

# Surgical Co-Management for the Primary Eye Care OD

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## Disclosures

- Alcon-Consultant, Speaker
- Allergan-Consultant, Speaker
- Bausch & Lomb-Consultant, Speaker
- Dompe-Consultant
- Tarsus-Consultant
- Ocuphire-Consultant
- Oyster Point Pharma-Consultant
- Eyenovia-Consultant
- Orasis-Consultant

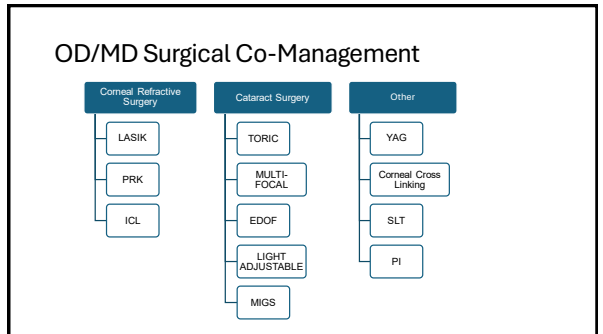


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Why does it matter?

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### Goal as the Primary Care OD

Prepare	Prepare the patient the best we can
Know your surgeon	Talk with local surgeons •What are their protocols? Preferences? Products/services they offer?
Educate	Educate on risks, benefits, expectations, & alternatives
Process Overview	Give overview of process
Prep	Prep the ocular surface

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### Surgical Triage

What are risk factors that could increase complications?

- H/o ocular trauma?
- Systemic conditions?
- Medications?
- H/o contact lens wear?
- Any (undiagnosed) corneal dystrophies (EBMD, KCN?)
- Typical daily environment (vent/CPAP?)
- Eyelid inflammation (Rosecea/Demodex?)

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### Prep the Ocular Surface

<b>01</b> Clean up the eyelids <ul style="list-style-type: none"> <li>• Blephax/Zest/Nulids</li> <li>• Rx lotilaner BID X 6 wks</li> </ul>	<b>02</b> Eliminate Inflammation <ul style="list-style-type: none"> <li>• Rx Topical steroid</li> <li>• Rx immunomodulator</li> </ul>	<b>03</b> Increase TMH <ul style="list-style-type: none"> <li>• Punctal occlusion</li> <li>• Rx Neurostimulation</li> </ul>	<b>04</b> Stabilize tear film
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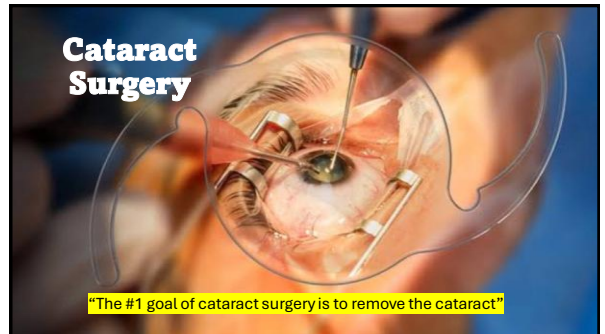
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### Prepping the Ocular Surface

**DELAY ONSET OF REFERRAL?**

**REFER AND TREAT?**

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### Cataract Pre-Op Process

- Review all IOL options and technology
- Review all ocular surface abnormalities and address DED preoperatively to ensure best visual outcome
- R/O posterior ocular pathology: fundus photo/OCT
- Review expectations

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### TORIC IOL


- Uncorrected (residual) astigmatism will reduce the ability of IOLs to work at all distances
- Addressing astigmatism is as important as managing the spherical component
- Astigmatism has significant effects on visual quality
- Correcting astigmatism at the time of cataract surgery improves visual outcomes
- Toric IOLs commonly accepted as the most effective intervention

**1/3 of Patients have  $\geq 1.0D$  of astigmatism but only 1/4 of those patients are receiving a Toric IOL**

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## Lenticular vs Corneal Astigmatism

- Corneal Astigmatism**
  - Will continue to impact visual system after cataract surgery
- Lenticular Astigmatism**
  - Will not continue to impact visual system after cataract surgery
  - Determined by biometry reading



