

CEC OPHTHALMOLOGY

STRATEGIC INTELLIGENCE
FOR VISION LEADERS



OCTOBER 2026 | \$4.99
VOLUME 1 ISSUE 3
CEOOPHTHALMOLOGY.COM

AI ON THE
Rise

Experience Extraordinary

Superior Efficiency for
Vitreoretinal and Cataract Surgery.*



*Based on bench testing.

Reference: 1. Alcon data on file, 2024.



UNITY[®] VCS and CS Important Product Information

Caution: Federal (USA) law restricts this device to sale by, or on the order of, a physician.

Indications / Intended Use: **UNITY VCS:** The UNITY VCS console, when used with compatible devices, is indicated for use during anterior segment (i.e., phacoemulsification and removal of cataracts) and posterior segment (i.e., vitreoretinal) ophthalmic surgery. In addition, with the optional laser this system is indicated for photocoagulation (i.e., vitreoretinal and macular pathologies), iridotomy and trabeculoplasty procedures. **UNITY CS:** The UNITY CS console, when used with compatible devices, is indicated for use during anterior segment (i.e., phacoemulsification and removal of cataracts) ophthalmic surgery. **Warnings:** Appropriate use of UNITY VCS and CS parameters and accessories is important for successful procedures. The console supports various accessories to perform various surgical procedures. Accessories include handpieces and probes, as well as tips and sleeves when necessary. Different accessories are required for different procedures and operating modes. Test for adequate irrigation and aspiration flow, reflux, and operation of each accessory prior to entering the eye. The consumables used in conjunction with ALCON[®] instrument products constitute a complete surgical system. To avoid the risk of a patient hazard, do not mismatch consumable components or use settings not specifically adjusted for particular consumable component combinations. **AEs/Complications:** Inadvertent activation of functions that are intended for priming or tuning accessories while the accessory is in the eye can create a hazardous situation that could result in patient injury. During any ultrasonic procedure, metal particles may result from inadvertent touching of the ultrasonic tip with a second instrument. Another potential source of metal particles resulting from any ultrasonic handpiece may be the result of ultrasonic energy causing micro abrasion of the ultrasonic tip. **ATTENTION:** Refer to the Directions for Use for the accessories/consumables and User Manual for a complete listing of indications, warnings, cautions and notes.

FOUNDER AND EDITOR-IN-CHIEF | Robert F. Melendez, MD, MBA

FOUNDING DIRECTOR OF PLATFORM OPERATIONS | Stephen Medina

PRODUCTION MANAGER | Hailey Vanier, Glacial Multimedia

CREATIVE DIRECTION & DESIGN | Glacial Multimedia

EDITOR-AT-LARGE | Adam Szaronos

MANAGING EDITOR | Steve Lenier

Table of Contents

06	AI CANNOT REPLACE THE HUMAN TOUCH	48	ARTIFICIAL INTELLIGENCE AND THE NEXT ENTERPRISE VALUE PREMIUM
08	PARADISE LOST: THE RISE AND FALL OF A LASER COMPANY - PART 1	52	THE AI ISN'T THE HARD PART: WHY MEDICAL PRACTICE IMPLEMENTATIONS FAIL
16	THE FRICTIONLESS ENTERPRISE: HOW AN OPHTHALMOLOGY CEO CAN DRIVE OPERATIONAL EXCELLENCE	54	BUILDING AN AI CULTURE (WITHOUT LOSING YOUR SOUL)
18	DEFINING IG: PROCEDURE FIRST. DROPS AS A BRIDGE.	56	HOW WILL AI IMPACT THE TRAINING OF FUTURE OPHTHALMOLOGISTS?
20	PREPARING FOR PRIVATE EQUITY: TRANSACTION READINESS	58	THE CAPACITY YOU'RE NOT BUYING
22	HOW AI WILL SHAPE THE NEXT GENERATION OF OPHTHALMIC LEADERS	60	WHY WE STARTED EYEADVISOR: INCREASING PREMIUM CONVERSION WITH AI
26	THE TIME FOR AI IS NOW	62	THE FUTURE OF AI IN REFRACTIVE SURGERY
30	IMMEDIATE OPPORTUNITIES IN AI	64	ARTIFICIAL INTELLIGENCE IN CATARACT SURGERY: WHERE THE TECHNOLOGY STANDS TODAY
32	GIVE AI SOMETHING TO BRAG ABOUT	68	THE AI-POWERED GLAUCOMA PRACTICE: FROM DIAGNOSTIC PRECISION TO OPERATIONAL MASTERY
36	THE LUXURY PATIENT EXPERIENCE: HUMAN CONNECTION SUPERCHARGED BY AI	72	WHY OCULOMICS MAY LEAD THE NEXT TRANSFORMATION IN HEALTHCARE
40	MOVE ASIDE, DR. GOOGLE, DR. CLAUDE WILL SEE YOU NOW	74	AI IN OPHTHALMOLOGY CLINICAL TRIALS: FROM FRAGMENTATION TO GOVERNED INTELLIGENCE
42	SPOTLIGHT FEATURE: ADAM SZARONOS, CEO OF IANTREK	76	RESPONSIBLE AI: ETHICS AND GOVERNANCE
44	OPHTHALMOLOGY MAY BE THE PERFECT PROVING GROUND FOR AGENTIC AI	80	FROM CLINICAL QUESTION TO PILOT IN DAYS: BUILDING HEMIREADER WITH AI
46	THE AI PRACTICE OF THE FUTURE		

Editorial Board

The Editorial Board is a group of advanced leadership in the ophthalmology industry.

Here to share their knowledge and advice on an array of topics.

Adam Szaronos

Editor-at-Large and CEO
Iantrek



Erin Schallhorn Powers

President, North America
Johnson & Johnson Surgical Vision



Adam Shuford

Vice President - Americas
Staar Surgical



Leo Otero

Senior Director, Market
Development & Global Advisory
Boards, U.S. Surgical Marketing
Alcon



Cynthia Matossian, MD

CEO
GPOphtho



Lisa Feulner, MD, PhD

Chief Medical Officer and Founder
Advanced Eye Care & Aesthetics



Eric Donnenfeld, MD

Cornea, Laser Cataract & Refractive Surgeon
OCLI Vision



Richard L. Lindstrom, MD

Founder and Attending Surgeon
Minnesota Eye Consultants



Robert Melendez, MD, MBA

Founder and Editor-in-Chief
CEO Ophthalmology



Vance Thompson, MD

Director of Refractive Surgery
Vance Thompson Vision



Wayne Caulder

Vice President and General
Manager, North America
Bausch + Lomb Surgical



**Arthur B. Cummings,
MB.ChB, M.Med, FCS(SA),
FRCSEd, CertLRS, PCEO,
FWCRS**

Consultant Ophthalmic Surgeon/Medical Director
Wellington Eye Clinic, Dublin, Ireland



Steve Lenier

Managing Editor



Tom Ruggia

CEO
Theialife



Kade Wilcox

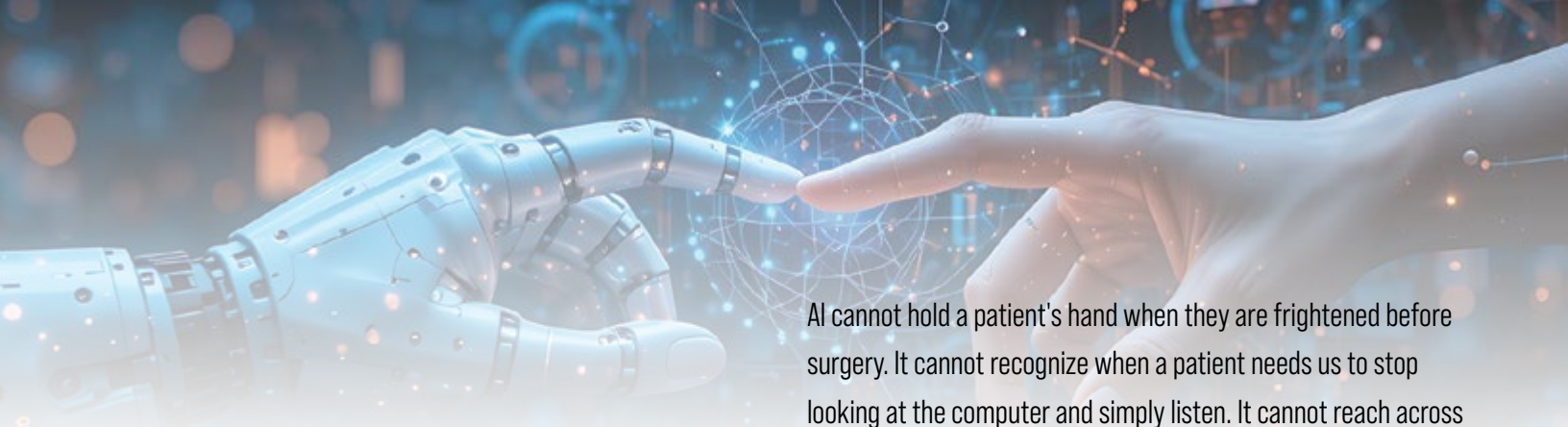
Founder and CEO
Convert Health



**Arthur Chan,
PhD, MBA**

Vice President of Medical Affairs
Harrow





ROBERT F. MELENDEZ, MD, MBA

AI Cannot Replace the Human Touch

Dr. Melendez is Founder and Editor-in-Chief of CEO Ophthalmology, and a specialty cataract and refractive surgeon in Albuquerque and Santa Fe, NM.

Artificial intelligence is rapidly transforming ophthalmology. It can analyze data, recognize patterns, improve workflow, assist clinical decisions, and increasingly predict outcomes with remarkable accuracy. AI will fundamentally change how we diagnose disease, plan surgery, communicate with patients, and operate our practices.

But there is something AI cannot replace: our humanity.

AI cannot hold a patient's hand when they are frightened before surgery. It cannot recognize when a patient needs us to stop looking at the computer and simply listen. It cannot reach across the examination room and hand a tissue to someone who has just learned that their vision may never return.

Those moments are not inefficiencies in ophthalmology. They are the essence of being a physician.

We should embrace AI aggressively. Used correctly, it can give us something extraordinarily valuable: time. If AI reduces documentation, automates repetitive tasks, organizes information, and improves decision-making, we can redirect that time toward our patients. The goal is not to use technology to create distance between ophthalmologists and patients. It is to bring us closer.

Patients may not remember every measurement or technical detail we explain. They remember whether we looked them in the eye, listened, and made them feel valued. During vulnerable moments, they remember who was there for them.

AI can identify disease, analyze millions of data points, and help recommend treatments. But compassion, empathy, reassurance, and trust cannot be reduced to an algorithm.

Our responsibility is not to resist technology, but to define its proper role.

Artificial intelligence should amplify our humanity, not attempt to replace it.

The future of ophthalmology is high tech and high touch.

The Premier Executive Leadership Ecosystem in Ophthalmology

FOR DECISION MAKERS

MISSION

CEO Ophthalmology is more than a publication. We are building the premier executive leadership ecosystem in ophthalmology by connecting physician leaders, industry executives, innovators, entrepreneurs, educators, and emerging leaders through thought leadership, executive education, strategic collaboration, leadership development, boardroom discussions, and premier events.

Vision: To become the most influential leadership platform in ophthalmology, advancing the future of eye care through executive collaboration, innovation, education, and strategic insight.

EXECUTIVE LEADERSHIP

FOUNDER & EXECUTIVE CHAIRMAN	ROBERT F. MELENDEZ, MD, MBA
FOUNDING STRATEGIC ADVISOR	RICHARD LINDSTROM, MD
EDITOR-IN-CHIEF	ROBERT F. MELENDEZ, MD, MBA
EDITOR-AT-LARGE	ADAM SZARONOS
INTERNATIONAL EDITOR-AT-LARGE	ARTHUR B. CUMMINGS, MB.CHB, M.MED, FCS(SA), FRCSED, CERTLRS, PCEO, FWCRS
MANAGING EDITOR	STEVE LENIER
DIRECTOR OF PLATFORM OPERATIONS	STEPHEN MEDINA
PRODUCTION MANAGER	HAILEY VANIER, GLACIAL MULTIMEDIA
CREATIVE DIRECTION & DESIGN	GLACIAL MULTIMEDIA

EXECUTIVE LEADERSHIP COUNCIL

RICHARD LINDSTROM, MD • JAI PAREKH, MD, MBA • CYNTHIA MATOSSIAN, MD • SHAREEF MAHDAVI

EDITORIAL BOARD

WAYNE CAULDER • ARTHUR CHAN • ARTHUR B. CUMMINGS, MB.CHB, M.MED, FCS(SA), FRCSED, CERTLRS, PCEO, FWCRS • ERIC DONNENFELD, MD • LISA FEULNER, MD, PHD RICHARD L. LINDSTROM, MD • CYNTHIA MATOSSIAN, MD • ROBERT F. MELENDEZ, MD, MBA • LEO OTERO • ERIN SCHALLHORN POWERS • THOMAS RUGGIA • ADAM SHUFORD • ADAM SZARONOS • VANCE THOMPSON, MD • KADE WILCOX

EMERGING LEADERS COUNCIL

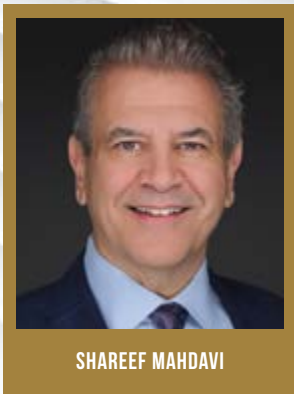
ARJAN HURA, MD • ALISON EARLY, MD • BRETT MUELLER DO, PHD

INDUSTRY ADVISORY COUNCIL

KADE WILCOX • JEFF WAHLBERG • TRACI INMAN

PARADISE LOST: The Rise and Fall of a Laser Company

Part 1.



SHAREEF MAHDAVI

Shareef Mahdavi is CEO of Laser Eye Center of Silicon Valley. He was Director of Marketing for VISX from 1995-2001. Since starting SM2 Strategic in 2002, he has advised dozens of ophthalmic manufacturers and hundreds of practices and is widely published on the business of refractive surgery as well as the need to improve patient experience in the medical practice.

How did a young and rising company go from industry leader with a \$6 billion market cap to being acquired for just 25% of that value only a few years later? It's now 30 years since that company, VISX, received its first refractive indication for their excimer laser. This is the story of how the company that helped make laser vision correction mainstream lost what they, along with thousands of physician customers, had worked so hard to build.

The Hidden Cost of Carryover

Every great business case study earns its place by illuminating principles that outlast the story itself. Before recounting what happened at VISX, it is worth naming what this story is really about. Three lessons emerge so clearly from the events that follow that they deserve to be stated at the outset—not as spoilers, but as a lens through which to read everything that comes next.

Lesson 1: Leadership Matters

The decisions that determined VISX's fate were not made by market forces, by competitors, or by bad luck. They were made by people in positions of authority who had access to resources, expertise, and time to think. When a company with \$260 million in cash, a 30% operating margin, and a dominant market position

loses two-thirds of its value in five years, the explanation is not external. It is internal. Leadership matters—in both directions.

Lesson 2: Litigation Is a Last Resort, Not a Strategy

Entering a legal battle means surrendering control of the outcome to a process that is inherently unpredictable and expensive. VISX's experience with the ITC and with patent litigation more broadly is a masterclass in what happens when a company mistakes its legal portfolio for a competitive moat. Litigate reluctantly, if at all. License first. The revenue from a well-structured licensing deal compounds. The cost of a lost patent case compounds faster.

Lesson 3: In Cash-Pay Elective Medicine, Price Signals Quality

Medical care does not follow a classic economic price/volume curve. In lifestyle-enhancing, cash-pay surgery, lowering the price does not increase volume. In many cases the highest-priced provider is the preferred vendor, whether doctor or company, especially if they can brand themselves as providing high quality and a superior patient journey. This principle, well-documented in consumer economics, was ignored at the moment it mattered most. The consequences were immediate and lasting. With those three principles in mind, here is what happened.

1999: The Best Year in the Company's History

In 1999, VISX (Santa Clara, CA) was enjoying the best year in the company's history. In just three years the company leapfrogged competitor Summit Technology (Waltham, MA), who was first to receive PRK approval in October 1995, a full six months ahead of VISX. With an additional approval to treat astigmatism in spring of 1998, consumer demand for laser vision correction and the off-label LASIK procedure was booming. Customers, employees, and investors were thrilled at how this life-changing technology was being embraced by the public despite being an elective self-pay procedure.

The company's stock, trading on the tech-dominated NASDAQ, reached a new peak that summer, with shares trading at \$103, resulting in a market capitalization of \$6 billion. This was impressive for a medical device company with just one product. Importantly, revenue from procedure fees—at the time known as keycard fees or "Pillar Point" fees, a reference to a licensing agreement between VISX and Summit that was eventually disbanded by the FTC due to antitrust concerns—had now exceeded revenue from laser sales. This was a key inflection point that determined the company's future value, as it signaled that a growing market would benefit its customers as well as the company.

VISX was a pioneer not only in laser technology but in the business model. No medical device manufacturer had successfully charged a per-use fee tied solely to intellectual property instead of a consumable (e.g., an IOL) or a disposable (e.g., a phaco pack). In short, the size of the market pie was expanding (consumer demand) while the size of VISX's slice of pie was also growing (physician demand).

With a rapidly rising stock price as well as growing cash position, the company embarked on a consumer marketing campaign, spending \$11 million in a six-month period in 1999. As the Director of Marketing for the company, I had the responsibility to deploy those funds as a first step in building a consumer brand.

At the 1999 AAO annual meeting held in Orlando that fall, more than 3,000 eye surgeons and staff members gathered for a private concert with Lyle Lovett at the House of Blues. The mood was jubilant for the guests of VISX, who held the event in celebration of the one-millionth procedure performed on its STAR excimer laser system.

Financial analysts' coverage of the company showed a bright future ahead. VISX's leadership in a new and rapidly growing market, additional approvals, and an amnesty program to encourage doctors using non-FDA-approved laser systems (known as "black boxes") reinforced the company's role in helping expand a relatively new category, one that was welcomed by eye surgeons who had seen reimbursement for cataract surgery continue to decline.

Times were good, including for employees. VISX company policy provided stock options to all employees, not just management. Many of the early employees, including engineers, regulatory and manufacturing personnel, had received options years earlier at prices under \$10 (adjusted for stock splits). It was gratifying to hear stories of hourly employees being able to buy their first home, a new car, or start college funds for their kids. Stock options created a sense of ownership that was best exemplified by the field service engineers' motto: "Never cancel a PWM." They understood the critical nature of laser uptime and never wanting to tell a surgeon or clinic manager that the laser was down and procedures would need to be postponed. PWM stood for "patient with money," an appropriate acronym given that laser vision correction is not reimbursed and requires patients to pay directly for services.

How Unlikely This Success Really Was

What made this accomplishment even more remarkable were earlier events that could have derailed the company before it ever reached the House of Blues.

Three specific challenges presented themselves and are worth recounting. In the early 1990s, Alcon (Fort Worth, TX) held global distribution rights to the VISX excimer laser platform. In 1995, VISX's largest shareholder filed a \$2 billion derivative lawsuit

against Alcon, alleging breach of fiduciary responsibility. Alcon chose to terminate the relationship, leaving VISX with the sole responsibility for commercializing this technology.

Second was FDA approval itself. Both Summit and VISX had spent millions of dollars and half a decade in Phase III clinical trials seeking approval to commercialize in the US. The Agency had a lot of questions that needed to be resolved to ensure clinical endpoints were being met for both safety and efficacy, despite the fact that both technologies were being used by doctors around the world, with Canada and South Korea being active and established markets for laser vision correction.

The third event involved what was believed to be FDA interference and corporate espionage. In November 1995, news broke of a leak of VISX’s PMA submission from the FDA to the CEO of Summit, who claimed he had received the confidential documents in the mail at his house.¹ This occurred just one month after Summit received its approval for PRK.

The FDA’s internal investigation failed to yield any meaningful results; in early 1996 the FBI got involved, followed by Congress. In July of that year, the House Commerce oversight and investigations subcommittee, led by Representative Joe Barton (R-Texas) held a hearing to investigate why VISX, who had submitted their PMA much earlier, was delayed in receiving their approval. He also questioned why Muller would throw away the envelope the documents arrived in and named the lead reviewer on Summit’s PMA as a “major suspect.” No further action was ever taken on this issue and it remains unsolved to this day.^{2,3}

1996 Through 2000: Building the Category
In the early years, VISX took advantage as demand for laser vision correction was skyrocketing. Consumers were hearing about this miraculous procedure from their friends and through physician advertising, and laser installations as well as mobile services made the procedure available throughout most of the

US. Competitor Summit Technology was in chaos, having turned to their third CEO in as many years.⁴ Their early customers as well as Corporate laser center groups were trading in their lasers (originally costing approximately \$500,000), in part due to that laser’s inability to do astigmatic treatments. Summit committed a near-fatal blunder when it announced plans to open its own laser centers, effectively competing with its own customers for patients considering laser eye surgery.

The company was also increasing pressure on alleged patent-infringing companies, including Nidek (Gamagori, Japan). At the 1999 AAO meeting, Nidek placed a large banner above its booth proclaiming “No Procedure Fees” for customers using their excimer laser system. Some doctors chose that alternative laser platform for financial reasons and a desire to save the \$250 per-procedure fees charged by both VISX and Summit. Many doctors believed the VISX technology to be superior and appreciated the company’s dedication to product improvements (e.g., an eye tracker) and category-building efforts including VISX University and consumer marketing.

