November / December 2025
#81

the Ophthalmologist®

Vision Without Borders

Our annual celebration of education organizations and institutions with global impact

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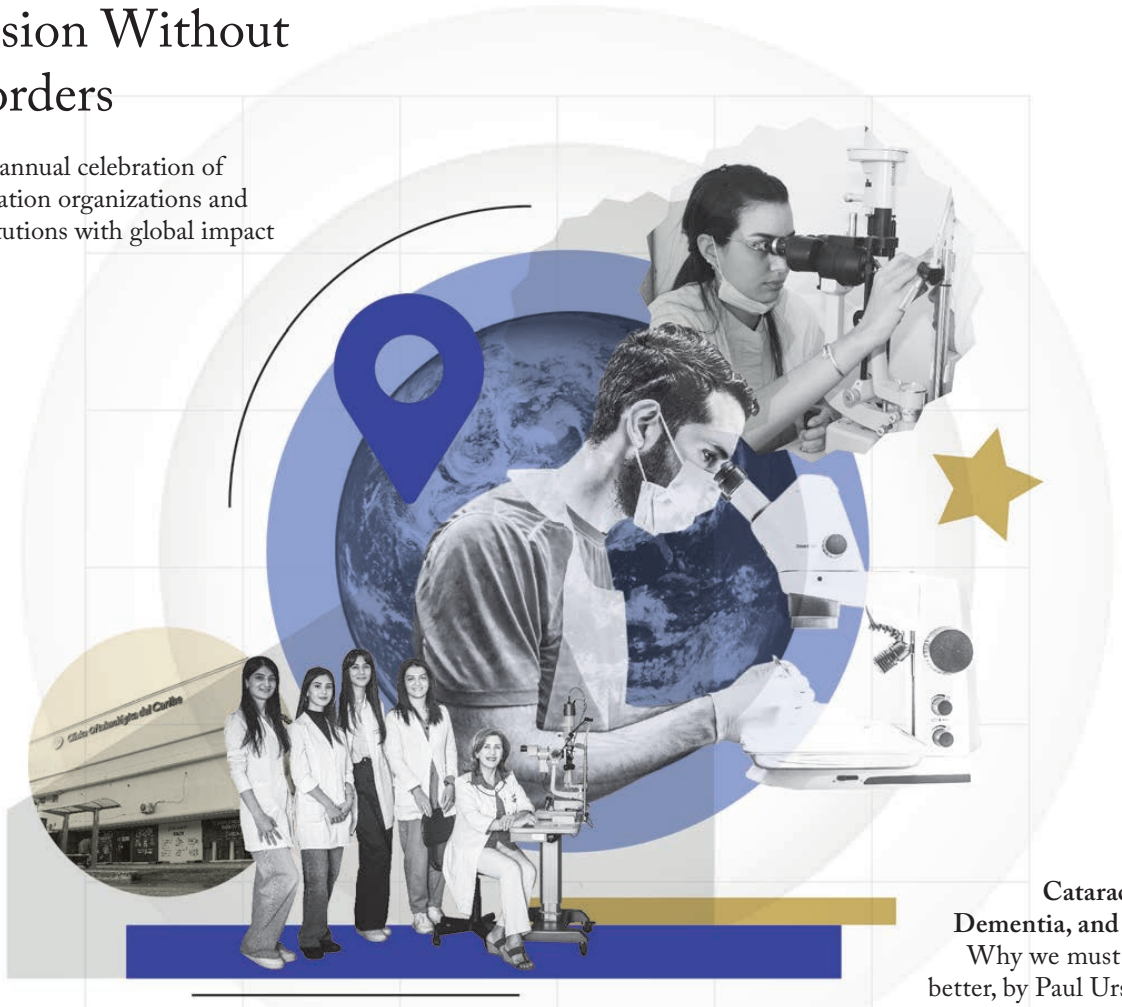

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THE POWER OF 3

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Interventional Glaucoma Revolution

infinite possibilities

Brought to you by the founder of MIGS, iStent infinite® is the first-ever micro-invasive, standalone implantable alternative. Built on the #1 MIGS platform worldwide, it is designed to provide powerful technology that delivers foundational, 24/7, long-term IOP control in glaucoma patients who have failed prior medical and surgical intervention.[1]

REFERENCE

1. Glaukos Data on File.

iStent infinite® IMPORTANT SAFETY INFORMATION

INDICATION FOR USE. The iStent infinite® Trabecular Micro-Bypass System Model iS3 is an implantable device intended to reduce the intraocular pressure (IOP) of the eye. It is indicated for use in adult patients with primary open-angle glaucoma in whom previous medical and surgical treatment has failed. **CONTRAINDICATIONS.** The iStent infinite is contraindicated in eyes with angle-closure glaucoma where the angle has not been surgically opened, acute traumatic, malignant, active uveitic, or active neovascular glaucoma, discernible congenital anomalies of the anterior chamber (AC) angle, retrobulbar tumor, thyroid eye disease, or Sturge-Weber Syndrome or any other type of condition that may cause elevated episcleral venous pressure. **WARNINGS.** Gonioscopy should be performed prior to surgery to exclude congenital anomalies of the angle, PAS, rubeosis, or conditions that would prohibit adequate visualization that could lead to improper placement of the stent and pose a hazard. **MRI INFORMATION.** The iStent infinite is MR-Conditional, i.e., the device is safe for use in a specified MR environment under specified conditions; please see Directions for Use (DFU) label for details. **PRECAUTIONS.** The surgeon should monitor the patient postoperatively for proper maintenance of IOP. Three out of 61 participants (4.9%) in the pivotal clinical trial were phakic. Therefore, there is insufficient evidence to determine whether the clinical performance of the device may be different in those who are phakic versus in those who are pseudophakic. **ADVERSE EVENTS.** The most common postoperative adverse events reported in the iStent infinite pivotal trial included IOP increase ≥ 10 mmHg vs. baseline IOP (8.2%), loss of BSCVA ≥ 2 lines (11.5%), ocular surface disease (11.5%), perioperative inflammation (6.6%) and visual field loss ≥ 2.5 dB (6.6%). **CAUTION:** Federal law restricts this device to sale by, or on the order of, a physician. Please see DFU for a complete list of contraindications, warnings, precautions, and adverse events.

PM-US-0909

GLAUKOS®

A Global Concern

Thinking about the bigger eye care picture

Over the last few months I've been indirectly exposed to the global aspects of ophthalmology – and ways in which we might consider these global ingredients of the industry – in more ways than one.

First off was a symposium ("How to get involved in Global Humanitarian Work") held at ESCRS in Copenhagen (September 13-16). Moderated by Bonnie An Henderson, the sessions covered a wide array of topics, all thematically linked by their emphasis on encouraging ophthalmologists to think about ways in which they might volunteer overseas.

Back in the UK, I interviewed Global Development & Surgical Innovations Director of global non-profit organization at Eversight, Helen Nuskind, about the company's role in spearheading Morocco's first regional eye bank. It's a substantial development for the country, one that could hopefully mean improved access to corneal transplantation and better eye health throughout the broader North African landscape.

The interview coincided with The Ophthalmologist compiling our annual Global Education Impact feature for this print issue. This time round, we showcase some known (and lesser-known) institutions and programs involved in tackling global eye care inequity. From Armenian and Polish-based non-profits aiming to mobilize eye care in underserved regions to a Ukrainian initiative operating in the midst of war and widespread instability, it's an awe-inspiring list this year.

All of these experiences – diverse but not dissimilar – reinforce the fact that ophthalmology should always be viewed as a global concern. It's perhaps a rather idealistic way of thinking, but quality eye care should be – and can be – available to everyone, regardless of geography. And it's clearer than ever that the world desperately needs ophthalmologists that are trained to the highest standards, with access to the best possible equipment and resources.

Alun Evans,
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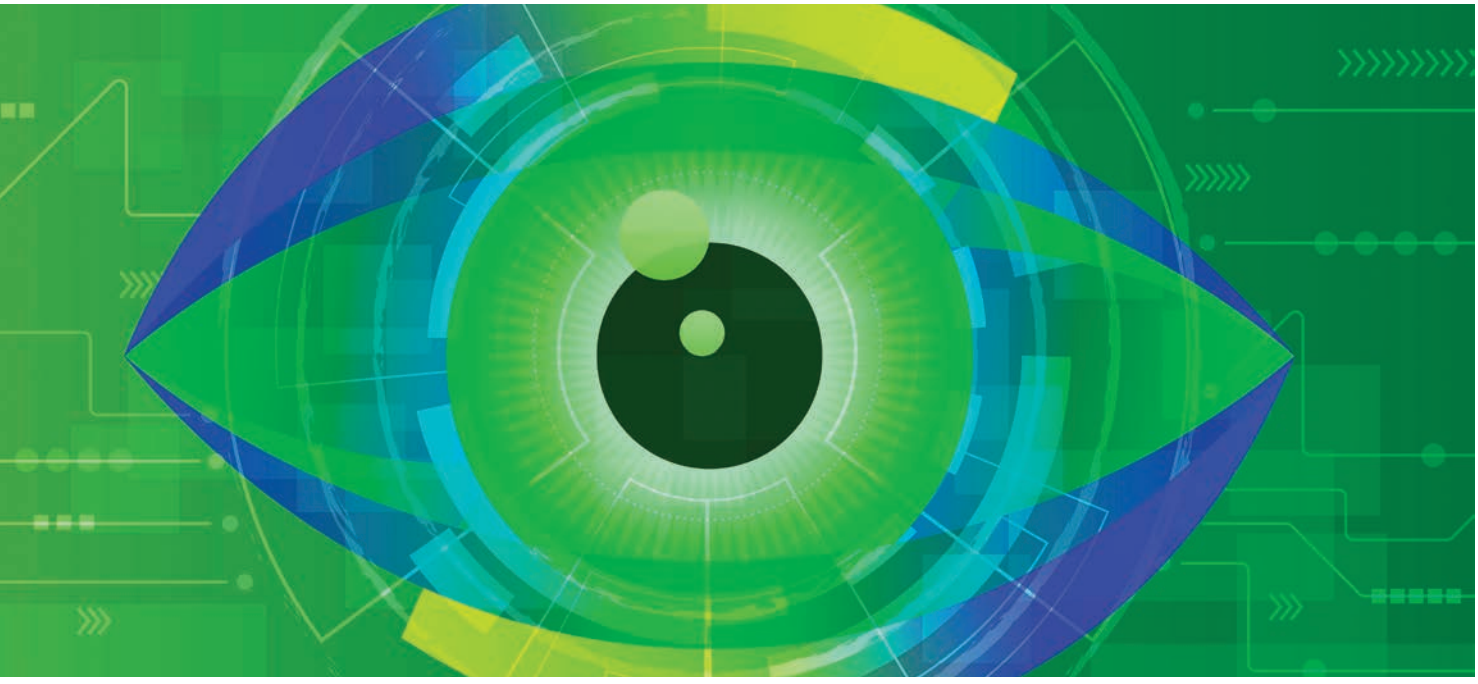


Greener AI Pastures

RETFound-Green: a more efficient retinal foundation model with clinical potential

Foundation models are gaining traction in ophthalmic artificial intelligence (AI), offering transferable features for diverse imaging tasks. However, the barrier to entry still remains high, with earlier models such as RETFound-MEH (Moorfields Eye Hospital) and DERETFound demanding either vast datasets or immense computational resources.

