

O.D.'s Guide to Cataracts

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Disclosures Eric E. Schmidt, O.D., F.A.A.O.

- Allergan – Advisor, Speakers Bureau
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- Sight Science - Advisor
- Topcon - Advisor
- Visus – Advisor
- Lumenis – Advisor
- Avellino Labs – Advisor
- B&L- Advisor
- Alcon- Advisor

The Future of Cataract Management by Optometry

- Know the Lens options
- Know the Patient
- Match Options to Patient
 - Financial
 - Medical
 - Optical

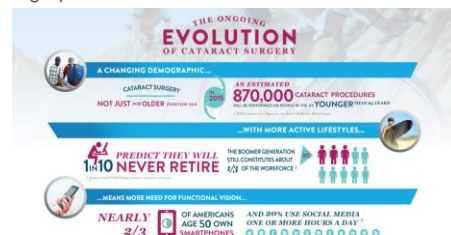
Cataract Management by Optometry in the Year 2022

- Earlier Referrals
- Loftier Expectations- Harder to Manage?
- More Active Role In Pre-Operative Counseling
- More active Role In Choosing Procedure
- More Important Than Ever In Assuring Positive Outcomes
- Changing Post-Op Role
- Evolving Co-management

The Future of Cataract Management by Optometry

- Understand the fee structure of each modality
- Develop a personal fee structure
- Is there still a 20% rule ? - In fact the majority of the examination and patient guidance is your responsibility and should be compensated
- There is very little difference in time and expertise to implant a SV, toric, or multifocal. In fact the majority of time spent is pre and Post surgery

Demographics



1. 2019 Comprehensive Report on the Global IOL Market, Market Scope 2. IOL Census Bureau, 2012-3. Gallup.com/poll/168952/boomer-never-retire-again-4. NAOVision, Inc. (naovision.org/naovision-benefits-boomer-never-retire) 5. AARP Getting to Know Americans Age 50+, 2014-6. AARP Planning Complete Benefits for an Aging America, May 2009

Not All Cataracts Are Created Equal

- VA is no longer the only criteria for recommending surgery
 - Glare
 - Contrast Sensitivity
 - Night Vision Difficulties
 - 20/Unhappy!

Not All Cataract Surgeries Are Created Equal

- What Does The Patient want (expect)?
 - Spectacle independence?
 - No specs for sports?
 - No reading glasses?
 - No responsibility?

Not All Cataract Surgeries Are Created Equal

- What Do The Doctors Want (Expect)?
 - Surgeon vs Referring Doctor
- Setting Realistic Expectations Is The Key!!!!

Cataract Surgery – Choosing The “Right One”

- So Many Choices – So Little Time
 - Clear Cornea vs Laser assisted
 - Astigmatic Keratotomy vs Toric IOL
 - Single Vision vs Multifocal
 - Multifocal vs Accomodating IOL vs Trifocal
 - What About Monovision???
 - Aspheric IOLs – What’s up with those?
 - And What Is Extended Depth of Focus!!!!???

Why Use A Femtosecond Laser ?

- Precise Incision Control
- Managing Astigmatism
- More Precise Capsulorhexis
 - More Predictable refractive outcome
- *But Is It worth the Extra Cost???*

What About The ORA?

- Intraoperative aberrometry
- Enhances precision of IOL placement
- Increases likelihood of plano result
- Is there an upcharge?

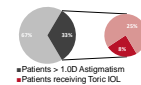
Managing Astigmatism

- Limbal Relaxing Incision
 - Astigmatic keratotomy (laser guided)
 - Toric IOL
- The choice depends upon amount of pre-operative astigmatism
– (And the amount of money the patient chooses to spend!!!)