Analysts were paying close attention to an upcoming legal case: VISX had sued competitor Nidek for patent infringement with the International Trade Commission (ITC).⁵ VISX was trying to stop Nidek from importing and selling its excimer laser systems in the US. On December 6, 1999, the judge ruled against VISX, finding no infringement. In analysts’ eyes, this decision threatened the very business model that made VISX a success on Wall Street.

The Fall Begins: December 1999 Through 2001
The impact was immediate. Trading of the stock was halted. By the next day, \$2 billion of value had been wiped out, with VISX’s stock price losing 41% of its value in one day. While the following days had a slight recovery, the damage was done.

The company was in a state of shock, as most expected that VISX would prevail in court. Millions of dollars had been spent building

How a manufacturer’s price changes impacted their customers’ pricing

The decision to lower the per-procedure fee had a devastating effect on VISX’s revenue and profitability. While VISX’s intent with lowering their per-case fee was to grow the market, the opposite happened. Many customers did follow suit and lowered their price for the procedure charged to patients. Some were swayed by reports of LASIK Vision Corp advertising the procedure starting at \$299. Others believed a lower price to patients would expand demand. These pricing reductions unwittingly commoditized the value of laser vision correction, as some surgeons believed that consumer fear was no longer an issue and that price was the main barrier, with the strategy rationalized by the claim of making the procedure more affordable to a mass market. By the middle of 2000, 10% of surgeons were offering LASIK under \$1,000 per eye¹³ and by the end of 2001, 20% of surgeons were charging at or below \$1,000 per eye.¹⁴

This growth initiative had completely backfired. As shown in Figure 1, demand for laser vision correction did not grow in the three years following manufacturer VISX’s lowering of the procedure fee. Average fees (as reported by Market Scope

Newsletter) fell approximately 20% and demand followed, dropping by a similar percentage. Economists call this *inelasticity of demand* and have sophisticated models showing the relationship between unit price and unit demand. Unlike commodities such as groceries, demand does not increase when prices are lowered. The opposite happens. Elective medical procedures including LASIK, breast augmentation, and hearing aids follow a different pattern. Self-pay procedures exhibit a price/demand curve similar to luxury goods; when prices rise, demand tends to increase.

Figure 1 includes a comparison to price/demand for Breast Augmentation, which serves as a control group as the procedure is elective and of similar cost to patients. Over the same time period, plastic surgeons increased their fees by 30% followed by a 300% increase in consumer demand. Major events in the US include the Dot-Com crash of tech stocks (2000), September 11th (2001), and Hurricane Katrina (2005). Same population, same external factors. Different outcome.

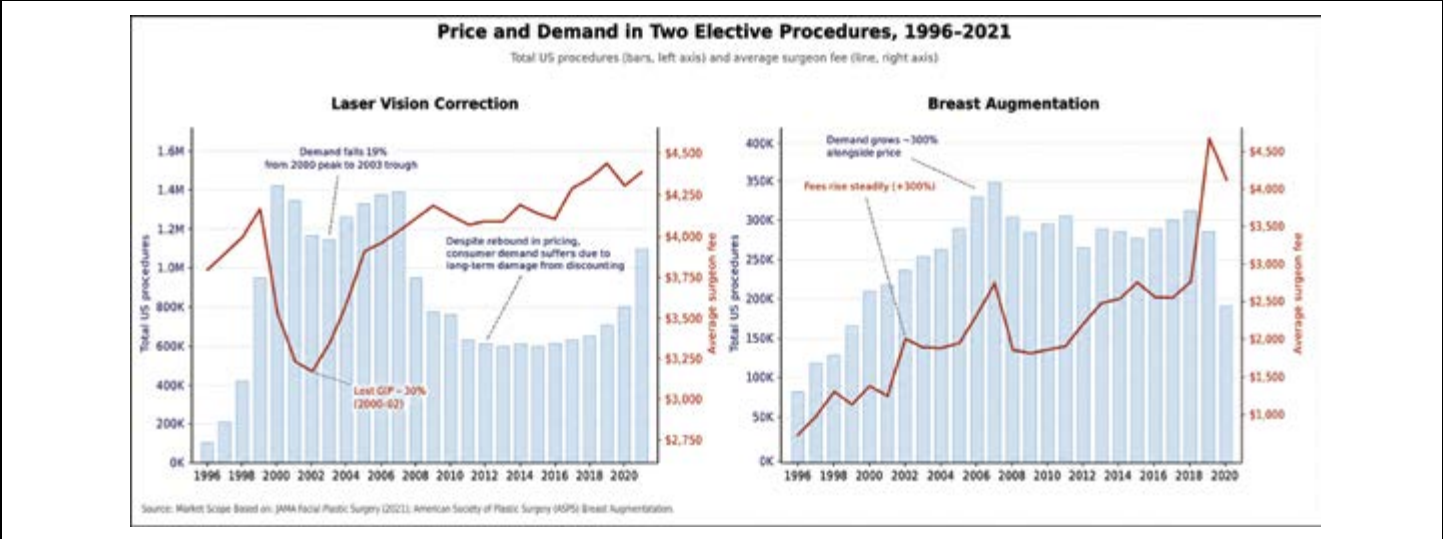
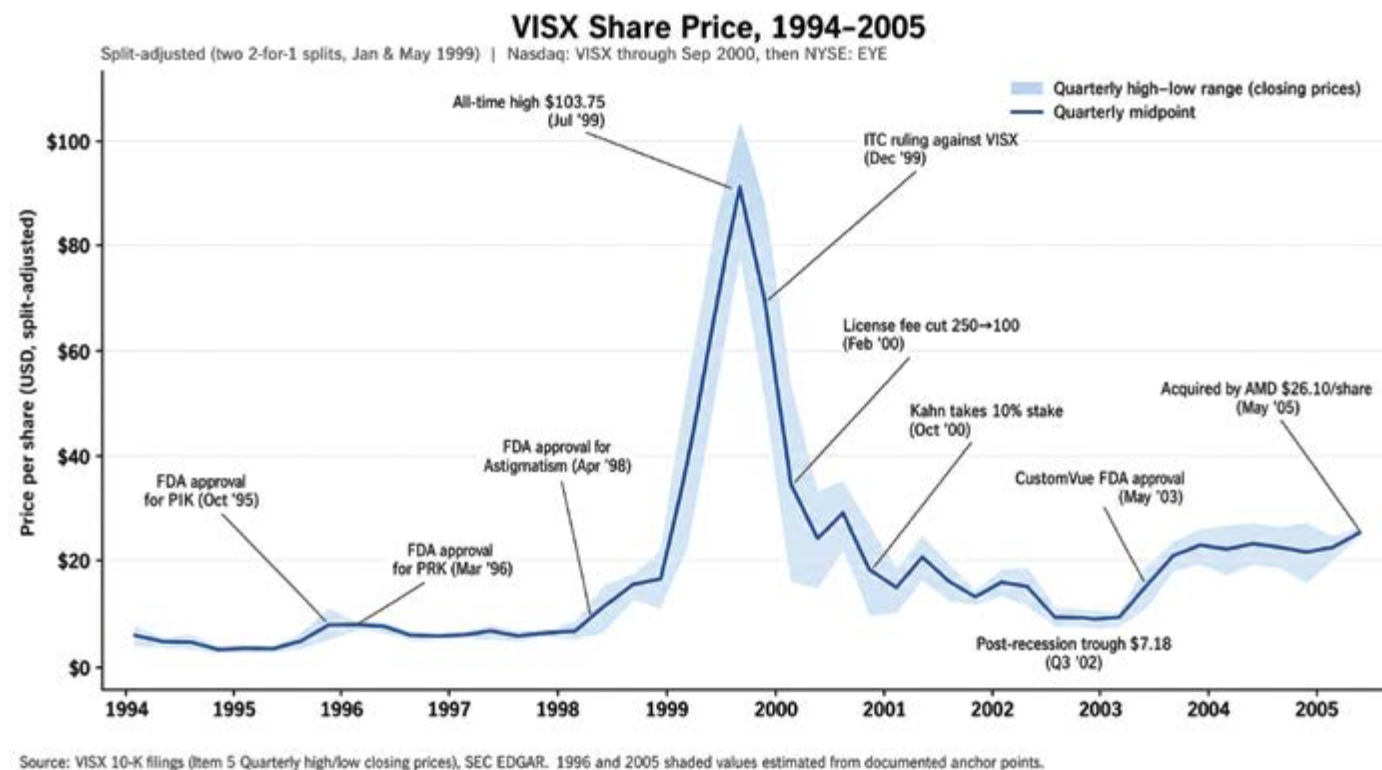


Fig 1: A tale of two categories: Average price and procedure volume for a refractive and a cosmetic procedure.



VISX's share price with key milestones noted.

an intellectual property portfolio that numbered over 150 patents; and now hundreds of millions of dollars of revenue were at risk.

Senior management discussed how to respond. On February 22, 2000, the company announced its “Strategic Growth Initiative” where it would cut its per-procedure fee by 60% in an effort to boost growth in the US laser vision correction market.⁶ The company cut the procedure fee from \$250 to \$100 per eye. Although the move was intended to help broaden the appeal of the procedure, the stock market again reacted. VISX shares fell another 25% and approximately \$300 million of value was immediately erased.

The impact this time, however, extended far beyond investors. Simultaneous with the announcement, customers were told that the lower fee meant that the company would no longer provide free of charge re-treatment cards (for enhancements) or ambassador cards (for surgeon and

staff). Any existing inventory of treatment cards that were purchased for \$250 would not be eligible for credit.

The anger displayed by customers was palpable. I was one of several managers asked to field phone calls. The vitriol was hard to take. For some executives, it was hard to fathom: “I don’t understand why doctors are angry when we just lowered their costs by 60%” remarked the Chief Operating Officer.⁷

What became clear is that the brand equity that had been fostered and nurtured over the past 4-5 years was now gone. Similar to the immediate loss in financial value, the loss in relationships with customers was even more painful. VISX went from being a company built on transformation to one reduced to transactions with its once-loyal customers.

What was not known at the time was that senior management had another plan in place to help foster growth.

In January 2000, VISX decided to finance one of its corporate customers (those that form multiple center locations) in the form of a \$15 million loan to provide laser systems “with the goal of contributing to their expansion and the growth of the laser vision correction market as a whole in the United States.”⁸ It turns out the customer was Lasik Vision Corp., a Canadian laser center chain that wanted to expand rapidly in the US with low-cost laser vision correction.

None of this was shared widely and was only disclosed publicly as required in annual reports filed with the SEC. VISX had traditionally sold lasers to many corporate groups including Laser Vision Centers (LVCI) and TLC Laser Eye Centers (TLC) and LASIK Plus. These longstanding customers had collectively purchased well over 100 lasers from VISX. These were big customers, as TLC by itself represented a significant share of VISX revenues, ranging from 18% in 2000 and dropping to 14% by 2002.⁹

While Lasik Vision Corp. is never mentioned by name in the SEC filings, their bankruptcy in 2001 made it clear they were the beneficiary of these funds,¹⁰ which VISX also disclosed were subject to a write-off due to the customer’s bankruptcy. What corporate as well as individual surgeon customers discovered through these filings was that VISX provided preferred financing to one of its customers that was not readily available to others.

By supporting a business model that explicitly set out to popularize LASIK through discounting, VISX was showing favoritism to a specific customer. This made the company essentially guilty of the same move made by Summit five years earlier when it chose to compete directly with its customers. A framed magazine cover from *Ophthalmology Management* hanging in the VISX CEO’s office for several years had long captured people’s attention: “Whatever Happened to Summit Technology?” That article was a

scathing review of Summit and served as an object lesson for all company leaders. Apparently VISX failed to pay heed.

2001-2005: Fighting for Survival

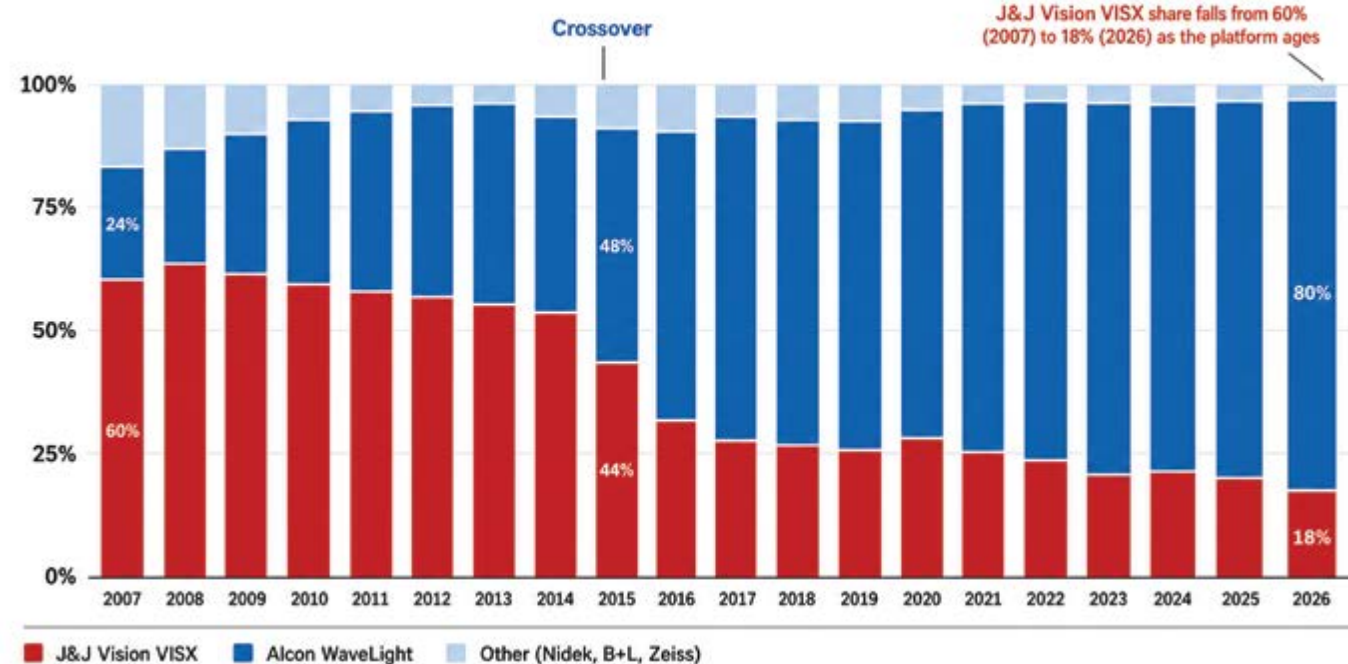
During the next several years, management struggled to recover. Ahead of the 2001 VISX shareholder meeting, corporate raider Carl Icahn sent a letter offering to buy VISX at \$32 a share,¹¹ a huge increase from where it was trading at the time, just below \$9 a share.¹² Icahn’s reputation as a longstanding takeover artist was now front and center for VISX. He called management to account for the decisions that led to a 90% decline in share value and contested the way financial reporting was being interpreted by the company. While his takeover bid eventually failed, management had been put on notice.

The company continued to invest in R&D, and in the spring of 2003 received approval for a customized treatment (CustomVue), allowing it to recapture some of that fee reduction. With an ablation pattern based on an advanced diagnostic and then programmed into the laser, VISX raised the fee back up to \$235 for its newest version of laser vision correction. Other manufacturers including Summit/ Autonomous and Bausch & Lomb (Rochester, NY) had their own versions of custom ablation and similarly increased procedure fees for customized treatments. IntraLase had begun commercializing the femtosecond laser to replace the microkeratome and was gaining traction. The impact on retail pricing helped, especially as doctors had to increase their fees to patients to pay for the newer technology. The market began to recover as well, as patients were responding positively to messages around “all laser LASIK” and “customized treatment to your eye’s anatomy.”

But by early 2005, it was clear that VISX was no longer sustainable as a one-product company. AMO, recently spun out of Allergan as the surgical division, acquired VISX in May

US Excimer Laser Market Share, 2007–2026

J&J Vision VISX vs. Alcon WaveLight, share of total annual excimer procedure volume



Source: Market Scope – US Quarterly Trends Report: Refractive Edition. Share = each platform's procedures ÷ total procedures across all five platforms that year. "Other" combines Nidek (C-5000, B+L Technolas 217z/217z317, and Carl Zeiss Meditec MEL 80).

of that year. Less than two years later, AMO also acquired Intralase, giving it a full refractive laser offering. Although VISX and AMO tried to retain some of its large customers, both TLC and LASIKPlus shifted over to the Wavelight platform, causing a significant loss in market share and revenue for the one-time market leader.

Wavelight (Erlangen, Germany) itself was eventually acquired by Alcon. Alcon had previously acquired Summit/Autonomous in FY 2000, giving it the patent rights retained by Summit when the Pillar Point Partners agreement was disbanded. Wavelight became the third platform to be controlled by Alcon. While VISX became the dominant player in the first decade of laser vision correction, Alcon eventually took over market leadership. According to Market Scope estimates, Alcon and VISX combined have about 90% or more of the market. But Alcon's share likely accounts for two-thirds or more, approximately 65% of all US procedures. Recent data suggests that Alcon/Wavelight's share of US excimer procedures is 85%.

For VISX and later AMO/Abbott/Johnson&Johnson, the slide from leadership is a difficult lesson. In Part 2 (coming in the January 2027 issue of *CEO Ophthalmology*), I will explore what VISX could have done differently and what might have evolved for the company, its customers and the entire ophthalmic industry. We will conclude with lessons that apply to leaders of today's as well as tomorrow's rising stars in the ophthalmic industry.



PART 2 WILL BE PRINTED IN THE JANUARY 2027 ISSUE OF CEO OPHTHALMOLOGY. IT IS ALREADY AVAILABLE ONLINE!

References

1. Washington Wrap-Up 2452 <https://www.mddionline.com/business/washington-wrap-up-2452>
2. Congressional hearing transcript: <https://www.congress.gov/committee-report/104th-congress/house-report/882/1>
3. FDA's alleged release of confidential Visx data to Summit probed by Rep. Barton and agency <https://www.mddionline.com/regulatory-quality/another-bloody-season-in-the-fda-congress-wars->
4. David Muller (1980s to 1996), Verne Sharma (1996 to 1997), Bob Palmisano (1997 to 2000).
5. In the Matter of Certain Excimer Laser Systems for Vision Correction Surgery and Components Thereof and Methods for Performing Such Surgery USITC Inv. No. 337-TA-419.
6. Screamers: Visx loses 25 percent after price cuts <https://www.marketwatch.com/story/screamersvisx-loses-25-percent-after-price-cuts>
7. In-person conversation held in the week following the 2/22/2000 announcement.
8. VISX 2001 Form 10-K and 2002 Form 10-K, Note 9 - Long-Term Receivables.
9. Ibid.
10. "Lasik Vision petitioned into bankruptcy," The Globe and Mail, May 4, 2001 <https://www.theglobeandmail.com/report-on-business/lasik-vision-petitioned-into-bankruptcy/article4145922/>
11. Letter to shareholders from Carl C. Icahn dated April 20, 2001.
12. Intraday low on April 19, 2001.
13. Retail Pricing in Refractive Surgery, Mahdavi, S. Cataract & Refractive Surgery Today, October 2002.
14. Is LASIK Dead?, Mahdavi, S. Cataract & Refractive Surgery Today, August 2011.

THE FRICTIONLESS ENTERPRISE: How an Ophthalmology CEO Can Drive Operational Excellence

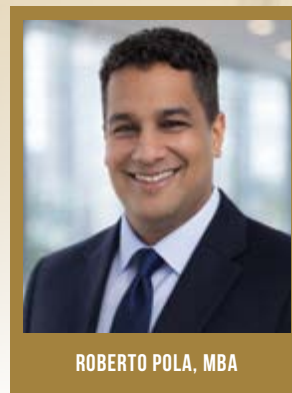
IN EYE CARE, THE GREATEST THREATS TO GROWTH ARE RARELY COMPETITORS. THEY ARE THE INTERNAL AND STRUCTURAL FRICTIONS THAT LEADERS TOLERATE. HERE IS A PLAYBOOK FOR REMOVING THEM.

Roberto Pola is the Chief Financial Officer and Executive Director of LSI Medical Billing & Financial Consultants LLC.

Ask the chief executive of any ophthalmology company what keeps the business from moving faster, and the answer is rarely a rival's product. It is friction: a cataract procedure stalled in a payer's prior-authorization queue, a diagnostic-imaging submission awaiting one more test report, a referral lost between two incompatible practice-management systems, or an intraocular lens delayed because a single supplier missed a shipment. For an ophthalmology company—operating at the intersection of clinical care, precision technology, and regulated

commerce—these frictions compound quietly until they become the ceiling on growth.

The instinct of many leaders is to treat impediments as weather: unavoidable conditions to be endured. The more productive framing is that impediments are a design problem. A CEO cannot eliminate regulation, payers, or supply chains, but a CEO can architect an organization in which those forces no longer function as blockers. Operating "without impediment" does not mean



ROBERTO POLA, MBA

operating without constraint. It means building a company in which constraints are anticipated, absorbed, and converted into advantage before they ever reach the critical path.

Five disciplines, pursued together, make that possible.

1. Treat Regulation as a Capability, Not a Checkpoint

In the ophthalmic device sector—from OCT platforms and femtosecond lasers to intraocular lenses—regulatory compliance is often organized as a gate at the end of product development: engineers build, regulatory affairs reviews, and then everyone waits. That sequencing creates avoidable delay. FDA's performance goal is a decision on a 510(k) within 90 FDA review days, excluding time when a submission is on hold awaiting additional information; for submissions received in fiscal years 2025 through 2027, FDA and industry share a total-time-to-decision goal of 112 calendar days.¹ Companies that move fastest through FDA clearances, CE marking, and quality-system audits are those that embed regulatory expertise inside product teams from the first sketch, so that design choices are made with the submission in mind rather than reworked after the fact.

