



ESCRS

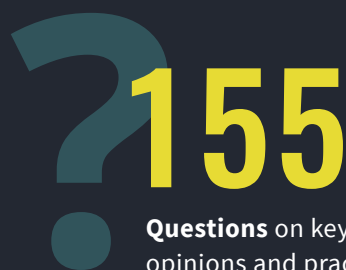
CLINICAL
TRENDS
SURVEY

2018
Results

Survey Background & Overview Data

This report contains the results of the 2018 ESCRS Clinical Trends Survey, conducted at the 36th Congress of the ESCRS in Vienna, Austria. Delegates also had the option of taking the survey online at the ESCRS website. Questions addressed several areas of clinical practice, including general cataract surgery, astigmatism and toric IOLs, presbyopia correction, glaucoma and ocular surface disease.

More than 1,400 physicians responded to the 155 questions, which were developed and reviewed with the ESCRS leadership team and substantiated by a data scientist. To better identify the educational needs of its members, ESCRS leadership continually refers to the results of these surveys and the feedback they elicit. The collected data will also enhance the opportunities featured at the Annual Congress of the ESCRS, the ESCRS Winter Meeting and other educational channels such as *EuroTimes* articles and online forums.



Years in Practice

>10 years



Currently in medical school or in training



62%

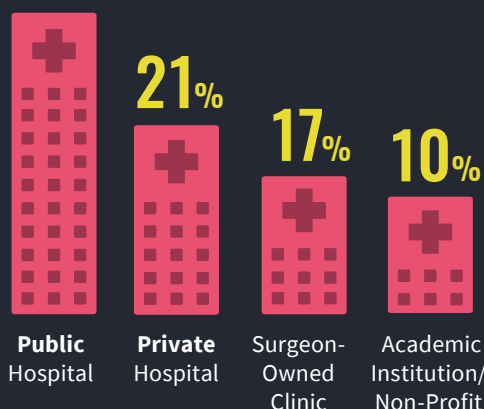
Male



38%

Female

Primary surgery location



Have you completed the Fellow of the European Board of Ophthalmology (FEBO) exam?



8% Yes

79% No

13% No, but I plan to at the end of my residency training

General Cataract Surgery

Average annual volume
of cataract surgery



eyes



25%

of ophthalmologists perform
> 600
cataract surgeries per year

What is the most common
level of dioptre correction
you **TARGET** for **monovision**?

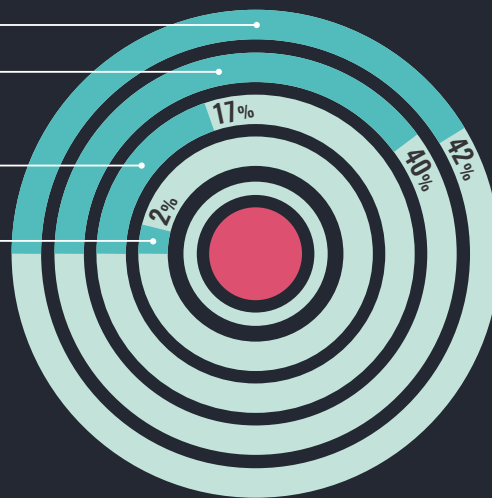


0.75 to 1.25D

0.50 to 0.75D

1.25 to 1.75D

> 1.75D

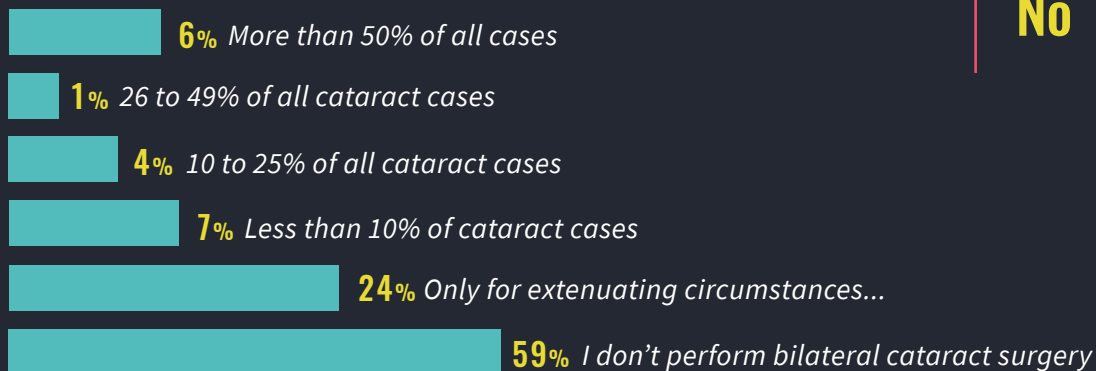


Do you **routinely optimise**
your **A-Constants** every
time you use a **new lens**?