Treatment Astigmatism & Presbyopia in Cataract Surgery

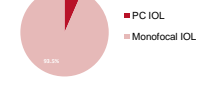
1/3 of Patients have $\geq 1.0D$ of astigmatism but only 1/4 of those patients are receiving a Toric IOL

% of Patients receiving Toric IOL



Every patient over the age of 50 is impacted by presbyopia¹, yet only 6.5% of patients receive a presbyopia-correcting IOL

% of Patients receiving PC IOL



Patients who do not have astigmatism and presbyopia treated at the time of cataract surgery must treat those conditions with glasses for the rest of their lives.

1. 2016 Market Scope

How Much Cylinder Can we Actually Correct?

Lens Model	ZCT150	ZCT225	ZCT300	ZCT400	ZCT450	ZCT525	ZCT600
Cylinder Powers	1.50 D	2.25 D	3.00 D	4.00 D	4.50D	5.25D	6.00D
Corneal Plane*	1.03 D	1.54 D	2.06 D	2.74 D	3.08D	3.60D	4.11D
Corneal Astigmatism Correction Range (Prek Cyl + SIA)	0.75–1.50D	1.50–2.00D	2.00–2.75 D	2.75–3.62 D	3.00–3.50D	3.50–4.00D	4.00–4.75D

Astigmatism and Cataract Surgery



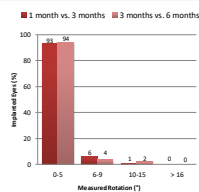
- Approximately 37.7% of the patient population has greater than 1D of astigmatism¹
- Toric IOLs represent a potential market of approximately 268K procedures
 - 7% market penetration forecasted for 2014¹
 - Fastest growing segment of the premium IOL market the last several years²

1. Market Scope, 2013 Comprehensive Report on Global IOL Market; 2. Market Scope, 2014 Global IOL Report, Ophthalmic Market Perspectives.

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Precise correction of astigmatism with excellent postop rotational stability

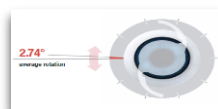
Postop Rotational Stability¹



* N=148 patients with photographic axis data at all visits through six months.

Mean Axis Change Between Baseline and Six Months¹

N = 148



Why rotational stability matters: A loss of approximately 3.3% in cylindrical power occurs for every degree of rotation away from the toric IOL's intended axis.²

1. TECNIS Toric 1-Piece IOL [package insert]. Santa Ana, Calif: Abbott Medical Optics Inc.; 2. Kim, Myung Hun, Korean J Ophthalmol 2010; 24(4):207-212

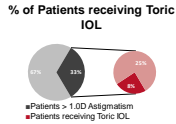
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What About Presbyopia??

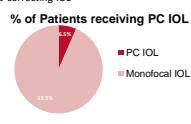
- Monofocal IOL w/ Readers
- Monovision
- Multifocal IOL
- Trifocal IOL
- Accommodating IOL
- Aspheric IOLs
- Extended Depth of Focus IOL
- Again... The Choice Depends Upon The Expectations of The Patient

Treatment Astigmatism & Presbyopia in Cataract Surgery

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



Every patient over the age of 50 is impacted by presbyopia¹, yet only 6.5% of patients receive a presbyopia-correcting IOL



Patients who do not have astigmatism and presbyopia treated at the time of cataract surgery must treat those conditions with glasses for the rest of their lives.

1. 2016 Market Scope

Current IOL Options

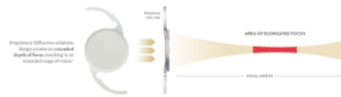
- Monofocal IOLs
- Accommodating IOLs
- Multifocal IOLs
- Monofocal Toric IOLs
- Accommodating Toric IOLs
- Multifocal Toric IOLs

The FDA Approves a **different class** of lens:
The first and only
Extended Depth of Focus (EDOF)
Presbyopia-Correcting IOL
for patients with and without Astigmatism

Johnson & Johnson VISION

Extended Depth of Focus

The TECNIS Symfony[®] IOL has unique optics, creating a different visual experience