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## Monofocal IOL

- "standard" implant
- Single plane of vision
- Most (modern IOLs) are acrylic: foldable, allowing surgeons to insert the lens through a much smaller incision than is possible with a rigid PMMA lens
- Ideal for:
  - Patients with ocular pathology
  - Vision goal is single plane of vision

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## Premium IOLs

- Not just for cataract surgery
- Multifocal
  - Pro: range of vision
  - Con: halos at night
- Extended Depth of Focus
  - Pro: great for Distance & Intermediate, less halos
  - Con: limited near vision, halos still present
- Light Adjustable Lens
  - Pro: adjustable after surgery, great vision or single plane
  - Con: "single" plane of vision, limited range

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### Austin Eye Lens Implants - Comparison & Benefits

Shannon Wong, MD John Odette, MD Max Medert, MD  
Ashley Dress, OD Katherine Elkins, OD River Falls, WI

INTRACULAR LENS	BASIC MONOFOCAL	ASTIGMATISM CORRECTION SURGERY	VIVID	EMPOWER OFFSHORE	ODYSSEY EXTENDED DEPTH FOCUS	LIGHT ADJUSTABLE LENSES (LAL)
ASTIGMATISM CORRECTION	No	Yes	Yes	Yes	Yes	Yes
NEED FOR GLASSES AFTER SURGERY	Requires glasses for near	Requires glasses for near	Requires glasses for near	Requires glasses for near	Requires glasses for near	Requires glasses for some situations
DESIGN AND BENEFIT OF THE IOL IMPLANT	• Improved vision with spherical lens	• Corrects astigmatism for both the primary and secondary meridians	• Designed for distance and intermediate vision	• Designed for distance and intermediate vision	• Designed for distance and intermediate vision	• Lens performance can be adjusted after surgery
MEASUREMENT OF EYE OPTICS OF THE IOL IMPLANT	• Glasses needed for near	• Glasses needed for near	• Contact lens or glasses may be needed	• Contact lens or glasses may be needed	• Contact lens or glasses may be needed	• Contact lens or glasses may be needed
NEARVISION CLEAR AND BROAD	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
COPI PRICE (By Manufacturer or Retailer Sample)	Private Payment	\$4,800	\$7,200	\$7,200	\$7,200	\$4,800
COPI FOR EXTENDED DEPTH FOCUS		\$27,000	\$27,000	\$27,000	\$27,000	\$27,000
COPI FOR EXTENDED DEPTH FOCUS AND A RECENTLY DEVELOPED EXTENDED DEPTH FOCUS		\$33,000	\$33,000	\$33,000	\$33,000	\$33,000

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## IOLs in 2025

- Envy (B&L)**
  - No color (great for artists)
  - Great for D&N, minimal halos
  - Neutral asphericity
  - Toric available
- Rayner ENV**
  - Nonrefractive IOL
  - extended range of vision
  - create a single, elongated focal point to enhance the depth of focus.
- ClearView 3 (Lens tech)**
  - Design
  - Different insertion approach (Purkinje reflexes have to be in center of lens and hitting the Distance portion), out of position can lead to a strabismic of light
  - Great in low light, not great intermediate
  - No astigmatism
- Odyssey lens (I&J)**
  - MIF & EDOF lens
  - Great wide FOV
  - Not quite as yellow but does have champagne hue
- Aphera 1c-8 (B&L)**
  - Diffraction optical principle to allow light to only pass through aperture
  - Great for irregular corneas b/c it just focuses light in center
- enVista Aspire (B&L)**
  - Extended DOF lens
  - Functions as
  - Great for monovision setup
  - Toric available

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## Multifocal IOL

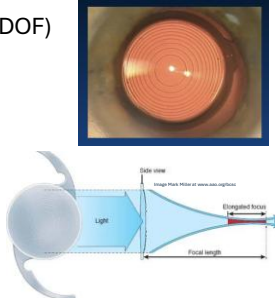
- Concentric Ring Design
  - Concentric ring design causes halos
  - Some brands claim better image quality & higher contrast
- Segmented Bifocal Design
  - Less Halos at night
  - Pupil sizes must be 2.75mm or more
  - Minimal astigmatism & limited power range
- Great range of vision
- Set the expectation: great range of vision but will likely have halos at night
  - Do you do a lot of night time driving?
  - What are your vision goals after surgery?
  - May still need glasses at some focal lengths/lighting



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### Extended Depth of Focus (EDOF)