The practical moves are concrete: fund regulatory affairs as a strategic function reporting close to the top, not as a cost center buried in operations; maintain a living quality-management system that is audit-ready every day rather than scrambled into shape before inspections; and cultivate a candid, ongoing relationship with regulators through the FDA's voluntary Pre-Submission program, which allows manufacturers to request agency feedback before studies and filings are locked in.² Companies that engage regulators early are less likely to encounter major surprises late. The result is not merely compliance—it is speed that competitors who treat regulation as an obstacle cannot match.

2. Engineer the Revenue Cycle Before It Engineers You

Nothing impedes an eye-care business as reliably as reimbursement. In a 2026 analysis covering more than 2,300

hospitals, Kodiak Solutions reported an 11.6 percent initial denial rate for 2025 and \$48.4 billion in net revenue leakage from final denials and bad debt, up 25 percent from 2024.³ Separately, 41 percent of providers surveyed by Experian Health reported that at least one in ten claims was denied.⁴ The estimated cost to rework a denied claim averages about \$25 for physician practices and as much as \$181 for hospitals, although the amount varies by setting and methodology.⁵ Ophthalmology is particularly exposed because high-volume procedures, imaging, and recurring treatments can generate substantial authorization activity. When Aetna imposed prior authorization on cataract surgery—a procedure performed on nearly four million Americans annually and widely regarded as highly successful—the American Academy of Ophthalmology (AAO) and the American Society of Cataract and Refractive Surgery (ASCRS) estimated that 10,000 to 20,000 patients could experience delays in the first month. Sustained pressure from the profession led the insurer to reverse most of the policy approximately a year later.⁶ The CEO's error is delegating this entirely downward, discovering the problem only when receivables balloon.

Leaders who operate without this impediment do three things. They invest in accurate registration, eligibility verification, prior-authorization documentation, and clinical information at the point of care, because many preventable denials originate before billing. In Experian Health's 2025 survey, 68 percent of providers said inaccurate or incomplete patient data at intake drives denials; ophthalmology practices have also identified missing clinical information as a common reason for initial prior-authorization denials.⁷ They build analytical visibility into denial patterns by payer, by code, and by clinic, so the organization fixes root causes instead of appealing symptoms—critical in subspecialties such as retina, where frequent injections and imaging multiply authorization volume.



THE REST OF THIS ARTICLE
CAN BE READ ONLINE

DEFINING IG: Procedure First. Drops as a Bridge.



JAI G. PAREKH, MD, MBA



MATT JENSEN, MBA

Matt Jensen is Principal and Founder of Mend Join Make, and Dr. Parekh is a board-certified anterior segment eye surgeon and CEO/Co-Founder of EyeCare Consultants of NJ. He is also Clinical Associate Professor of Ophthalmology at the New York Eye & Ear Infirmary of the Icahn School of Medicine at Mt. Sinai, NY.

We have a problem in glaucoma care that is becoming increasingly difficult to explain away.

We have better diagnostics. We have SLT (Selective Laser Trabeculoplasty). We have MIGS (Minimally Invasive Glaucoma Surgery). We have sustained drug delivery. We have increasingly sophisticated ways to intervene earlier, reduce medication burden, and preserve vision.

And yet, every day, we diagnose patients with a progressive disease and recommend a treatment plan that we already know many of them will not follow.

“Take these drops every day. Come back and see us. We will keep watching.”

We know patients miss doses. We know they struggle with administration. We know prescriptions do not get refilled. We know chronic topical therapy can affect the ocular surface. Most importantly, we know glaucoma continues progressing whether the patient remembers Tuesday night's drop or not.

At some point, knowing all of that has to reset our standard.

That was the premise behind a recent *CEO Ophthalmology* Virtual Executive Boardroom Session.

As the moderators, we brought together ophthalmic surgeons and industry leaders for a candid discussion about interventional glaucoma, why adoption remains too low, and what it will take to move from talking about earlier intervention to actually doing it. Glaucoma remains significantly undertreated despite years of innovation. In case you missed the webinar, here are a few of the ideas that stuck with us.

Procedure First. Drops as a Bridge.

Perhaps the biggest idea we discussed was also the simplest.

What if we flipped the traditional glaucoma treatment model? Rather than drops, followed by more drops, followed by a procedure when the disease finally forces our hand; maybe an interventional approach asks whether an appropriate procedure should come first. Then use drops when needed as a bridge or safety net between procedures.

That does not mean drops go away. It means they assume a different role and perhaps the mitigation of polypharmacy. Our discussion centered around three major pillars of interventional glaucoma: laser technologies, MIGS and procedural drug delivery. We also talked about early predictive diagnostics and active monitoring as critical parts of the model.

SLT is an obvious place to begin. We specifically discussed moving laser forward as a first-line option for appropriate patients rather than reflexively reaching for the prescription pad. That requires more than technology. It requires a change in physician behavior at the slit-lamp.

We Do Not Have a Technology Problem

The technology represented in this category is remarkable. MIGS continues to expand. Drug delivery has created entirely new possibilities. Laser technology continues to improve. New approaches are making intervention easier and more approachable for surgeons who may not consider themselves glaucoma specialists.

We have said before that “all MIGS matter.” The point is not that every technology is right for every patient. It is that glaucoma is a long disease journey, and we need multiple tools for different patients, anatomy, and stages of disease. The problem is getting those tools into the hands of more physicians and, ultimately, into the eyes of more appropriate patients.

During the webinar, we talked extensively about surgeon confidence. A comprehensive or refractive cataract surgeon “may not live in the angle” every day. That is real. But training can change that. Technology can make procedures easier. Standardized pathways can help physicians know what to do and when to do it. We cannot keep waiting for perfect comfort before changing an imperfect standard.

The Economics Work Too

For a *CEO Ophthalmology* audience, we also spent time talking dollars and cents. Interventional glaucoma creates an interesting business model because glaucoma is not a one-and-done disease. Think about the thousands of cataract patients already sitting in your practice database. They know you. They trust you. Some of

them have glaucoma and may now be appropriate candidates for another intervention.

That changes our thinking from revenue per patient to lifetime value of the patient.

A patient might receive laser, later undergo cataract surgery with MIGS, require another intervention years later, and continue to be actively monitored throughout that journey. The practice economics can be attractive precisely because good glaucoma care requires a long-term relationship. It is a “large value-add” for even a thriving anterior segment eye care practice.

That is the rare opportunity where patient interests and practice interests can point in exactly the same direction.

Now We Have to Act Like We Believe It

The webinar did not pretend the barriers are gone. We discussed reimbursement, training, workflow, physician confidence, referral dynamics, and patient awareness. They are legitimate obstacles.

But none of those change the central issue.

We know more than we used to know.

We can do more than we used to do.

And because of that, we have a responsibility to rethink what we have always done.

Maybe success starts with smaller mile markers. Fewer visits between diagnosis and intervention. More appropriate patients receiving SLT first. More glaucoma patients receiving an intervention during cataract surgery. Better monitoring. Better education. More comprehensive surgeons confidently participating in glaucoma care.

Then we move the mile marker again.

We said during the webinar that interventional glaucoma may be one of the more righteous offerings of our professional careers.

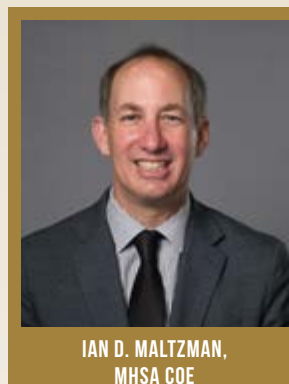
We have the technology. We have the value case. We have the patients.

The question now is whether our treatment habits will finally catch up with what we already know.

Matt & Jai

PREPARING FOR PRIVATE EQUITY: Transaction Readiness

Ian Maltzman is Regional Director of Operations for EyeSouth Partners in Atlanta, Georgia.



Private equity investment in ophthalmology has matured considerably over the past decade. According to Becker's ASC Review, in 2024 there were nearly forty private equity backed eye care management services organizations (MSO) that are spread across the United States.¹ As consolidation continues, practices are no longer asking whether they will receive acquisition interest, but whether they will be prepared when it arrives. Many reputable practices are discovering that they are not ready or even understand this complexity of taking the leap of a buyer's assessment of withstanding financial, operational, and regulatory due diligence.

As the Managing Partner and partners start to think about the possibility of a sale, it is critical to establish transaction readiness 12 to 18 months before the conversation enters a formal discussion phase. What does that mean?

Establish Strong Governance and Ownership: Keep operating and buy-sell agreements up to date, and ensure physician contracts and 1099 agreements are current. Resolve any conflicting or unclear ownership arrangements before entering discussions. A strong management team that can operate independently of the owner can also strengthen the practice's position.

Strengthen Financial Reporting: Ensure your monthly profit and loss statements are accurate and clearly categorized. Financial packages you provide should provide meaningful insight into the practice's performance.

Separate Personal and Business Expenses: While it is not uncommon to see personal expenses run through your organization, it is important to define these expenses early in the process. This helps establish a more accurate balance sheet and strengthen credibility with a potential investor.

Physician Compensation and Growth Opportunities: All physicians' compensation models should align with their fair market value. An overly compensated physician will affect the value of the practice. From a private equity perspective, a physician with meaningful capacity to increase patient volume and expand services can represent a significant value creation opportunity. Conversely, a physician already operating at peak productivity may have limited runway for further growth, making future earnings expansion more challenging.

Prepare for Quality of Earnings (QoE) Diligence: The process is probably the most significant step to get right. An MSO will utilize a third party to validate financial performance, identify adjustments, and assess sustainability of revenue and future earnings. Performing your own QoE is a proactive approach to limit concerns that may come up in the review process.

Reduce Compliance Risks: Regulatory requirements are being examined more closely than at any point in recent memory. Therefore, it is essential that your coding, billing, HIPAA compliance, and any physician arrangements (i.e., co-management agreements) can withstand the scrutiny of a compliance audit.

The Largest Ophthalmology MSOs by Number of Doctors

- EyeCare Partners
- EyeSouth Partners
- Retina Consultants of America
- Prism Vision Group
- American Vision Partners
- Unifeye Vision Partners
- Vision Innovation Partners
- Spectrum Vision Partners
- Midwest Vision Partners
- Vision Integrated Partners
- US Eye

As you consider partnering with a management services organization, it is important to find an organization that aligns with your physicians' clinical and operational values. Think about how this will impact your early and mid-career associates. While going with the platform that is offering the highest EBITDA multiple may initially sound appealing, it does not necessarily translate into the best outcome. It is so critical to find the right partner for the long term to preserve the practice's legacy while creating new opportunities for continued success.

Reference

1. Mathewes F. Private equity's new target: Ophthalmology has caught the attention of private equity interest, specifically in retina care. Becker's ASC Review 8/22/24. <https://www.beckersasc.com/ophthalmology/private-equitys-new-target-5-notes/>





LEO OTERO

How AI Will Shape the Next Generation of Ophthalmic Leaders

Leo Otero is Senior Director, Market Development & Global Advisory Boards, U.S. Surgical Marketing, Alcon

I have been fortunate to work alongside some of the most influential leaders in ophthalmology throughout my career. Through programs such as the Cedars/Aspens Society Mentorship Program, EyePrentice, Young Ophthalmologists (YO), Young MD Connect (YMDC), and the ASCRS Young Eye Surgeons (YES) initiatives, I also have the opportunity to engage with the next generation of ophthalmic surgeons. These experiences have led me to reflect on a fundamental question: **How will artificial intelligence (AI) shape the future leaders of ophthalmology?**

While much of today's AI discussion focuses on diagnostics and workflow efficiency, its greatest impact may ultimately be on the

development of future Key Opinion Leaders (KOLs). AI will not replace expertise, experience, or professional credibility. Instead, it will act as a force multiplier, helping talented surgeons acquire knowledge more quickly, generate evidence more efficiently, expand their educational reach, and increase their influence across the specialty.

Historically, becoming a respected ophthalmic leader has been a gradual process. Surgeons develop a clinical passion, participate in research, contribute to scientific literature, present findings at meetings, and educate peers about emerging technologies and techniques. Through years of consistent contribution, they build

reputations as trusted educators, researchers, and innovators. AI has the potential to accelerate nearly every step of that journey.

Accelerating Clinical Mastery

Surgical excellence remains the foundation of leadership in ophthalmology. AI-powered training platforms are increasingly capable of analyzing surgical videos, identifying performance patterns, and providing objective feedback. These systems can deliver personalized learning experiences while allowing surgeons to learn not only from their own case volume but from thousands of procedures performed across global networks. As a result, future leaders may achieve clinical mastery more quickly, gain recognition earlier in their careers, and deliver more consistent

patient outcomes. Recent studies have already demonstrated the growing potential of AI-driven surgical assessment and competency evaluation within ophthalmic microsurgery and cataract training environments.

Streamlining Research and Scientific Contribution

Research remains one of the most important pathways to professional influence, yet many talented surgeons face barriers related to time, statistical expertise, and infrastructure. AI can help remove some of these obstacles by assisting with literature reviews, data analysis, and manuscript development. While it should never replace scientific rigor or critical thinking, AI can reduce administrative burdens and allow researchers to





focus on study design, interpretation, and clinical relevance. By lowering barriers to participation, AI may enable the next generation of ophthalmologists to publish meaningful work earlier in their careers and contribute to the specialty more frequently and effectively.

Creating Data-Driven Thought Leaders

Historically, influence has often been built on personal experience and clinical anecdotes. While experience will always remain important, future KOLs may increasingly be distinguished by their ability to interpret large data sets and translate insights into better patient care. AI can analyze outcomes across thousands of patients, compare technologies and surgical approaches, and help identify evidence-based best practices. As these capabilities continue

to evolve, future leaders may be recognized less for the number of procedures they have personally performed and more for their ability to generate meaningful insights from complex data ecosystems.

Expanding Educational Reach

Education has always been central to leadership, and AI will significantly expand a surgeon's ability to teach and communicate complex concepts. AI-enabled tools can accelerate content creation, personalize learning experiences, and translate educational materials for global audiences. Educational influence will no longer be limited to conference presentations, regional meetings, or journal publications. Instead, future leaders will be able to engage learners continuously across geographies, specialties,

and career stages, greatly expanding their impact on the profession.

Enhancing Digital Influence

The next generation of KOLs will operate seamlessly across both physical and digital channels. AI can support the creation of scientific content, educational newsletters, podcasts, webinars, and other platforms that help communicate research findings and large-scale clinical insights. However, technology alone will not create credibility. The most influential leaders will remain able to identify rising leaders earlier and more accurately than ever before.

Increasing Diversity and Global Representation

One of AI's most significant contributions may be its ability to expand access and opportunity. Educational resources, research tools, and digital collaboration platforms powered by AI can help talented surgeons from community-based practices, emerging markets, and historically underrepresented regions contribute to the specialty at a level once limited primarily to major academic institutions. The result could be a more diverse, inclusive, and globally representative generation of ophthalmic thought leaders.

The Human Element Remains Essential

Despite its transformative potential, AI cannot replace the qualities that define exceptional leaders: sound clinical judgment, professional integrity, mentorship, and the trust earned through meaningful relationships. The most influential ophthalmologists of the future will combine these timeless characteristics with AI fluency and data-driven decision-making.

AI will not replace ophthalmology KOLs. It will accelerate the development of individuals who are already committed to advancing patient care, educating colleagues, and driving innovation within the specialty. There will also continue

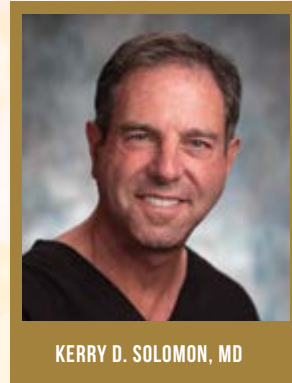
to be an important role for those who identify, support, and cultivate future leaders. Strong relationships, personal judgment, and professional accountability cannot be replaced by an algorithmically generated list of names. Ultimately, the future belongs not to those who know the most, but to those who can most effectively combine human expertise with intelligent technology to improve outcomes, inspire others, and advance ophthalmology.

Suggested References

1. Ting DSW, Pasquale LR, Peng L, et al. *Artificial intelligence and deep learning in ophthalmology*. British Journal of Ophthalmology. 2019.
2. Clarkson MJ, Vercauteren T, et al. *Machine learning and artificial intelligence in surgery*. Annals of Surgery. 2020.
3. Kaplan RM, Irvin VL. *Likert scales and scientific rigor in research and publication*. PLOS ONE. 2015.
4. American Academy of Ophthalmology. *Artificial Intelligence in Ophthalmology Task Force Reports*.
5. European Society of Cataract and Refractive Surgeons (ESCRS). *Artificial Intelligence and the Future of Cataract Surgery*.

The Time for AI Is Now

Dr. Solomon is an internationally renowned LASIK and refractive cataract surgeon in Mt. Pleasant, SC. Dr. Donnenfeld is a founding partner of Ophthalmic Consultants of Long Island (OCLI), clinical professor of ophthalmology at NYU, and a trustee of Dartmouth Medical School.



KERRY D. SOLOMON, MD



ERIC D. DONNENFELD, MD

Many physicians remain cautious about incorporating artificial intelligence (AI) into clinical practice. As clinicians, we are trained to critically evaluate new technologies, rely on evidence, and place patient safety above all else. We have been educated to rely on our experiences and the mentorship of those we trust and have trained us. These instincts have served medicine well. Yet AI is already integrated into many aspects of our daily lives. Recommendation engines used by Netflix and Amazon, navigation platforms such as Waze, ride-sharing applications such as Uber, and streaming services such as Spotify all rely on AI to improve efficiency and personalize the user experience. The question is no longer whether AI can be useful—it already is. Rather, the question is how we can thoughtfully and responsibly harness its capabilities to efficiently improve patient care and practice operations.

Why Now?

Ophthalmology faces a convergence of challenges unlike any in recent decades. By 2035, our specialty is projected to experience one of the largest physician workforce shortages in medicine, with approximately half of practicing ophthalmologists approaching retirement age. At the same time, Medicare reimbursement for cataract surgery has steadily declined while practice overhead—including personnel, technology, and regulatory costs—has

continued to rise. These two issues will continue to diverge in the coming decade. The result is an increasingly difficult equation: growing patient demand, fewer physicians, and narrowing operating margins.

Simply asking physicians and staff to work harder is unlikely to provide a sustainable solution. Increasing clinical volume without improving efficiency risks accelerating physician burnout, increasing staff turnover, and diminishing the quality of the patient experience. Addressing these challenges will require new approaches that allow practices to deliver high-quality care more efficiently.

The Role of AI

AI should not be viewed as a replacement for physicians or staff. Rather, its greatest near-term value lies in reducing the tedious yet vital administrative burden that consumes so much of every clinical day. Documentation, scheduling, insurance verification, prior authorizations, patient communication, and numerous other repetitive tasks divert physicians and staff from what they do best—caring for patients.

Reducing these administrative demands has implications that extend well beyond workflow efficiency. Physicians who spend less time documenting encounters more accurately and navigating administrative processes are better able to focus on meaningful interactions with patients. Likewise, staff members who are relieved of repetitive, high-volume tasks can devote

greater attention to patient service and practice operations. Improvements in both physician and staff satisfaction may contribute to better retention, reduced burnout, and a more positive patient experience. The implementation of scribes in our offices was a major improvement in physician quality of life and patient satisfaction due to our ability to concentrate on the patient rather than a computer screen. AI scribes will allow the same meaningful improvement in patient interaction for our physician extenders such as scribes and technicians.

A better patient experience also strengthens the conversations surrounding patient shared billing elective procedures such as premium intraocular lenses (IOLs), refractive cornea and phakic IOL implantation. These procedures depend upon patient education, trust, and shared decision-making rather than reimbursement schedules. Creating additional time for these discussions benefits both patients and practices.

Where AI Can Provide Immediate Value

Several applications of AI are sufficiently mature to be incorporated into ophthalmic practice today.

Clinical documentation. Ambient AI documentation systems generate structured clinical notes during the patient encounter, substantially reducing manual documentation and after-hours charting. Early experience suggests these systems can improve physician and staff efficiency and satisfaction while preserving documentation quality. Platforms designed specifically for ophthalmology may better accommodate the specialty's unique terminology and examination workflows than general-purpose solutions.

Surgical planning. AI-assisted planning systems integrate biometry, corneal tomography, historical refractive information, and other clinical variables to support IOL selection and refractive planning. These tools provide additional data-driven insights that may improve consistency in surgical planning, facilitate patient

counseling, and enhance refractive outcomes. The ability to collate large volumes of data over multiple encounters such as glaucoma management will undoubtedly improve the patient care and therapeutic intervention.

Patient engagement and call center operations. Scheduling, rescheduling, appointment reminders, recall programs, and responses to common patient inquiries consume substantial staff

resources. AI-enabled communication platforms can automate many of these routine interactions, improving access while allowing staff to focus on situations requiring personal attention.

Revenue cycle management. AI applications can automate eligibility verification, identify patients requiring prior authorization, assist with authorization submission, review claims before submission, and prioritize denied claims for appeal. By reducing administrative inefficiencies, these systems have the potential to improve revenue cycle performance while lowering the cost of collection.

A Practical Approach to Adoption

Practices considering AI should begin with a single application that addresses a clearly defined workflow challenge. Clinical documentation and surgical planning often provide the most immediate and measurable return on investment, making them logical starting points.