- The proprietary echelette design introduces a novel pattern of light diffraction that elongates the focus of the eye¹
- The echelette is the relief or profile of the lens (height differential) within each ring
- The height, spacing, and profile of the echelettes to create a diffractive pattern for an elongated focus

1. TECNIS[®] Symfony[®] IOL DFU

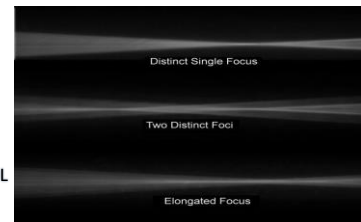
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Extended Depth of Focus IOL

Monofocal IOL

Multifocal IOL

TECNIS Symfony[®] IOL



* Data on File: Tecnis Symfony Green Light Bundle Bench Test DOP004CT00; Abbott Medical Optics Inc. 2014

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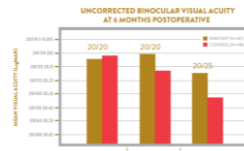
The impact of chromatic aberration on image quality



Johnson & Johnson VISION

Excellent Vision at All Distances¹

- Monocular Distance Corrected vision with TECNIS Symfony[®] IOL improved 2.4 lines for intermediate vision and 2.2 lines for near vision compared to the monofocal control.¹



1. TECNIS[®] Symfony[®] IOL DFU


1 More EDOF-VIVITY

- May Be More Forgiving
- Not Diffractive – It is REFRACTIVE
- No Rings- 2 smooth surfaces with varying curves allow for “simultaneous vision”
- Less aberrations/ less glare?
- What about near vision?
- Can be mixed and matched

ANOTHER NEW IOL TECHNOLOGY - PANOPTIX

For well over a decade now, surgeons have been able to offer presbyopia-correcting intraocular lenses (IOLs).


Until now, multifocality meant bifocality:
Light energy directed to two of the three primary focal points.



THE FIRST AND ONLY TRIFOCAL IOL IN THE U.S.

AcrySof® IQ PanOptix® and AcrySof® IQ PanOptix® Toric IOLs are innovative trifocal lenses that offer you the thrill of delivering a level of refractive performance that breaks free from tradition.

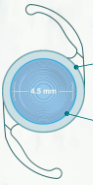
- 20/20 near, intermediate and distance vision is now possible!^{1,†}
- Proprietary **ENLIGHTEN®** Optical Technology
- 99.2% of patients would have had the same lens implanted again!^{2,‡}
- Available in toric for astigmatism correction



Based on mean value of binocular defocus curve at near, intermediate and distance at 6 months (n=122).
†Patient US eye converted from logarithmic VA. A defocus value of 0.001 or better indicates a logMAR VA of 0.04 or better, which means 20/20 or more of VA.
‡STORRS chart letters in the line were identified correctly.
§Response to the following question on QOLAS questionnaire (Nov. 1-6, Dec. 20, 2018) at 6 months post-op: “Given your vision today, if you had to do it all over, would you have the same lens(es) implanted again?”

OPTIMIZED LIGHT ENERGY

Proprietary, non-apodized design engineered to optimize light utilization



The unique diffractive structure allows the lens to transmit **88% of light** to the retina at a 3 mm pupil size for exceptionally high light utilization.³

Featuring a 4.5 mm diffractive zone to reduce dependence on pupil size in **different lighting conditions**.^{3,4}

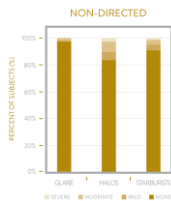
PANOPTIX PATIENT-REPORTED VISUAL DISTURBANCES²

- Most bothersome visual complaints
 - Starbursts (4.8%)
 - Halos (2.4%)
 - Glare (1.6%):

So What Do We Know About Panoptix

- Another very viable option
- Three focal points (Plano, +1.67, +2.50)
- Technically a quadrafocal
- Probably works best bilaterally
- Enhanced Near Vision
- Happier Earlier?