Yes
63%

No
37%

How often do you perform **bilateral/same-day cataract surgery**?



If you do perform **simultaneous bilateral/same-day cataract surgery**,
what are your primary reasons?

15%

Extenuating circumstances
(general anaesthetic/mentally
challenged patients)

12%

**Patient
convenience**



If you do not perform **bilateral/same-day cataract surgery**
what is your primary reason?

61%

**Infection rate/risk
of endophthalmitis**

16%

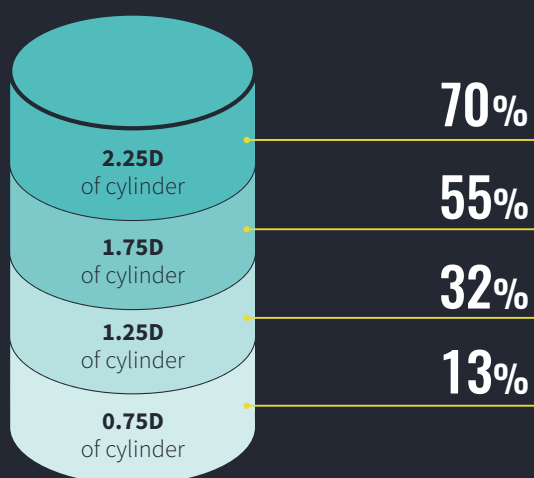
**Need to adjust power of
2nd eye based on the
outcome of the 1st eye**

Toric IOLs / Astigmatism Data

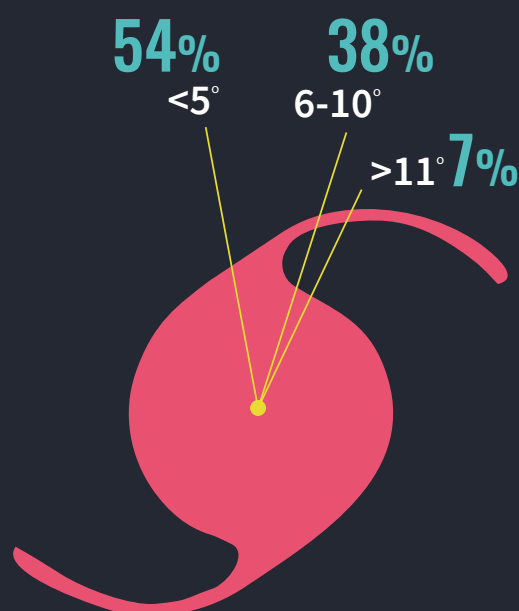
11% of cataract patients with clinically significant astigmatism currently involve a toric IOL

44% of cataract patients with clinically significant astigmatism would receive a toric IOL if cost were not an issue

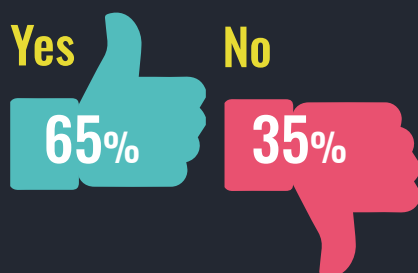
Percentage who implant toric IOL to manage astigmatism in a monofocal cataract patient with...



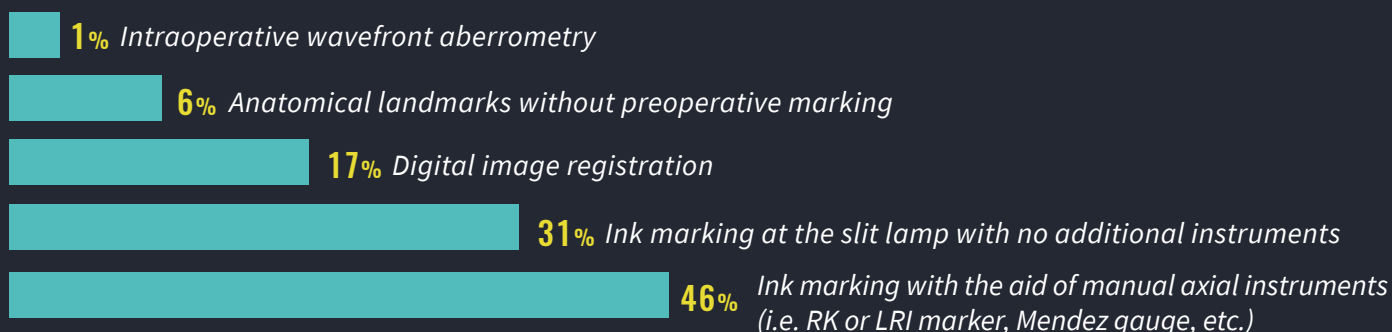
After implanting a toric IOL, how many degrees of postoperative rotational error is acceptable before visual quality and degradation of visual acuity are significantly affected?