Successful implementation requires more than selecting the right technology. Physicians should personally evaluate available platforms, but equally important is obtaining meaningful feedback from technicians, scribes, front-desk personnel, and other staff members who will use these tools every day. The entire staff must be involved in integration and implementation. As with any new

technology, there is an inevitable learning curve. Initial decreases in efficiency should be viewed as part of the implementation process rather than evidence of failure. Measuring outcomes, staff and physician quality of life, refining workflows, and expanding adoption incrementally are more likely to produce lasting success than attempting wholesale transformation.

Looking Ahead

Artificial intelligence is unlikely to replace ophthalmologists. However, it is poised to fundamentally change how ophthalmologists practice, and ophthalmologists who do not adopt AI will be at risk of being replaced by ophthalmologists who do adopt AI. As workforce shortages, administrative demands, and economic pressures continue to intensify, AI offers an opportunity to improve efficiency while allowing physicians and staff to devote more time to the aspects of care that matter most to patients.

Practices that evaluate these technologies carefully and adopt them strategically will be best positioned to meet the clinical and economic challenges of the coming decade. The future of ophthalmology will continue to depend on the judgment, compassion, and expertise of physicians. Artificial intelligence should be viewed not as a substitute for those qualities, but as a tool that enables them to be applied more effectively.

WHAT DO RIDING BRONCS, RACING CARS, AND OPERATING ON EYES ALL HAVE IN COMMON?

Find out.



ridewithosrx.com



Immediate Opportunities in AI

Wayne Caulder is Vice President and General Manager, North America Surgical, Bausch+Lomb



Artificial intelligence has quickly become one of the defining topics in ophthalmology. Much of the discussion has centered on its potential to improve diagnostics, enhance imaging interpretation, and support clinical decision-making. Those advances are exciting, and many will undoubtedly reshape the future of eye care.

But I believe AI's greatest near-term opportunity lies elsewhere.

The biggest challenge facing many ophthalmology practices today isn't a lack of clinical expertise. It's the growing amount of time required to educate patients, coordinate care, and manage increasingly complex workflows, all while trying to see more patients and deliver an exceptional experience.

Nowhere is this more apparent than cataract surgery. Today's patients have more choices than ever before, particularly when it comes to intraocular lens technology. Helping patients understand those options is essential to achieving the best outcomes, but it is also incredibly time intensive.

Patient education for cataract surgery can take 60 to 90 minutes per patient, often involving multiple members of the practice team. The quality and consistency of those conversations naturally vary depending on the experience of the educator, and training new staff members to confidently guide those discussions takes considerable time. Even then, many

patients leave overwhelmed by the amount of information they have received and struggle to remember much of it by the time they meet with their surgeon.

AI presents an opportunity to fundamentally rethink that process. Rather than educating every patient the same way, AI makes it possible to deliver personalized, consistent education that patients can access whenever and wherever they need it.

Imagine a patient beginning their education before ever stepping into the practice. They can learn at their own pace, revisit complex topics as often as necessary, and ask questions until they feel confident they understand the information. Rather than feeling rushed or embarrassed to ask the same question twice, patients can engage in a conversation that is always available, consistent, and tailored to their needs.

By the time they meet with their surgeon, they are better informed, with more thoughtful questions and a clearer understanding of their own priorities. Instead of spending much of the visit covering foundational information, physicians can focus on what only they can provide: clinical expertise, personalized recommendations, and shared decision-making.

This approach doesn't replace the physician, it amplifies the physician's value.

The same principle extends well beyond cataract surgery. AI can help practices streamline patient communications, simplify scheduling and follow-up, support staff training, and deliver consistent educational resources at scale. Used thoughtfully, these tools can create a better experience for patients while allowing physicians and their teams to focus their expertise where it has the greatest impact.

This is the opportunity our industry should be pursuing.

At Bausch + Lomb, we've established a dedicated Digital Health Services organization, led by Manisha Narasimhan, Ph.D., because we believe digital innovation should solve real-world problems for practices, not simply introduce new technology for technology's sake. This philosophy also guided our decision to bring forward

Orphia™, an AI-powered clinical engagement platform built as brand-agnostic clinical infrastructure. It exists to return doctors to care, not to promote any product, and it will operate across the full scope of ophthalmic practice.

Like every major technological advancement, AI will continue to evolve. New capabilities will emerge, regulations will mature, and practices will discover new applications we haven't yet imagined. But the future of AI in ophthalmology won't be defined by how much technology we introduce. It will be defined by how effectively we use it to create better-informed patients, more capable practice teams, and stronger physician-patient relationships. If AI helps us achieve those goals, it won't replace what physicians do best—it will make it possible for them to do even more of it.



Give AI Something to Brag About

Jamieson Webking is Co-CEO of Glacial Multimedia.

Earlier this year I stood in front of about 300 practice leaders and asked how many had ever had a patient tell them AI recommended their practice. Almost every hand went up. A year before that, in the same room, nobody raised a hand.

Most strategic shifts in this industry give you three to five years of change. This one gave twelve months.

AI search represents a classic evolution of discovery, similar to the rise of mobile-first or social media. It's not a zero-sum game where AI's gain is Google's loss. It's a new layer forming in how people seek out and get information. Patients are increasingly asking AI the same way they'd ask a trusted friend.

"Who's the best LASIK surgeon in Seattle?"

"I'm getting cataract surgery and read about the Light Adjustable Lens. Which surgeons in Minneapolis have this?"

And AI has answers. Short lists, actually. The question is whether you're on them.

You're Already in the Conversation

AI search behaves less like a direct-response channel and more like word of mouth at scale. Recommendations are happening in private conversations between patients and a large language model (LLM)-driven AI system, constantly, and almost none of it surfaces where you'd think to look for it.

Here's what that looks like in practice. Over the course of 7 days, one practice had 128 instances of a user clicking through



JAMIESON WEBKING

from an AI search answer to their website. That's the part standard analytics platforms pick up.

But their server logs told a different story. Over that same 7-day period, the information on their site was consulted by AI bots more than 2,000 times. It isn't a perfect proxy, but the direction is unmistakable: 94% of the time, the practice was part of a conversation and didn't even know it.

While direct referral leads from AI are still small next to paid ads or organic Google, the line continues to go up and to the right.

How AI Actually Decides

These are parrots, not oracles. And a system that repeats what it's been told can be told better things.

ChatGPT, Gemini, and the rest are prediction machines. The output is most statistically likely next words based on everything they've been trained on, relevance, and what they can retrieve. Impressive, yes. All-knowing, no.

Increasingly, they search the web behind the scenes. One patient question about vision correction in Boston quietly fans out into a dozen searches—surgeons in Boston, laser correction with dry eye, procedure comparisons—then stitches the results into a single confident answer. In a sense, it's doing the Googling for you, just much more of it, all at once.

Which is better news than it sounds. Your AI reputation is an amalgamation of what you say about yourself and what the rest of the internet says about you. Your website content, reviews, press, directories, forums, videos. That's a lot of sources, but they are not sources you're locked out of. You control your website outright, and you influence most of the rest.

Google Rewards Content. AI Rewards Proof.

Traditional search rewarded the practice with thorough educational content. What is a cataract? How does the surgery work? What does

recovery look like? That content is still table stakes. It's also where most practices have spent a decade of content budget.

AI is looking for something else—the reasons a patient should choose you specifically. How many procedures has your surgeon performed? What are your outcomes? What do patients actually say? Specific. Numeric. Unique.

If all it finds is "we provide compassionate, expert care," there's nothing to pass along. But if it finds "Dr. Jones has performed over 12,000 cataract procedures and is one of the few surgeons in the Charlotte area offering [specific technology]," now there's something specific to repeat, and a real reason for the person on the other end to believe it.

Here's what makes this a CEO issue as well as a marketing one. Almost none of the raw bragging rights material lives in your marketing department. Procedure volumes are in the surgical scheduling system. Outcomes data is in clinical. Satisfaction scores are in patient experience. Fellowship training, publications, and instructor roles are in a credentialing file somebody keeps in a drawer.

Arming your marketing team with operational data is one of the highest-leverage things you can do this year.

Where to Start

You're not competing with Mayo Clinic. You're competing with the practice down the street.

Open your favorite LLM. Run two searches.

First: "Who are the best [procedure] surgeons in [your city]?" That's whether you're in the running.

Then: "How does [your practice] compare to [competitor] for [procedure]?" That's how you're perceived.

If the answer stings, that's OK. The gap between how AI describes your practice and how you'd describe it yourself can be changed. And if AI credits your competitor with something your team does better, it just told you exactly what to fix first.

specific technology, procedures performed, patient outcomes, awards, publications, fellowship training? Whatever reasons your referring optometrists actually give when sending patients your way, that's what belongs on your site.

Note for practice leaders: Look at your intake form. If "How did you hear about us?" still only shows Google, referral, or insurance list, add AI assistant. Two minutes of work that will give you real numbers in your next budget conversation.

Say Something Only You Can Say
Remove your business logo from a piece of content. What's left that couldn't be said about the practice down the street?

"Quality care" and "advanced technology" don't count. Every practice does that. What are your actual facts and stats? Your

Bad: "Dr. Jones is a board-certified ophthalmologist specializing in refractive and cataract surgery."

Good: "Dr. Jones has performed over 12,000 [surgery] procedures, and 98% of past patients would recommend her to others. She trained at [institution], serves as a clinical instructor for [company], and has been named Top Ophthalmologist in [region] for three consecutive years."

Both versions are accurate. Only one gives AI something worth bragging about.



First Impressions Used to Happen in Your Lobby



Now They Happen On Your Homepage.



Built for the Best.
Scan to Start Your Custom Website Refresh.

THE LUXURY PATIENT EXPERIENCE:

Human Connection Supercharged by AI

Arthur Chan is Vice President, Medical Affairs, Harrow, Inc.



ARTHUR CHAN

After a long day of international travel with my family, our van finally pulled up to the resort. We were exhausted. Before I even unbuckled my seatbelt, a smiling greeter opened the door.

"Welcome, Dr. Chan."

the luggage tags, and conveyed to the greeter's earpiece the moment the van door opened.

The technology wasn't the magic.

The experience was.

And it can inspire a similar philosophy in ophthalmology.

Applied to patient care, luxury hospitality concepts elevate the whole experience. Visit Vance Thompson Vision, not in Sicily by the sea, but in Sioux Falls, South Dakota, just off the interstate, and you'll notice it immediately. The best parking is reserved for patients, not physicians. The lobby feels more like a luxury airport lounge than a clinic. Fresh-baked cookies draw you in. Intake is fast and efficient, and every patient feels like "they've been expecting me and are genuinely glad I'm here!" And it's why thousands of patients make the pilgrimage to Sioux Falls every year despite having options closer to home.

Many other centers are intentionally deploying luxury hospitality principles to elevate the patient experience. Clinical excellence gets patients through the door. The experience determines whether they tell everyone they know.

Then he greeted my wife and all our kids by name, knew where we'd flown in from, and wished us a wonderful stay. I remember thinking, How on earth did he know all of that? Facial recognition? AI? Some futuristic technology embedded in a contact lens? Either way, it might be the best hotel welcome we've ever had.

The answer turned out to be much simpler and more powerful. It's what Matt Traub, former head of sales training at the Four Seasons Hotels and Resorts, teaches people to create every day. I brought Matt in to train customer-facing medical liaisons on turning scientific encounters into memorable connections. We've all heard the saying: "You may not remember what was discussed, but you'll always remember how you felt after the discussion." Matt showed me the machinery behind that magic: guest data was gleaned from

Here's What It Takes:

- Clear values that define how every patient should feel.
- Hiring for empathy, not just expertise.
- Designing every touchpoint to reduce stress and build confidence.
- Training and coaching that make hospitality part of everyday practice.
- Including caregivers and family members in the experience.
- Empowering employees to solve problems without waiting for permission.
- Listening to patients and continually improving.

Nearly a decade ago, Alcon sent me through Disney's customer experience leadership program, where I learned how world-class organizations intentionally design memorable experiences. I saw firsthand how it took immense dedication from teams with Disney-sized resources to pull it off.

Today, AI puts that same capability within reach of practices of any size. AI won't replace the human touch. But it can supercharge it by helping people be more present.

Where AI Supercharges Patient Experiences

- Real-time CRM (Customer Relationship Management) intelligence to surface the right detail at the right moment.
- Ambient documentation provides scribing that frees the physician's eyes from the screen and back on the patient.
- Predictive analytics flags no-show risk or lapsed follow-ups before they happen.
- Smart intake and scheduling, with sentiment analysis and real-time translation for patients and families.
- AI-assisted training simulations that scale Disney-style coaching to every staff member, plus data-driven outcome tracking to provide continuous feedback.



There's no better time to use AI to complement the staff who can elevate a practice from just another clinic to a Four Seasons level experience. The key word is complement. AI enhances the experience, but it will never replace the genuine care and empathy that trusted team members deliver in person.

What A Luxury Patient Experience Can Deliver

- Greater trust and loyalty, resulting in more referrals from delighted patients.
- Higher conversion to premium procedures and elective offerings.
- Stronger clinical trial retention with patients motivated to come back for follow-ups.
- Organic social media buzz and great online reviews.
- A strong reputation, fewer no-shows, and better staff retention.
- A competitive advantage in an ophthalmic market growing more commoditized.

Picture a patient and her spouse pulling into a reserved parking spot for a long-awaited procedure. Before they reach the door, your front desk already knows their names and exactly what

treatment has been scheduled. The data from the initial consult is not memorized, but surfaced by AI, displayed on a screen or communicated in an earpiece, just as the resort's greeter had. Your empathetic staff still does what only humans can do: smile, comfort, reassure, make a patient feel like a returning friend, and offer a freshly baked cookie.

That's the future within reach for ophthalmology. The tools are here and ready to transform clinical care into a luxury patient experience. The organizations that win with AI won't be the ones that automate the most; they'll be the ones that use AI to humanize the most.

The greatest opportunity for AI in patient care isn't replacing human connection, it's making more of it possible. The luxury patient experience isn't just an AI strategy. It's a leadership strategy.

Back to our hotel stay - years from now, I probably won't remember what thread count the sheets were or what was served at breakfast. Actually, I'll probably remember that breakfast buffet. But more importantly, I'll always remember how complete strangers made my family feel like returning friends before we had even stepped out of the van.

Imagine if every patient left your practice feeling exactly the same way.



FLOURISH AT EVERY STEP

enVista
HYDROPHOBIC ACRYLIC IOL
ENVY™



Discover the full range of vision IOL that launches a new era of confidence with enviable outcomes.*

*enVista Envy US Clinical Study.

INDICATIONS AND IMPORTANT SAFETY INFORMATION FOR ENVISTA ENVY™ IOL

INDICATIONS

The **enVista Envy™ hydrophobic acrylic IOL** is indicated for primary implantation in the capsular bag of the eye in adult patients for visual correction of aphakia with less than or equal to 1.0 D preoperative corneal astigmatism following removal of a cataractous lens to mitigate the effects of presbyopia by providing improved intermediate and near visual acuity, while maintaining comparable distance visual acuity to an aspheric monofocal IOL. The **enVista Envy™ toric hydrophobic acrylic IOL** is indicated for primary implantation in the capsular bag of the eye in adult patients for visual correction of aphakia and corneal astigmatism following removal of a cataractous lens to mitigate the effects of presbyopia by providing improved intermediate and near visual acuity, while maintaining comparable distance visual acuity to an aspheric monofocal IOL.

WARNINGS/PRECAUTIONS

Physicians should weigh the potential risk/benefit ratio before implanting the enVista Envy lens under any of the circumstances or conditions outlined in the Instructions for Use labeling. Some visual disturbances may be expected due to the superposition of focused and unfocused multiple images. These may include some perceptions of halos or radial lines around point sources of light (starbursts) under nighttime conditions, glare, double vision, haziness and blurred vision. It is expected that, in a small percentage of patients, the observation of such phenomena will be annoying and may be perceived as a hindrance, particularly in low illumination conditions such as nighttime driving. As with other trifocal IOLs, there is a possibility that visual disturbances may be significant enough that the patient will request explant of the IOL. A reduction in contrast sensitivity as compared to a monofocal IOL may be experienced by some patients, therefore, patients implanted with trifocal IOLs should exercise caution when driving at night or in low light or poor visibility conditions. Care should be taken to achieve IOL centration as IOL decentration may result in patients experiencing visual disturbances or suboptimal vision under certain lighting conditions. The surgeon must target emmetropia to achieve optimal visual performance. Patients should be advised that unexpected outcomes could lead to continued spectacle dependence or the need for secondary surgical intervention (e.g., intraocular lens replacement or repositioning). Please provide a copy of the Patient Information Brochure, which can be found at www.bausch.com/IFU. Posterior capsule opacification (PCO) may significantly affect the vision of patients with multifocal IOLs earlier in its progression than patients with monofocal IOLs. This may be due to the reduced contrast sensitivity observed with multifocal IOLs. **Additional Precautions for Toric IOLs:** The enVista Envy Toric IOL has not been evaluated in a clinical study. In general, astigmatism that is corrected with a higher cylinder power IOL can result in clinically significant residual astigmatism. The effect of residual astigmatism at distance, intermediate, and near was evaluated in a clinical study of patients who had been implanted with non-toric enVista Envy IOLs and were induced with cylinder power to simulate various levels of residual astigmatism. If a secondary surgical intervention is necessary to reposition the IOL, explantation should be considered as some patients may have recurrent or persistent issues related to rotational instability and misalignment.

CAUTION: Federal law restricts this device to sale by or on the order of a physician.

ATTENTION: See the Directions for Use for a complete listing of indications and important safety information.

© 2024 Bausch + Lomb. EVE.0002.USA.24

BAUSCH + LOMB

Move Aside, Dr. Google, Dr. Claude Will See You Now

How AI-Assisted Patient Research is Reshaping the Ophthalmology Consultation

In the 1980s, patients arrived at the ophthalmology practice with a concern, and were looking to the doctor for the path forward. By the 2000s, they were printing WebMD pages and Google results, armed with self-diagnoses. Dr. Google was biased by marketing and search engine optimization, and ophthalmologists had to learn how to engage a patient who was confident that milk-thistle could reverse their cataracts.

Here we are in 2026 and patients now arrive with printed ChatGPT and Claude conversations. Multi-turn dialogues about floaters, IOL selection, myopic children, and retinal disease. The difference is profound: AI-assisted research, done well, is far more clinically sophisticated than any Google search result. But here's the critical distinction: it introduces two distinct potentials for disaster when it comes to errant prompts and hallucinations. The old adage: garbage in, garbage out is amplified.

The Case for Embracing Informed Patients

AI-assisted research about medical conditions is fundamentally more comprehensive than Google ever was. A patient researching floaters can now discuss the distinction between benign vitreous floaters and those suggesting posterior vitreous detachment, understand the red flag of acute floaters with photopsia (which demand urgent retinal evaluation), and recognize why flashes matter more than floaters. This level of nuance was impossible on Google.

Similarly, a patient researching intraocular lenses can explore the tradeoffs between monofocal, multifocal, extended depth

of focus, and toric options. Understanding contrast sensitivity advantages, real-world dysphotopsia incidence, pupil-dependent vs. independent designs, and how astigmatism affects monovision. A parent researching pediatric myopia control finds discussion of atropine regimens, orthokeratology, contact lens designs, and emerging therapies like ND10. These patients arrive as informed partners.

Consider retinal disease: a patient researching AMD learns about the disease, understands why only nAMD responds to anti-VEGF therapies, and knows the distinction between different agents and their injection intervals. This is exactly the informed population clinicians should want.

The Critical Challenge: Hallucinations and Poor Prompts

Sophistication introduces two failure modes. First: hallucinations. Large language models (LLMs) generate confident, plausible-sounding information that is simply false. A patient asking about LASIK contraindications might receive a statement that rheumatoid arthritis (RA) is contraindicated due to immune effects on corneal healing. In reality, RA isn't contraindicated though certain RA medications might be. A patient armed with this false confidence might decline LASIK when they're actually a good candidate.

Second, and more insidious: poor prompts produce predictably bad answers. A patient without MD training cannot ask sophisticated questions. When a patient experiences photopsia and floaters but asks, "Could this be serious?" the AI appropriately mentions retinal



TOM RUGGIA

breaks but then asks, "How long to see an eye doctor?" The AI responds with general appointment information, missing that this is potentially an emergency. Urgency was lost because the prompt didn't frame it properly.

Or consider ICL research: a patient asks, "Are ICLs safer than LASIK?" An AI correctly notes ICLs avoid corneal ablation. But a patient with a poorly framed prompt may not grasp the critical nuances in these different modalities of care. They arrive believing ICLs are simply better, missing the tradeoffs. A bias toward the device in their hand may lead to distrust of a medical doctor. This is a challenging reality for physicians in AI.

The pattern is clear: AI gives technically correct answers to poorly framed questions, and patients draw wrong conclusions because they lacked the domain knowledge to ask the right questions.

Where It Works and Where It Breaks

A patient researching cataract surgery is told age alone is not a contraindication. But the AI doesn't know this patient has advanced diabetic retinopathy, which fundamentally changes risk-benefit calculations and realistic visual outcomes. The patient arrives expecting 20/25 vision, unprepared for minimal improvement if retinal disease is limiting.

A 35-year-old with stable myopia asks, "Am I a good candidate for LASIK?" An AI identifies positive factors but doesn't know about subclinical dry eye, late-stage pregnancy (affecting refraction stability), or screen-heavy work with environmental dust exposure. The generic response, "You sound like a reasonable candidate," misses these specifics entirely.

What This Means for Ophthalmologists

The ophthalmologist's role has fundamentally changed. First, routinely ask about the patient's AI research: "Have you looked into this with an AI? What did you learn?" This opens collaborative discussion where you validate accuracy and correct errors.

