



STREAMLINING CATARACT PLANNING

Consolidating diagnostics, eliminating reentry, and enabling real-time OR edits.



BY MARK
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In my clinic, cataract planning used to require stacks of paper charts filled with diagnostic printouts. My staff would compile biometric data—axial length, keratometry readings, posterior corneal values—from multiple machines, and I would then retype that information into IOL calculators, sometimes multiple times. Each calculator—post-LASIK, toric, astigmatic incision—required separate manual entry.

Not only was the process tedious, but it also created opportunities for transcription errors. Comparing outputs from multiple biometers was nearly impossible in real time. I knew there had to be a better way. That was the genesis of Eytelligence (Bausch + Lomb), a cloud-based platform designed to consolidate data, minimize redundancy, and increase efficiency (see *Digital Cataract Workflow Platforms*).

BUILT BY SURGEONS, FOR SURGEONS

A key design choice was to build the platform from the ground up around surgeons' workflows. Too often, software engineers create tools they think surgeons will want; we started with the realities of surgical practice.

For example, built-in reminders and task lists help manage competing priorities. Even something as basic as confirming an IOL calculation can slip a surgeon's mind. The platform keeps me on track by showing what needs to be completed each day and ensuring that no surgical step is missed.

THE VALUE OF BETA TESTING

Beta testing with colleagues proved invaluable. Different surgeons approach lens selection in different ways, and their input uncovered features we had not initially considered. For example, surgeons wanted the ability to adjust an IOL choice at the last second in the OR. Originally, the software locked in the lens selection once a plan was finalized. Based on their feedback, we added a real-time editing option so that operative notes accurately reflect intraoperative decisions.

Beta testing also forces us, as surgeons, to break out of autopilot. Cataract surgery is standardized, repetitive, and efficient—but that efficiency can sometimes blind us to inefficiencies in our workflow. Evaluating a new platform makes us slow down, question assumptions, and identify ways to improve.

DIGITAL CATARACT WORKFLOW PLATFORMS

BY MICHELE CORRY, EDITOR-IN-CHIEF

With technician shortages and rising surgical demand, digital planning platforms have become an increasingly valuable option. Automated workflows can reduce days of manual data compilation to minutes—allowing staff to focus on patient care rather than paperwork. In addition to Eyetelligence (Bausch + Lomb), the following platforms offer digital solutions for streamlined surgical planning.

ANTERION CATARACT APP (HEIDELBERG ENGINEERING)

Role

Multimodal imaging platform with integrated cataract planning application

Key Features

- Swept-source OCT technology for accurate measurements through dense cataracts
- Integrated spherical and toric IOL calculator
- High-resolution anterior segment imaging spanning cornea to lens
- Comprehensive corneal analysis with 16,640 data points over an 8-mm zone
- Support for complex surgical planning in challenging cases

Notes

Advanced imaging capabilities and comprehensive anterior segment analysis within the Anterior platform¹

EYESUITE IOL AND LENSTAR PLATFORM (HAAG-STREIT)

Role

IOL power selection and surgical planning environment with optical biometry

Key Features

Hill-Radial Base Function (RBF) method includes out-of-bounds message as confidence indicator for extreme cases:

- Hill-RBF 3.0: AI-based pattern recognition incorporating lens thickness, white-to-white distance, central corneal thickness, and patient sex
- Formula integration: Hill-RBF, Barrett, and Olsen formulas
- Lenstar optical biometer integration for comprehensive measurements
- Surgical planner with drag-and-drop incision positioning
- Personalization of IOL constants based on individual surgeon outcomes
- Toric planning with Barrett Toric Calculator support
- Network integration across all Haag-Streit diagnostic devices

Notes

Emphasizes seamless device integration and workflow optimization for high-volume practices within the Haag-Streit ecosystem²⁻⁵

SMARTCATARACT AND SMART SOLUTIONS (ALCON)

Role

Cloud-based planning and workflow platform for cataract surgery includes the following:

- Automatic data transfer between devices to eliminate manual reentry
- Reported time savings of approximately 4.3 minutes for nonastigmatic, non-post-refractive surgery patients and approximately 13.8 minutes for post-refractive surgery patients

