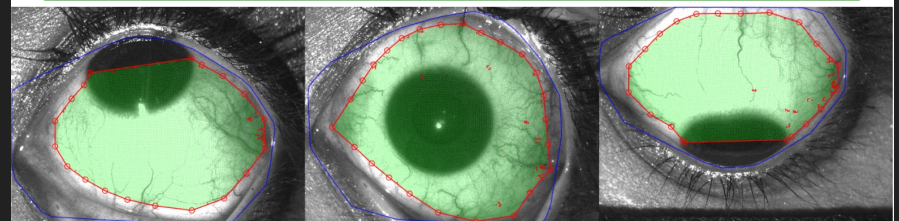
Fluorescein Coverage



Limbal and Scleral Identification



Fluorescein Coverage



Product: Visionary Optics Europa 18 mm

Dia: 18.000 mm	Toricity: 0 um
BC: 41.00D (8.232 mm)	OZ: 9.000 mm
PC1: 6.650 mm	W1: 2.000 mm
PC2: 10.000 mm	W2: 1.000 mm
PC3: 13.000 mm	W3: 1.000 mm
PC4: 15.000 mm	W4: 0.500 mm
Sag: 5.450 mm	

Fitting Lens	Over Refraction	Total Power
BC: 48D	Sphere: -11D	Sphere: -5.75D
Sphere: -3D	Cyl: -.75D	Cyl: -0.50D
Cyl:	Axis: 090 deg	Axis: 90 deg
Axis:		

Dia: 18.000 mm	Toricity: 0 um
BC: 42.00D (8.036 mm)	OZ: 9.000 mm
PC1: 7.050 mm	W1: 2.000 mm
PC2: 10.000 mm	W2: 1.000 mm
PC3: 13.000 mm	W3: 1.000 mm
PC4: 15.000 mm	W4: 0.500 mm
Sag: 5.329 mm	

Fitting Lens	Over Refraction	Total Power
BC: 46.D	Sphere: -8.25D	Sphere: -5.50D
Sphere: -2.00D	Cyl: -.75D	Cyl: -0.62D
Cyl:	Axis: 135 deg	Axis: 135 deg
Axis:		

Becoming a specialty lens expert

- Optometry school
- Residency/Fellowship
- Apprenticeship and work experience
- Continuing education
- Fellowship and Diplomate

"A good mentor is critical."

**IN ORDER TO BE SUCCESSFUL
YOUR FOCUS HAS TO BE SO INTENSE
PEOPLE THINK YOU'RE
CRAZY**

Leadership and giving back

- Levels of leadership
 - Local, state, national, international
- Mentoring
- Volunteering

- Research
- Publications





International Keratoconus
Academy
Of Eye Care Professionals



NKCF
National Keratoconus Foundation
OF AMERICA

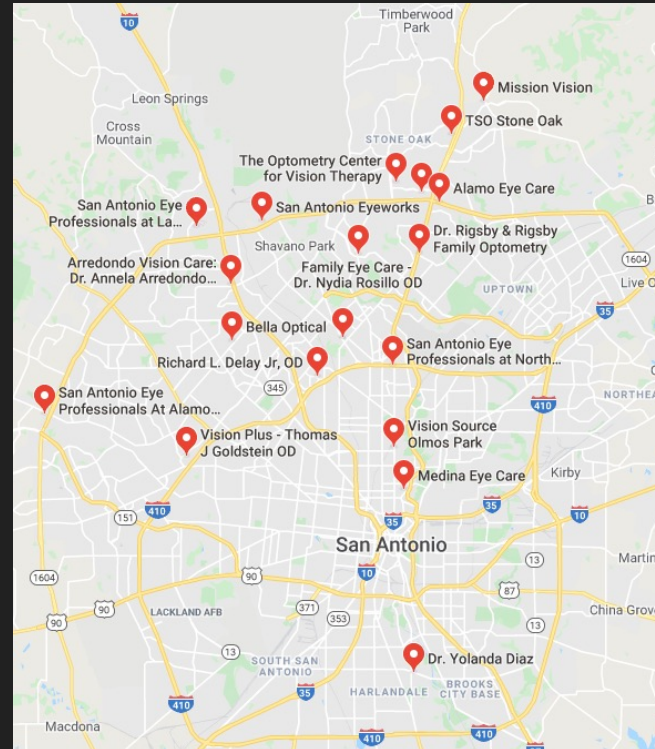
Scleral | SCLERAL LENS
EDUCATION SOCIETY