Second, educate patients about the difference between AI research and AI diagnosis. An AI can help understand pathophysiology and identify red flags. It cannot examine the fundus, measure intraocular pressure, assess corneal topography, or see subtle asymmetries that clinical training teaches us to recognize. When a patient says "Claude told me I might have a retinal tear", explain why your examination is the actual diagnostic standard.

Third, guide patients toward better prompts. Help them understand which factors matter: for LASIK, corneal thickness and ocular surface health; for cataract surgery, realistic expectations about what surgery optimizes given retinal status; for myopia control, the role of genetics, near work, and outdoor time. A patient who knows what to ask gets better answers.

Fourth, address hallucinations directly. Don't assume patients recognize false statements. Explain why it's wrong, what's correct, and where the error came from. This is teaching.

Conclusion

An informed patient is not a threat. An informed patient who understands nuance, recognizes their own knowledge limits, and values clinical expertise; that's an ideal patient. They ask better questions and have realistic expectations.

A parent researching myopia control with ChatGPT, understanding Phase 3 trial design and emerging therapies, is not a problem. They're an ally. The ophthalmologists who thrive are those who engage with patient research thoughtfully, validate what was accurate, correct what was wrong, and use their irreplaceable clinical expertise to synthesize information into individualized treatment plans.

The patient still needs the doctor. But the nature of what doctors offer is evolving. We're no longer information gatekeepers. We're clinical translators, pattern recognizers, and guides through the ambiguity that AI still cannot navigate alone. Patients armed with AI research represent an opportunity to practice medicine at a higher level.

1 What experiences most shaped the leader you are today, and which lessons have had the greatest influence on how you make decisions?

One of the most important lessons I've learned in leading innovation is about ego. I'd argue ego kills more potentially world-changing ideas than anything else. It causes leaders to cling to bad initiatives, miss new opportunities, and adapt too slowly to feedback.

Early in my career, I assumed good leaders had the most right answers. But what we do as decision makers is hard, and we're working with limited information. If the answer were obvious, it probably would have been solved before it reached you. Over time, I learned the goal isn't to be right. It's to constantly optimize toward a better answer.

I had to learn the hard way to separate myself from my ideas and be more intentional about building a culture where others can do the same. It's okay to have strong opinions, just hold them loosely. Today, I spend less time asking, "What's the right decision?" and more time asking, "What real problem are we solving, and how quickly can we test our latest assumptions?"

2 What advice would you share with leaders facing periods of rapid disruption, especially when they don't have all the answers?

Technology exists to remove inefficiencies from a system. Start with that premise by identifying something slow, repetitive, expensive, or unnecessarily difficult, then ask whether AI can fundamentally improve it.

At Iantrek, we're applying AI to one of the largest cohorts studied in interventional glaucoma, combining it with the expertise of a global surgeon advisory board to uncover insights that historically could have taken years to identify. We're also using it to optimize our quality systems and drive product development decisions across clinical, technical, regulatory, and commercial variables. AI isn't the strategy. It's helping us solve existing problems faster and with greater insight.

Once an inefficiency is targeted, the next step is determining who owns the outcome and how AI integrates into the workflow. That's where a lot of implementations fall short. Otherwise, AI risks becoming another layer of work rather than eliminating one.

4 As organizations grow, leaders and their teams often face increasing opportunities and competing priorities. How do you think about maintaining focus?

Focus gets immensely harder as an organization becomes more successful. That's because the challenge isn't choosing between good and bad ideas. It's choosing between good ideas and other good ideas.

Every "yes" consumes organizational capacity, so it has a real opportunity cost. Don't just ask, "Is this worth doing?" Ask, "Is this the best use of our resources?" If yes, that has to come with a trade-off somewhere else.

I like the mantra "fewer, but better." Strategy requires the discipline to decide what not to do so what matters most can be done exceptionally well.

5 When you're not leading a company, where are we most likely to find you?

With my wife and three daughters, or lately at an ice rink. I decided in my 40s to take up competitive hockey. There's something humbling and addictive about starting from zero at something so challenging. I also love snowboarding, skateboarding, and any other board sports my joints will still let me do.

”

I had to learn the hard way to separate myself from my ideas and be more intentional about building a culture where others can do the same.

I think it's helpful for leaders to distinguish between uncertainty and ambiguity this way: uncertainty is environmental and external. Ambiguity is organizational and internal.

If I tell my family we're going to the beach and it rains, that's uncertainty. We'll adapt. But if vacation starts tomorrow and I still haven't decided whether we're going to the beach, skiing, or hiking, I've created unnecessary ambiguity. Nobody can plan.

Unnecessary ambiguity is a failure of leadership. During disruption, our job isn't to protect against uncertainty. It's to provide clarity of direction. When everything seems to be changing, become exceptionally clear about what isn't.

3 With all the attention on AI right now in ophthalmology, how should leaders be thinking about adopting it?

The biggest mistake we can make with AI is starting with the technology instead of the problem. Asking, "What's our AI strategy?" is the wrong first question. That's like a CEO in the 1990s saying, "Our strategy is computers!" Okay, but to do what? That's the tool, not the strategy.



Ophthalmology May Be the Perfect Proving Ground for Agentic AI

Jeff Wahlberg is Vice President of Enterprise Sales at Nextech, an award-winning technology partner for specialty practices.



For the past two years, the AI conversation in healthcare has largely focused on what the technology can generate. Things like a clinical note, a patient message, a summary of a chart, or an answer to a question. However, the next phase will be defined by what AI can actually do – where the AI rubber meets the road.

Agentic AI moves beyond generating information to taking action across workflows. An agent can recognize that a patient needs a follow-up appointment, find an appropriate opening, account for the patient’s history and preferences, initiate outreach, and complete the scheduling process. The technology will increasingly carry work from simply identifying what needs to happen next to taking real and meaningful action. That’s where the puck is going.

That distinction matters across healthcare. It could be particularly consequential in ophthalmology. Ophthalmology combines high patient volumes, complex clinical workflows, recurring care, sophisticated diagnostics and procedures, and significant coordination among physicians, technicians, and administrative teams. This comes against a backdrop in which practices are contending with staffing pressure, reimbursement challenges, and growing expectations from patients for easier, more responsive access to care.

The industry has spent years, if not decades, digitizing many of these processes. The opportunity now is to connect them. Consider

a patient with glaucoma. Over the course of their care, a practice may schedule recurring appointments, perform and interpret diagnostic testing, track disease progression, manage medications, communicate with the patient, submit claims, and coordinate follow-up. Each step creates information that may determine what needs to happen next.

Today, humans often provide the connective tissue. Someone sees the result, recognizes the next action, moves information into another system or workflow, contacts the patient, and makes sure the loop eventually closes. Agentic AI ushers in the possibility that technology can take on more of that coordination to act as the connective glue that unites them altogether – seamlessly and with little human intervention or action.

The possibilities are endless. An agent could identify patients overdue for follow-up, determine who needs attention based on clinical context, find appropriate capacity, and initiate personalized outreach. Another could recognize a cancellation, identify the right patient from a waitlist, and offer the opening. On the financial side, agents could identify documentation or coding issues before a claim is submitted and help move the necessary work to the appropriate person.

The potential extends across the patient journey, from discovery and scheduling through intake, care delivery, follow-up, and

payment. This is important, because in specialty care, value can be created or lost at every handoff between those stages.

This is also why ophthalmology may have an advantage over other specialty practices, and the healthcare industry more broadly. Effective agents need context. They need to understand the workflow they are operating within, the information that matters, and what actions are appropriate at a particular moment. Ophthalmology demands a level of specificity that includes the differences among a retina workflow, a cataract surgery pathway, and longitudinal glaucoma management.

The same applies to the systems surrounding clinical care. Scheduling, imaging, diagnostics, documentation, revenue cycle management, and patient engagement all influence what happens next. Fragmentation makes it harder for AI to follow that journey and take appropriate action across it.

That makes workflow depth increasingly important in the AI era. Ambient documentation offers an early glimpse of this evolution. The technology began largely as a way to turn conversations into notes. Increasingly, specialty-specific tools are becoming deeply integrated into clinical workflows, drawing on existing chart context and placing information directly where it belongs.

At Nextech, we’ve seen that progression firsthand as we’ve developed AI capabilities specifically designed with ophthalmology practices in mind. Our CORA scribe technology points toward the larger opportunity with AI that understands enough about the specialty and its workflows to become part of the work itself. In essence, an extension of the practice.

Agentic AI can take that concept much further. Imagine a practice where AI recognizes unused surgical capacity and helps identify appropriate patients who could fill it. A missed appointment triggers a workflow tailored to the patient’s condition and history. Referral information arrives, is interpreted, and is routed appropriately.

Revenue-cycle problems are identified upstream, before they result in a denial.

These capabilities could eventually connect into something much larger. Data from across the practice informs what needs attention, and AI determines the appropriate next step. That insight flows into the relevant workflow, where an agent can help execute the action and follow it through to completion. The result is a progression from individual automation toward orchestration across the practice – finally uniting the humans with technology.

As that autonomy increases, so does the importance of judgment. Healthcare has real consequences, and the appropriate level of autonomy will vary dramatically by task. Scheduling an appointment and making a clinical decision carry different risk. Governance, transparency, and clearly defined boundaries for human oversight have to evolve alongside the technology.

Practice leaders should therefore be asking where work repeatedly stalls today. Where are staff moving information between systems? Which tasks are high-volume and predictable? Where does a missed handoff affect access, revenue, or patient care? Which actions can technology safely complete, and which require human judgment?

Those friction points are where agents are likely to create the earliest value. Ophthalmology already has many of the ingredients agentic AI needs: repeatable workflows, rich longitudinal data, and a highly coordinated patient journey. Its workflow density and context-rich data create fertile ground for AI that can understand what is happening, determine what should happen next, and help carry that work forward.

For years, practices have accumulated increasingly sophisticated digital systems and enormous amounts of data about their patients, operations, and finances. Agentic AI creates an opportunity to put more of that infrastructure to work. The defining question for ophthalmology may soon shift from what AI knows to what we trust it to do.

The AI Practice of the Future

Dr. Ladas is the CEO/Founder and Dr. Lindstrom is a Senior Advisor with Advanced Euclidean Solutions. They invite anyone interested to inquire about their initiatives and progress in addressing these challenges with leading technology partners. Please send all inquiries to jladas@aesolutions.ai.



JOHN LADAS, MD, PHD.



RICHARD L. LINDSTROM, MD

The future of artificial intelligence in ophthalmology will be shaped by several converging forces.

First, nearly every workforce study predicts a growing shortage of ophthalmologists relative to an aging and expanding patient population. This gap will continue to widen, creating an urgent need for technologies that extend the reach and effectiveness of physicians, rather than replace them.

Second, ophthalmology is uniquely positioned to benefit from AI because it is fundamentally a data-driven specialty. We generate enormous amounts of structured clinical information from imaging and diagnostics to surgical outcomes that lend themselves naturally to machine learning and predictive analytics.

Third, the gap between “domain expertise” and the delivery of that expertise has never been smaller. The computational power available today and the speed with which ideas can be translated into clinical tools are dramatically different from when I first became interested in machine learning and artificial intelligence a decade ago. What once required years of development can now be accomplished in months.

Finally, the increasing availability of real world outcome data across every subspecialty in ophthalmology will continuously improve our collective knowledge and clinical decision-making.

Rather than relying solely on published literature, future AI systems will learn from the experience of millions of patients, allowing recommendations to become increasingly personalized and evidence based. With these trends in mind, our mission becomes clear: How do we deliver continuously evolving, expert clinical decision support to physicians while simultaneously providing intelligent decision support to patients? These are fundamentally different problems, but both are essential.

Today, most AI decision-support platforms have been developed primarily by AI technologists rather than practicing physicians. Systems such as OpenEvidence largely generate recommendations by synthesizing information from the medical literature. While valuable, these systems do not represent true domain expertise built upon proprietary clinical knowledge, decades of physician experience, and continuously evolving real world outcomes data. In fact, recent studies have demonstrated that general-purpose large language models such as ChatGPT can often perform comparably to these literature-based systems.

Patient-facing AI presents a different challenge altogether. While large language models can answer questions and provide educational information, they rarely address the complexity of how patients actually make decisions. Medical decisions are rarely made in isolation. They are influenced by personal values, family circumstances, risk tolerance, financial considerations,

and competing priorities. Many decisions resemble a “trolley car dilemma”, where every available option carries tradeoffs. It is also well known that the way information is presented can significantly influence the decision itself. As physicians grounded in clinical care, we recognize that compassion is not simply an accessory to medicine, it is one of its defining characteristics. In the era of artificial intelligence, our responsibility is not merely to build systems that provide answers, but to develop systems that preserve empathy, strengthen communication, and support the deeply human process of shared decision-making.

The extraordinary interest and valuations of companies developing medical AI demonstrate that the market recognizes this opportunity, yet no existing platform fully addresses both sides of the physician-patient relationship while continuously learning from real world outcomes and becoming better over time. In his recent book on AI in medicine, *[A Giant Leap: How AI Is Transforming Healthcare and What That Means for Our Future]*, Robert Wachter argues that the solutions most likely to succeed will be comprehensive, integrated platforms rather than isolated point solutions. AI will not replace physicians or their staff. Instead, it will assume tasks that machines perform better, allowing clinicians to devote more of their time to the aspects of medicine that only humans can provide.

Ophthalmology is uniquely positioned to lead this transformation. Our specialty combines rich imaging data, measurable outcomes, standardized workflows, and a tradition of technological innovation. We are entering what I believe will be a renaissance in medicine. One that is driven by deep domain expertise, artificial intelligence, and eventually quantum computing, whose ability to analyze extraordinarily large and complex datasets may fundamentally reshape medical discovery.

Our journey at Advanced Euclidean Solutions began with early work in artificial intelligence and machine learning that resulted in multiple issued patents, some of which have been

successfully sold. Today, however, our focus is on a much larger vision. SpaceX’s mission has always been to preserve human consciousness. As physicians dedicated to patient care, our mission should be to preserve something equally precious: the deeply human relationship between doctor and patient. At its core, medicine has always been a relationship between healer and patient. Every technological advance should strengthen that relationship, not replace it.

Experienced physicians, scientists, engineers, and strategic partners are building AI solutions that advance this mission. We understand the realities of clinical medicine because we have lived them. Collectively, we have a proven track record of translating complex technologies into practical solutions that improve patient care.

Further, we already know that empathy can be measured through analysis of clinical conversations. AI systems can identify opportunities to improve communication, suggest more effective ways to explain complex medical decisions, and help physicians connect more meaningfully with their patients. We can intentionally design systems that reinforce compassion, improve communication, and promote continuous learning for both clinicians and healthcare organizations.

The result is a healthcare ecosystem in which everyone benefits.

Patients receive more personalized care, better communication, and improved access to expertise. Physicians gain intelligent tools that enhance their effectiveness without diminishing their humanity. Healthcare systems become more efficient, scalable, and sustainable.

Most importantly, the sacred relationship between physician and patient is preserved. Everyone benefits. Everyone improves. Together, we continue to get better.

Artificial Intelligence and the Next Enterprise Value Premium

How AI Is Reshaping the Business of Ophthalmology

Artificial intelligence has quickly become one of the most discussed topics in healthcare. Most conversations focus on clinical applications diagnostics, imaging, documentation, and surgical planning. Those innovations are exciting and will undoubtedly improve patient care. But I believe the more interesting conversation is happening outside the exam lane.

Throughout my career in finance, mergers and acquisitions, and strategic advisory, I've learned that enterprise value is rarely created by a single breakthrough. More often, it's the accumulation of hundreds of small improvements executed consistently over time: better reporting, stronger forecasting, more disciplined capital

allocation, and more efficient operations. Artificial intelligence has the potential to accelerate each of those improvements.

Whether you're leading a physician practice, running a pharmaceutical or medical technology company, managing a healthcare services organization, or investing in ophthalmology through private equity, you're ultimately trying to answer the same question:

How do we create more value with the resources we already have?

I believe AI is becoming one of the most powerful tools available to answer that question.

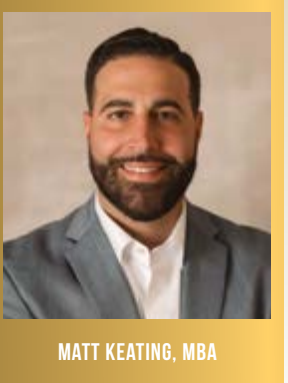
For physician practices, AI should not be viewed as simply another software purchase. It is rapidly becoming part of how businesses actually operate day to day. Generative AI platforms like ChatGPT, Claude, Microsoft Copilot, and Gemini are already helping organizations draft patient communications, summarize meetings, analyze financial information, develop policies, and create marketing content. Healthcare-specific AI applications are streamlining scheduling, prior authorizations, revenue cycle management, coding, and staffing decisions. The goal isn't replacing people; it's allowing physicians and their teams to spend more time where they create the greatest value.

We're also entering the next phase of AI adoption. While most executives are becoming familiar with Generative AI, AI Agents and Agentic AI are beginning to change how organizations operate. Rather than simply responding to prompts, these systems can execute workflows, connect business applications, monitor

performance, and automate routine decision-making within defined guardrails. Imagine an organization where financial dashboards are prepared automatically, commercial outreach adjusts based on physician engagement, or operational bottlenecks are identified before they become problems. AI is evolving from an information tool into an execution tool.

From an investment perspective, that's where the conversation becomes particularly interesting.

Private equity has always valued businesses that demonstrate scalability, operational discipline, and predictable financial



MATT KEATING, MBA

AI Today. Value Tomorrow.

**BUILDING SMARTER, MORE SCALABLE BUSINESSES
ACROSS OPHTHALMOLOGY**

From the exam lane to the executive dashboard, artificial intelligence is accelerating better decisions, stronger operations, and the next enterprise value premium.



PHYSICIAN
PRACTICES



PHARMA &
MEDICAL DEVICE



HEALTHCARE
COMMUNICATIONS



HEALTHCARE
SERVICES



PRIVATE
EQUITY

STRATEGY

- PEOPLE
- PROCESSES
- TECHNOLOGY

AI IMPACT

- ✓ BETTER DECISIONS
- ✓ GREATER EFFICIENCY
- ✓ SCALABLE GROWTH
- ✓ STRONGER MARGINS

FOCUS ON
WHAT MATTERS
MOST

PATIENTS
PEOPLE
PERFORMANCE

performance. AI directly supports those characteristics. Better forecasting leads to better capital allocation. Standardized processes simplify integration following acquisitions. Automation reduces administrative burden while allowing organizations to grow without proportionally increasing overhead. While I don't believe buyers are assigning a formal "AI multiple" today, organizations that thoughtfully integrate AI into their operating model are positioning themselves for stronger long-term valuations because they're building more resilient, efficient businesses.

The same principles extend well beyond physician practices. Pharmaceutical manufacturers, medical technology companies, and healthcare organizations are using AI to improve forecasting, customer segmentation, Medical Affairs, competitive intelligence, commercial planning, and educational engagement. The technology is changing how organizations make decisions, allocate resources, and measure performance, not just how they complete individual tasks.

Of course, technology alone has never created competitive advantage. Leadership does. AI will never replace sound judgment, strategic thinking, or trusted relationships. What it can do is eliminate much of the repetitive work that prevents leaders from focusing on strategy, innovation, culture, and growth. The organizations that create the greatest enterprise value over the next decade will not necessarily be those with the biggest AI budgets. They will be the ones that successfully integrate AI into their strategy, operations, and decision-making while maintaining a relentless focus on execution.

Every major technology shift has rewarded organizations that learned to adapt before the rest of the market. I believe artificial intelligence will be no different.

The real opportunity isn't simply adopting AI. It's building a better business because of it.



HEADS WILL TURN.

YOU'LL GET USED TO THE ATTENTION.

THE
X M
L A B E L



Sandia BMW
6001 Pan American Fwy, Albuquerque, NM
505-884-0066 ▪ sandiabmw.com

©2025 BMW of North America, LLC. The BMW trademarks are registered trademarks.

THE AI ISN'T THE HARD PART:

Why Medical Practice Implementations Fail



AKIVA GREENFIELD

Akiva Greenfield is the co-founder and CEO of FlowHealth.ai. He previously founded and sold Nexus, an RCM and healthcare consulting firm.

When you implement an ambient scribe solution with the promise of giving back an hour to each physician's day, what happens to that hour? Is it two more patients being seen, or is it allowing the physician to get home for dinner? Both are important, but how it affects the P&L will be pretty different.

The practice needs to decide what it wants the tool to accomplish.

Address the Principal-Agent Problem Head-On

Every employee will hear "this will free you up" and translate it into "we are trying to figure out if we actually need you." The incentives of the principal (the practice administration and ownership) and the agent (the staff that is implementing) are not aligned, and that can quietly poison any change in the practice. The fix is not a better solution, but leadership being candid on day zero (so that the staff is involved in the process as well) on what the tool is for, what happens to the team members affected, and what new responsibilities come with it.

And remember that your staff will optimize for whatever you count. Measure calls answered and you'll get calls answered, along with rushed conversations and callbacks that never happen. We get what we measure, and staff who feel measured toward their own replacement will make sure the measurement looks bad.

Beware Gell-Mann Amnesia

You listen to a podcast about a subject that you know deeply, and you find error after error. Then you read an article about a subject

you don't know well, and you believe every word. That is human nature, and it's a phenomenon called Gell-Mann Amnesia.