Building on these earlier models, researchers from the University of Edinburgh have developed RETFound-Green, a retinal foundation model that achieves comparable or superior performance as its predecessors while requiring half the data and 400× less computing resources.

"RETFound-Green is a super efficient model; you can even run it on a standard smartphone," explains study co-author Justin Engelmann. "There are two advantages… First, it was made with very little resources. The original RETFound was trained with a million images in a big cloud data centre, which cost many thousands of dollars. RETFound-Green, on the other hand, 75,000 openly available images and was trained on a desktop PC "gaming" graphics card in just a few hours. Second, it is very efficient to use: the model is 14x smaller so users can download it quickly. It also runs ~2.6x faster, so you do not need to have high-end hardware to use it. Surprisingly, it performs just as good as the original RETFound, and in our experiments – on dozens of tasks from datasets across the world - even has a slight edge in terms of accuracy."

RETFound-Green's faster vector embedding times means it requires less storage space, and its increased inference efficiency can enable real-time analysis even on modest hardware. "I hope that RETFound-Green helps to dispel some myths around how resource-intensive it is to develop AI models," says Engelmann. "I have brilliant colleagues in LMICs (Low- and Middle-Income Countries) who do not have access to Graphics Processing Unit (GPU) clusters and might not even have reliable electricity. Most AI development is currently done in high-resource settings, but in my opinion most of the benefits of medical AI will be realized in low-resource settings where clinicians are in short supply."

For ophthalmologists, RETFound-Green demonstrates that state-of-the-art performance in retinal image analysis no longer requires prohibitive resources. Its success validates domain-specific self-supervised strategies and signals a turning point: efficient, accessible AI for ophthalmology that can scale globally while minimizing cost and environmental impact.

"My research would not have been possible without openly available datasets – this is often overlooked, but is a key driver of progress in ophthalmic AI," Engelmann notes. "However, most datasets are from developed countries, and so we need better representation of the rest of the world. Colleagues of mine from across the world are currently building a truly global foundation model" (1).

Reference

1. *Chung Tham Y et al., "Building the world's first truly global medical foundation model," Nature Medicine [Online ahead of print] (2025) PMID: 40921805.*

SEE of Gratitude

A grateful patient in Oshakati, Namibia expresses her thanks following free cataract surgery performed by SEE International partner ophthalmologist, Helena Ndume, MD

Credit: SEE International

QUOTE OF THE MONTH

"We must never forget that children are more than their eyes, and that serious diseases can be hidden in common, seemingly innocuous ophthalmic complaints."

Sarah Linea von Holstein, Clinical Associate Professor, Department of Clinical Medicine, University of Copenhagen

Dual Eye Advantage

Same-day bilateral cataract surgery is "safe and effective"

Two major studies presented at the ESCRS Congress (Copenhagen, Denmark, September 13-16) provide evidence that cataract surgery on both eyes in the same surgical session can be safe, effective, and practical for most patients.

Traditionally, bilateral cataract surgery is performed sequentially, weeks or months apart, to reduce risks and allow one eye to heal before operating on the second. However, immediate sequential bilateral cataract surgery (ISBCS) is gaining interest as a way to reduce healthcare burden and improve efficiency.

"These two studies show that cataract surgery to both eyes in one session can be performed safely, with patients recovering well at home and, crucially, achieving visual outcomes as good as or better than when surgery is performed in two steps," says ESCRS Secretary, Joaquín Fernández. "However, we need to be sure [the approach] maintains the highest standards of safety and does not increase the risk of surgical or postoperative complications.

Source: ESCRS 2025.

Detecting Pediatric Brain Tumors

By Sarah Linea von Holstein, consultant in pediatric ophthalmology at Copenhagen University Hospital Denmark and Clinical Associate Professor at Copenhagen University, Denmark

I think we can all agree that childhood cancer is a terrible thing. Luckily, major progress has been made within the cancer research field for cure rates for some forms of cancer (such as leukemia), and research focus on these types has now shifted from an emphasis purely on patient survival, to an emphasis on survival with minimal treatment-related side-effects and long-term sequela.

However, when it comes to brain tumors, there is still a lot of progress to be made. With the aim of improving the outcomes for children in Denmark with brain tumors, we established the Danish Collaborative Comprehensive Childhood CNS tumor Consortium and have devised a comprehensive research program, with one major focus area being earlier diagnosis.

Children with brain tumors can often experience lengthy diagnostic delays. These prolonged delays can allow time for the tumor to grow, causing irreversible brain damage and, in some cases, making the tumor more difficult to treat. And although the actual impact that these delayed diagnostic times have on survival rates can be debated, the long-term neurological disabilities associated with them are an important factor in determining patients' outcomes and their subsequent post-operative quality of life.

Inspired by the UK Brain Tumour Charity's Headsmart campaign (1), our team conducted a similar investigation into the status of diagnostic delays in Denmark, specifically in terms of ophthalmology. Ophthalmic manifestations of brain tumors are common; we wanted to know how involved ophthalmologists were in this diagnostic process. We found that ophthalmology has a significant role to play in timely diagnosis of pediatric brain tumors.

In the 2025 Eye study, we examined the symptoms and clinical findings in a nationwide cohort of 437 children diagnosed with brain tumors in Denmark over an 11-year period. We found that over half of these children had had some form of ophthalmological signs prior to their tumor diagnosis (2). In addition, in more than 10% of the patients, eye symptoms were in fact the very first manifestation of the tumor. This indicates that a rather large percentage of parents might take their children to an ophthalmologist as their first port of call.

The ophthalmological complaints most commonly reported in these cases were reduced visual acuity and strabismus – symptoms that may often be overlooked or dismissed. Our study found that the likelihood of being diagnosed within one month was especially low if reduced vision or strabismus were noted as the first presenting symptoms, especially if the child was under five years old.

We also noted that, in the majority of cases, once the child had had a thorough examination, the strabismus or reduced vision would be attributed to a more serious underlying cause, such as cranial nerve palsy, optic atrophy, or papilledema.

In addition to these ophthalmological signs, the children also displayed systemic symptoms. While the most common systemic complaints were headaches and nausea, some of the children displayed more subtle, harder-to-detect symptoms, such as behavioral changes and development delays. By the time a brain tumor diagnosis was made, on average at least four different symptoms or clinical findings were reported for each child.

When we took a closer look at those children whose ophthalmic manifestations were not the very first sign but instead developed over time, we found that reduced visual acuity and strabismus were again frequent. Some of these children were seen by an ophthalmologist as part of a broader clinical investigation based on systemic symptoms, and the ophthalmological findings (most often papilledema, optic nerve atrophy, and abnormal pupils) were used to prompt further investigations leading to the brain tumor diagnosis.

Interestingly, we found that nystagmus, present in many of the cases, was a sign that had been missed by parents, the child, and even pediatricians assessing the child prior to the visit to the ophthalmologist (3). For most cases, this consisted of gaze-evoked nystagmus, but there were also cases of more subtle nystagmus in primary position. In cases where nystagmus was observed by the ophthalmologist, it was immediately recognized as an alarming sign and prompted earlier diagnosis.

Based on our study findings, we have devised an online clinical tool that can help to guide clinicians in all specialties when they are evaluating children. We hope that this tool will result in shorter diagnostic delays and better long-term outcomes for our children, as well as acting as inspiration for ophthalmologists in other countries.

We must never forget that children are more than their eyes, and that serious diseases can be hidden in common, seemingly innocuous ophthalmic complaints, ones that, if we search hard enough and bear in mind our past learning, we can hope to locate and diagnose early enough to ensure timely, effective intervention.

For references and the full article online., visit theophthalmologist.com

Fix the Roof While the Sun Is Shining

Cataracts, dementia, and us – why we must do better.

By Paul Ursell

As cataract surgeons, I sometimes wonder how many of our patients we quietly write off without meaning to. When someone in their later years comes in with cognitive decline, there's often an unspoken assumption: Is cataract surgery really worth it? Perhaps we tell ourselves their quality of life won't improve, or that the risks are too high, or that "they won't manage the drops after surgery." But are we, as surgeons, guilty of lowering the bar for this group – precisely when they need us most?

Dementia isn't just about the brain

The first thing to acknowledge is that dementia complicates visual perception in ways we don't always appreciate. Neuronal loss in the parietal and occipital lobes disrupts visual processing, so a patient's world is already visually confusing before we add cataracts into the mix. Now imagine layering on multifocal spectacles, reduced contrast sensitivity, or the wrong refraction. For many, this becomes a recipe for increased falls, loss of independence, and accelerated decline.

The literature is unequivocal, falls can be a terminal event in people living with dementia and sight is complicit in this – plus, varifocals increase fall risk in older people, as well as dementia itself multiplying the risk of falling. And yet we continue to discharge patients from our clinics with precisely these pitfalls in place

Timing matters

A patient with dementia may not tell us they can't see, and they won't necessarily book their own optometry appointments. Visual symptoms will all too often be attributed solely to "the dementia." By the time they are referred, visual function is often severely impaired – which means we need to be proactive.

This is not about rushing everyone to theatre straightaway. But it is about asking harder questions: Is their visual impairment contributing to their functional decline? Are their glasses out of date? Will things get worse if we wait?

Cataract surgery should never be delayed until the point of crisis. Dementia is progressive and cataracts are treatable, and so we must seize the moment when the patient can still cooperate, still benefit, and still find joy in the clarity of sight. We must, as the old saying goes, fix the roof while the sun is still shining.

Anaesthesia anxiety

One of the most persistent myths is that general anaesthesia (GA) is contraindicated in dementia. Yes, post-operative cognitive decline is a real concern after major surgeries like hip fractures or cardiac bypass. But we must remember that cataract surgery is not a hip replacement, and the evidence shows GA for cataract is no more harmful than local. Avoiding surgery purely on this basis is unjustifiable.

Rethinking refractive targeting in dementia

So, what should we be aiming for? For most patients with dementia, emmetropia remains sensible. But if driving is off the table, a slight myopic target can sometimes be a gift for near tasks.