Creating a Specialty Lens Practice

The right practice in the right place at the right time

Where to locate a specialty lens practice?

- Choose where you want to live and whom you want to serve.
- Ideally, there will be few to no established contact lens focused practices in the area.
- Regarding specialty contact lenses median household income is not important
 - *Specialists get referrals*
 - Most of your business at first, however, will not be specialty contact lenses (most likely).



Equipment and supplies

Equipment

- Topographer
- Scleral profiler
- OCT with anterior segment imaging
- Specular microscope
- Lens modification unit
- Lensometers
- Anterior segment camera
- Anterior segment optimized slit lamp
- Pachymeter
- Aberrometer
- Optical biometer

Supplies

- Fitting sets
- Mirrors
- Cleaning and storage solutions
- Contact lens cases
- Dalsy adaptives
- Plungers
- Artificial tears
- NaCl solution
- Hypochlorous acid
- Punctal plugs
- Amniotic membranes

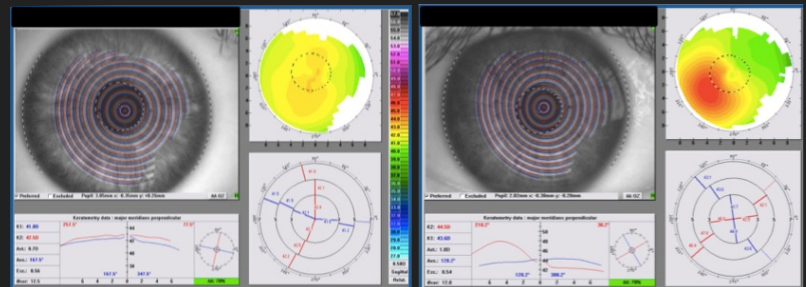
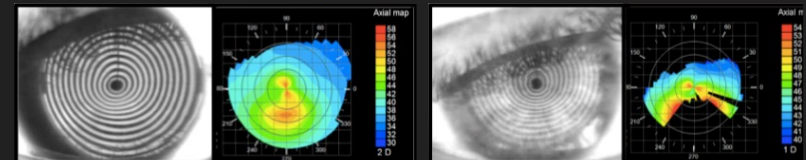
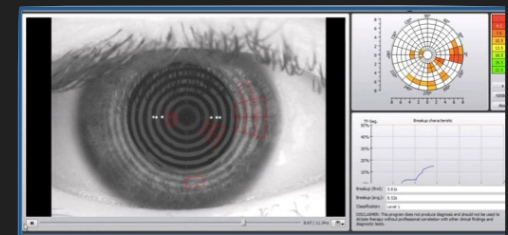
Collect Baselines

- Track changes to established baselines
- Visual Acuity
- Slit Lamp Findings
- Anterior Curvature
- Kmax
- I:S Ratio
- Anterior/Posterior Elevation
- Endothelial Cell Metrics
- Posterior Curvature
- Thinnest Point
- Thickness Distribution
- Epithelial Thickness
- Biomechanical Strength
- Aberrometry



Corneal Topography

- Disease management
- Anterior corneal metrics
- Anterior curvature & elevation
 - Lens flexure evaluation
 - Mire quality
 - Instant
- TF evaluation