Practice leaders (and I!) do this with AI constantly (in both directions). A vendor pitching an online scheduling application describes the workflow and you immediately realize that your practice's scheduling rules are way too complicated, so you dismiss the entire category. Then you bump into a colleague who says they implemented an AI RCM tool that transformed their entire revenue cycle, and you take it at face value. Neither reaction is an analysis. Trust your operational knowledge, and apply the same skepticism everywhere, including to the success stories.

Adoption is Not the Finish Line

I've seen practices invest in an ambient scribing tool, hand out licenses to the physicians, show them a YouTube video on how to use it, and then after six months realize that no one is actually using it.

The practices that are getting real results treated the implementation as a task redesign, not merely as a purchase. They trained physicians on the software, rebuilt templates around what the scribe produced, and gave coders a feedback channel into the process. The process redesign and workforce learning has to be built before the output shows up.

It Doesn't Have to Beat Your Best Employee

The claim scrubber doesn't have to catch errors your best biller would miss. The right comparison is never AI versus your best person at their best moment. It's AI versus the fully loaded cost of coordination: recruiting, training, turnover, gaps in coverage, overtime, etc.

The idea is that your best biller shouldn't be doing claim scrubbing. They should finally have the time to appeal the denials that keep stacking up. AI should absorb the routine, so that your staff can do the work they never had the full capacity to do.

Technology Problems Are Usually Organizational Problems

Every failed AI rollout I've seen has been an organizational design failure. No one owned it. A tool got bolted on to a workflow designed for a world without it, and everyone was surprised when the legacy workflow won. Before you sign anything, decide who owns the outcome, what their new role looks like, and what you will stop doing.

Retire the Old ROI Math

Traditional ROI comes from an era when an investment meant a machine that produces more widgets per hour. AI in a medical practice rarely works that way, and forcing the same math is a mistake.

Here's a real pattern: a practice automates its routine scheduling calls. Call volume to staff drops, but average handle time goes up. The old dashboard says the investment made your team slower. What actually happened is the easy calls left, so your staff now spends their time on the hard ones: the confused post-op patient, the prior authorization mess, the anxious parent. That is the system working. The dashboard just wasn't built to see it.

So measure outcomes that map to what you decided you wanted back at the start, when you asked whether the bottleneck was a problem or doing a job. And be honest about which bucket a given result sits in: cost avoidance (the hire you didn't need to make or the overtime you didn't need to pay) versus revenue generation (the LASIK consult that booked at 8 pm instead of playing a never-ending game of phone tag). Both are real money, but they are different metrics.

The Bottom Line

In a couple of years we are going to look at AI the way we look at EHRs: it's par for the course. The advantage belongs to the leaders who do the unglamorous part (which was never about technology). Decide what your practice actually wants. Bring your staff into the solution honestly. Measure the things that matter. The practices that do that will look back at the ROI question and realize it answered itself.

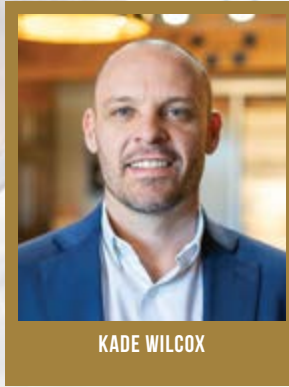
Building an AI Culture (Without Losing Your Soul)

Kade Wilcox is Founder and CEO of Convert Health

Every ophthalmology practice now has an AI tool somewhere — a scribe, a CRM assistant, a chatbot. But tools aren't culture. Culture is who you are, how you serve, and how you interact with your team and patients. An AI culture is what happens when your whole team knows exactly what AI is for, and what it is not.

One practice leader put it well in a recent LinkedIn post: she challenged her team to use AI to increase capacity, not replace critical thinking. AI can produce a first draft, organize information, or help brainstorm — but judgment, discernment, and accountability have to stay with people. AI will never build a team's culture or shape its mission; only the humans in the room can do that. Even her post was AI-assisted for a first draft, but the thinking, she was clear, was hers alone.

That's the goal every practice should be driving toward. On a recent Practice Leader Mastermind call, everyone shared the same sentiment. One administrator asked Claude to act as an HR manager specializing in medical front-office training, then built an entire "Insurance 101" curriculum — a patient journey graphic, a slide deck, a quiz — after discovering her front desk team didn't actually understand what insurance covers. Another leader used AI to dig into her marketing spend, layering ad performance against P&L data for a clear picture of cost per lead. In both cases, AI did the assembling. The leader supplied the judgment about what the team needed and whether the output was any good.



KADE WILCOX

What marks a practice with a strong AI culture?

Make compliance clear and non-negotiable. More than one practice has already had a team member paste patient information into AI — not to be malicious, but because no one had said not to. An enterprise agreement, a signed BAA, and a written AI policy protect your patients and your practice.

Communicate openly with your team. Give them permission, not just access. Talking about AI use helps staff understand it won't replace them and that they don't need to hide how they're using it. Make clear that AI works for them, and they train it, not the other way around.

Use AI to spar, not spit out answers. The habit that makes AI actually useful, described in *The AI-Driven Leader*, by Geoff Woods, is resisting the urge to ask for an answer right away. Describe the problem and have the tool interview you one question at a time before proposing anything. That keeps your understanding of your practice, patients, and people at the center — not a generic answer.

Protect the parts that make you, you. AI will never recreate your skill, your experience, your empathy with patients, or your team's culture. None of that can be outsourced, no matter how good AI gets. The tool should free you up to do more of what only you can do.

The practices that get this right aren't the ones generating the most AI output. They're the ones using AI to kickstart the process so their people can do more of the thinking, the caring, and the deciding — the parts patients actually notice.

YOUR VISION. YOUR FUTURE.

Let's sharpen the focus on both—together

You've built a successful practice through precision and dedication. But what about the financial intricacies of growth, exit strategies or retirement? That's where I can help. I specialize in guiding doctors like you through financial transitions, including:

- Helping to maximize business value
- Helping to secure retirement

Together, we can align your professional ambitions with your personal financial goals—so you can protect your legacy, embrace retirement and thrive at every stage.

Let's build a future as clear as your vision.

Contact me today for a complimentary consultation. Even if you are working with someone else, it never hurts to get a second opinion.



Jack Lamm, CFP®

Vice President – Financial Advisor
Portfolio Director

(505) 220-6040 | jack.lamm@rbc.com

us.rbcwealthmanagement.com/ebylteam



**Wealth
Management**

Investment and insurance products offered through RBC Wealth Management are not insured by the FDIC or any other federal government agency, are not deposits or other obligations of, or guaranteed by, a bank or any bank affiliate, and are subject to investment risks, including possible loss of the principal amount invested.

© 2026 RBC Wealth Management, a division of RBC Capital Markets, LLC, registered investment adviser and Member NYSE/FINRA/SIPC. All rights reserved. 26-AL-00121 (01/26)



How Will AI Impact the Training of Future Ophthalmologists?

Dr. Feulner is a comprehensive ophthalmologist in Bel Air, MD, specializing in the evaluation and management of cataracts, glaucoma, and ocular surface disease.

Artificial intelligence (AI) is poised to fundamentally change how future ophthalmologists learn, practice, and demonstrate competency. The traditional model of ophthalmic education is built on apprenticeship: residents observe experienced physicians, perform procedures under supervision, receive feedback, and gradually develop the judgment and technical skills necessary to practice independently. Artificial intelligence will not eliminate this model, but it has the potential to fundamentally enhance it. AI may give trainees something they have never had before: an individualized, continuously available teacher that can observe, analyze, and provide feedback on virtually every aspect of their clinical and surgical performance. The future of ophthalmic education may combine the expertise of the human mentor with the scalability, objectivity, and personalization of AI.

One of the most exciting opportunities is the convergence of AI with virtual and augmented reality. As Dr. Eric Rosenberg¹ has discussed, immersive technologies can allow residents to practice ophthalmic surgery in a realistic, controlled environment before operating on patients. AI could take this concept considerably further. Rather than simply allowing a resident to perform a virtual cataract procedure, an AI system could analyze instrument movements, surgical efficiency, tissue manipulation, and individual surgical steps. It could identify where a resident struggles and create targeted simulations to address those

weaknesses. The virtual operating room could ultimately become an intelligent surgical coach.

AI could also transform learning in the actual operating room. Surgical videos, currently an underused educational resource, could be analyzed by AI to identify surgical steps, instrument positioning, efficiency, and complications. Residents could review their own cases and receive objective feedback, while faculty could focus less on identifying basic technical errors and more on teaching surgical judgment and decision-making. Over time, this may allow surgical education to move from simply documenting the number of procedures performed to objectively demonstrating competency.

AI will also become an increasingly important clinical tutor. Ophthalmology is particularly well suited to AI because of its reliance on imaging and pattern recognition. AI can assist with interpretation of OCTs, fundus photographs, visual fields, and other diagnostic data while helping residents develop differential diagnoses and treatment strategies. However, this creates a new educational requirement: AI literacy.

AI literacy means understanding how AI generates its recommendations, recognizing its limitations and potential biases, critically evaluating its output, and knowing when it

should, or should not, be incorporated into clinical decision-making. Residents must learn to question AI rather than simply accept an answer because it appears authoritative. Ultimately, the ophthalmologist remains responsible for the patient.

There are also aspects of ophthalmology that AI cannot replicate. Clinical judgment, communication, empathy, ethics, adaptability, and the ability to manage an unexpected complication remain fundamentally human skills. The role of the faculty surgeon or mentor may therefore evolve rather than diminish; from demonstrating every technical step to helping trainees understand why and when a particular decision should be made.

Perhaps the greatest promise of AI is the possibility of personalized, competency-based education. Instead of every resident progressing through an identical curriculum, AI could

identify an individual's strengths and weaknesses and tailor training accordingly.

The ophthalmologist of the future will not compete with AI. Rather, the best-trained ophthalmologists will learn to work alongside it. By combining human mentorship with immersive simulation, AI-driven assessment, and personalized education, we have an opportunity not merely to train ophthalmologists faster, but to train them better, and ultimately provide safer, higher-quality care for our patients.

Reference

1. Broytman D, Rosenberg E. Expanding Opportunities in Ophthalmic Surgical Training. *Ophthalmology Management*. January/February 2025;29:10-12.



THE CAPACITY YOU'RE NOT BUYING

Erin Schallhorn Powers is President of Surgical Vision, North America at Johnson & Johnson

Every company I know is trying to buy capacity with headcount. Headcount is expensive—no matter where they sit. Targeted capacity, aimed at the three things you are honestly bad at, is cheap by comparison.

We are all evaluating AI, but the best return I have found is in my own capacity. For a busy operator, someone to absorb the overflow is the whole game.

"You can have it all" is usually a lie or a taunt. I think it is neither—it is a badly specified requirement. Nobody says which parts, or who is doing them.

So I specified it. Here is where I honestly fall short.

I am really bad at texting. My team knows it. My friends know it. My mother-in-law especially knows it. There are 1,626 unread on my phone right now—and texts, not email, are where the people who need me live.

I cannot hold all family logistics. I can carry a market model in my head, but not which kid needs a form signed Thursday.

I hardly get to the reading that matters. The work that compounds is always the work that can wait.

None of that is a character flaw. It is a capacity constraint—we are busy, that is the job. Written down, each one was specific enough to build against.

So I built two things.

The first is an analyst. Every morning it briefs me on my competitive landscape—what moved, and what I should already know walking into a room. What I am proudest of is not the speed. It is the logic—of where I need to pay attention, and what is 'click bait'. The value is in the honesty, brevity, and focus.



ERIN SCHALLHORN POWERS

The second reads my messages before I do—and prioritizes. Which brings me back to my mother-in-law, Sally. She texts often—what time is pickup, are the girls free Saturday, when is your flight again? Those used to sit for hours while Sally wondered why I ignored her. Now she gets a warm, accurate answer in minutes. But the moment her question needs a real decision, it stops—and that's when I know I need to intervene, as me.

That unread count is still high. What changed is that I'm now on top of what matters. It did not make me a more distant daughter-in-law. It made me a more present one. Extrapolate that amongst the dozens, hundreds of people we interact with daily, and you can begin to see the true value.

So how do you start? With a list. Write down the five things you are worst at that nobody would fire you for—the ones that quietly leak. Pick the one costing you most and build only that: one job, corrected over weeks until you trust it. Then the next.

Here is the part that deserves your skepticism: this took months of correcting, not a weekend. But I never started from "what can AI do?" I started from "what am I dropping?" That is the reason it worked.

You can have it all. But not before you write down which parts you keep, and which you are bad at, and stop pretending you will get to the rest.

Why we started EyeAdvisor: Increasing Premium Conversion with AI

Nick Sideris is the co-founder of EyeAdvisor and Patient Pipeline, and has spent more than 15 years in ophthalmology marketing and strategy. He works with surgeons and practice leaders to close the gap between clinical recommendations and patient outcomes.

For six years, I sat in ophthalmology practices across a 17-state territory as a medical device consultant. I watched marketing dollars drive patients to the front door, month after month: new leads, new consults, new spend to bring in more.

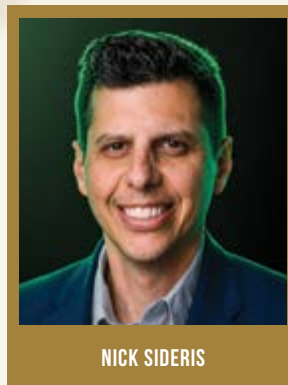
And yet, in the consult room itself, I kept seeing the same thing: a technician or counselor would walk a patient through their premium options, the patient would nod along, and leave without committing. Not because the practice lacked patient interest. Not because the marketing wasn't working; it had done its job, getting the patient in the chair. The practice was losing the sale in the room, not on the landing page.

That distinction is the thesis behind EyeAdvisor: **practices don't have a lead problem. They have a conversion problem.** And nobody was building anything to solve for it.

The Blind Spot

Ophthalmology has spent enormous energy and capital optimizing the top of the funnel: SEO, paid ads, referrals, website redesigns, pre-education. All of that matters. But almost none of it addresses what happens between "patient walks into the consult" and "patient says yes to premium." That conversation is coached almost nowhere and measured almost nowhere. It's the biggest lever in the practice's P&L, and it was being run entirely on gut instinct.

So my co-founder Mick and I built EyeAdvisor to close that gap. At its core, the product records the consult conversation and coaches the practice's team, in real time and after the fact, on how to improve conversion. One feature, FollowUp, goes further: it captures patients who didn't convert on the spot and empowers the team to re-engage them with personalized outreach, recovering revenue that would otherwise evaporate.



We didn't frame the opportunity around software spend, but around what it's actually worth: the incremental premium revenue practices leave unconverted every month. In a mid-sized cataract practice, an 8% lift in premium conversion is worth roughly \$350,000 a year. In markets where refractive volume has softened, we've seen conversion increases as high as 21%. That's not a marginal software ROI story; it's a core-business one, which is why it resonates with surgeons rather than administrators alone.

Where We Are Today

EyeAdvisor is now live across multiple states, and at the time of this writing has recorded 10,744 consultations. We've published multiple case studies built directly from real consultation data our

platform captured, not theory, and presented findings on stage at ASCRS, including a practice that took conversion from 68% to 95% after adopting the system.

Our most enthusiastic clients have become some of our best sources of proof, not because we sold them software, but because the numbers in their own consult rooms changed. That's the proof point that matters most in this specialty: surgeons trust data from other surgeons' practices, not marketing copy.

How the Coaching Actually Works

The mechanism matters, because "AI-powered coaching" can mean almost anything. In practice: the platform listens to the consult, flags moments where a patient's hesitations signal they're not ready to commit, and shows the counselor specifically what happened, not a generic script, but their own conversation, annotated. Patterns emerge across a practice's consults: which objections come up most, which explanations land, where premium options get raised too late to register. That's coaching grounded in a practice's own patients, not a training video shot for a different market.

It's also why the product had to be built around real consult recordings rather than surveys or after-the-fact reporting. Self-

reported conversion data is notoriously unreliable; everyone remembers the wins and forgets the misses. The consult room doesn't lie.

That said, we didn't want AI coaching in a vacuum. Our Director of Conversion Enablement, Cindy Koehler, spent a decade as a consult counselor herself before joining EyeAdvisor. She works directly with counseling teams, running accountability sessions grounded in what the platform surfaces. The AI tells a counselor what happened in the room; Cindy tells them what to do about it, with the credibility of someone who's sat in that chair. That combination, data plus a human who's lived the job, is what actually changes behavior.

The Bigger Bet

We started EyeAdvisor because the industry kept solving the wrong problem: filling the funnel instead of fixing what happens once patients are already in it. That gap is still underexploited, which is why we think it's the biggest opportunity in ophthalmology patient conversion today. We're building toward a category, not just a product, and we believe the practices that master the consult room, not just the campaign, will define premium ophthalmology's next decade.





ADAM SHUFORD



MARK LOBANOFF, MD

The Future of AI in Refractive Surgery

Dr. Lobanoff is a fellowship-trained corneal/refractive surgeon with 30 years of surgical experience. He has founded and led Lochan, an ophthalmic software company that is now focused on building AI products for ophthalmology. Adam Shuford is Vice President of Commercial Americas, STAAR Surgical.

The mathematicians are getting nervous.

Recently, OpenAI solved the Erdős Unit Distance Problem, a mathematical challenge that had resisted the world's brightest minds for nearly eighty years. In less than two hours, artificial intelligence generated a solution to a problem once thought beyond reach.

That should be exciting news for ophthalmology.

Refractive surgery has always been rooted in mathematics and physics. Every treatment decision relies on complex interactions between corneal shape, wavefront optics, biomechanics,

tomography, OCT, refraction, and countless other variables. While we have access to extraordinary amounts of clinical data, no human can consistently synthesize all of it in real time.

Artificial intelligence can.

After more than 30 years in refractive surgery, including fellowship training in cornea, I (ML) have spent hundreds of hours helping develop and train AI models designed to improve refractive planning and ectasia detection. Like many surgeons, I initially viewed AI as another tool to make us incrementally better.

I was wrong.

What has amazed me is not simply the speed of the calculations, but AI's ability to identify clinically meaningful relationships across multiple diagnostic platforms that no human could reasonably synthesize in real time. By integrating tomography, ray tracing, wavefront analysis, OCT epithelial thickness, biomechanics, and historical outcomes, AI consistently recognizes subtle patterns that improve both sensitivity and specificity beyond what traditional formulas can achieve.

The experience has been both humbling and exciting. AI has identified eyes at higher risk for ectasia that I would have considered acceptable surgical candidates based on decades of experience. It has recognized when higher order aberrations or subtle corneal asymmetry would limit the visual benefit of a toric or premium IOL despite otherwise favorable measurements. It has even enabled mathematical models of complex corneal optics that would have been computationally impractical only a few years ago.

Those experiences changed my perspective.

The future of AI is not that it replaces the refractive surgeon. It is that it augments every clinical decision with insights derived from millions of data points, allowing every patient to benefit from a level

of analysis previously available only through years of experience and intuition.

But better calculations are not the real story.

The true impact of AI is that it will fundamentally reshape how refractive care is delivered.

Rather than functioning as isolated software modules, AI will connect every stage of the patient journey. Before a patient ever enters the clinic, intelligent systems will personalize education based on lifestyle, occupation, visual demands, and risk tolerance. Patients will arrive better informed, allowing surgeons to spend less time explaining procedures and more time understanding goals and building trust.

Inside the clinic, AI will integrate data from multiple diagnostic platforms into a single clinical recommendation. Instead of asking whether a patient qualifies for LASIK, SMILE, EVO, or refractive lens exchange, AI will estimate which option is most likely to provide the best long term visual outcome based on the individual's anatomy, age, accommodation, ocular health, and future visual needs.

Perhaps the greatest opportunity is moving refractive surgery from episodic procedures to lifetime vision management. Rather than optimizing a patient's vision only for today, AI can help optimize a patient's visual journey over decades. Just as importantly, it democratizes expertise, allowing surgeons everywhere to benefit from insights generated from millions of cases rather than thousands. The result is not fewer expert surgeons. It is dramatically more patients benefiting from expert level decision making.

Ironically, AI may make refractive surgery more human. As technology assumes responsibility for analyzing increasingly complex datasets and streamlining workflows, surgeons gain something increasingly scarce in modern medicine: time. Time to educate. Time to counsel. Time to connect with patients.

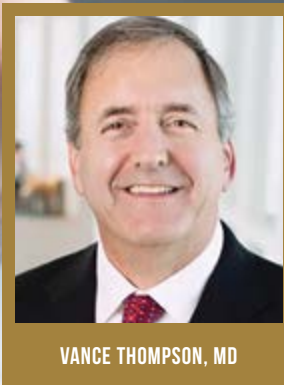
Every major innovation in refractive surgery has improved precision or reproducibility. Artificial intelligence is different. It has the potential to connect every stage of care, transforming refractive surgery from a collection of procedures into a personalized, lifelong vision strategy.

The practices that embrace AI will not win because they own better technology. They will win because they deliver better decisions, better patient experiences, and ultimately better outcomes.



ARTIFICIAL INTELLIGENCE IN CATARACT SURGERY:

Where the Technology Stands Today



VANCE THOMPSON, MD

Dr. Thompson is the Founder of Vance Thompson Vision.

Cataract surgery is the highest-volume procedure in medicine, and it has become one of the richest testbeds for applied AI in ophthalmology. Every case generates structured biometric data, standardized imaging, and, increasingly, recorded microscope video. That combination of scale and data density is exactly what deep learning models need, and the field has moved from research curiosity to clinical tool over the last several years. Below is a partial look at where AI is actually being used across the cataract surgical pathway, from the first biometry reading to the postoperative phone call.