Do you consider posterior corneal astigmatism in your toric power calculation?



How do you align the intended axis of placement for a toric IOL?



Toric IOLs / Astigmatism



By Oliver Findl MD, MBA

The toric IOLs/astigmatism portion of the 2018 Survey shows a number of trends continuing, including the uptick in the use of toric IOLs in cataract treatment. Currently, 11% of cataract procedures on patients with clinically significant astigmatism involve a toric IOL, a 4% increase over the 2017 Survey. We also see that 44% of cataract patients with clinically significant astigmatism would opt for a toric IOL if cost were not an issue. This figure is up from 33% previously, and clearly points to a gap between our patients' need for toric IOLs and our ability to deliver this powerful technology to them.

The Survey reveals that physicians tend to favour toric IOLs to manage astigmatism in monofocal cataract patients with more serious visual difficulty. On average, 13% would choose to implant a toric device if a patient presented with 0.75D of cylinder; 32% with 1.25D of cylinder; 55% with 1.75D of cylinder; and 70% with 2.25D of cylinder.

With respect to techniques and technologies used to align the intended axis of placement for a toric IOL, diversity predominates: 1% use intraoperative wavefront aberrometry; 6% refer to anatomical landmarks without preoperative marking; 17% employ digital image registration; 31% prefer ink marking at the slit lamp with no additional instruments; and 46% use ink marking with the aid of manual axial instruments (i.e., RK or LRI marker, Mendez gauge).

Marking: Manual vs. Automated

In my experience implanting toric IOLs to correct astigmatism, the most important thing to remember is that once the patients become supine, there may be significant ocular cyclotorsion. To account for this, physicians should use some kind of marking system. A variety of techniques will work, as long as they are used with a high degree of precision and diligence.

Proper marking is also a matter of efficient workflow. I use an automated marking alignment system that relies on an optical biometry machine to photograph the patient's eye. The photo is then imported into a computer that is connected to the microscope, so I can see the intended axis in my eyepiece. It also has a tracking system, which is a big help, and one doesn't actually need to mark the patient. This approach obviously requires some equipment, but it is also quite cost-effective if used frequently.

Ensuring Proper Toric Alignment

At the end of the day, even though you've tried to do as well as you can you may end up with rotational misalignment. Survey respondents reported different thresholds for initiating a rotational correction, with 54% citing less than 5 degrees of rotational error as acceptable, 38% consider 6-to-10 degrees okay, and 7% chose less than 11 degrees as a tolerable amount.

In my practice, if the misalignment is up to 5 degrees, I am happy with it and I will typically not change it. If more than 10 degrees, I will definitely try to change it, especially if the patient is not happy. If it's between 5 and 10 degrees and the patient is quite happy with the outcome, I believe you can leave that as well. But if the patient doesn't have very good visual acuity, I may do a rotation.

Posterior Corneal Astigmatism

Some 65% of survey respondents consider posterior corneal astigmatism when calculating toric power, up 4% over last year. Obviously, the posterior cornea behaves slightly differently to the anterior cornea, and this has been well studied and thoroughly described. Online calculators (and even calculators on biometry machines) will incorporate for the effect on total astigmatism.

Some eyes deviate and are outliers, so it is better to measure the posterior corneal curvature of each eye on each patient. This is now quite easy with corneal tomography machines or optical coherence tomography biometry machines. This helps reduce the number of unsatisfied patients whose optical topography is just a little off the normal grid.

Measurement and Dry Eye

The most important thing is to have a good corneal measurement. For that, it's crucial to use two or three different devices, if possible, and compare these measurements. Dry eye disease causes unreliable measurements, therefore it's important that the nurse or technician is well trained to spot a potential dry eye during the workup.

It will be necessary to redo the measurements after treating the patient quite intensively with eyedrops or other methods. Again, with both misalignment of power and of meridian, it may actually be better to refrain from using toric lenses, and just go with a monofocal non-toric lens. The critical point is to ensure that you are pretty well aligned with the different measurement procedures, and to use several.

Conclusion

Through the Clinical Trends Survey, we've seen an uptick in toric use to about 11% of all cataract patients with astigmatism. We know that patients who could benefit from toric lenses compose a significantly higher proportion than 11%. So, we have a gap between patient needs and what is actually being done to meet those needs. There are different reasons for this situation: one of them is cost to the patient and another is the difficulty of logistics and workflow. The manufacturers of biometry machines and the makers of toric IOLs need to do a better job of facilitating the workflow around these technologies.