Corneal Tomography

Disease management

Full corneal metrics

Curvature & Elevation

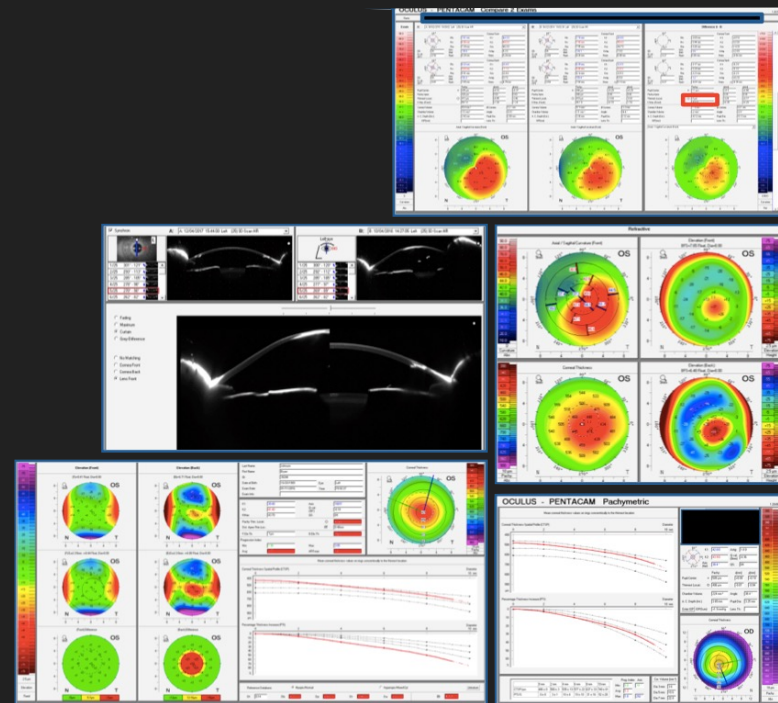
- Anterior
- Posterior

○ Densitometry

- Corneal clarity

○ Thickness

- Distribution
- Thinnest Point

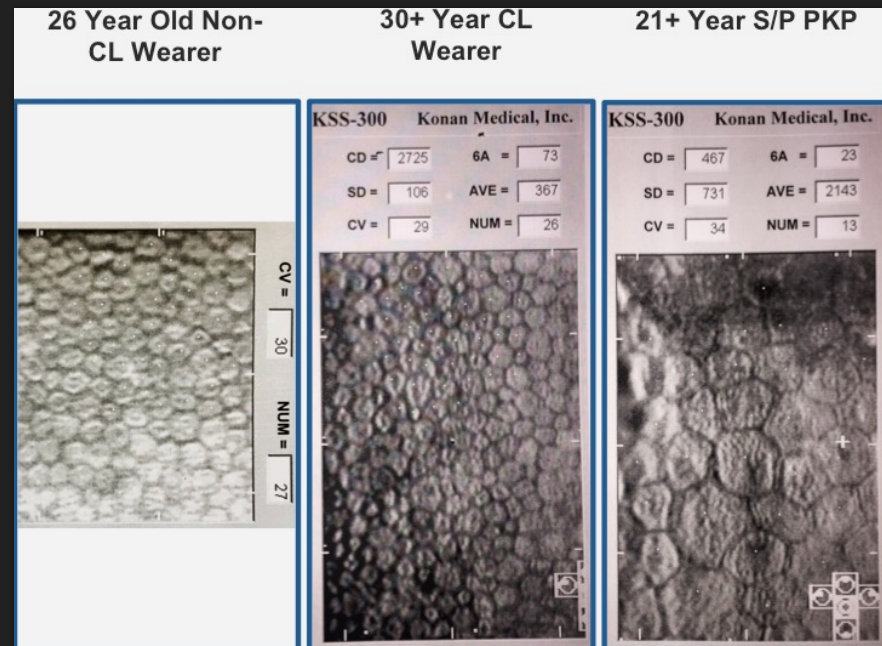


Disease and efficiency

Evaluate Corneal Endothelial Cells
Assess risk

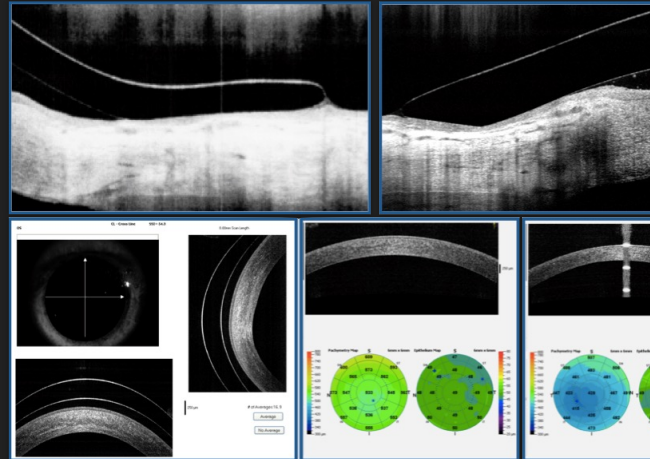
Dystrophy and Transplants