- J&J TECNIS Symphony OptiBlue (2022)
  - Uses diffraction to split light between 2 close foci—resulting in a bifocal IOL with focal peaks at plano and at +1.75 D
  - Diffractive lens with a concentric sawtooth surface pattern on the anterior surface
- Alcon Vivify (2021)
  - Nondiffractive lens with anterior & posterior optical elements to optical elements to elongate range of focus
  - Minimal glare/halos—better for mild corneal/macular disease?
- Pipeline: IC & small-aperture IOL (AcuFocus, Inc)




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### Full Range of Vision

**PanOptix**  
Trifocal Lens

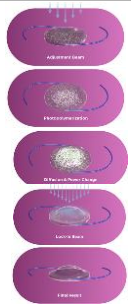
- J&J TECNIS Synergy (2021)
  - EDOF + Multifocal Hybrid
  - Toric Available
- J&J TECNIS Odyssey (2024)
  - Intended to reduce night vision symptoms
- Alcon PanOptix (2019)
  - Trifocal IOL



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### Light Adjustable Lens (LAL)

- LAL (2017)
- LAL+ (2024)
  - Modified aspheric anterior surface to create a small continuous increase in central lens power (ie extend depth of focus)
- Final lens power decided after post-surgery period using UV light treatments to adjust the shape of the LAL



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### Cataract Post-Op Process


- Follow up protocol differs slightly between premium vs standard lenses
- ALL have equal risk of complications

1 day – High or low IOP
3-7 days – Endophthalmitis
2-3 weeks – Steroid Responder
3-4 weeks – Iritis/Uveitis
4-6 weeks – CME
>1 month – PCO

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### Potential cataract surgery complications to monitor for


- Posterior Capsular Opacification
- Iris damage
- PCIOL dislocation
- PCIOL subluxation
- Anterior Chamber IOL
- Endophthalmitis



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### Posterior Capsular Opacification (PCO)

- IOL: Silicone > Acrylic
  - Previous belief that Silicone cause more PCO than Acrylic but new research shows it is equal
- Most common cataract post op complication
  - 10-30% of eyes following cataract surgery
- Eligible for YAG 91 days after cataract surgery
  - nd:YAG = Neodymium: Yttrium aluminum garnet laser
- Photodisruption (4nssec pulse duration)
  - Normally 40 shots or less (caution with more)
- No thermal reaction/ No coagulation when blood vessels are hit



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# YAG

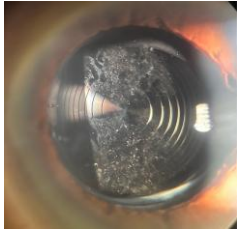
- Contraindications:**
  - Corneal opacities/irregularities
  - Intraocular inflammation
  - Macular problems
  - Inability to hold steady or maintain fixation
- Risks and Complications:**
  - IOL damage/pitting - silicone most common
  - IOP spike/elevation
  - Floaters
  - CME
  - RD
- Total Laser energy is important factor leading to complications

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## YAG co-management

**Pre-op documentation:**

- Glare testing
- Reduction in VA
- Confirm no macular pathology
- Subjective complaint/ Documentation of ADL being impacted (20/30 or worse)



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## Iris trauma during cataract surgery

- IOP spikes
- Glare from peaked pupil
- Mechanical chaffing of lens
- Cosmetic contact lens?

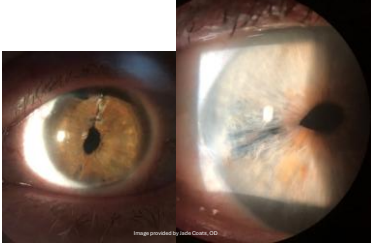
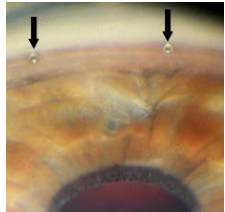


Image provided by JMS Cornea, CO

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## Co-management of MIGS during cataract surgery

- Don't discontinue glaucoma meds until IOP has stabilized (2 months PO)
- Contraindications
  - Active neovascular glaucoma (NVG)
  - Primary angle-closure glaucoma (PACG) or secondary angle-closure glaucoma (SACG)
  - Corneal opacity
  - Angle dysgenesis
  - Elevated episcleral venous pressure (Sturge Weber syndrome, thyroid eye disease, retrobulbar tumors)