What about diffractive multifocals? In my personal view, they should be avoided. The brain already struggles to process a single clean image, so why present it with three?

Extended depth-of-focus (EDOF) IOLs may have a role, particularly for those with carers who can support spectacle independence. But "primum non nocere" must remain our guiding light – for many, the simplest monofocal lens aiming for mild myopia of -1 is still the kindest choice.

The dementia–cataract paradox

Here's the irony: emerging data suggest that cataract surgery may reduce the risk of dementia progression. A recent JAMA Neurology study showed a 29% lower risk of subsequent dementia in patients who underwent cataract extraction. Other large-scale datasets echo this association. While causation is always slippery, it's hard not to see a pattern: vision restored, quality of life improved, social engagement preserved – and cognitive decline slowed.

So, while massive resources are being poured into marginally effective dementia drugs (over $42 billion in the last 30 years), a £900 cataract operation in the UK may quietly offer more impact than we give it credit for.

Why are we holding back?

And yet, we underserve this group – carers don't advocate; optometrists don't always push for referral; GPs think "what's the point?" Even we, the surgeons, hesitate. And what's the result? Visual decline is blamed on dementia, not cataract – and the opportunity for life-changing intervention is lost in the maelstrom of hesitation.

If one in 20 people aged 70–80 is living with dementia, and one in five over 80, this is not a niche problem. So let me say it plainly: it is up to us, the ophthalmologists. The evidence is there. The risks are low. The benefits can be profound. Cataract surgery is not futile in dementia – it is essential for quality of life. And if we, as surgeons, do not step up, then who will?

We must challenge our assumptions, resist therapeutic nihilism, and remember that every patient – with dementia or not – deserves the chance to be able to see clearly.

Ahmed CLEARPATH ST

Small Tube, Big Impact: Ahmed ClearPath® ST

Two glaucoma specialists compare their experiences with New World Medical's latest drainage device

Glaucoma surgeons are continually seeking innovations that deliver long-term intraocular pressure (IOP) control while minimizing complications and offering flexibility across diverse patient populations. Building on the Ahmed ClearPath® platform, New World Medical has introduced the Ahmed ClearPath® ST (ACP ST), a smaller-lumen tube featuring all-inclusive packaging that includes a pre-threaded 6-0 Prolene ripcord suture and a 25-gauge needle for scleral tunneling.


Dr. Andrés Gerhard


Dr. Craig Chaya

To better understand its impact in practice, we spoke with two glaucoma specialists, Dr. Andrés Gerhard of Hospital Dr. Sótero del Río, Chile, and Dr. Craig Chaya, Clinical Associate Professor at John A. Moran Eye Center, University of Utah, who share how ACP ST has influenced their surgical techniques, patient selection, and post-operative strategies.

First Impressions of the Ahmed ClearPath® ST

Dr. Gerhard: I began using ACP ST five months ago, and it has quickly become my preferred option. The procedure itself is similar to other glaucoma drainage implants, but with ACP ST I often see immediate IOP control with fewer hypotony-related concerns.

Dr. Chaya: We've had early access to ACP ST for six months. What stands out to me is the flexibility it offers for tube placement, especially in eyes with smaller anterior chambers or when positioning the tube in the sulcus, where space is limited.

Ligation or Non-Ligation?

Dr. Gerhard: Since adopting smaller tubes, I have moved away from ligation entirely. I now perform non-ligated procedures in all cases, which provides immediate pressure control. Avoiding a waiting period for IOP stabilization has been a major benefit.

Dr. Chaya: I strongly favor ligating the tube so there is no flow to the plate for the first six to seven weeks. When the ligature dissolves, I haven't observed significant hypotony. I also use a ripcord in all cases, whether with ACP or ACP ST, as it provides early control if needed and may help reduce risk when the ligature opens.

Ripcord Removal: Timing and Technique

Dr. Gerhard: I leave the ripcord at the limbus in a small incision and typically remove it around three months post-op. If the pressure remains low, I may leave it in place without issue. Occasionally, I'll remove it earlier, but I generally wait at least three to six weeks.

Dr. Chaya: I rarely remove the ripcord unless absolutely necessary. After the ligature dissolves at six to seven weeks, I reassess IOP. If a hypertensive phase occurs or pressure remains high, I remove it at that point. In some cases, the ripcord stays under the conjunctiva long-term without problems.

Patient Selection

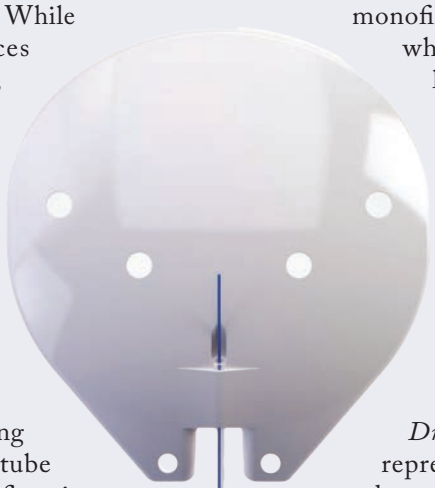
Dr. Gerhard: Previously, I selected between an Ahmed® Glaucoma Valve for rapid IOP reduction in advanced cases or a non-valved ligated tube for those who could tolerate higher pressures initially. With ACP ST, I now use it broadly across my patient base without ligation, allowing immediate IOP control in all cases.

Dr. Chaya: I typically consider tube shunts for patients with advanced glaucoma or failed prior surgeries, including MIGS or trabeculectomy. For patients needing rapid IOP reduction, I leaned toward valved devices. However, with ACP ST, I'm increasingly considering non-valved options even

> *"ACP ST has quickly become my preferred option. The procedure itself is similar to other glaucoma drainage implants, but with ACP ST I often see immediate IOP control with fewer hypotony-related concerns."*
> *– Dr. Gerhard*

"The ACP ST's smaller-caliber tube offers distinct advantages across both immediate and long-term management, whether used in ligated or non-ligated configurations."

in higher-risk cases. While non-valved devices carry hypotony risk, valve devices may encapsulate and limit long-term control. In select cases, ACP ST offers a more balanced option.



Lessons Learned

Dr. Gerhard: One key step is observing flow through the tube during surgery. If flow is insufficient, adjusting the Prolene ripcord can restore it. This has become an important surgical pearl when using ACP ST.

Dr. Chaya: The smaller-caliber tube has influenced my surgical technique. Previously, I used a braided Vicryl wick plus fenestrations for larger tubes. With ACP ST, I now use a finer 9-0 Vicryl monofilament for the wick, which fits the smaller lumen and creates a more controlled capillary effect. I've found wicks can lower IOP more predictably than fenestrations.

Looking Ahead: The Role of ACP ST

Dr. Gerhard: ACP ST represents an important advancement. The smaller tube provides reliable long-term IOP control with fewer hypotony concerns. I expect smaller tubes to play a growing role in the future of glaucoma drainage surgery.

Dr. Chaya: Many of us advocated for smaller-caliber tubes, believing they could improve fluid dynamics when the tube opens. Having ACP ST available is exciting, and I anticipate future shunts will continue in this direction. Over time, this may also reduce complication like tube erosion.

Conclusion

With ACP ST, New World Medical continues to meet the evolving needs of glaucoma surgeons by combining reliable pressure control with greater surgical flexibility. As Dr. Gerhard and Dr. Chaya highlight, its smaller-caliber tube offers distinct advantages across both immediate and long-term management, whether used in ligated or non-ligated configurations. Despite differing surgical approaches, both surgeons agree: ACP ST expands patient selection and refines decision-making. More than just a new device, it marks a step toward safer, more tailored solutions in glaucoma care.

NEW WORLD MEDICAL

Vision Without Borders: *Recognizing Global Education Impact 2025*

We profile six institutions dedicated to developing access to eye care and ophthalmology education around the world

Now in its third year, our Global Education Impact feature continues to spotlight the institutions and programs leading the way in tackling global healthcare inequality.

This year we add six more profiles to our prestigious list. While the geographical locations of the entrants this year vary dramatically (countries include Poland, Morocco, Columbia, Armenia, and Ukraine, with SEE International being the only US-based organization featured), what unites all of these organizations is a deeply-held belief about making eye care more equitable and accessible to the populations they cater for.

These are institutions and programs aiming to eliminate preventable blindness from their regions (and sometimes, as is the case with SEE, more globally/internationally), who are committed to delivering their care and training to areas otherwise neglected.

Our finalists make up a dynamic list, one that reflects both a local and global focus on enhancing ophthalmology for the next generation.

"What unites all of these organizations is a deeply-held belief about making eye care more equitable and accessible to the populations they cater for."

L'Association Marocaine Médicale de Solidarité (AMMS)

Location: Morocco

Credit: AMMS

Established in 2003 by a group of volunteers eager to respond to the King of Morocco's ceremonial speech calling for national solidarity, L'Association Marocaine Médicale de Solidarité (AMMS) is a Moroccan non-profit organization aiming to bring healthcare and medical education to underserved communities across various regions of the country.

In accordance with the constitutional reforms to mobilize "all available means to facilitate equal access for citizens… to health care organized by the State," AMMS operates mobile units to reach remote and isolated villages and towns across the region. These mobile medical units are equipped with high-end equipment, and operated under the supervision of both a medical and technical team.

AMMS' current fleet of medical vehicles consists of four mobile ophthalmology units (the first unit gifted by Sheikha Fatima, wife of the founder and inaugural president of the United Arab Emirates [UAE] in 2007), a mobile general surgery unit, a mobile pediatric unit, a mobile dental unit, and a multidisciplinary mobile unit.

Since establishing its mobile units, the organization has sought to actively recruit medical students for its outreach work. "Rather than limiting student roles to observation, AMMS has developed a model that places students at the center of its activities – engaging them in logistics, health education, digital outreach, and direct patient care, all under the guidance of experienced mentors," explains Maryame Boutkhil, a medical doctor and PhD candidate at University College London (UCL) who has participated in various outreach programs organized by the association. "This approach helps students develop clinical confidence and soft skills, while also allowing them to contribute meaningfully to public health delivery."