Specular Microscopy



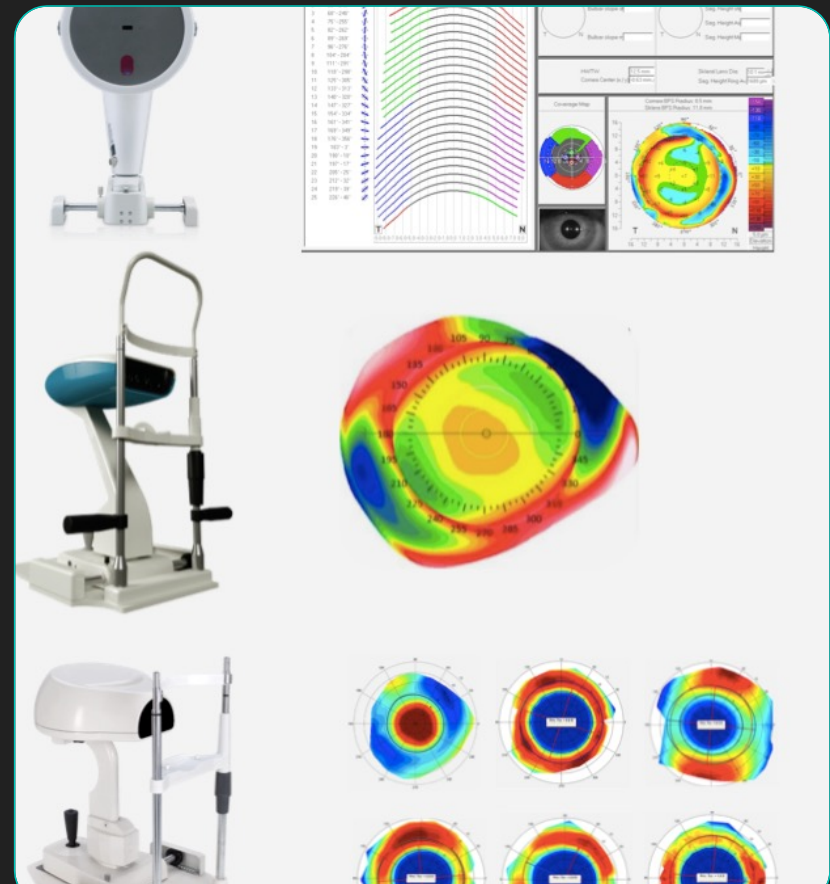
Anterior Segment OCT and External Photography

- Documentation
- Aid in evaluation
- Evaluation of cornea
 - Early corneal disease



Corneal Scleral Profile

- Scleral shape imaging
- Aid in understanding scleral shape
 - Pentacam
 - Eaglet ESP
 - Precision Ocular Metrology SMap3D



Lens/Device Monitoring

- ❖ Replacement?