Preoperative: IOL Power Calculation

The most mature and clinically embedded application of AI in cataract surgery is intraocular lens power calculation. A cluster of AI- and machine-learning-based formulas such as Hill-RBF (now in its third generation), the Kane formula, PEARL-DGS, Ladas Super Formula AI, Hoffer QST, Karmona, and Nallasamy, have moved from novelty to mainstream options sitting alongside Barrett Universal II, SRK/T, and Holladay 2 on modern biometers.

The evidence base has grown substantially, particularly for the hardest cases:

- Comparative studies and meta-analyses suggest that Hill-RBF 3.0 and Kane are among the most reliable formulas

for extremely long eyes, frequently yielding lower absolute prediction errors and a greater percentage of outcomes within ± 0.50 D than unadjusted traditional formulas. PEARL-DGS also performs well, although its superiority in long eyes has been less uniform across studies.¹

- In eyes with extreme axial myopia (axial length ≥ 30 mm), contemporary AI-based formulas such as Kane and Hill-RBF have demonstrated significantly lower mean absolute prediction error than traditional formulas such as SRK/T and dramatically fewer large refractive surprises ($> \pm 1.00$ D). In one recent study, the mean absolute error was approximately half that of SRK/T, while the rate of refractive surprises $> \pm 1.00$ D fell from 42.5% with SRK/T to 7.5% with Kane and Hill-RBF.¹
- For post-refractive eyes, another traditionally difficult subgroup, contemporary AI-assisted formulas such as PEARL-DGS have emerged as reliable options with accuracy comparable to Barrett True-K in many studies, particularly in no-history cases where pre-refractive surgery data are unavailable.²
- Even in routine, average-length eyes, several AI formulas edge out conventional ones on precision, though the margin narrows considerably as axial length approaches normal.

The underlying appeal is that these formulas learn effective lens position and refractive outcome relationships directly from large outcome datasets rather than relying solely on fixed theoretical optics, which lets them adapt to atypical anatomy that breaks the assumptions baked into older formulas.

Preoperative: Screening and Diagnosis

A separate and more accessibility-driven application is automated cataract detection and grading, largely aimed at underserved regions with too few ophthalmologists relative to disease burden. Deep learning models using architectures such as ResNet, DenseNet, EfficientNet, and MobileNet have enabled automated cataract detection and grading from ocular photographs. These algorithms have demonstrated high diagnostic accuracy and are increasingly being translated into portable and smartphone-based screening platforms, particularly for community screening and teleophthalmology.³

Field validation has been mixed but instructive. In prospective clinical studies, some smartphone tools have reached the 90%+ accuracy range for detecting immature and mature cataracts, which is meaningful for triage in low-resource settings. Performance is generally strongest for clinically significant cataracts and weaker for distinguishing normal or minimally affected lenses, underscoring that current smartphone AI systems are best viewed as screening and referral tools rather than replacements for comprehensive ophthalmic examination.⁴ Separately, deep learning systems for infantile cataract detection have focused on solving the generalizability problem, models trained at one center often perform worse on images from another, through techniques like lens-partitioning strategies and multicenter training data.⁵

Intraoperative: Real-Time Surgical Guidance

One of the most technically ambitious current applications of AI in cataract surgery is real-time intraoperative guidance during phacoemulsification. Deep neural networks—including region-based convolutional neural networks—have been trained to track the pupil, detect surgical instruments, and classify the current surgical phase (eg, capsulorhexis, phacoemulsification, and cortex removal) directly from the operating microscope video stream. In proof-of-concept studies, phase recognition has achieved AUROC values ranging from approximately 0.88 to 0.997, depending on the surgical phase, enabling real-time activation of computer vision-based

guidance overlays.⁶ (AUROC is a threshold-independent measure of diagnostic discrimination. An AUROC of 1.0 represents perfect classification, whereas 0.5 represents chance performance. Thus, AUROC values of 0.97–0.99 indicate that the AI can almost perfectly distinguish one surgical phase from another.)

The clinical rationale is to layer computer vision-driven feedback directly onto the surgical microscope view, enhancing visualization, identifying turbulent fluidics, tracking surgical instruments and anatomy, and providing context-specific guidance as the algorithm recognizes the current surgical phase. The long-term goal is not to replace the surgeon's judgment but to create an intelligent operating microscope that provides the right information at precisely the right moment, reducing cognitive load while improving consistency, safety, and surgical education. Although these systems remain largely in the proof-of-concept and early clinical evaluation stage rather than routine standard of care, early studies have demonstrated encouraging external validity, with algorithms maintaining good performance when tested on independent, publicly available cataract surgery video datasets that were not used for training.⁶

These advances also represent an important bridge between artificial intelligence and robotic cataract surgery. Computer vision provides the robotic system with “eyes,” allowing it to recognize ocular anatomy, surgical instruments, and the current phase of surgery in real time. Artificial intelligence interprets this information to identify risk, predict the next surgical step, and generate context-specific guidance. While today's systems primarily function as intelligent decision-support tools, the same technologies form the perceptual foundation required for future robotic assistance. Just as autonomous vehicles depend on computer vision before they can safely steer, future robotic cataract surgery will depend on AI to continuously understand the surgical environment before it can reliably assist—or eventually automate—selected surgical tasks under the surgeon's supervision.

One example of convergence between artificial intelligence and robotic ophthalmic surgery is femtosecond laser cataract surgery. For instance, I use the LENSAR laser which uses AI in their ALLY Robotic Cataract Laser System® to ensure quick and precise identification of the anterior and posterior cornea and lens. This robotic imaging allows surgeons to make informed decisions including use of optimized fragmentation patterns for efficient lens deconstruction, reducing phaco energy and time needed to remove a cataract. AI is also used to accurately place corneal incisions. During astigmatic management, ALLY uses AI to identify the iris and limbal margins from images wirelessly sent from several preop devices to ensure iris registration, highly accurate cylinder axis adjusting automatically for cyclotorsion. LENSAR plans to use AI to guide auto-docking the laser to the patient.

An example of a comprehensive robotics platform that utilized AI heavily is a company I have worked with for a few years now, the JASPER™ platform developed by ForSight Robotics. The platform incorporates AI-enabled capabilities designed to support surgeon education, simulation, and performance assessment. Through AI-enhanced virtual surgical simulations, surgeons can practice procedures in a realistic environment, receive objective, data-driven feedback, and refine their techniques in a safe, controlled setting before entering the operating room.

Beyond simulation, the JASPER™ platform captures detailed procedural data throughout surgery, creating quantitative measures of surgical performance that can be used for objective assessment and longitudinal skill development. These data-driven feedback loops have the potential to shorten learning curves, promote greater consistency, and support continuous surgical improvement. More broadly, they illustrate how artificial intelligence is evolving beyond image interpretation into a foundational technology for surgical training, robotic assistance, and eventually increasingly intelligent operating rooms.

Artificial intelligence is rapidly accelerating the evolution of robotic cataract surgery by enabling robotic systems to recognize anatomy, track surgical instruments, and interpret the surgical environment in real time. Robotic cataract surgery has already progressed beyond the laboratory, with early platforms successfully performing selected surgical maneuvers in the operating room under direct surgeon supervision. As computer vision and machine learning continue to advance, these technologies are expected to play an increasingly important role in surgical guidance, robotic assistance, and, ultimately, greater procedural automation.

Preoperative and Postoperative: Patient Communication

A newer and less technical but practically significant application is AI-driven patient communication. Bausch + Lomb has partnered with Hippocratic AI to build Orphia, a voice-based AI agent designed to call patients ahead of cataract surgery to walk through lens options and answer questions, a response to how much unstructured counseling time premium IOL and lens-based surgery decisions typically demand. Automated postoperative follow-up calls have also been studied for uncomplicated cases, with reasonable patient acceptance, as a way to extend monitoring capacity without proportionally increasing staff time. I have personally experienced this technology and was impressed with its user friendliness and how “smart” it already was.

Postoperative: Outcome and Complication Prediction

Postoperatively, AI is increasingly being explored to predict visual outcomes, identify patients at increased risk for complications such as posterior capsular opacification and cystoid macular edema, and personalize postoperative follow-up so that clinical resources can be directed toward patients at greatest risk. Although these applications are promising, they remain less mature than AI-based IOL power calculation or intraoperative computer vision, largely because of limitations in longitudinal datasets, external validation, and integration across diverse clinical practice environments.⁷

The Honest Limitations

As impressive as these advances have been, recent systematic reviews have consistently highlighted several important limitations that should temper expectations and guide future development:

- Dataset size, diversity, and standardization. Many AI models in cataract surgery have been developed using relatively small, retrospective, single-center datasets with inconsistent labeling and limited external validation. As a result, model performance often declines when tested on data from different institutions, imaging systems, or patient populations.
- Lack of standardized evaluation. Differences in study design, outcome measures, and reporting standards make direct comparison among published AI models challenging, and complicate the translation of promising algorithms into routine clinical practice.
- Clinical judgment remains essential. Across every stage of the cataract surgery pathway, from diagnosis and biometry to intraoperative guidance and postoperative management, AI currently functions as a decision-support tool rather than a decision maker. The surgeon remains responsible for integrating AI-generated recommendations with clinical findings, patient-specific factors, and sound surgical judgment, particularly in complex or atypical cases.

Recognizing these limitations is important, not because they diminish AI's potential, but because they define the challenges that must be overcome before these technologies become fully integrated into everyday cataract care.

Where This Is Headed

The overarching theme across preoperative, intraoperative, and postoperative applications is that AI has achieved its greatest success wherever cataract surgery already generates large, standardized, high-quality datasets, biometric measurements, surgical microscope video, and structured clinical outcomes. The next inflection point is likely to integrate these advancements across the patient journey: IOL formulas that synthesize increasingly rich sources of biometric and imaging data, intelligent microscope systems that provide seamless intraoperative guidance, robotic

platforms that leverage computer vision to enhance surgical precision, and postoperative analytics that personalize follow-up while continuously learning from long-term outcomes.

Taken together, the story of artificial intelligence in cataract surgery is not one of replacing surgeons, but of augmenting them. AI is increasingly becoming an intelligent partner, helping surgeons plan more accurately, operate more safely, learn more efficiently, and follow patients more intelligently. As these systems mature and become more deeply integrated into clinical workflows, the greatest impact of artificial intelligence may not be any single algorithm, but the creation of a continuously learning cataract surgery ecosystem in which every patient, every surgery, and every outcome contributes to making the next patient's care even better. The future is not an AI-powered formula or an AI-powered microscope. The future is an AI-powered cataract surgery ecosystem and the future is arriving a lot faster than many of us predicted. I personally welcome these advances that help us be better clinicians and surgeons.

References

1. Suzuki, Y., Kamoi, K., Uramoto, K. et al. Artificial intelligence driven intraocular lens power calculation in extreme axial myopia. *Sci Rep* 15, 36921 [2025]
2. Oh R, Hyon JY, Jeon HS. Accuracy of the PEARL-DGS Formula for Intraocular Lens Power Calculation in Post-Myopic Laser Refractive Corneal Surgery Eyes. *Am J Ophthalmol*. 2024 Mar;259:79-87.
3. Li R, Li H, Li C, Li S, Lei L, Tao D. Image-Based Deep Learning for Cataract Diagnosis: Systematic Review and Meta-Analysis. *J Med Internet Res*. 2026 Apr 29;28.
4. Janti SS, Saluja R, Tiwari N, Kolavai RR, Mali K, Arora AJ, Johar A, Sahoo DP, Sahithi E. Evaluation of the Clinical Impact of a Smartphone Application for Cataract Detection. *Cureus*. 2024 Oct 14;16(10).
5. Jiang J, Lei S, Zhu M, et al. Improving the Generalizability of Infantile Cataracts Detection via Deep Learning-Based Lens Partition Strategy and Multicenter Datasets. *Frontiers in Medicine*. 2021;8:664023.
6. Garcia Nespolo R, Yi D, Cole E, Valikodath N, Luciano C, Leiderman YI. Evaluation of Artificial Intelligence-Based Intraoperative Guidance Tools for Phacoemulsification Cataract Surgery. *JAMA Ophthalmol*. 2022 Feb 1;140(2):170-177.
7. Müller S, Jain M, Sachdeva B, Shah PN, Holz FG, Finger RP, Murali K, Wintergerst MWM, Schultz T. Artificial Intelligence in Cataract Surgery: A Systematic Review. *Transl Vis Sci Technol*. 2024 Apr 2;13(4):20.

THE AI-POWERED GLAUCOMA PRACTICE:

From Diagnostic Precision to Operational Mastery

Dr. Singh is the President of The Eye Centers of Racine & Kenosha, Ltd.

Artificial intelligence has officially crossed the threshold from experimental novelty to core clinical infrastructure in ophthalmology. While early ophthalmic AI applications largely focused on diabetic retinopathy screening, the frontier has rapidly expanded. Today, glaucoma, with its complex web of structural, functional, and longitudinal variables, represents one of the most exciting areas for AI transformation.

For the practicing ophthalmologist, practice owner, and clinical leader, understanding how to navigate this wave is no longer optional. Let's discuss how machine learning and advanced data architectures are reshaping every facet of glaucoma care, from the exam lane and the operating room to clinic finance, research, and patient experience.



I. PAUL SINGH, MD

1. Clinical Care: Early Detection and Progression Forecasting

Glaucoma management has long been plagued by the challenge of subjective interpretation and late detection. Subtle structural changes in the retinal nerve fiber layer (RNFL) or optic nerve head (ONH) often occur long before a patient notices visual field loss.

- **Deep Learning in Diagnostics:** Modern convolutional neural networks (CNNs) and transformer models evaluate color fundus photographs and Optical Coherence Tomography (OCT) scans with an exceptional degree of fidelity. Recent multi-center evaluations demonstrate that machine learning models can achieve area under the curve (AUC) metrics exceeding 0.93-0.95 in detecting glaucomatous damage, frequently matching or outperforming general human graders in high-throughput screening environments. Major ophthalmic imaging manufacturers like Heidelberg, Zeiss, and Topcon integrate proprietary deep learning and machine learning algorithms into their hardware to assist with automated segmentation, structural measurement, and quality control.
- **Predicting Conversion and Trajectory:** Beyond static diagnosis, advanced algorithms excel at longitudinal pattern recognition. By analyzing serial visual fields and progressive OCT thickness maps over time, AI frameworks can flag fast progressors years before traditional trend analyses sound the alarm. This risk stratification allows clinicians to escalate therapy proactively for high-risk patients while avoiding overtreatment for stable, low-risk suspects.

We currently utilize the ZEISS Glaucoma Workplace in our practice. It is a clinical data management and analysis software that streamlines disease management by centralizing and harmonizing complex diagnostic data from multiple sources, including optical coherence tomography (CIRRUS OCT), visual field perimetry (Humphrey Field Analyzer), fundus imaging, and intraocular pressure measurements. By utilizing its Structure-Function Guided

Progression Analysis (GPA), the platform correlates structural changes in the optic nerve with functional vision loss on a single display, automatically flagging statistically significant changes over time. This empowers us to detect subtle disease progression far earlier than traditional methods allow, accurately stage the condition, evaluate the long-term effectiveness of ongoing therapies, and make confident, timely decisions regarding medical or surgical interventions.

2. Surgical Planning and Interventional Precision

The integration of Micro-Invasive Glaucoma Surgery (MIGS) and sustained-release drug delivery systems has given surgeons an extensive array of treatment choices. However, selecting the right intervention for the right eye remains an intricate calculus.

- **Tailored Surgical Decisions:** AI models are being developed to synthesize pre-operative parameters—such as endothelial cell density, trabecular meshwork status, 24-hour intraocular pressure fluctuations, and anterior chamber morphometry—to recommend optimal surgical pathways.^{1,2,3}
- **Intraoperative Guidance:** Computer vision systems integrated into surgical microscopes are also being developed to assist real-time intraoperative orientation, helping monitor device placement (such as stenting or trabecular bypass) and predicting post-operative pressure spikes based on immediate surgical feedback.
- **Currently, the application of AI in ophthalmic surgery is still in its early stages and is primarily focused on optimizing surgical procedures through robotic-assisted technology. Robotic platforms specifically designed for ophthalmic microsurgery, such as the “Steady Hand” system and the “Intraocular Robotic Interventional Surgical System (IRISS),” can minimize hand tremors and enable more precise manipulations, thereby improving surgical safety and effectiveness. The use of these systems supports the**



broader adoption of minimally invasive glaucoma surgeries (MIGS), which require a high degree of dexterity. Integrating AI with these robotic platforms is expected to further refine surgical techniques and optimize surgical outcomes.^{4,5,6,7}

**3. Finance and Practice Operations:
Streamlining the Workflow**

Administrative overhead and electronic medical record (EMR) documentation are primary drivers of physician burnout and operational friction. In a specialty reliant on heavy diagnostic testing like glaucoma, the documentation burden is acute.

- **Ambient AI Scribes:** Ambient documentation and AI-powered scribes integrated directly into specialty EMRs are transforming the glaucoma lane. By passively capturing doctor-patient dialogue and structuring complex ocular

exam findings, these tools drastically cut down on after-hours charting.

- **Optimizing Diagnostic Scheduling:** AI scheduling tools analyze historical patient attendance patterns, test requirements, and disease severity to optimize clinic templates. This ensures that visual fields and OCTs are scheduled intelligently, maximizing equipment utilization and reducing bottlenecks in high-volume comprehensive and subspecialty practices.

4. Research and Clinical Trials

Translating innovative glaucoma therapies from bench to bedside is traditionally slow and cost-prohibitive. AI is fundamentally compressing this timeline.

- **Automated Trial Recruitment:** Natural language processing (NLP) models can rapidly scan unstructured EMR notes to identify qualifying candidates for clinical trials investigating novel sustained-release injectables, neuroprotective agents, or next-generation devices. We are currently using a product called Amaros to help identify within seconds, based on inclusion and exclusion criteria, possible study candidates via our EMR database. It can research the EMR texts, whether discussions, diagnoses, or even claims data to obtain the possible patients.
- **Synthetic Data and Endpoint Modeling:** Researchers are leveraging generative models to simulate disease progression cohorts, significantly reducing the sample sizes and follow-up durations required to demonstrate efficacy in clinical investigations.

5. Elevating the Patient Experience

- **Personalized Education:** Generative AI tools allow practices to distribute customized, highly readable educational summaries to patients following an exam. These summaries

explain complex concepts like cup-disc ratios or visual field indices in accessible terms.

- **Predictive Adherence Coaching:** Smart conversational agents (e.g., TrackMyGlaucoma), can track patient-reported drop adherence and side effects between visits, intervening early with tailored coaching to keep patients on their prescribed regimens before structural progression occurs.

Conclusion

Artificial intelligence will not replace the glaucoma specialist, but specialists who utilize AI will increasingly outperform those who do not. By embracing AI as a force multiplier for early diagnosis, surgical planning, and operational efficiency, ophthalmology practices can protect more vision while building resilient, future-ready clinical enterprises.

References

1. Huang AS, Hirabayashi K, Barna L, Parikh D, Pasquale LR. Assessment of a large language model's responses to questions and cases about glaucoma and retina management. *JAMA Ophthalmol* 2024; 142(4): 371-5.
2. Noorain SV, Srivastava V, Parveen B, Parveen R. Artificial intelligence in drug formulation and development: Applications and future prospects. *Curr Drug Metab* 2023; 24(9): 622-34.
3. Agnifili L, Figus M, Porreca A, et al. A machine learning approach to predict the glaucoma filtration surgery outcome. *Sci Rep* 2023; 13(1): 18157.
4. de Smet MD, Naus GJL, Faridpooya K, Mura M. Robotic-assisted surgery in ophthalmology. *Curr Opin Ophthalmol* 2018; 29(3): 248-53.
5. Alafaleq M. Robotics and cybersurgery in ophthalmology: A current perspective. *J Robot Surg* 2023; 17(4): 1159-70.
6. Alamdar A, Usevitch DE, Wu J, Taylor RH, Gehlbach P, Iordachita I. Steady-hand eye robot 3.0: Optimization and benchtop evaluation for subretinal injection. *IEEE Trans Med Robot Bionics* 2024; 6(1): 135-45.
7. Wilson JT, Gerber MJ, Prince SW, et al. Intraocular robotic interventional surgical system (IRISS): Mechanical design, evaluation, and master-slave manipulation. *Int J Med Robot* 2018; 14(1): 1842.



WHY OCULOMICS MAY LEAD THE NEXT TRANSFORMATION IN HEALTHCARE

Dr. Shulkin was the Ninth Secretary of the U.S. Department of Veterans Affairs.

The retina has long been recognized as a unique site where clinicians can directly observe the body's microvasculature and neural tissue. Retinal examinations have traditionally been used to diagnose ocular disease, but advances in artificial intelligence, retinal imaging, and multimodal data analysis are now enabling clinicians to use retinal biomarkers to detect, predict, and monitor systemic disease as well. This approach is referred to as oculomics.

As imaging technology, artificial intelligence, and clinical validation continue to advance, oculomics is poised to become a cornerstone of twenty-first century medicine. The convergence of these technologies has created the possibility that retinal imaging will evolve from a specialty examination into a routine part of primary care and preventive medicine. AI algorithms are already enabling oculomics-based screening, and eye care is poised to

become the "front door" of the broader healthcare system: identifying chronic disease at earlier stages and directing patients to the right provider for prevention and treatment sooner than ever before. Given this trajectory, the retina may become medicine's next vital sign.