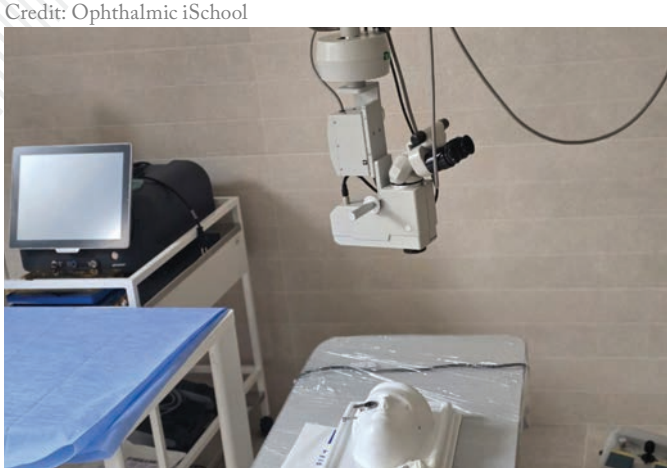
Between 2023 and 2024 the organization engaged in 123 outreach events, reaching over 11,000 patients requiring ophthalmic care, most of whom came from remote or rural communities and accessed care via AMMS's aforementioned mobile clinics.

"At least 96 medical students took part [in these events], playing active roles across all stages of service delivery," says Boutkhil. "For the first time, students also led 95 community awareness sessions – 45 in schools and 50 in AMMS centers – reaching more than 7,000 people with messages on hygiene, chronic illness, and substance use. They further expanded their impact by producing more than 200 educational videos in social media, viewed thousands of times online, and by raising $6,000 in support of AMMS programs."

Last year, AMMS' outreach efforts were officially recognized by the Moroccan Center for Innovation and Social Entrepreneurship (MCISE), which awarded AMMS with the prestigious Moroccan Social Innovation Award.

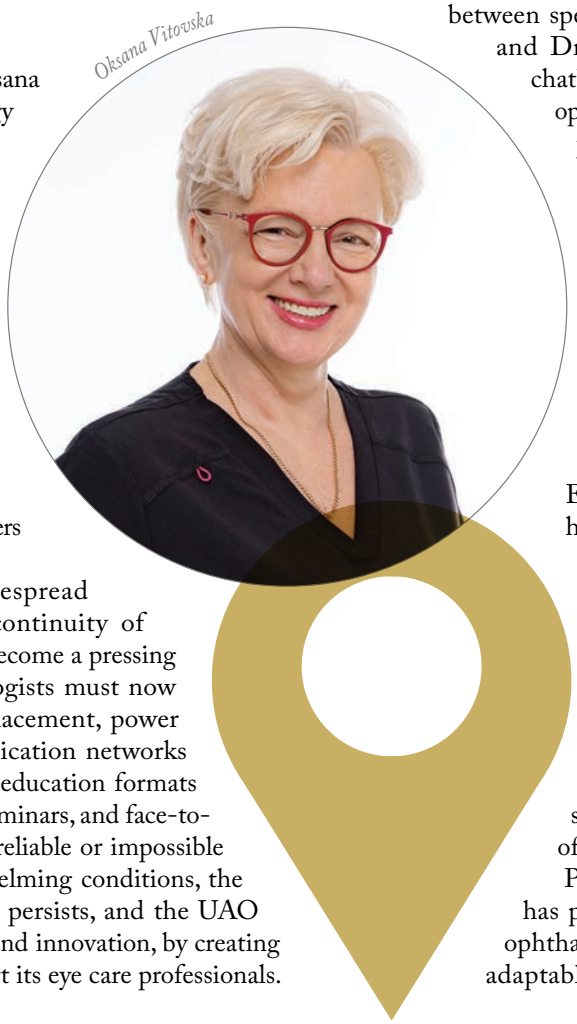
"AMMS's long-standing commitment to delivering healthcare in hard-to-reach places, combined with its innovative use of mobile technology, educational media, and mentorship, makes it a powerful example of how inclusive and community-based education can improve health outcomes," concludes Boutkhil. "It also brings together young professionals, including medical students, doctors in training and experienced consultants, and gives them the tools, trust, and structure to grow into future leaders capable of tackling Morocco's challenge of healthcare access in remote areas."

Credit: Ophthalmic iSchool



Ukrainian Alliance of Ophthalmologists (UAO)

Location: Ukraine



Founded in 2016 by Professor Oksana Vitovska, head of the ophthalmology department at Bogomolets National Medical University in Kyiv, the Ukrainian Alliance of Ophthalmologists (UAO) is a non-profit ophthalmology-based professional association based in Ukraine. The alliance serves as a broad coalition, bringing together not only ophthalmologists, but also optometrists, opticians, technicians, nurses, and other medical staff, all with the unified aim to educate and support all levels of eye care practitioners in Ukraine.

Most recently, war and widespread instability has meant that the continuity of medical education in Ukraine has become a pressing challenge. Ukrainian ophthalmologists must now navigate destroyed facilities, displacement, power outages, and interrupted communication networks to operate on patients. Traditional education formats – such as hospital-based training, seminars, and face-to-face mentorship – have become unreliable or impossible to maintain. Despite these overwhelming conditions, the need for high-quality patient care persists, and the UAO meets this challenge with urgency and innovation, by creating a robust digital ecosystem to support its eye care professionals.

Through its creation of a number of innovative solutions – e.g.,Ophthalmic iSchool (a virtual learning space where Ukrainian ophthalmologists share clinical cases online), the OphthalmicHub annual congress (Ukraine's most comprehensive ophthalmic event that acts a venue for collaboration between specialized ophthalmic organizations), and Dr.Ophtik (an innovative AI-driven chatbot educational assistant designed to operate through the widely used Telegram platform) – UAO continues to ensure that ophthalmologists remain connected, informed, and supported, even in active conflict zones.

Of the organization's founder Oksana Vitovska, nominator Yulia Malyovana, Chief of the Modna Optika Optician Network, says: "Professor Vitovska is a role model for female scientists in ophthalmology, not only in Ukraine but worldwide. Each of her projects is a challenge to herself and the circumstances. Since 2018, Oksana has been organizing the largest interdisciplinary innovative ophthalmological conference in Ukraine, OphthalmicHUB. In recent years, this has been done amid constant shelling and blackouts. Her example as a courageous leader, thoughtful doctor, and interested scientist has nurtured a whole generation of women in ophthalmology."

Professor Vitovska's organization has pioneered a new standard for digital ophthalmic education. By developing these adaptable virtual platforms for ophthalmic

Credit: SEE International

practitioners, UAO has sustained – and even expanded – access to professional learning and community support. This model, born out of war-ravaged necessity, offers valuable lessons for other health systems confronting crisis or disruption. UAO's experience shows that with determination and innovation, educational excellence can be sustained, even in wartime. These efforts are not only keeping Ukrainian ophthalmology alive; they are shaping its future.

Surgical Eye Expeditions International (SEE International)

Location: USA

After seeing widespread preventable blindness during his medical mission work, Dr. Harry S. Brown founded Surgical Eye Expeditions (SEE) International in 1974 to bring free eye care to underserved populations. SEE already boasts an established reputation within ophthalmology.

As a non-profit humanitarian ophthalmology organization,

Credit: SEE International

SEE works both globally in low-resource settings, and locally in its home region of Santa Barbara, California, to ensure that vision care is accessible to all, regardless of geography or ability to pay.

Its core mission is to end preventable blindness, by providing free sight-restoring surgeries and medical and educational eye care services to those individuals who otherwise would not have access to this care. Operating in over 40 countries,

Credit: SEE International

SEE annually sends volunteer teams of ophthalmologists, allied eye-care staff, and support volunteers to run short-term surgical clinics in underserved areas around the world. These clinics often involve cataract surgery, treatment for other vision-impairing conditions, and supply donations.

"SEE endeavours to encourage local units to become self-sufficient in providing high quality eye care by the combination of training and the supply of equipment," explains nominator

Jeremy Joseph, a consultant ophthalmologist in the UK who regularly attends around five eye care humanitarian missions each year with the organization.

Meanwhile, another nominator, Kevin Barber, President of the Advanced Center For Eyecare Global in Bakersfield, California, explains, "SEE International is a global leader in education. They fund countless 'travel to teach' teams to augment the surgical education of many LMIC eye care teams. They have been a leader in MSICS surgical technique training, performing wet labs, sponsoring wet labs and partnering with other institutions to provide real surgical training. [As] the CEO of ACE Global, which trains fellows in Latin America, SEE international is our largest supporter."

Over its fifty-plus years' history, SEE International has reached over five million patients in 54 different countries, performing surgery and restoring sight to 750,000 people around the world. "Having worked in global education for 20 years," Barber adds, "I can't think of a better organization to receive this recognition."

Clinica Oftalmologíca del Caribe (COFCA)

Location: Colombia

Forty years ago, ophthalmic care in northern Colombia was fragmented, under-resourced, and largely inaccessible. Determined to change that reality, Dr. Luis Escaf Jaraba – a prominent Colombian ophthalmologist, retina/vitreous surgeon, innovator, and educator – founded Clínica Oftalmológica del Caribe (COFCA), a specialized eye health clinic located in Atlántico, Colombia.

Since these beginnings in 1985, the clinic – funded by nonprofit collaborations with Christoffel Blindenmission, Rotary Club, and ORBIS' first Flying Eye Hospital mission to the country – COFCA has positioned itself as a space combining medical excellence with cutting-edge technology, compassionate patient care, and acting as a "one-stop shop" for visual health.

"The Caribbean Ophthalmology Clinic has accumulated nearly 40 years of uninterrupted trajectory in the [Colombian] healthcare sector," notes CEO Jorge Jose Martinez Ramirez. "This path has positioned it as a reliable, solid, and steadily growing institution, with a social and educational impact model focused on reducing inequities in visual health across Latin America. Since its beginnings, it has integrated technological innovation, structured training, and community outreach to ensure equitable access to high-quality ophthalmology services and to train new generations of specialists capable of meeting the region's challenges."

At the center of the clinic's rush to meet these eye care challenges head-on is the Matrix Program, an international teaching platform created by COFCA in 2021. "To date, [Matrix] has trained more than 200 fellows from Colombia, Peru, Venezuela, Ecuador, Panama, Mexico, and El Salvador," Ramirez explains. "The program offers immersion modules in Cataract, Retina, Oculoplastics, Glaucoma, and Cornea, under the direction of Dr. Luis Escaf and a multidisciplinary faculty team."

One of COFCA's major differentiators in its surgical training is its Ophthalmic Surgery Training Center, a simulation and surgical skills lab with multiple stations for hands-on training using artificial and animal eyes; it is a center that is unique in

Credit: Clínica Oftalmológica del Caribe (COFCA)

Credit: Armenian EyeCare Project (AECP)

Colombia, and comparable to the best in Latin America. The center, which combines state-of-the-art simulators (such as EyeSi and HelpMeSee) with laboratories using artificial eyes, allows surgeons the ability to acquire surgical skills before ever treating real patients. Chief Scientific Officer of COFCA, Luis Carlos Escaf, explains how "this environment allows residents and fellows to master surgical skills in a risk-free setting before entering the operating theater – raising the safety and quality of surgical care throughout the region."

