ORIGINS A NEXT-GENERATION ONLINE IOL RESOURCE

How the ESCRS IOL calculator came to be.

BY DANTE LUIS BUONSANTI, MD

The idea to develop a multiformula online IOL calculator was bouncing around my mind for a couple of years before it really took shape. Then, I was in the audience as Kenneth J. Hoffer, MD, presented the Hoffer Q/Savini/Taroni (Hoffer QST) formula at the 2020 ASCRS Annual Meeting. I had recently purchased an IOLMaster 700 (Carl Zeiss Meditec) and wondered why the machine did not include this brand new formula. I was frustrated that practitioners' access to new IOL formulas depended on industry's providing an update.

I realized that the speed of industry software updates would never match that of the internet, where lens constant values can be optimized and new formulas can be leveraged immediately. I wanted to create an online IOL calculator that would function like a flight or hotel booking website; the user enters the relevant data, and the site returns the available options from across the internet. An online IOL calculator that leveraged multiple modern formulas simultaneously by web scraping or application programming interface integration would increase efficiency and minimize transcription errors by eliminating the need to enter the same data into various formulas. It could also optimize outcomes by employing more formulas.

DEVELOPING THE ESCRS IOL CALCULATOR

When I started developing the calculator, I contacted the authors of all the formulas it would be leveraging, including Dr. Hoffer. He liked the idea so much that he put me in contact with the board of the ESCRS, and they decided to make it the official ESCRS calculator. From there, I began meeting periodically with the IOL calculator team at ESCRS, composed of Adi Abulafia, MD; Oliver Findl, MD, MBA; Nino Hirnschall, MD, PhD; Miguel Raimundo, MD, MSc; and Filomena Ribeiro, MD, PhD, FEBO.

We contacted each formula's author to obtain their approval and were glad that everyone was willing to participate (see *IOL Power Formulas Included in the ESCRS IOL Calculator*, pg 47). Suggested A-constant values are updated automatically, and the calculator always suggests the A-constant from the formula author's site first. If there is no A-constant available there for the desired IOL, the optimized value

TORICALIGNER.COM

I developed ToricAligner.com (scan the QR code on pg 47; Figure) with Giacomo Savini, MD, from Italy. The site enables IOL power calculations for realigning any rotated or misplaced toric IOL, including pseudophakic toric IOLs, phakic toric IOLs, and piggyback IOLs. The site considers the surgically induced corneal astigmatism (SICA), and the ratio of toricity, which is a critical factor (the same IOL will not correct the same amount of astigmatism in a 22- or 27-mm eye).

Additionally, the site enables the easy calculation of SICA by inputting pre- and postoperative total corneal astigmatism. If you log in, you will be able to save your records and results and calculate your average, maximum, and minimum SICA. More features will be available soon.

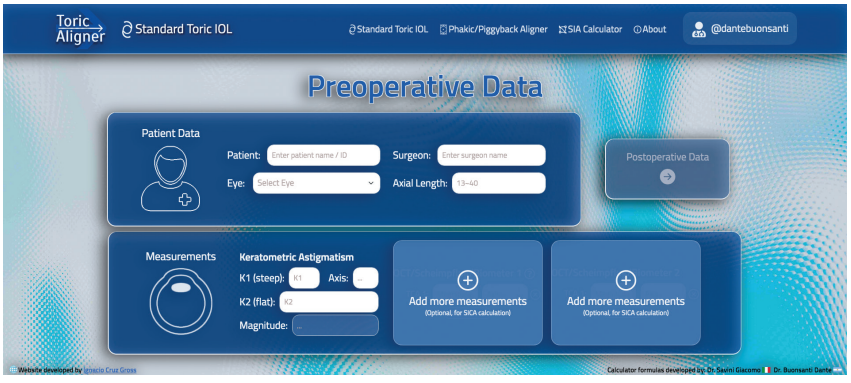

Figure. The homescreen of ToricAligner.com.

Stop dabbling and dare to differentiate with presbyopia-correcting IOL offerings.

"Healthcare organizations need to face the reality that they're competing for hearts, minds, and dollars the same way any other business has to. We don't and can't win in any market competing as we did in the past."

– KEN SCHMIDT, BRAND VISIONARY

"Change before you have to."

– JACK WELCH, FORMER CHAIRMAN AND CEO OF GENERAL ELECTRIC

Heed the warnings of Ken Schmidt and Jack Welsh, and change now before you have to. Otherwise, by the time you realize change is inevitable, it may be too late.

In general, patients are becoming more astute, aware of their options, and judicious about who provides their care. This has never been truer for ophthalmology than now, especially considering the number of procedures that require high out-of-pocket costs such as premium lens replacement.