Low Incidence of Halo and Glare

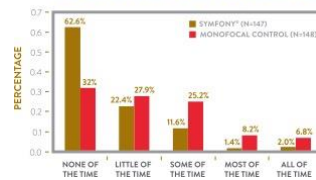


Less than 3% of patients spontaneously reported incidence of severe night vision symptoms

These may include a perception of halos, glare, or starbursts around lights under nighttime conditions. The experience of these phenomena will be bothersome or very bothersome in some people, particularly in low-illumination conditions. On rare occasions, these visual effects may be significant enough that the patient may request removal of the IOL.

Low Spectacle Wear

FREQUENCY OF GLASSES / CONTACTS WEAR DURING LAST 7 DAYS, ASKED AT 6 MONTH VISIT

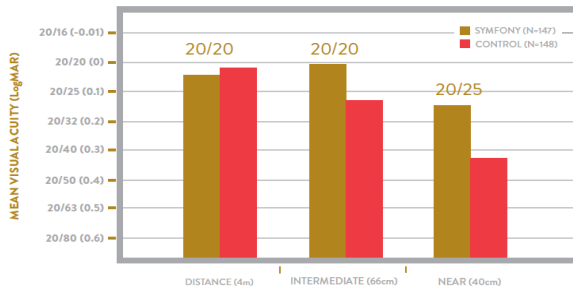


85% of TECNIS Symfony® IOL patients wore glasses none or a little bit of the time*

*Although the questionnaire was not determined to be a psychometrically valid assessment of the concept of spectacle independence, data showed that the Symfony IOL achieved the secondary effectiveness endpoint of reduced overall spectacle wear compared to the control monofocal IOL.

1. TECNIS Symfony® IOL DFL

UNCORRECTED BINOCULAR VISUAL ACUITY AT 6 MONTHS POSTOPERATIVE



Expectation Setting Conversations

- There is no perfect lens
- Distance to computer vision, ability to read a menu
- Expect to need reading glasses for small print
 - If they don't use reading glasses it's a bonus
- They will likely need prescription RX for some time of the day, for some specific tasks
- Day one expect slightly blurry vision,
 - Vision will improve once second eye is done
- You may notice "starbursts" around light sources more noticeable at night

ENHANCING THE PATIENT EXPERIENCE



PATIENT SATISFACTION

Patients whose providers listen to them, elicit goals and concerns, and explain all the options are 3-5 times more satisfied with their providers.⁶



PATIENT OUTCOMES

Effectively communicating with patients has a beneficial effect on medical outcomes, including^{6,7}:

- Lower rates of anxiety, pain and psychological distress
- Higher rates of compliance and symptom resolution



What communication techniques can be easily applied to help improve patient satisfaction and outcomes?

PATIENT EXPECTATIONS

You should not evaluate your vision until you've had surgery in both eyes

You may see some glare and halos around lights following surgery

You can expect to see well and read comfortably in different lighting conditions

Your range of vision should be excellent and, with time, will adjust

Don't compare one eye to the other- it is a bilateral procedure

Preoperative considerations

- Patient selection
 - Manage expectations
 - Halos/starbursts
 - Dependence on spectacles
 - "No perfect IOL"
 - Under-promise and over-deliver!

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So How Can The Referring Doctors Maximize Success For Their Patients?

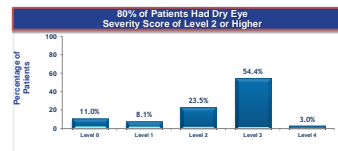
Our Role in Optimizing Outcomes

When needed, pre-treat the ocular surface

Why prepare the ocular surface?