"The infrastructure enables practice of complex procedures such as cataracts, intraocular lens placement, epiretinal membranes, and posterior vitrectomy," adds Ramirez. "The training is complemented by three high-tech operating rooms equipped with NGENUITY 3D visualization and ORA intraoperative aberrometry, ensuring premium-level surgical education."

"Today, COFCA offers a full three-year ophthalmology residency program and fellowships in Cataract, Cornea, Retina, Glaucoma, Oculoplastics, and Orbit, producing subspecialists capable of delivering world-class care in both high-resource and resource-limited settings," exclaims Carlos Escaf.

"COFCA's integrated approach has transformed a region once devoid of subspecialty care into one delivering developed-nation levels of ophthalmology. Its model is sustainable, scalable, and already influencing care far beyond Colombia," Carlos Escaf adds.

Armenian EyeCare Project

Location: Armenia

"Founded in 1992, the Armenian EyeCare Project (AECP) is a charitable foundation with a bold mission – to eliminate preventable blindness and ensure that every individual in Armenia has access to high-quality eye care," says nominator John Hovanesian, a previous Ophthalmologist Power Lister and cataract and cornea specialist at Harvard Eye Associates in southern California.

The non-profit organization was founded by American pioneer ophthalmologist, Dr. Roger Ohanesian, who established AECP in response to the growing wave of blindness sweeping through Armenia in the 1990s, which was attributed to many years of hardship caused by earthquakes, the collapse of the Soviet Union, and years of ongoing war and economic blockades.

Since its establishment, AECP's vision for Armenia has been to develop the country into a place where no individual is without access to quality eye care, where Armenian ophthalmologists are trained to diagnose and treat eye diseases, and where preventable causes of blindness are fully eliminated. Throughout its history, AECP has continually targeted socially vulnerable populations in the regions that have limited access to eye care and has intentionally worked to provide care to those deprived of it.

AECP currently operates under what it calls a five-point integrated strategy. "This five-component strategy – direct outreach, public education, data analysis and research, capacity building, and professional training – ensures a holistic approach to eye care development," explains Hovanesian.

Direct outreach and public education form major components of this strategy. "With over 30 active projects across Armenia, AECP blends humanitarian outreach with cutting-edge medical education," says Hovanesian. "Through strategic partnerships with Yerevan State Medical University, Children's Hospital Los Angeles, University of California (Irvine and Los Angeles), Assistance Publique – Hôpitaux de Paris, USAID, and the World Diabetes Foundation, AECP pairs local trainees with expert mentors. These collaborations create a dynamic learning ecosystem where Armenian professionals gain exposure to advanced techniques and diverse clinical perspectives."

Since its inception, AECP has screened over 500,000 patients and performed over 20,000 surgeries in Armenia, with its combined subspeciality clinics handling an estimated 50,000 patients per year, covering a broad range of eye diseases. Each of these subspecialty clinics is directed by Armenian physicians who, sponsored by the EyeCare Project, have completed fellowships at medical institutions and teaching facilities in the US, before returning to their homeland. They cover subspecialist areas in retina, glaucoma, corneal-uveitis, neuro-orbital, pediatrics, and low vision.

"Armenian physicians trained through AECP programs often pass on their expertise to peers in other countries, creating a spillover effect that amplifies the reach of professional education and strengthens regional medical networks," Hovensian explains.

He adds, "AECP is not merely an organization – it is a movement that brings sight, knowledge, and hope to the farthest corners of Armenia and beyond. For its transformative role in ophthalmic education and its dedication to uplifting diverse generations of eye care professionals, AECP deserves recognition as a global leader in medical education."

"Okulistyka 21" Foundation

Location: Poland

Established in 2012 in Poznań, Poland, Foundation Okulistyka 21 was set up under the leadership of regular Power Lister and professor of ophthalmology at the University of Warmia and Mazury, Andrzej Grzybowski, to further the development of ophthalmology in Poland.

The organization's mission is to promote eye health, improve quality of ophthalmic treatment for both adults and children, and support prevention, education, research and innovation

Credit: Okulistyka 21

A mobile diagnostic point, the Retinobus (part of the diabetic retinopathy screening program) helps to reach areas with limited access to specialized care.

in the field. To accomplish this mission, Okulistyka 21 works across several complementary areas, including education, research & clinical trials, public health projects, early vision screening, advocacy, and technological innovation.

Head of the Ophthalmology Department at the Florian Ceynowa Specialist Hospital in Wejherowo, Maciej Gawęcki, notes how "Okulistyka 21 plays a crucial role in increasing awareness, improving treatment quality, and fostering trust in eye care across Poland," through its conferences, webinars, public campaigns, and its grounding in current scientific knowledge that remains wholly independent of commercial influence,

Stephen G. Schwartz, Professor of Clinical Ophthalmology and the Medical Director of the Bascom Palmer Eye Institute Naples, says "Okulistyka 21 is a unique organization. It provides high-quality, free online educational conferences with an international faculty from around the world. The organization's founder, Prof. Andrzej Grzybowski, has worked tirelessly to provide this content to ophthalmologists around the world."

Professor Zbigniew Zagorski, Tadeusz Krwawicz Chair of Ophthalmology at the Medical University of Lublin, adds, "Andrzej Grzybowski is one of the most active and influential ophthalmologists in Poland over the last decades, with significant national and international impact. His primary mission has been the education and promotion of new and innovative methods for the prevention and treatment of ocular diseases. This initiative has proven highly successful, achieving a broad global educational impact through carefully designed programs."

He adds, "The 'Ophthalmology 21' Foundation represents a highly important and effective initiative. It not only provides valuable education to eye specialists and students but also contributes to reducing inequalities in access to healthcare, both globally and locally."

The Power of Ultra-widefield Imaging and Navigated Peripheral OCT

Leading specialists highlight how Ultra-widefield (UWF™) imaging is driving earlier diagnosis and more confident treatment decisions

UWF imaging and navigated peripheral optical coherence tomography (OCT) are redefining how clinicians diagnose and manage retinal diseases. By extending visibility beyond the posterior pole into the peripheral retina, these technologies enable earlier detection of subtle pathologies, more precise monitoring, and ultimately, more effective and retina-sparing interventions.

These advances took center stage during an Optos industry session at this year's EURETINA Congress in Paris (September 4–7, 2025). An expert panel – Professor Srinivas Sadda, Dr. Jacques Bijon, Dr. Daniela Bacherini, and Professor Paulo-Eduardo Stanga – shared both clinical evidence and real-world experiences, illustrating how UWF imaging combined with navigated peripheral OCT is reshaping the standard of care across a spectrum of retinal diseases.

Monitoring GA

Starting the proceedings, Professor Sadda, Director of Artificial Intelligence & Imaging Research at the Doheny Eye Institute, and Professor of Ophthalmology at the University of California, Los Angeles (UCLA) Geffen School of Medicine, explored the evolving understanding of monitoring age-related macular degeneration (AMD).

Using UWF autofluorescence (FAF) imaging on the Optos platform, he recounted how his team identified peripheral retinal abnormalities, such as punctate hyperautofluorescence, reticular pigmentary changes, and peripheral atrophy, that correlated with advanced AMD and may be useful for predicting progression.

"But can we reliably use UWF FAF imaging to identify and quantitatively monitor geographic atrophy (GA)?" he asked.

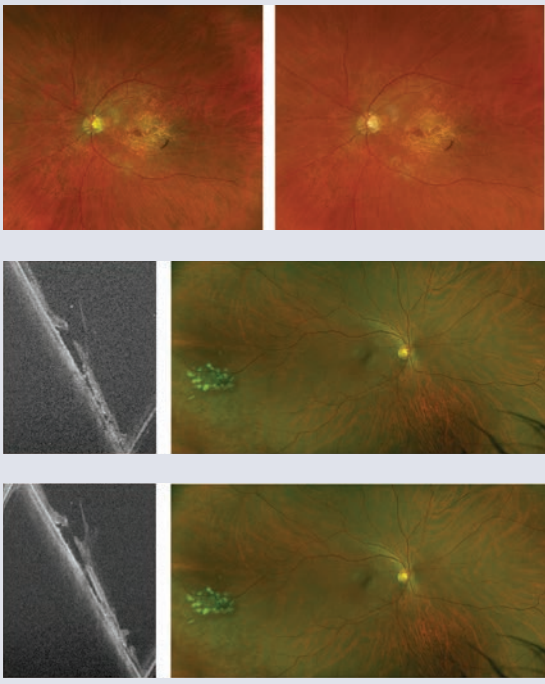
While typical blue-wavelength autofluorescence is the primary outcome measure in GA trials, Prof. Sadda noted its drawbacks – patient discomfort and limited foveal assessment due to macular pigment. "That's where green-wavelength autofluorescence has real potential value," he said, offering better comfort and clearer foveal visualisation. In a study of 138 eyes, only using green-wavelength UWF autofluorescence, **a lower rate than typically seen with blue-wavelength imaging.** In those few ungradable cases, age-related choroidal atrophy (ARCA) was present, and Optos colour imaging still enabled reliable assessment.

GA lesions, then, can be reliably measured and accurately graded using UWF FAF (and colour) imaging, Sadda observed. "As the primary tools to monitor GA progression, they are especially valuable in the era of GA therapeutics."

Optos UWF imaging, Prof. Sadda concluded, is "a critical asset in AMD care, offering both diagnostic depth and practical flexibility – especially as emerging findings suggest AMD may be a pan retinal disease."

Managing high myopia

Dr. Jaques Bijon, a paediatric ophthalmologist at the Adolphe de Rothschild Foundation in Paris, presented insights into the role of UWF imaging in managing high myopia in children. Observing that "the prevalence of myopia is increasing dramatically worldwide," he explained that early-onset myopia raises the risk of high myopia and, later in life, the risk of retinal detachment, monitoring the peripheral retina to detect early signs of retinal stress and degeneration is therefore crucial.

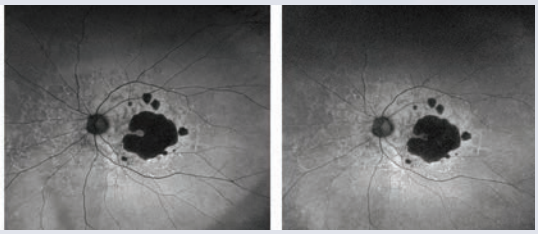


Far Peripheral Tear -RG, OCT (Silverstone)

Studies from 2010 to 2024, Dr. Bijon pointed out, report that 33–61% of highly myopic children exhibit peripheral lesions (2,3). "However," he continued, "detecting these lesions is not straightforward in children. We can't always examine each retinal quadrant as thoroughly as we would in adults."