- ❖ Radiuscope

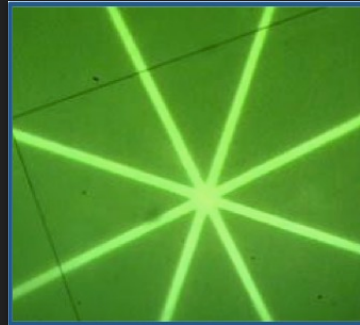
- Warpage
 - Surface Quality

- ❖ Loupe

- Edge quality

- ❖ Lensometer

- Warpage



Staffing: roles and culture

Staff positions

- Front Desk
- Technicians
 - Refracting/Contact Lens technician
- Contact lens coordinator
- Scribe
- Optician
- Biller

Patients encounter your staff first and spend most of their time with them!

Culture

- Clear Purpose
- Teamwork
- Autonomy
- Sense of Fairness
- Innovation
- **Open Communication**
- Constructive Feedback
- Access to Resources
- **Living the Values**



Contact Lens Coordinator

Purpose

- In a specialty contact lens practice the Contact Lens Coordinator is *critical*
- Concierge point of contact with patients

Patients in need of medically necessary contact lenses are valuable and require a lot of personal attention



Duties

- Schedule patients
- Answer and streamline patient questions
- ABN patients
- Specialty lens billing
 - Submitting claims
 - Claim follow up



Scheduling

- Efficiency is key in an already busy practice
- Make sure each exam is problems oriented
- Reschedule for any separate problem that needs to be addressed



All exam time slots are the same in my practice

- Understanding the patient problem for that **day**
 - Patients usually have multiple concerns
 - Reschedule
- Technicians
 - Special Testing
 - Scribe
 - Refract
 - Fit lenses for me

Building demand

Marketing and advertising

- Being discoverable
 - Insurance panels
 - Website
 - Social media
 - Traditional media
- Face-to-Face marketing
 - Comfort, confidence, materials (flyers, business cards, etc.), gifts for the office
 - *Build a relationship*
 - Have something of value to offer, deliver on your promises, and reciprocate



Practical matters

Charting, billing, and coding + Audits

Record keeping & medical decisions

HIPAA and insurance contracts mandate secure and comprehensive medical records

- Your EMR should support and promote excellent record keeping
 - Special testing needs to be done for a reason, and the results need to be interpreted
- Sharing findings with patients
 - Patients enjoying hearing their results but don't nerd out on the details like you do
 - Keep it short and sweet
- Your records will be shared with the referring provider; make them good

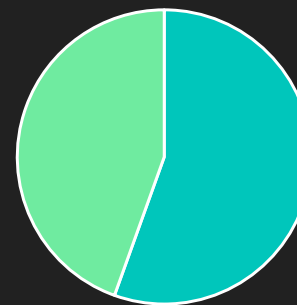
Billing

Get paid for what you do.

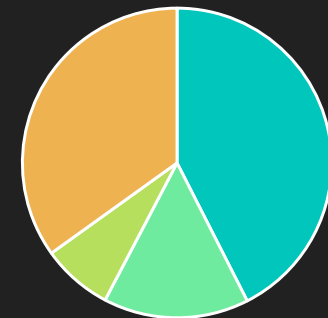
<https://www.gpli.info/coding-billing/>

- Fee schedules
- ABN
- Payors
 - Medical insurance
 - Vision Plans
 - Patients
 - Government agencies, charities, etc.