Prospective candidates who seek to reduce or eliminate spectacle dependence are discerning. Surgeons with a strong, well-established reputation for delivering a broader range of vision as their standard of care are poised to capture these patients' business. Conversely, it is too costly and time-prohibitive for doctors who offer general services and only dabble in premium lens procedures to compete. Market Scope estimates that, in the few years since being introduced to the market, enhanced monofocal IOLs already represent 5.5% of manufacturer revenue in the premium IOL category (Figure 1).[1] If this growth rate continues, today's premium monofocal IOLs may easily become tomorrow's standard monofocal IOLs, leaving surgeons who mainly provide general services in an undifferentiated and messy middle. Facing a proverbial crossroads, they will be left to choose between adopting a refractive mindset or risking losing their premium lens business to a competitor. For surgeons daring to differentiate themselves from other practices, now is the time to make the necessary changes.

TRUST AND REPUTATION

As my friend and the principal and managing director of the health care marketing firm Feed. The Agency, Matthew Ray Scott, says, "Trust is your currency, and reputation is your bank account." Most patients can't critically evaluate your surgical skills and knowledge or the technologies you use, so they judge the quality of care you deliver based on things they have a frame of reference for, such as the environment and the experiences they have engaging with you and your team. Every interaction either deposits or withdraws trust.

When it comes to lens replacement procedures, there are three things you can do to grow your reputational wealth.

▶ **No. 1: Change your practice mindset.** A surgeon-centric practice is outdated. Modern patients expect a hero's journey on their quest for better vision. Like Luke Skywalker's path in *Star Wars*, the frustrated presbyopic patient (with or without cataract) is also searching for knowledge, dreaming of a life without glasses. These patients set out to find a surgeon-guide, rely on the staff to perform diagnostics, and learn about their options before they undergo the procedure that will result in newfound visual freedom.

In his book *Building a Storybrand*,[2] Donald Miller outlined seven key concepts to define the patient journey:

- ✔ Position the patient as the hero. (You are not the hero.)
- ✔ Define the patient's problem and their specific needs.
- ✔ Be the patient's guide to understand their personal best solution.
- ✔ Create a clear plan for delivering their vision.
- ✔ Make a specific treatment recommendation.
- ✔ Discuss the potential for failure and/or drawbacks.
- ✔ End the patient's journey to vision freedom with success.

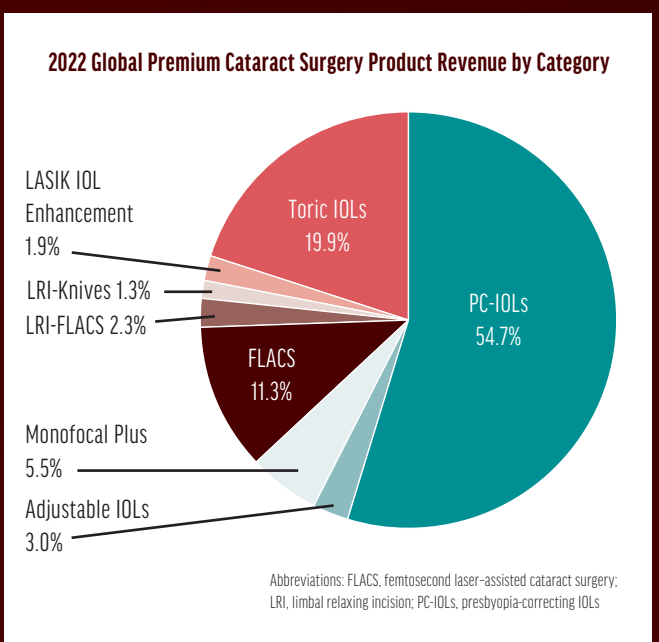

Figure 1. Product revenue by category in the global premium cataract surgery sector.
Source: Market Scope

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- Financial disclosure: Employee (BVI Medical)

PREMIUM IOL CHANNEL GROWTH

▶ No. 2: Prioritize performance, not pathology. I am the strategic advisor at ADVALIA Vision. Our surgeons and staff don't ask patients, "What's the matter with you?" Instead, they ask, "What matters to you?" The small difference in wording separates a refractive-minded surgeon from their competitors. The first question prioritizes the problem whereas the second prioritizes performance and helps convey to patients that the treatment plan is customized based on their personal, unique vision preferences and lifestyle needs.

Prioritizing performance also avoids the feeling of selling something to your patients. You put the patient first—their medical candidacy and preferences—and simply try to match their performance expectations to the procedure or product that is most likely to deliver the desired outcome.

If no compromise was associated with IOL cost and performance, all patients undergoing lens replacement would choose a lens that provides the broadest range of vision. Our decision tree therefore starts with the IOL that delivers the greatest range of vision and downgrades in a stepwise fashion based on candidacy and suitability until we find the best solution for each patient (Figure 2). Adopting the mindset of *downgrading* versus *upgrading* IOLs has been the single most important factor driving the volume of presbyopia-mitigating procedures in our practice.

▶ No. 3: Optimize your patient flow. Patient flow is key to providing an exceptional patient experience. The following strategies can be effective.