Primarily using Optos, Dr. Bijon was part of a team conducting a retrospective, cross-sectional study involving 160 eyes from 89 children aged 4–17. Inclusion criteria required documented peripheral retinal exams or ultra-widefield imaging. Among the study's finding were that 54.4% of eyes had at least one peripheral lesion; lesions were more common in older children; 43% of affected eyes had multiple lesions; and of the most common lesions, 60% of patients had at least one lesion, with bilateral involvement in 64% of those cases.

Dr. Bijon explained that UWF imaging proved "an excellent tool for baseline documentation and monitoring, especially in children with limited cooperation, because it offers these really broad fundus views, even in small pupils." Emphasising UWF imaging's role in improving diagnosis and guiding treatment in paediatric myopia care, he concluded, "It has been very helpful in my clinic, and has really helped me anticipate and ultimately improve long-term visual outcomes."



Geographic Atrophy - RG, RGB, AF, BAF (California RGB)

Diagnosing peripheral retinal degenerations

Dr. Daniela Bacherini of the University of Florence discussed the transformative role of ultra-widefield imaging and peripheral OCT in diagnosing peripheral retinal degenerations. Hitherto overlooked, the field is "entering a new era, thanks to UWF imaging," she said. So," she asked, "can we rely on UWF imaging to better stratify risk of retinal detachment, particularly peripheral OCT?"

"As we know, the macula has traditionally been the primary focus of OCT imaging," Dr. Bacherini explained. But OCT has now moved to the periphery with WF and UWF imaging techniques, with advanced features like swept-source OCT that can capture up to 200° of the retina in detail.

Dr. Bacherini's study aimed to characterise different types of peripheral retinal degeneration, using UWF swept-source navigated OCT, integrated with the scanning laser ophthalmoscope on Optos' Silverstone platform. The study revealed that peripheral OCT findings altered clinical decisions in 44% of cases, she noted, often prompting laser treatment over observation. UWF guided OCT enabled detection of subtle features such as vitreoretinal traction, subretinal fluid, and retinal holes that were not visible via ophthalmoscopy. Even if it can't replace fundus examination, it can help differentiate lesion types and potentially assess risk for retinal detachment.

Dr. Bacherini emphasised the tool's value in improving diagnosis, guiding treatment, enhancing patient education, and supporting telemedicine. She concluded that peripheral OCT offers meaningful insight into peripheral retinal diseases and may help standardise intervention criteria in the future.

The transformative role of UWF Imaging

Professor Paulo-Eduardo Stanga delivered an insightful presentation on the clinical impact of Optos Silverstone and the evolution of UWF imaging in retinal care. He underscored that traditional ophthalmoscopy and conventional imaging methods often fail to capture the peripheral retina, where many pathologies begin. He argued that UWF technology has fundamentally reshaped modern ophthalmology. "It was really Optos that changed the landscape and allowed the democratisation of UWF in 2010," he noted, referring to how Optos made ultra-widefield imaging broadly accessible to clinicians, moving it from a specialised tool used in select centers to a standard part of everyday retinal practice.

Silverstone's integration of UWF imaging with navigated peripheral OCT provides clinicians with unparalleled ability to detect, document, and monitor subtle lesions. By correlating OCT cross-sections with UWF modalities including angiography, physicians can diagnose earlier and treat more precisely, minimizing unnecessary retinal damage. Stanga illustrated cases ranging from diabetic retinopathy to lattice degeneration, retinal holes, and subclinical detachments – conditions where early detection in the periphery can make a decisive difference. "With Optos it is very easy because you know exactly where the scan is being done," he explained, emphasizing how the system improves accuracy and efficiency.

The technology, he argued, does not just enhance diagnostic precision but also changes clinical decision-making. Real-time navigation and documentation empower more confident, data-driven treatment strategies, especially in complex cases such as proliferative diabetic retinopathy or high-risk retinal tears.

Stanga concluded with a clear endorsement: "I can't imagine being without this technology in my clinic." For him, Optos Silverstone has become indispensable – both a diagnostic cornerstone and a catalyst for more retina-sparing, patient-centered care.

The discussions at EURETINA 2025 underscored a clear consensus UWF imaging, particularly when combined with navigated peripheral OCT, is no longer a luxury but an essential component of modern retinal care. From monitoring GA progression and managing pediatric high myopia to diagnosing peripheral degenerations and guiding advanced vitreoretinal treatments, Optos technology is driving earlier, more confident, and more precise decision-making.

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optos

ANTERIOR SEGMENT

The Ripple Effect: Lens Versus Laser Surgery

Carefully tracking patient outcomes and satisfaction may help steer future growth and surgical direction in your practice

By Amir-Mobarez Parasta, Medical Director, MUNICH EYE, Munich, Germany

I have long embraced innovation in refractive surgery and consider myself an early adopter of advanced technology. That said, I believe each advancement must be evaluated through a lens of careful, data-driven decision-making. I recently went through the exercise of tracking patient outcomes, satisfaction, and referral patterns. I also considered the economic realities of running and growing a practice. The trends were hard to ignore: the data consistently pointed toward strong results and high patient enthusiasm for lens-based refractive surgery solutions. Armed with this insight, I made the conscious decision to elevate lens-based correction to the central pillar of our refractive surgery offerings across our three locations.

Over the years, I've performed thousands of laser and lens-based refractive procedures. Like some of my colleagues, I initially approached phakic IOLs as a niche solution that was ideal for patients with high myopia, thin corneas, and dry eye concerns. Over time, however, my perception of the procedure began to shift, and I started to expand my indications to include those with mid to low myopia as well. This change came naturally as my practice went back and tracked not just patients' visual outcomes but also their overall satisfaction, referral behavior, visit frequency, and marketing cost per case over a 5-year period to represent the entire clinical and economic lifecycle of a refractive surgery patient. We quickly found that our patients who had lens-based correction, particularly phakic IOLs, were more satisfied, referred more friends and family (and for a longer duration), and required less chair time and practice resources compared to our patients who underwent laser vision correction (see infographic).

Evaluating this data prompted a conscious shift in our clinical strategy. We adopted an "ICL-first" mindset, not as a dogma but as a default approach for eligible patients. Our results, both clinically and economically, have reinforced the value of this decision.

Seeing beyond the procedure

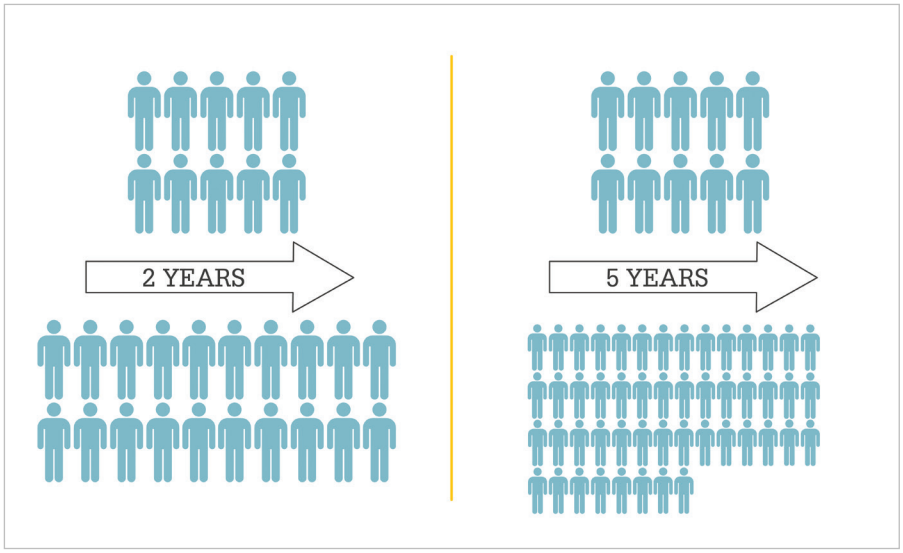
Since we've evolved our practice model, we now perform approximately 2,000 lens-based procedures per year. This includes about 500 EVO ICL procedures (STAAR Surgical), 500 refractive lens exchange procedures, and 1,000 refractive cataract surgery procedures. Our laser vision correction volume is around 150 cases annually.

The longevity of patient referrals after lens-based refractive surgery has proved to be a pivotal part of our business strategy. Thanks to our ICL patients, who have become loyal long-term ambassadors for our practice, we have seen measurable downstream value.

Some refractive surgery practices assume that patients who undergo laser vision correction are easier to attract and manage due to lower upfront costs and simpler logistics. Our practice's experience tells a different story. In Germany, a highly competitive market for refractive surgery, online advertising (i.e., search engines and social media) dominates marketing efforts.

The average lead cost per laser vision correction patient is €300 ($352), compared to €150 ($176) for lens-based refractive surgery.

When referrals are factored in, the effective cost per case was €150 for laser vision correction and €25 ($30) for lens-based correction. The significant differential adds up quickly, especially when clinic savings are also considered. From pre- to post-operative care, patients electing a lens-based refractive surgery procedure required an average of six visits compared to eight for those electing laser vision correction. In a busy, multi-location practice like ours, the two additional visits per patient translate into a substantial cost not only in clinic time, but also in administrative support and patient flow.



The Ripple Effect. The average recommendation rate for laser vision correction was 1:2, or one additional patient per two treated, usually within 2 years. For lens-based surgery, the recommendation rate jumped to 1:5, extending up to 4 years after surgery.

"I believe we need to challenge our assumptions, especially the idea that laser vision correction should automatically be the first-line approach in a refractive surgery clinic."

More importantly, our lens-based refractive surgery patients were more content overall after surgery, requiring fewer touchpoints to reach satisfaction. This made our team's work easier and helped preserve morale, a critical but often underappreciated factor in practice sustainability.

Matching the right patient to the right procedure

Not every patient is suitable for phakic IOLs. We therefore rely on a refined screening process to improve the chance for optimized vision and patient satisfaction, even for those who ultimately underwent laser vision correction due to contraindications for a lens-based procedure. We use ICL as our first option for all myopic cases and laser vision correction for myopia under -6.00 D if explicitly requested by the patient, and laser vision correction is our first choice for eyes with predominant astigmatism as well as for up to 3.00 D of hyperopia. For presbyopia and higher hyperopia, we opt for refractive lens exchange. Additionally, the quality of the cornea was a major factor in determining the rate of recommendation.

We observed that patients who were less satisfied with LVC often had one or more of the following characteristics:

- Pupil size greater than 7.5 mm
- Corneal power less than 39.00 D
- Endothelial cell count less than 2,500 cells/mm^2
- Contact lens intolerance

Patients who were less satisfied with phakic IOL outcomes often had one or more of the following characteristics:

- Endothelial cell count less than 2,300 cells/mm^2
- Total higher-order aberrations above 300 µm
- Centralized higher-order aberrations above 200 µm

Not only has refining patient selection improved post-operative outcomes, it has strengthened our clinic's reputation. Patients increasingly see us not just as a place to get LASIK, but as a trusted partner in refractive vision care.