Revenue mix



Insurance mix



■ Patients ■ Insurance ■ VSP ■ EyeMed ■ Aetna ■ Other

Audits: Be afraid, very afraid

Audits are unavoidable

- Read and understand your contracts
- Your only defense is maniacal record keeping
 - Excellent charting
 - Support for medical decision making
 - Save all images
 - Save all invoices
 - Save proof of delivery for mailed lenses
 - Save referring providers chart notes



A Keratoconus Case From My Audit

- 41-year-old Caucasian female with Keratoconus
- Current Corneal GP Wearer
- History of Corneal Crosslinking OD awaiting OS
- Referred by local OD for Scleral Contact Lens OD

100% My
Experience

Reason for Visit

Strongest Words Are, "Physician or Patient Directed Evaluation for"

RFV

Review

No Interview

Clin. Summ.

Comm.

M. Frogozo

Task

Notes

View

Patient Reason For Visit

Patient presents for a medical contact lens fit OD. Pt had Crosslinking OD 8/24/2019 and currently wears GP lenses OU. Pt is currently using steroid drops in right eye bid for post crosslinking care. Pt relates redness, itching and discharge due to allergies. Pt is planning on getting crosslinking OS after OD is healed and corrected with scleral lens.

Provider Reason For Visit

Physician directed eval for keratoconus.
CC: Dr. Maverick, Dr. Anderson (EyeTX)

History of Present Illness

- Keratoconus
 - Both Eyes
 - Blurry Vision
 - Advanced Keratoconus
 - Since Age of 20
 - Constant
 - Better with contact lenses
 - Distortion of vision, poor nighttime vision, halos, glare

Location: Both

Quality:

Severity:

Duration:

Timing:

Context:

Mod. Factors:

Signs/Symptoms:

Medical History

- Review of Systems
 - Systemic Hypertension
 - ADHD
 - Environmental Allergies
- NKDA
- Medications
 - Claritin
 - Vitamin D
 - Vyvanse
- Past Ocular Hx
 - Corneal Crosslinking OD 8/2019
- Social Hx
 - No Drinking, smoking, or social drugs
 - Stay at home mother
- Family Medical and Ocular Hx
 - DM Type II – Mother and Father
 - Cataracts- Mother

Visual Acuity and Refraction Notes

Uncorrected Visual Acuity

Unaided VA	Distance	Near	@
OD	20/ 800	20/	
OS	20/	20/	
OU	20/	20/	

VA Method: Snellen

Aided Visual Acuity

Aided VA	Distance	Near	@
OD	20/	20/	
OS	20/ 25 -3	20/	
OU	20/	20/	

VA Method: Snellen

Rx Worn:

Pinhole VA	Distance	Comments
OD	20/ 80 -1	Pt in GP lens OS PWR -17.25 BC 5.5 DIA 8.6
OS	20/	

Autorefractometry

	Sphere	Cyl	Axis
OD	+20.75	-8.25	147
OS	+22.50	-6.25	154

Validity/Confidence #

Keratometry

	Power	H Meridian	Power	V Meridian
OD	@	/	@	
OS	+59.00	@ 004	/ +59.00	@ 094

Mire Quality

Method: Auto-K

Final Refraction With Prism

	Sphere	Cyl	Axis	H Prism	H Orient	V Prism	V Orient
OD	-22.50	-8.00	145				20/ 400
OS	-22.50	0.00	155				20/ 100
OU							20/
ADD							20/

“Difficult Refraction, Patient relates distorted double vision from keratoconus”

Clinical Findings that Support Diagnosis

Slit Lamp Notes

OD		OS
NL	Adnexa	NL
Clear	Palp. Conj.	Clear
Clear	Sclera	Clear
Clear	Episclera	Clear
Clear	Bulb Conj	Clear
Keratoconus	Cornea	Keratoconus
Deep & Quiet	A/C	Deep & Quiet
Flat and Clear	Iris	Flat and Clear
	Iris Color	
Clear	Lens	Clear

Additional Comments

central apical scarring 2+ OD, central apical scarring 1+ OS

Optic Nerve Notes

OD		OS
	Disc Type	
0.30	Horiz C/D	0.30
0.30	Vert C/D	0.30
Clear	NR Rim	Clear
Pink	Color	Pink
Distinct 360	Margins	Distinct 360

Fundus Notes

OD		OS
Clear	Macula	Clear
4+	Foveal Reflex	4+
Clear	Post Pole	Clear
Clear & Flat, No Holes/Breaks	Periphery	Clear & Flat, No Holes/Breaks
Clear	Vitreous	Clear
Greater than 2/3	A/V Ratio	Greater than 2/3
0	Arteriolar Reflex	0

DPA's Used Notes

DPA's

Dil. Deferred.