- ✓ Better topography images/Improved Biometry (better K's)
- ✓ Potential for reduced risk of infection/less corneal staining
- ✓ More comfortable patient
- ✓ Faster healing
- ✓ Outcomes

Dry Eye Prevalence in Patients Scheduled for Cataract Surgery¹



22.1% of patients had previously received a diagnosis of Dry Eye Disease
88.9% of patients had an ITF Dry Eye Level 2⁺ or higher based on the presence of signs and symptoms

* An ITF level of 2 indicates moderate Dry Eye. 1. Toller et al. Clinical Study Report Cataract and Dry Eye Prospective Health Assessment of Cataract Patient Ocular Surface Study. 2010 (unpublished study)

The Ocular Surface

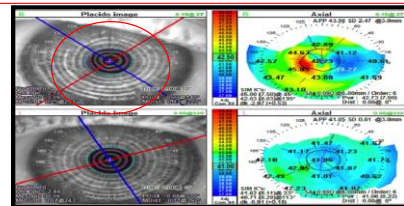
Objective Testing Can Be Insightful

More variability in avg K and anterior corneal astigmatism was observed in the hyperosmolar group, with significant resultant differences in IOL power calculations*

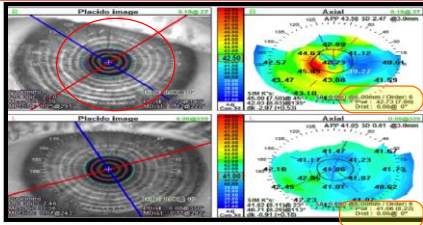
*Epitropoulos AT, et. al. J Cataract Refract Surg. 2015 Aug;41(8):1672-7

Osmolarity > 322 altered post-op refraction result by .50-.62D

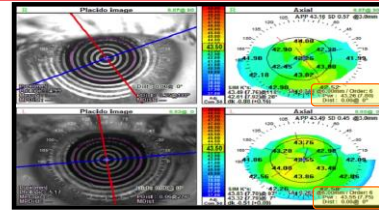
Irregularly Shaped Or Smudgy Placido Disk Is Abnormal



Take A Closer Look If Average K Values Are Different



Post-Dry Eye Treatment: K Values Are Much More Similar



How do you communicate to patients the value of a premium IOL?

When speaking to patients what are the indicators you look for that give you confidence the patient is a good candidate?

What are the most common challenges you face with patient conversion and how do you address?

Post Operative Management in the Year 2023

- Dropless?
- 1 Bottle- 3 Drugs?
- Kinder, gentler steroids?
- Cheapest is Bestest?
- Do you see these "special patients" more often or less often?

What Is The Proper Co-Management Arrangement?

- Post – Op visit – Day 1 or Week 1?
- Co-Management Codes – 66984-55
- Premium Services Upcharge -


Post-Op Considerations

- Similar to post-op care of "standard" cataract extraction
 - Topical antibiotic, NSAID and steroid
- 1 Day, 1 Week, 3 Weeks, 3 Months
- The Biggest Challenge Is Managing Patient Expectations
 - Reinforce Neuroadaptation
 - Reinforce need for Prescription Eyeglasses
 - Reinforce the Concept Of High Quality Vision
- What Is The Biggest Post-Operative Complication For These Patients?

Explain Neuroadaptation

EDOF is a DIFFERENT kind of lens

- The brain needs to get used to the extended depth of focus optics
 - Help patient understand how EDOF technology works
- Emphasize that the goal is to achieve QUALITY of vision
- Explain that there's always a trade-off
 - "You may continue to need reading glasses on occasion, but you will have a greater range of vision"
- PREPARE the patient not to expect vision to be perfect at Day 1



Good Perioperative Management Relationships Are Built on Mutual Respect

- Communicate up front/define roles and expectations
- Select surgeons whose philosophies match your own
- Communicate your knowledge of the patient to the MD
- Visit the OR and schedule regular conversations
- Share all Pre-Op and Post-Op findings

More Discussion Questions

- Why aren't these new technologies being embraced by OD's?
- How do you handle the co-management fee and "upcharges"?
- What techniques can we employ to increase utilization of Premium IOLs?