The first successful clinical application of retinal AI was autonomous screening for diabetic retinopathy, and the expanding evidence base suggests that retinal AI can become a foundational tool for preventive medicine and population health more broadly. Current FDA-authorized applications remain limited to diabetic retinopathy screening, but growing evidence suggests that retinal AI may soon contribute to the early detection of cardiovascular disease, chronic kidney disease, neurodegenerative disorders, metabolic dysfunction, accelerated biological aging, and possibly behavioral health conditions. Such capabilities could meaningfully expand preventive medicine by identifying high-risk individuals during routine wellness examinations. These clinical indications point to a real possibility that retinal imaging could provide objective biomarkers for conditions that today rely primarily on subjective clinical assessment. Rather than ordering numerous disease-specific screening tests, clinicians may eventually obtain a comprehensive health assessment through one inexpensive, non-invasive imaging procedure integrated with laboratory data, genomics, wearable devices, and electronic health records.

The coming decade will bring rapid expansion of oculomics. Future systems will likely use retinal imaging to generate individualized risk profiles for multiple chronic diseases at once, making retinal imaging as routine as blood pressure measurement. As regulatory approval expands, retinal AI has the potential to become one of the most important diagnostic platforms in preventive medicine. Most eye care professionals conducting routine eye screening already have

the capital equipment necessary to adopt AI-assisted screening. Practitioners who have already adopted an AI-assisted model for ocular disease are well positioned to eventually take on screening for systemic conditions as well.



DAVID SHULKIN, MD

AI science is moving so quickly that technical capability will not be what holds this potential back. Concerns about reimbursement, clinical workload, and referral pathways, however, must all be addressed. Clinicians must retain appropriate oversight, and reimbursement policies will need to evolve as retinal AI expands beyond eye care. Given the financial pressures facing practicing physicians and healthcare organizations, questions about the business model for such an endeavor are understandable. New payment models are already being tested, including ACCESS (Advancing Chronic Care with Effective, Scalable Solutions), a new outcomes-focused payment approach from CMS designed to increase access to technology-supported care. Looking ahead, a population health model will likely emerge in which AI-enabled, scalable screening for chronic disease is supported through value-based care.

The opportunity to provide better care to more Americans is truly unprecedented, and eye care is well positioned to lead this effort. Leaders in eye care are already working toward a more connected care model that enables early detection and effective referrals at scale. The Alliance for Healthcare from the Eye—a group of health systems, clinicians, payers, researchers, policymakers, data privacy experts, and industry representatives—is collaborating to establish the framework oculomics will need to function and achieve maximum impact. Engaging in this transformation will help ensure that the connected-care foundations being laid now are strong enough to support that vision.

AI in Ophthalmology Clinical Trials:

From Fragmentation to Governed Intelligence

Dr. Matossian is CEO of GPDOphtho. For this article she interviewed Vartan Ghazarossian, PhD, Co-Founder and CEO of Amaros.

Artificial intelligence is rapidly reshaping the clinical-trial ecosystem, and ophthalmology is emerging as one of the fields where its impact may be most transformative. The reason is simple: ophthalmic clinics generate enormous volumes of multimodal data—imaging, EHR records, clinician notes, treatment histories, outcomes, and longitudinal biomarkers. Historically, these data streams have been fragmented across sponsors, CROs, reading centers, and sites. AI's near-term value lies in replacing this fragmentation with governed, verifiable workflows that accelerate evidence generation while preserving clinical authority.

Over the next five years, AI will move from isolated analytical tools into the operating infrastructure of clinical trials. Sponsors will be able to test eligibility criteria against real-world populations before finalizing protocols. Sites will receive accurate, ranked eligibility lists in minutes rather than days. CROs will shift from reporting delays to orchestrating validation, site support, and corrective action. As Vartan Ghazarossian, PhD, CEO of Amaros noted, “The right model is not human versus AI. AI should perform the computational work while qualified professionals retain decision authority and accountability.”



VARTAN GHAZAROSSIAN, PHD,



CYNTHIA MATOSSIAN, MD

The greatest inefficiency AI can eliminate is the manual, repetitive review of fragmented patient data. Coordinators often search across multiple systems—EHRs, imaging platforms, physician notes, treatment records—to determine whether a single patient may qualify. This workflow repeats for every study. AI-enabled engines, such as those deployed by Amaros, have demonstrated that ranked patient identification can be reduced from weeks of manual review to minutes, with substantial reductions in coordinator verification time.

Recruitment and site selection remain the most powerful levers for improving trial pace and cost. Recruitment bottlenecks often originate before a study begins: restrictive eligibility criteria, unrealistic population assumptions, inaccurate feasibility estimates, or incomplete referral pathways. AI can address these issues earlier by quantifying how each criterion affects the available population, ranking sites based on real patient availability, pre-identifying candidates for verification, and monitoring where patients are lost between identification and enrollment. Faster enrollment, fewer screen failures, and more accurate feasibility collectively drive downstream cost reduction.

Still, AI's role must be carefully bounded. High-volume, repeatable, data-intensive tasks—data ingestion, normalization, feasibility modeling, patient pre-identification, imaging quality control, and longitudinal alignment—are ideal for automation. But final eligibility confirmation, informed consent, safety interpretation,

adverse-event adjudication, and clinical exceptions must remain human-led. AI should expand the field of view, not replace the accountable investigator.

The CMS January 2026 updates to the Medicare Claims Processing Manual reinforce this principle. While not specific to AI, the revisions clarify requirements for routine clinical-trial billing, including modifier Q1, diagnosis code Z00.6, and the clinical-trial identifier. For AI-enabled workflows, the implication is clear: technology must preserve—not blur—distinctions among investigational services, routine care, and research-only activities. Structured capture of trial identifiers, accurate linkage of services, audit trails, and human compliance review remain essential.

Looking ahead, AI-related clinical services may eventually receive CPT or HCPCS codes, but operational activities such as feasibility

modeling or automated eligibility screening are unlikely candidates. Coding will follow validated clinical services, not algorithms alone. Ophthalmology already has a precedent in CPT 92229 for autonomous retinal imaging analysis, suggesting that quantitative imaging, digital biomarkers, and algorithm-assisted functional assessments may be next.

The durable model for ophthalmology trials will be human-led and AI-enabled. AI can make complex data computable and actionable, but clinical responsibility, ethical judgment, and patient trust must remain firmly human. For CEO-level leaders, the message is clear: governed AI is no longer experimental—it is becoming foundational. The organizations that invest now in data quality, interoperability, and responsible adoption will define the next era of ophthalmic clinical research.

WE'RE SORRY.

Not for the ad.

For whoever's been running
your marketing.

Your reports are full of clicks and impressions.
Your calendar isn't full of consultations.
Something's broken!



Scan for a free audit
reflexiondigital.com

REFLEXION

Marketing that ends in booked patients.





MAURICE LYNCH

RESPONSIBLE AI: ETHICS AND GOVERNANCE

Maurice Lynch is CEO of Nathean Analytics, a software platform built specifically for ophthalmology practices. Nathean integrates data across clinical EHRs, practice management systems, and diagnostic imaging devices, eliminating time-consuming manual entry and giving clinics total operational clarity. He holds a B.Sc. in Computer Science from Dublin City University, completed Stanford University's Leadership 4 Growth executive program and is a former founding board member of CeADAR, Ireland's National Centre for AI.

Introduction

An AI tool that predicts an underbooked clinic session creates a different risk from one that prioritizes retinal referrals. An error in the first may waste capacity. An error in the second may delay care.

Both systems may promise greater efficiency, but they should not be purchased, evaluated, or governed in the same way.

Ophthalmology has a long history of turning new technology into routine clinical practice. Its reliance on imaging and structured diagnostic data now makes it particularly suited to artificial intelligence. AI is already being applied to image interpretation, referral triage, workflow forecasting, and patient communication.

A technology's capability is only the starting point. Responsible AI use requires practice leaders to establish clear oversight of clinical suitability, accountability, and ongoing performance after deployment.

The Ethical AI Landscape

Ethics in clinical AI is less abstract than it may appear. It concerns how patient data is used, whether systems perform fairly across different populations, what patients and clinicians are told, and who is accountable when an AI-supported process causes harm.

Concepts such as human-centered AI and human-in-the-loop oversight give these questions a practical form. They matter, however, only when they influence procurement, workflow design, monitoring, and incident response.

Navigating Regulation and Standardization

AI governance now draws on legislation, medical-device regulation and international standards. ISO/IEC 42001 provides a framework for managing AI at an organizational level, while AI-enabled medical devices remain subject to established requirements for clinical risk and software lifecycle management.¹

However, regulatory expectations vary across jurisdictions and continue to evolve. The European Union has established a risk-based framework through the **EU AI Act**, operating alongside **GDPR** and existing medical-device legislation.² In the United States, **FDA** oversight depends on whether the software meets the definition of a medical device and on its intended clinical use.³ International vendors must therefore navigate overlapping requirements rather than a single global regulatory model.

Applying the WHO Principles

The World Health Organization's guidance on *Ethics and Governance of Artificial Intelligence for Health* identifies six principles for responsible AI: human autonomy; safety and well-being; transparency; accountability; inclusiveness and equity; and responsive, sustainable use.⁴





For ophthalmology leaders, these principles translate into six practical questions:

- 1 **Human autonomy:** Do clinicians retain meaningful control and are patients appropriately informed about AI's role in their care?
- 2 **Safety and well-being:** Has the system been shown to perform reliably for its intended use, patient population, and clinical setting?
- 3 **Transparency:** Do clinicians and patients receive enough information to understand the system's purpose, limitations, and contribution to a decision?
- 4 **Accountability:** Is responsibility clearly assigned for oversight, decision-making, incident review, and corrective action?
- 5 **Inclusiveness and equity:** Has performance been evaluated across relevant patient groups, devices, and clinical environments?
- 6 **Responsive and sustainable use:** Can the organization monitor the system over time and support its operational, workforce, and infrastructure requirements?

These principles become useful when they shape procurement, workflow design, performance monitoring, and decisions about whether an AI system should be continued, be restricted, or be discontinued.

Data Governance and Patient Privacy

Cloud-based image processing may require identifiable clinical data to be transmitted to and processed within a third-party environment. Leadership should require a documented privacy and security risk assessment, clearly defined data-use restrictions, appropriate contractual protections, and safeguards such as encryption in transit and at rest, access controls, audit logging, and incident-response obligations.⁵

In the United States, a vendor that creates, receives, maintains, or transmits electronic protected health information on behalf of a covered entity will generally be a business associate, requiring an appropriate business associate agreement.⁵

Liability and the "Human-in-the-Loop"

When an algorithm produces a false negative, responsibility may involve several parties, depending on the system's intended use, the clinical workflow, and the applicable law. Executive leadership should define human oversight, escalation procedures, incident review, and contractual responsibilities before deployment.

Clinical workflows should require meaningful evaluation of AI outputs rather than passive sign-off. Clinicians must be able to question, override, and report recommendations without unnecessary friction.

Algorithmic Bias and Model Drift

AI tools trained on homogeneous population cohorts or specific camera hardware can experience performance drops when deployed across varied demographics or secondary clinical sites. Furthermore, as clinical workflows, hardware, and patient populations evolve, systems can suffer from model drift, quietly degrading diagnostic precision over time.

GOVERNANCE FRAMEWORK

Governance should be proportionate to the size of the practice and the risk of the use case. In a smaller clinic, one senior leader may cover several responsibilities; a large multi-site group may require more formal clinical, operational, and technical ownership. The objective is clear accountability, not another layer of administration. When evaluating AI systems, leadership teams can focus on five areas:

- **Accountability:** Assign clear responsibility for AI governance and for each clinical or operational use case. In a smaller practice, the same person may fulfil both roles.
- **Transparency:** Determine when patients and clinicians should be informed about the role of AI, based on the significance of its contribution and applicable requirements.
- **Vendor and contractual controls:** Review contracts to confirm data-use and retention terms, software-update arrangements and liability boundaries.
- **Data security:** Verify encryption, access controls, and audit logging across EHR integrations and imaging pipelines.
- **Monitoring and incident response:** Define performance measures, review results at agreed intervals, and establish a clear route for clinicians to report suspected errors, unexpected outputs, or changes in system behavior.

A practical first step is to create a register of every AI system in use or under consideration. For each system, record its intended purpose, accountable owner, data requirements, validation evidence, monitoring measures and next review date. This gives leadership a clear view of where AI is influencing clinical and operational decisions.

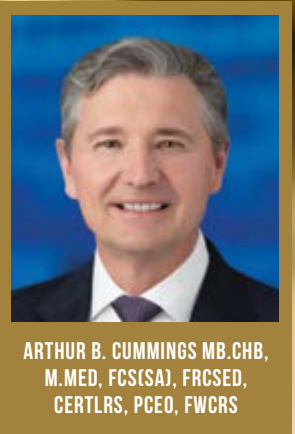
Conclusion

Regulatory approval or clearance, where required, does not replace local governance. Responsibility for how the technology is selected, integrated, monitored, and used remains with the healthcare organization.

A disciplined approach to AI ethics, cross-functional oversight, and ongoing validation enables leaders to manage liability, safeguard clinical quality, and maintain the confidence of patients and clinicians.

References

1. International Organization for Standardization and International Electrotechnical Commission. *ISO/IEC 42001:2023 - Information Technology - Artificial Intelligence - Management System*.
2. European Parliament and Council of the European Union. *Regulation (EU) 2024/1689 - Artificial Intelligence Act. 2024*.
3. U.S. Food and Drug Administration. *Marketing Submission Recommendations for a Predetermined Change Control Plan for Artificial Intelligence-Enabled Device Software Functions: Guidance for Industry and Food and Drug Administration Staff. 2025*.
4. World Health Organization. *Ethics and Governance of Artificial Intelligence for Health: WHO Guidance*. Geneva: World Health Organization; 2021.
5. U.S. Department of Health and Human Services. *Guidance on HIPAA & Cloud Computing*.



ARTHUR B. CUMMINGS MB.CHB,
M.MED, FCS(SA), FRCSED,
CERTLRS, PCOE, FWCRS

FROM CLINICAL QUESTION TO PILOT IN DAYS: Building HemiReader with AI

*Dr. Cummings is Consultant Ophthalmic Surgeon/
Medical Director, and UCD Associate Clinical Professor, at
Wellington Eye Clinic, Dublin, Ireland*

I was on holiday recently when the idea landed in my lap. A man on the beach was reading a paperback book held sideways, rotated ninety degrees. It was unusual enough to notice. At some point we got talking, and he told me he had hemianopia. He had discovered, entirely on his own, that he could read more comfortably with the book turned vertically. The words ran down instead of across the page, and his eyes no longer had to chase each line into the half he could not see.

That same week, I was playing a word game with my six-year-old granddaughter, building words vertically on the board, letter beneath letter. Two unrelated moments, but they collided. As a

cataract and refractive surgeon, I think about neuroadaptation every day. Could the same principle apply here? If the problem in hemianopic reading is horizontal saccades crossing the blind border, what happens if you remove them entirely?

Homonymous hemianopia, the loss of half the visual field in both eyes, is among the most disabling consequences of stroke. Patients retain normal acuity and cognition, yet reading becomes slow and exhausting because fluent reading depends on a perceptual span extending into the next saccade. Present text vertically, one word beneath the next, placed wholly within the seeing hemifield, and the eye never crosses the midline. In a 2021 randomized controlled study, Kuester-Gruber and colleagues found that vertical reading training significantly improved vertical reading speed, particularly in participants with right-sided field loss, although vertical reading remained slower than horizontal reading.¹ But no tool existed that a patient could simply open on a phone and try.

That is where AI entered the story. Not as a concept or a buzzword, but as a collaborator with specific, practical capabilities that I lack.

I cannot write software. I have never built a web application, configured a database, or deployed anything to the Internet. The gap between "I think this should exist" and "a patient can use it on their phone tonight" has always been too wide to cross alone, and too narrow to justify hiring a team for what might prove to be a dead end.

Working with an AI agent, I described what I wanted in clinical language: a reading instrument that presents text vertically within the intact hemifield, lets the patient calibrate letter size and spacing, and times matched passages so each patient generates their own within-subject words per minute (WPM) comparison. The constraints: no patient identifiers, no installation, browser-based, any device, ten minutes.

The AI did not simply generate code. It asked questions and challenged assumptions. When I described the vertical layout, it raised the issue of column-to-column transition direction for left versus right field loss. When I wanted to add a lean angle, it pointed out that a rigid tilt would push distal words outside the hemifield and proposed an arc mode instead. It also highlighted the need to counterbalance passage order, so that practice or fatigue would not distort the comparison.

What emerged was not a mock-up but a live web application: HemiReader (hemireader.com). It includes a calibration panel, a three-step timed protocol with counterbalanced passages, a referral system so colleagues can send patients a personal link and see results on a dashboard, a printable QR card for clinic handoff, and a preference question asking patients directly whether vertical reading felt easier or harder.

The build moved from first conversation to live deployment in days rather than months, without a conventional software-development

budget. It was designed to collect no identifiable patient data; local governance and ethics requirements will, of course, depend on the setting and how the pilot is conducted. The principal investment was my time describing what I wanted and the AI's capacity to translate clinical intent into working software.

I want to be precise about what AI did and did not do. It did not generate the clinical hypothesis. It did not identify the patient population or decide that vertical presentation was worth testing. Those decisions required clinical experience, pattern recognition built over years of practice, and the curiosity to ask whether a known problem might have a simpler solution than we assumed.

What AI did was collapse the implementation barrier. It turned a clinician's idea into a testable instrument in a timeframe that made it worth attempting. It handled the engineering, deployment, and operational infrastructure (referral tracking, data export, colleague onboarding) that would otherwise have required a multidisciplinary team and a funded project.

The pilot is now live. Colleagues across Europe are beginning to refer patients. We do not yet know whether vertical presentation genuinely helps, or which configurations of field loss benefit most. That is what the data will tell us.

But the point of this story is not the answer. It is the fact that the question could be asked at all, by a single clinician, without institutional infrastructure, and made testable with a working prototype in the hands of real patients within days of having the idea. That is what AI changes for clinical innovation. Not the thinking. The doing.

Reference

1. Kuester-Gruber S, Kabisch P, Cordey A, Karnath H-O, Trauzettel-Klosinski S. Training of vertical versus horizontal reading in patients with hemianopia - a randomized and controlled study. *Graefes Arch Clin Exp Ophthalmol.* 2021;259:745-757. doi:10.1007/s00417-020-04952-w.

EVO ICL™

Expand your offer.
Treat more patients.

EVO ICL™ — NOW INDICATED
FOR AGES 21–60



Scan To View the Patient
Information Booklet

Important Safety Information for the EVO ICL | EVO+ ICL Product Family:

The EVO ICL is indicated for phakic patients 21–60 years of age to correct/reduce myopia with up to 4.00 D of astigmatism with a spherical equivalent ranging from -3.00 to -20.0 D and with an anterior chamber depth (ACD) 3.0 mm or greater. The EVO ICL is contraindicated in patients with a true ACD of <3.00mm; with anterior chamber angle less than Grade III; who have moderate to severe glaucoma, who are pregnant or nursing; less than 21 years of age; and who do not meet the minimum endothelial cell density (ECD) listed in the Directions For Use (DFU). A summary of the relevant warnings, precautions and side effects: Endothelial cell loss, corneal edema, cataract, narrowing of the anterior chamber angle, pupillary block, increased intraocular pressure, glaucoma, secondary surgery to reposition, replace or remove the ICL, loss of BSCVA, increase in refractive astigmatism, glare and/or halos, pigment dispersion, iris transillumination defects, endophthalmitis, hypopyon, corneal endothelial damage, ICL dislocation, cystoid macular edema, iritis, retinal detachment, vitritis, and iris prolapse. Please review the DFU for complete safety and other information before performing the clinical procedure.

www.staar.com

© 2026 STAAR® Surgical Company
US-EVO ICL-26-MMDD

25510 Commercentre Dr,
Lake Forest, CA 92630, (800) 352-7842

CEC OPTHALMOLOGY

CEO Ophthalmology is proud to serve a
community of visionary leaders.

Thank You to Our Sponsors

Founders Circle

Alcon

Gold

BAUSCH+LOMB

Silver

GLACIAL
MULTIMEDIA



Bronze

REFLEXION

Thank You to Our Advertisers

ALCON, BAUSCH+LOMB, ELEVATE CAPITAL LLC, GLACIAL MULTIMEDIA,
OSRX, RBC WEALTH MANAGEMENT, SANDIA BMW, STAAR

CONNECT WITH CEO OPTHALMOLOGY

LEARN MORE ABOUT OUR PLATFORM AND STAY CONNECTED WITH THE LATEST INSIGHTS,
EVENTS, AND LEADERSHIP DISCUSSIONS SHAPING THE FUTURE OF OPTHALMOLOGY.

OUR SERVICES INCLUDE:

- PRINT MAGAZINE WITH EXECUTIVE INSIGHTS AND INDUSTRY PERSPECTIVES DELIVERED IN A PREMIUM PUBLICATION
- DIGITAL CONTENT OF TIMELY ARTICLES, LEADERSHIP INTERVIEWS, AND MARKET ANALYSIS
- CEO OPTHALMOLOGY EXECUTIVE BOARDROOM SESSIONS: THE 12 MOST IMPORTANT DECISIONS FACING OPTHALMOLOGY LEADERS.



ELEVATE

CAPITAL STRATEGIES

- ✓ Fractional CFO & Strategic Finance Partner
- ✓ Institutional-Grade Reporting, Governance & Insight
- ✓ Optimize EBITDA, Cash Flow & Valuation
- ✓ Navigate Capital Raises, M&A & Investor Scrutiny

See how Elevate Capital Strategies partners with founders, CEOs, and private-equity leaders to maximize value and execute successful exits.

Matt Keating
Founder & CEO

ElevateCapitalStrategies.com

info@elevatecapitalstrategies.com