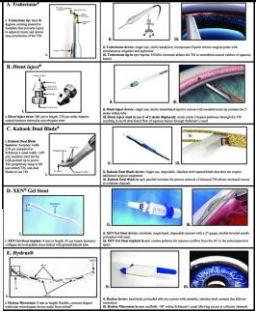


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## MIGS

- Glaukos iStent (2012) ➤ iStent Inject (2018) ➤ iStent inject W(2020) ➤ iStent Infinite (2022)
- Glaukos iDose TR (2023)
- Trabectome (2004)
- Omni (Trabeculotomy + Canuloplasty) (2017)
- Ivantus Hydrus (2018)
- Allergan/AbbVie Xengel stent (2016)

Watch out for micro-hyphema POD 1

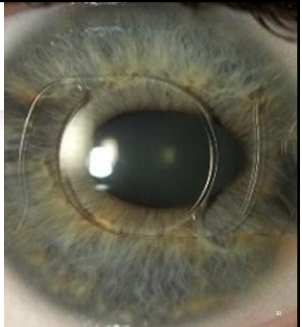



[https://www.researchgate.net/publication/311222801\\_Microinvasive\\_Glaucoma\\_Surgery\\_An\\_Evidence-Based\\_Review](https://www.researchgate.net/publication/311222801_Microinvasive_Glaucoma_Surgery_An_Evidence-Based_Review)

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## Anterior Chamber IOL

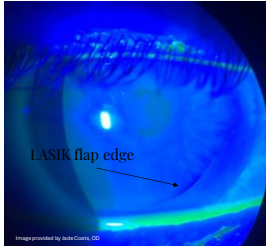
- Option for patients with history of lens zonule issues
- Usually secondary option if capsular bag tears during cataract extraction
- Congenital cataracts



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### Corneal Based Refractive Procedures

- Excimer only**
  - PRK
- Excimer + Femto**
  - LASIK
  - Topoguided
- Femto only**
  - SMILE



LASIK flap edge

Reproduced by John Collins, MD

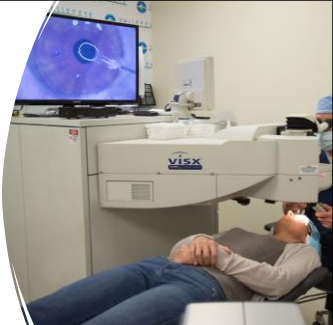
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### PRK (Photorefractive Keratectomy)

FDA approved in 1995 for:

- Up to -12D myopia
- Up to 6D astigmatism
- Up to +5D hyperopia

**\*NOT a good option for keloid formers and patients with active systemic connective tissues disease such as systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA)**




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### PRK

Typical follow up schedule:

- 5-7 day (BCL removal)
- 2 week
- 2 month
- 5 month
- 1 year

- 20% Alcohol solution
- Excimer laser
- BCL placement during surgery



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### PRK post-op

- **PRK treatment schedule:**
  - **1 week** use of topical antibiotic:
    - QID x 1 week
  - **3 month** taper of topical corticosteroid:
    - QID x 1 month
    - TID x 1 month
    - BID x 2 weeks
    - QD x 2 weeks

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### LASIK = Laser-Assisted *in situ* keratomileusis

**What makes a 'good' LASIK candidate?**

**FDA approved in 1999 for:**

- Up to -14D myopia
- Up to 6D mixed astigmatism
- Up to +6D hyperopia
- Lasik flap = 100-120 micron
- Residual stromal bed = 300 micron

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### LASIK Co-Management

**LASIK treatment schedule:**

1 month taper of corticosteroid:

- QID x 1 week
- TID x 1 week
- BID x 1 week
- QD x 1 week

1 week use of topical antibiotic:

- QID x 1 week

Compounded combo abx/steroid drop

- QID x 1 month

**Typical Follow up schedule/post op appts:**

- Same day
- 1 week
- 1 month
- 3 month
- 6 month
- 1 year

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### Potential adverse events to watch for:

<b>1 Day:</b>	<ul style="list-style-type: none"> <li>Dissected flap</li> <li>Incomplete flap</li> <li>Flap striae</li> <li>Corneal Purpation</li> <li>Limbial bleeding/subconjunctival haze</li> </ul>
<b>1 week:</b>	<ul style="list-style-type: none"> <li>Iberoid induced IOP response</li> <li>Interface haze</li> </ul>
<b>1-3 months:</b>	<ul style="list-style-type: none"> <li>Diffuse Lamellar Keratitis (DLK)</li> <li>Pressure-induced Stromal Keratitis (PSK)</li> <li>Infectious Keratitis</li> </ul>
<b>Annually:</b>	<ul style="list-style-type: none"> <li>Chronic dry eye</li> <li>Corneal ectasia</li> <li>Epithelial ingrowth</li> <li>Neurotrophic Keratitis</li> </ul>





Image provided by John Collins, MD


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### Small Incision Lenticule Extraction (SMILE)

**LASIK**  
old method  
incision 20 mm



**SMILE**  
new method  
incision 4 mm



- FDA approved in 2016 for:
  - Up to -10D myopia
  - Up to 3D astigmatism
  - Maximum spherical equivalent of -10D
- \*Not approved for hyperopia

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### Implantable Collamer Lens (ICL)

<b>Evo ICL FDA approved in 2011 for:</b>
• -3D to -15D myopia
<b>Evo Toric ICL approved for:</b>
• -1D to 4D astigmatism
<b>*Not approved for hyperopia</b>

Older generation aka Visian ICL without port  
→ require PI

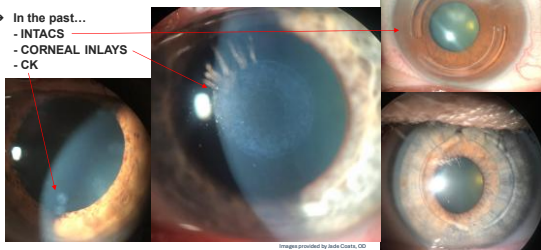
Newer generation Evo ICL with central port  
→ do *not* require PI

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### Other refractive surgical options...

→ In the past...

- INTACS
- CORNEAL INLAYS
- CK



Images provided by John Collins, MD

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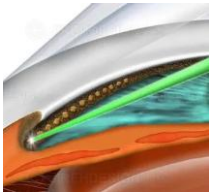
### Selective Laser Trabeculoplasty (SLT)

**SLT: Q switched fd Nd:YAG**

Indications:

- POAG
- NTG
- Pigmentary Dispersion Glaucoma
- PXG

MAX: 25-30 shots per quadrant, 45-60 per 180°  
Energy: 0.6-1.2 mJ (0.8-1.0mJ most often)  
Spot Size: 400 microns  
Duration: 3 nsec  
Pulses: 1



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### SLT

**Contraindications:**

- Advanced POAG
- Narrow angle glaucoma
- Angle closure
- Inflammatory glaucoma
- Angle Recession Glaucoma
- NVG
- Congenital glaucoma
- Prior LTP failed
- Hazy media

**Post op care:**

**1-2 week follow up:**

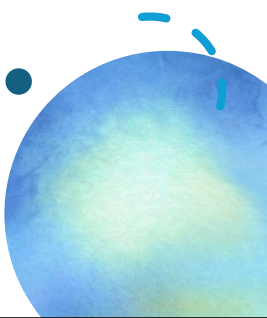
- VA
- Anterior segment exam
- Check for cells/flare
- Check IOP
- Check any new floaters

**6 week follow up:**

- IOP
- Expect 20-30% IOP reduction
- Start to consider reduction in glaucoma medications if IOP

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## Why consider SLT?

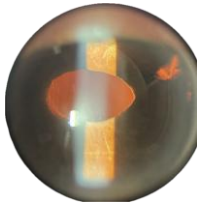


- 1st line in Europe after LIGHT study
- Repeatable every 2-3 years in literature but 3-4 years in clinical practice
- Diminishing effects?
- What about low energy SLT? Repeat annually?
- SLT effectiveness?


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## Peripheral Iridotomy (PI)

- 1st line for primary angle closure suspects or primary angle closure glaucoma patients
- Create another port for aqueous outflow
- LPI done at 11-1 o'clock (under upper lid) to minimize visual dysphotopsias
- Controversy??
- If hyperopic with some NSC -> take out cataract



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Thank you

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