- SmartCataract DX featuring personalized presets, advanced formula options, individualized notifications that flag potential outliers, and customizable printouts/templates
- Argos Biometer integration with image guidance for measurements and surgical planning
- Integration with LenSx Laser System for image-guided execution
- Ora System intraoperative aberrometry compatibility
- Multiuser remote access for surgical plan creation and revision
- Platform built on Philips HealthSuite for security and compliance

Notes

Designed to operate within the Alcon device ecosystem, including Centurion, Ora, Verion, LenSx, and Argos⁶

VERACITY SURGERY PLANNER AND EQ WORKPLACE (CARL ZEISS MEDITEC)

Role

Preoperative planning and workplace tools spanning data aggregation, IOL calculation, and case management

Key Features

- Integration with 19 different diagnostic devices and electronic medical record systems
- Direct interfaces with Lenstar (Haag-Streit), OPD-Scan III (Nidek), Pentacam (Oculus Optikgeräte), Cassini (Cassini Technologies), iTrace (Tracey Technologies), and others
- More than 2 million digitally planned cataract surgeries completed in the United States as of 2025
- Sixty percent reduction in planning time per eye compared to traditional methods
- Automated optimization of A-constants for every IOL and formula combination
- Zeiss AI IOL Calculator utilizing more than 16,000 IOL parameters
- Patient questionnaire capability sent via text message
- Comprehensive astigmatism management with built-in nomograms
- EQ Workplace featuring single-click data transfer and remote access to biometry/diagnostics
- Real-time cross-referencing of data from multiple platforms to prevent errors
- Customizable surgical planning based on individual surgeon preferences

Notes

Market-leading adoption with ability to customize to surgeon preferences while maintaining comprehensive cross-manufacturer integration⁷

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3. Haag-Streit. EyeSuite IOL: all-in-one IOL platform. Haag-Streit. Accessed September 8, 2025. <https://haag-streit.com/en/products/categories/specialty-diagnostics/biometry/lenstar-900-cornea-map/eyesuite-iol->

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6. Alcon. Empower your practice with Smart solutions. Alcon. Accessed September 8, 2025. <https://www.myalcon.com/professional/cataract-surgery/surgical-equipment/alcon-smart-solutions>

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A TRULY AGNOSTIC PLATFORM

One of the most important design decisions was to make the system device agnostic. In my clinic, I use diagnostic devices from nearly every major manufacturer. Most competing platforms integrate only with their own companies' machines, which does not reflect how surgeons like myself practice. With Bausch + Lomb's support, we created an open system that connects with multiple devices regardless of manufacturer. This was not easy—each machine stores and exports data differently—but it was essential for real-world usability.

DATA SECURITY AND GLOBAL IMPLICATIONS

Data security is a growing concern. I expect that, in the next 3 to 5 years, patients will routinely sign consent forms allowing deidentified data to be used for planning and research—just as they currently sign HIPAA releases. Eyetelligence is HIPAA-compliant and encrypts all data in transit and at rest. Patients can feel confident that their information is secure and used solely to improve their outcomes.

BEYOND CATARACTS: EXPANDING APPLICATIONS

Although initially designed for cataract surgery, the use of Eyetelligence has expanded into refractive surgery planning. For LASIK, the platform pulls the manifest refraction from the electronic health record and corneal data from devices such as the Pentacam (Oculus Optikgeräte), then compiles everything into a single view.

Previously, my best technician spent 2 days preparing cases for a busy LASIK week. The same preparation now takes less than 5 minutes. Not only does the platform save time, but it also frees up highly skilled staff for other critical tasks while improving accuracy and consistency.

The platform's utility is currently being expanded to include phakic IOLs, thus continuing to refine workflows across the spectrum of anterior segment surgery.

LOOKING AHEAD

Eyetelligence was built for the way surgeons practice. It consolidates fragmented data streams, reduces manual errors, and lets teams focus on patient care rather than paperwork. With ongoing surgeon feedback and a

commitment to open integration, we aim to extend these efficiencies across cataract, refractive, and lens-based procedures—thereby saving time, trimming steps, and redeploying skilled staff where they can bring the most value. ■

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