Challenge your assumptions

A one-size-fits-all solution in refractive surgery does not exist; however, I believe we need to challenge our assumptions, especially the idea that laser vision correction should automatically be the first-line approach in a refractive surgery clinic. Our clinical experience shows the value of an ICL-first strategy backed by data and patient-centered thinking, and has led to the following advantages:

- Improved clinical outcomes and patient satisfaction Lower patient acquisition costs
- Reduced clinic staff and resource burdens
- Long-term practice growth through word-of-mouth marketing

For those considering a similar shift, my advice is to start tracking the right metrics. Go beyond Uncorrected Visual Acuity (UCVA) and monitor patient satisfaction, referral rates, visit counts, and marketing costs. The numbers will guide you along the journey. Modest changes rooted in evidence can lead to transformational results and ultimately a stronger, more resilient practice.

RETINA

What Africa Taught Me About Vitreoretinal Surgery: Part One

A simpler approach to dropped dense crystalline lenses in low-income settings

Dropped crystalline lenses, especially when dense and brunescent, can be very difficult to manage. In Rwanda, where I work as a vitreoretinal surgeon at Kabgayi Eye Unit (KEU), these dense lenses are common, and trauma is also frequent, and so dropped traumatic crystalline lenses present regularly in my practice.

While fragmatome remains the gold standard, in such cases the high ultrasound energy can be transmitted to the sclera, risking scleral melt, difficulty closing the sclerotomy, and hypotony with its complications. Perfluorocarbon liquid (PFCL) is another way to manage this condition by floating the lens toward the iris plane for phacoemulsification, but the phacoemulsification energy is still problematic. Also, the convex interface of PFCL means that when it is used to float a crystalline lens, the lens tends to slide toward the periphery. This can make access difficult in small pupils and may push the lens toward the vitreous base during emulsification, increasing the risk of peripheral vitreous traction and retinal breaks. There is also the expense of PFCL to consider. Another concern is that, while pupil expansion devices are available in our hospital, using them in these cases can trigger more inflammation in African eyes.

One option that has worked well for us is to adapt a familiar manual small incision cataract surgery step – the large, self-sealing scleral tunnel – and combine it with needle levitation. This avoids fragmatome use inside the vitreous cavity, as well as providing a controlled way to remove the lens.

Most cataract surgeons in Rwanda are very familiar with manual small-incision cataract surgery, and I learned the large, self-sealing scleral tunnel technique from them; it has become a useful part of my vitreoretinal toolkit.

The technique:

- A superior limited peritomy is made from ten–two o'clock, with cautery applied to bleeding vessels.
- An 8 mm frown-shaped scleral tunnel is fashioned, leaving the anterior chamber closed to keep the globe firm for vitrectomy.
- A standard 3-port, 23-gauge pars plana vitrectomy is performed. Core vitrectomy is done, with posterior vitreous detachment (PVD) induction if absent, followed by a careful peripheral vitrectomy.
- After completing the vitrectomy, the scleral tunnel is opened with a keratome.
- A bent 25-gauge needle is introduced through one of the ports to gently lift the dropped crystalline lens into the anterior chamber.
- Dispersive viscoelastic is used to fill the anterior chamber to protect the corneal endothelium.
- The lens is delivered en bloc using a vectis through the scleral tunnel.
- An internal search is performed to ensure there are no retinal breaks, which are treated with laser or cryotherapy as appropriate.
- Secondary IOL implantation follows; at our centre, the default is an iris-claw lens.

We recently published this technique in Retina, complete with a video demonstration.

The same approach has also worked effectively for other difficult cases, including large posteriorly dislocated polymethyl methacrylate (PMMA) intraocular lenses and intraocular foreign bodies that are too rigid or bulky for safe removal through sclerotomies or the cornea. In these situations, the scleral tunnel provides a secure and self-sealing exit route. It has often turned out to be the simplest and safest way forward.

The technique is practical, cost-effective, and well suited to low-resource settings like Rwanda. It avoids prolonged ultrasound in the vitreous cavity, reduces the risk of retinal breaks or hypotony, and relies on inexpensive, widely available instruments. While the fragmatome remains the gold standard where it is effective, this method has demonstrated an efficient and reliable alternative for dense lenses.

Dr Michael Mikhail, Consultant Ophthalmologist and Vitreoretinal Surgeon, Kabgayi Eye Unit, Rwanda Senior Lecturer, School of Medicine and Pharmacy, University of Rwanda, Rwanda

GLAUCOMA

Four Steps to Managing Dry Eye Disease in Glaucoma

Jesús Merayo Lloves explains the importance of addressing OSD in glaucoma management

Nearly every glaucoma patient on topical eye drops shows some form of ocular surface compromise, yet this critical issue is often overlooked. While studies report that 48–59% of these patients experience symptoms and 22–78% show clinical signs of ocular surface disease (OSD) (1), my experience suggests this issue is even more pervasive.

Dry eye disease is a multifactorial condition characterized by loss of tear film homeostasis due to tear film instability, hyperosmolarity, ocular surface inflammation, and neurosensory abnormalities (2). In glaucoma patients, these mechanisms are frequently exacerbated by the chronic use of topical medications (Figure 1).

These patients may present with aqueous deficiency and evaporative dry eye but, critically, also mucus deficiency, which I believe is the defining feature of glaucoma-related dry eye (3). Many of these patients fall into the category of "decreased wettability dry eye" (3). Given this, if I were to choose just one diagnostic test for glaucoma patients with dry eye, it would be tear breakup time (TBUT), which is a simple measure of tear film stability.

The vicious cycle of OSD in glaucoma

More than just a co-morbidity, dry eye disease is a key driver of poor outcomes in glaucoma. The complex interplay between chronic glaucoma therapy and OSD creates a vicious cycle that affects intraocular pressure (IOP) control, reduces patient adherence, compromises surgical outcomes, and negatively impacts quality of life (4). Multiple medications increase cumulative exposure to toxic compounds, leading to deeper penetration of these toxic compounds into ocular tissues, increased trabecular meshwork inflammation, and higher aqueous outflow resistance. This in turn increases the treatment burden and drives a need for surgery, which itself may be compromised by OSD (4) (Figure 2).

Every class of topical IOP-lowering therapy can induce or worsen OSD. This may be due to the active ingredient, excipients, or most often, the preservatives. If I had to eliminate one class from the standpoint of ocular surface health, it would be the alpha-adrenergic agonists, which tend to be particularly poorly tolerated.

Why addressing OSD matters in glaucoma management

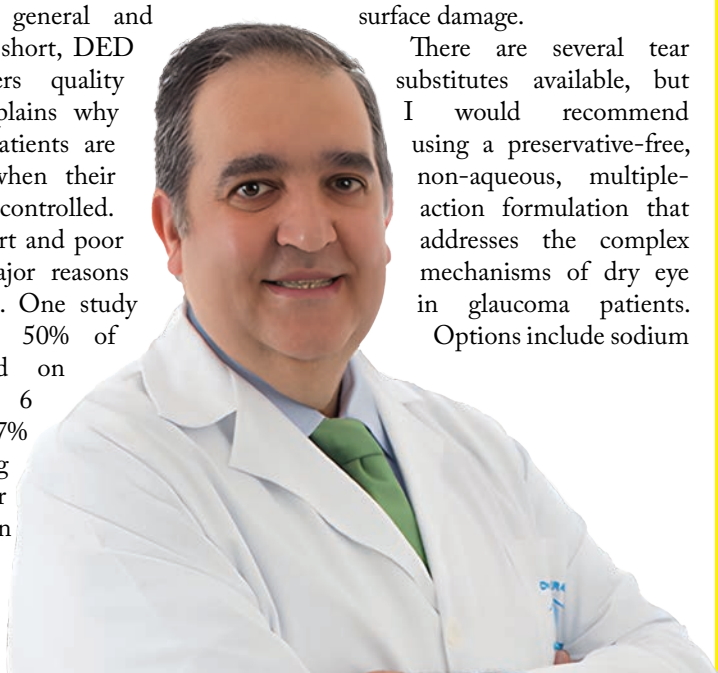
DED causes significant patient discomfort, including redness, burning, stinging, fluctuating vision, foreign body sensation, photophobia, itching, and eye fatigue. These symptoms impair work productivity, limit visual activities, reduce vision-related social function, and affect both general and mental health. In short, DED significantly lowers quality of life, which explains why many glaucoma patients are "unhappy" even when their disease seems well-controlled.

Ocular discomfort and poor tolerability are major reasons for non-adherence. One study found that only 50% of patients remained on treatment after 6 months, with just 37% of cases persisting at 3 years (5). Poor adherence results in poor IOP control and jeopardizes long-term visual outcomes. Furthermore, chronic ocular surface inflammation can reduce the efficacy of medical therapy and increase the risk of surgical failure.

Breaking the cycle: Focus on what we can change

The key to managing patients with coexisting glaucoma and DED is to focus on modifiable factors. This requires a fundamental shift in how we approach the glaucoma care pathway, starting from the earliest stages of disease management.

Step 1 is to evaluate every patient for OSD prior to initiating glaucoma therapy. This means going beyond a routine history to include formal symptom assessment and clinical evaluation. Clinicians should document risk factors such as age, systemic disease, previous ocular surgery, and environmental exposures. Pain scales can aid in detecting corneal innervation abnormalities, especially when symptoms appear disproportionate to clinical signs. At the slit lamp, TBUT should be assessed and blink patterns evaluated. If OSD is diagnosed or significant risk factors identified, clinicians should consider initiating treatment with preservative-free topical medications, or offering selective laser trabeculoplasty (SLT) as a first-line option to reduce the risk of triggering or worsening ocular surface damage.