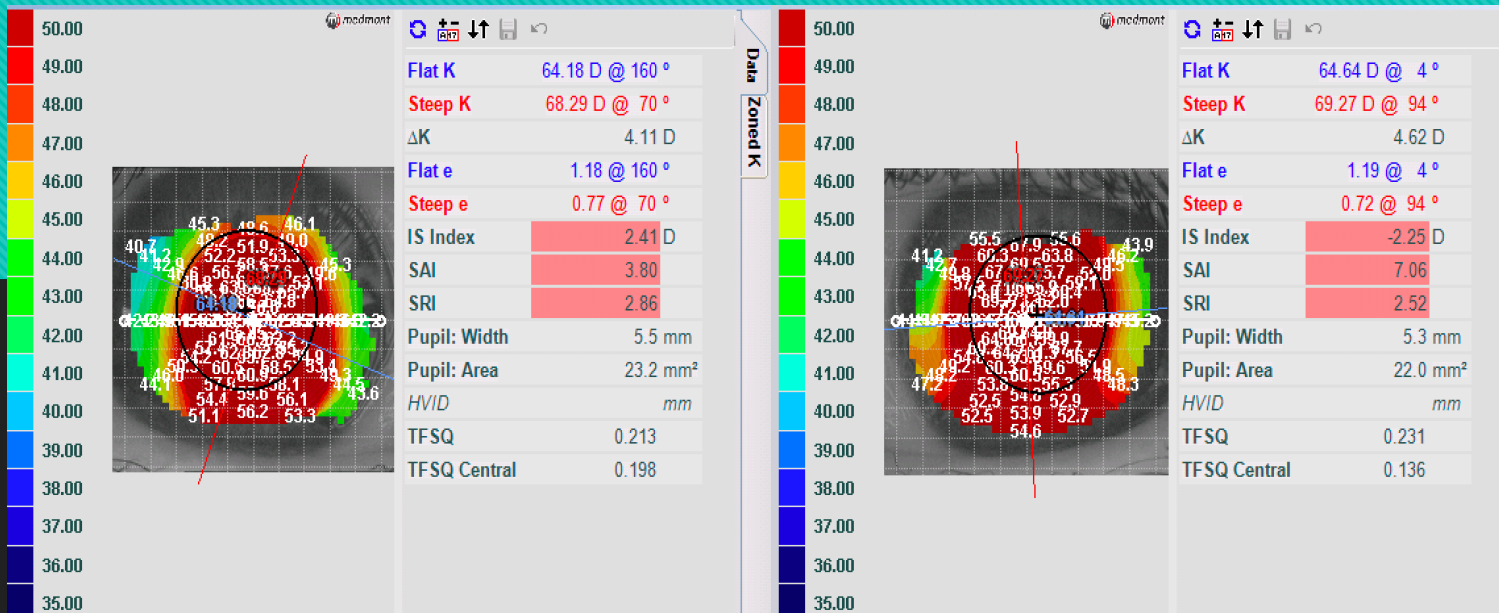
Time

Examining Techniques Notes

OD	90D
OS	90D

Do not note the cornea is clear!