- ***Complete all diagnostics before you see the patient.*** Many surgeons are hesitant to perform advanced diagnostics before knowing if patients are interested in a presbyopia-correcting IOL. A surgeon's time is the most expensive resource in the clinic, however, and it's faster, easier, and more cost-effective to complete all diagnostic exams before meeting with patients. This strategy avoids the risk of embarrassment from making a recommendation before knowing a patient is not a suitable candidate. It also allows extra time for the staff to understand a patient's individual needs and establish the value that a presbyopia-correcting IOL can offer to them.
- ***Consider your staff as an extension of you.*** Research shows that surgeons' communication skills decline as they progress through their education and career.[3] Let your staff help you build a better and stronger rapport faster with patients. Have them open the conversation with patients about their vision preferences, lifestyle needs, and willingness to accept compromises.
- ***Give your technicians autonomy.*** If your technician observes something during a diagnostic workup that questions a patient's candidacy for certain treatments, make sure they have the autonomy to add exams when they feel it's necessary. The more information you have when you see the patient, the more precisely you can make a specific treatment recommendation.
- ***Educate, educate, educate.*** Every step in the patient journey must be seen as an opportunity to educate them. Providing patients with information about their options before the visit can set the stage, but don't underestimate the importance of an in-depth, one-on-one conversation to understand their needs and expectations fully.
- ***Ensure a smooth handoff at each step.*** You treat eyes every day. To patients, however, vision correction is a once-in-a-lifetime event that can be intimidating. Remember, each patient is the hero in their vision correction journey, and you are simply their guide. Personal handoffs from one staff member to the next can help ease a patient's

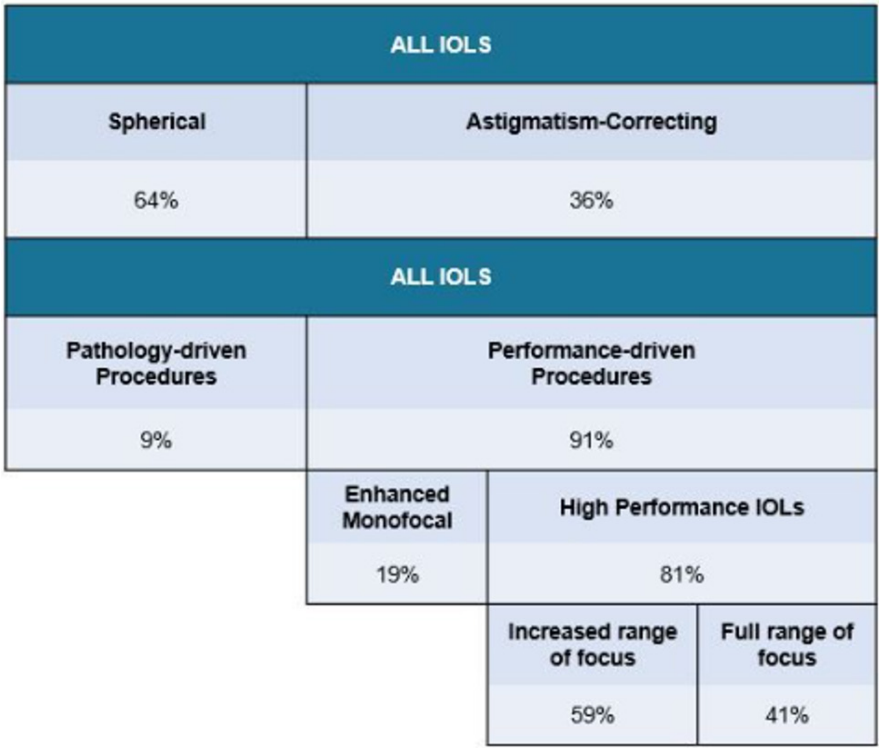

Figure 2. ADVALIA Vision's IOL decision tree.

ORIGINS

IOL POWER FORMULAS INCLUDED IN THE ESCRS IOL CALCULATOR

The formulas leveraged by the ESCRS IOL Calculator as of this writing include the following:

- Barrett Universal II formula
- Cooke K6 formula
- EVO formula
- Hill-RBF formula
- Kane formula
- Hoffer QST formula
- PEARL-DGS formula
- Castrop formula (coming soon)
- Holladay 2 (coming soon)

from IOLcon.com is used. If neither is available, the User Group for Laser Interference Biometry or manufacturer value is used.

In addition to the ESCRS IOL calculator, I have developed another free online tool for IOL power calculation with Giacomo Savini, MD, that provides a range of features to help calculate IOL power for realigning any rotated or misplaced toric IOL (see *ToricAligner.com* on the previous page and scan the QR code for more information).

CONCLUSION

The ESCRS calculator is available at iolcalculator.escrs.org (scan the QR code). We are currently working on toric and postrefractive surgery modifications and hope to complete them before the 2023 ESCRS Annual Meeting in Vienna. ■

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