There are several tear substitutes available, but I would recommend using a preservative-free, non-aqueous, multiple-action formulation that addresses the complex mechanisms of dry eye in glaucoma patients. Options include sodium

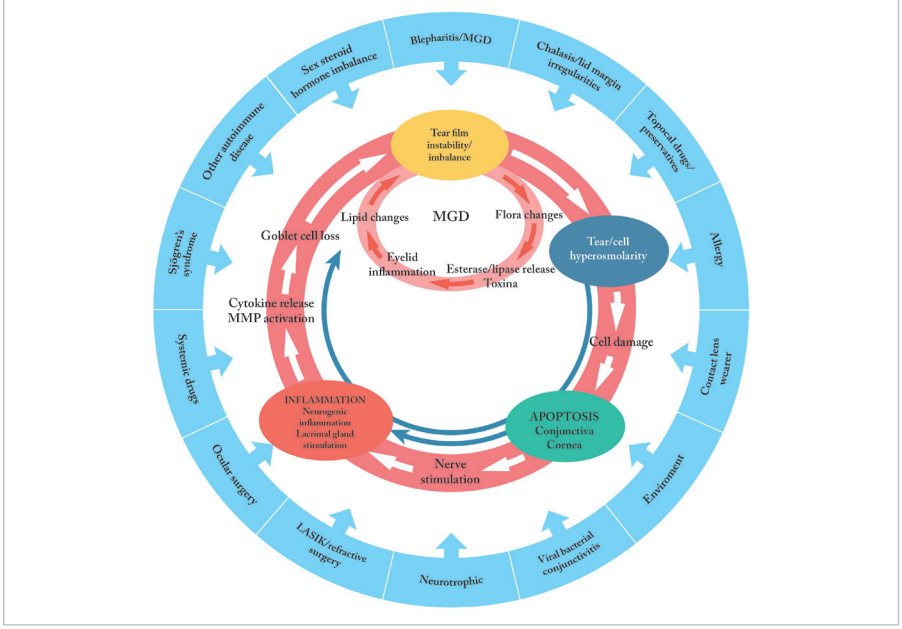


Figure 1. C Baudouin et al. (2013). PMID: 24112228.

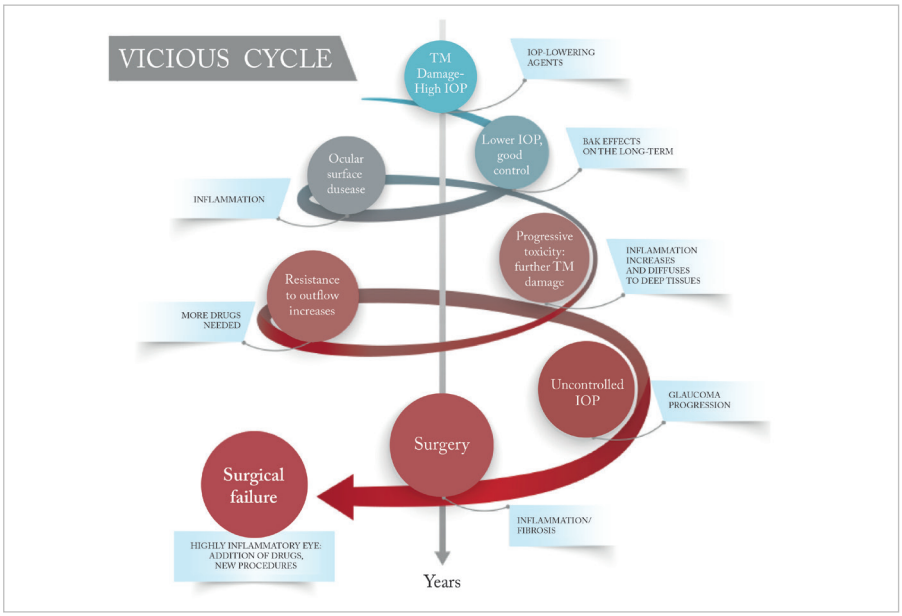


Figure 2. C Baudouin et al. (2021). PMID: 33075485.

hyaluronate, carbomer, and triglycerides (such as Artelac Complete™ or Neraya™), or more viscous combinations like sodium hyaluronate, trehalose, fucoidan, and D-panthenol (Artelac Ultra 4S™ or RecuDrop™). For patients requiring even greater ocular surface protection and longer retention, carbomer 0.3% with D-panthenol (Cornelegel™ or RecuGel™) can be considered, particularly in cases with significant epithelial damage or nocturnal discomfort.

Step 2 involves re-evaluating the patient for signs of OSD regularly throughout glaucoma treatment. It is well established that the prevalence of OSD increases with patient age, number of medications, and treatment duration. Monitoring should extend beyond symptoms to encompass adherence, quality of life, and functional vision. Therapy adjustments should be proactive, not reactive.

Step 3 focuses on situations where OSD begins to interfere with glaucoma outcomes. At this stage, clinicians must identify the primary mechanisms driving ocular surface dysfunction. Potential irritants, particularly preservatives, should be removed. Strategies such as switching to fixed combinations to reduce drop burden, offering laser therapy or minimally invasive surgery, or prescribing adjunctive OSD therapy with preservative-free tear substitutes become essential. In some cases, anti-inflammatory agents like tacrolimus or cyclosporine may be used as steroid-sparing options.

Step 4 is relevant when surgery becomes necessary due to poor IOP control or drop intolerance. Preoperative ocular surface optimization is critical. Inflammatory load should be reduced by discontinuing topical IOP-lowering drops where possible and initiating anti-inflammatory therapy. Minimally invasive procedures, such as excimer laser trabeculostomy (ELT), may be preferred for milder disease due to their more favorable impact on the ocular surface. Postoperative care is equally important, particularly after filtration surgery, as bleb-related inflammation and discomfort may cause further epithelial compromise. In advanced cases with significant epithelial compromise, autologous plasma-rich growth factors (PRGF) may be considered.

Importantly, we now understand thatpreservative-induced fibrosis is not limited to the ocular surfaceand can also affect the trabecular meshwork, episcleral tissue, and uveoscleral outflow pathway, thereby contributing to elevated IOP and poorer surgical outcomes. Normally, epithelial cells express primary cilia that act as pressure sensors. In a fibrotic state, these cilia are lost, altering the mechanosensitivity of the tissue and disrupting physiological aqueous outflow. Therapies such as PRGF may help restore these structures, offering a novel strategy to allow epithelial regeneration with functional cilia.

This article is based on a lecture presented at the Bausch + Lomb Glaucoma Summit 2025, held in Baveno, Italy (May 22, 2025).

See references online at: theophthalmologist.com

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"Our criteria have been macroeconomic strength, population demographics, and healthcare policy, alongside financial performance, brand awareness, and medical quality. But most crucially, we look for strong teams."

Sitting Down With....

Elaine Zhang, Vice President at Aier Eye Hospital Group, China

Let's start with Aier's growing international footprint. How do you decide which markets to prioritize, and how do you adapt to different regions?
Aier began planning for international expansion soon after its IPO, and after in-depth research and analysis, took its first step abroad in 2015. I joined AIER in 2014, at a time when the company was starting to move forward with its international strategy. It was a steep learning curve, as the entire team was Chinese. We began by looking at two things: technology and demographics. From a technology standpoint, we looked to Western countries – Europe and the US – for advanced solutions. From a demographic standpoint, we considered population size, economic conditions, and healthcare structures.

Our first step was Hong Kong, China. From there we moved into Europe, acquired Clinica Baviera. That platform appealed because it was largely out-of-pocket healthcare, which made it easier to understand. They had a stable, high-performing team and strong financial results – which is key for us as a listed company.

Broadly, our criteria have been macroeconomic strength, population demographics, and healthcare policy, alongside financial performance, brand awareness, and medical quality. But most crucially, we look for strong teams. Integration success depends on people. We evaluate potential partners against what they've already achieved and assess their willingness to work with us. With our growing track record of experience and success, more organizations are choosing to collaborate with us, drawn by our systematic management, empowering approach, and focus on creating win-win outcomes.

Aier's Southeast Asia presence is anchored by the International Specialist Eye Centre, providing a foundation to reach the region's vast population and unmet eye care needs.

In the US, things are different. We currently have one eye care center there, Wang Vision Institute. However, given the scale is enormous and the system is complex, so we are still exploring opportunities carefully there.

How have you adapted to working with Western partners like Clinica Baviera in Europe?
For us, the key to success has been trust and cultural integration. However, trust doesn't mean letting partners operate entirely independently without alignment. Our advantage lies in coming from the same industry – we understand ophthalmology and its culture, which build genuine heart-to-heart connections.

Doctors, whether in the East or West, share the same fundamental motivation: the desire to help patients and perform surgeries well. As managers, our job is to build platforms that satisfy both doctors and patients . Before taking over Clinica Baviera, we spent months visiting more than 50 of its 75 centers. That helped us deeply understand their management style, brand value, and patient relationships. This process not only built mutual respect and trust between us, but also helped us recognize that successful integration is about cultural blending and uniting as one family.

Once on board, we set up regular management meetings. Importantly, we did not interfere in day-to-day operations. Instead, we fostered exchange: inviting their top performers to China, sending our teams to their events, and participating in medical and management meetings. This exchange of ideas – discussing future models and best practices – has been central to making integration work.

How do you balance investing in new businesses with pushing forward emerging technologies?
Innovation is essential, though we've not seen many real breakthroughs in ophthalmology recently, mostly gradual improvements. Still, it's critical to stay updated with the latest developments, bring doctors into conversations, and adopt new tools that benefit patients.

Investment is a long-term game. In medical devices and pharmaceuticals, timelines stretch into decades. According to venture capital models, it takes an average of 14 years for a start-up to go from an idea to a successful product. Therefore, our strategy is to learn continuously, invest steadily, and remain patient.

You have also partnered with high tech companies around AI. How does that support your strategy?
AI has been essential to our strategy for over five years. We even have our own AI research institute. We're working together to apply cutting-edge technology directly to ophthalmology.

Our starting point is retinal imaging. With over 20 million outpatient visits each year, efficiency is crucial. AI can help read images more quickly and accurately, allowing doctors to focus more on patient care while improving satisfaction and outcomes. We've mapped out scenarios for AI development, with goals to increase efficiency, improve patient satisfaction, and enhance clinical results. Just last week we announced our AI strategy for the next decade.

Any closing thoughts…
At Aier, our philosophy is about building trust, learning continuously, and empowering people – whether patients, partners in domestic and abroad, students and researchers, or women in underserved regions. We always keep in mind and implement Aier's mission: Enabling everyone, whether rich or poor, has the right to eye health. By focusing on integration, innovation, and inclusivity, we aim to build a stronger, more connected global platform for eye health.

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1. Rayner RayOne EMV Toric FDA IDE study (G230072). 2. Ferreira TB. Presented at ESCRS 2022 [Paper]. 3. Findl O. et al. Am J Ophthalmol. 2024; 271:86-95. 4. Rayner data on file (RayPRO), 2025. 5. U.S. Food and Drug Administration, "Summary of Safety and Effectiveness Data: PMA P190018 - Clareon IOL," Jan. 7, 2020. [Online]. *Mean absolute axis rotation (difference between IOL axis orientation from end of surgery to post-op Day 1-2). **Mean absolute axis misalignment (difference between intended IOL axis and IOL axis orientation at 6M). ***Measured between consecutive visits from Day 1 to 6M.

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