Evaluation of retina for any surprises



Corneal Topography

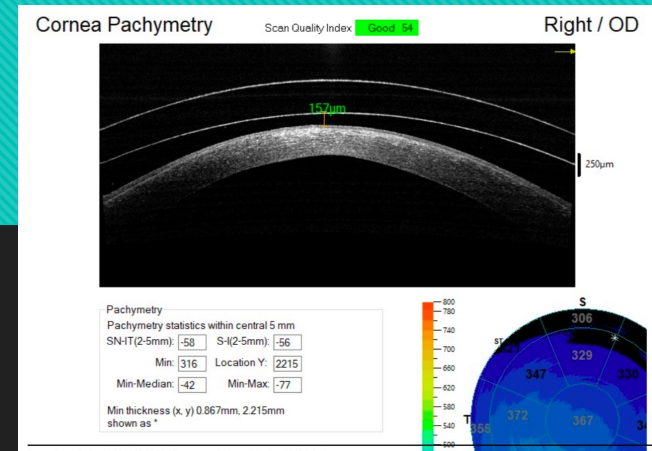
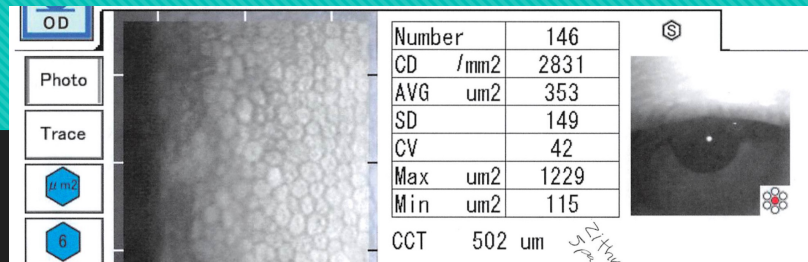
- Diagnosis and Reason and Interpretation for Test
- Steepest and Flattest K vs Sim K's
- "Medical Contact Lens is Indicated"

Pachymetry

- Min Pach Readings
- 2 standard deviations from normal
- “Keratoconus, medical contact lens is indicated”

Optical Pachymetry			
OD		OS	
Central Pach	325	Central Pach	358
Max Pach	506	Max Pach	537
Min Pach	325	Min Pach	305
Average Pach		Average Pach	
Comments		Comments	
Keratoconus, post crosslinking		Keratoconus	

Supporting Testing for Fit



- “Mild signs of pleomorphism however CD is sufficient in order to maintain normal corneal physiology in the presence of medical contact lens”

- “Vault of medical contact lens is sufficient over corneal health”

Fitting Notes

- 8.00/+0.25/18.00 Haptic Lens 5
 - OR +2.75 20/30 reports much better vision with less distortion
 - Vault 200 microns and haptic looks great
 - Order New Lens and Return to Clinic for Dispense
- Note all on eye trials- don't get lazy



Assessment and Plan

Assessment and Plan

Diagnoses

Dx Date	Dx	Description	Eye	Care Plan
10/01/2019	H10.45	Other chronic allergic conjunctivitis		discussed string ATs (blink) to use when with ocular allergies
10/01/2019	H18.603	Keratoconus, unspecified, bilateral		Piggy back current GP lens with soft daily Medical contact lenses are indicated Fit into scleral contact lenses today OD Pt awaiting crosslinking OS (Nov 2019- started fit today but will finalize after surgery) Monitoring corneal health in the presence of contact lenses- scan taken today (OCT, endothelial cell count, corneal topography, pachymetry)

“Order new medical lenses. Return to clinic for contact lens dispense and insertion and removal teach.”

Billing and Coding

- Can also use 92072 if appropriate
- Specific Material Code
 - V2531

Coding

Service	Description	Diagnoses
76514	PACHYMETRY, UNILAT OR BILAT	H18.603
92004	COMP. OPHTH. SERVICE, NEW PT	H10.45, H18.603
92015	REFRACTION	H18.603
92025	CORNEAL TOPOGRAPHY	H18.603
92313C	Complex scleral GP CL Fit	H18.603

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