If this process were automated by networking the various machines and moving data with, for example, scannable QR codes instead of fingers on a keyboard, it could work much better. I think then surgeons would be much more eager to use these tools, and the uptick in toric use rise even higher.

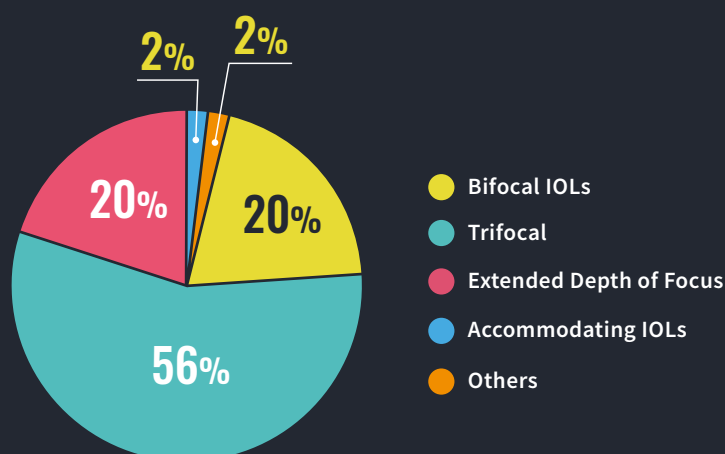
“ 65% of survey respondents consider posterior corneal astigmatism when calculating toric power...”

Presbyopia-Correcting IOLs Data

7% of current **cataract procedures**, involve **presbyopia-correcting IOLs**

13% of current **presbyopia IOL procedures** are **toric presbyopia-correcting IOLs** (versus a spherical presbyopia-correcting IOL)

What type of **presbyopia-correcting IOL technology** is used in the **majority** of your **presbyopia correction patients**?

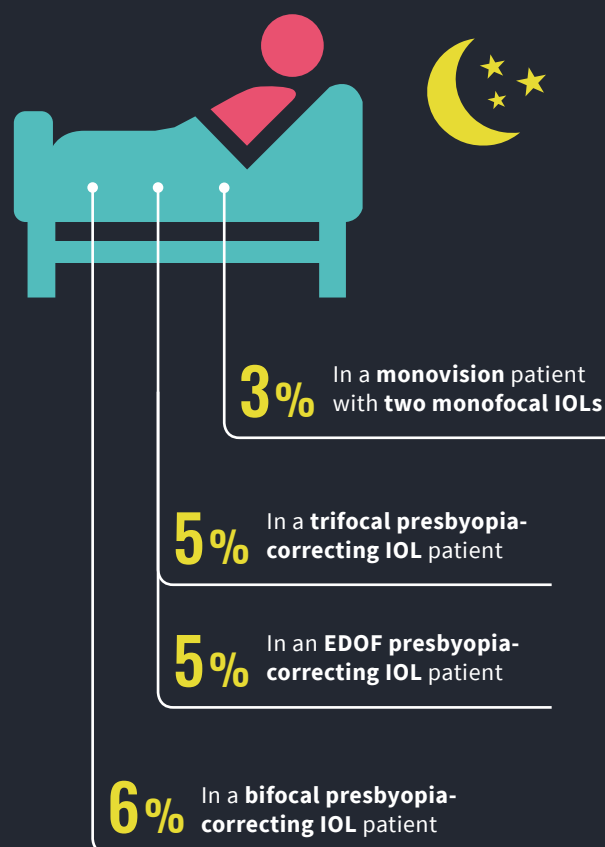


≥ 0.25 TO ≤ 0.75 D
postoperative residual **CYLINDER**

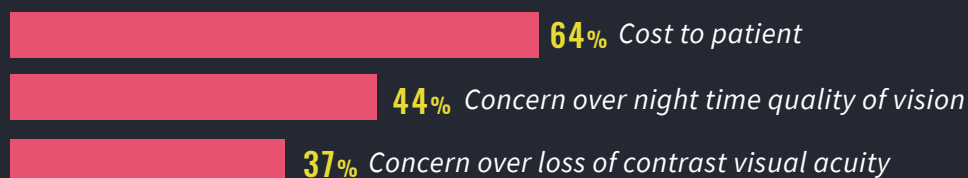
69% believe this is likely to have an impact on **visual quality** and **patient satisfaction** in patients implanted with a **bifocal/trifocal IOL**

54% believe this is likely to have an impact on **visual quality** and **patient satisfaction** in patients implanted with an **EDOF IOL**

What do you believe will be the chances of a **patient** who has no residual refractive error and a healthy ocular surface having **functionally significant visual aberrations at night...**



Major concerns against **performing** more **presbyopia-correcting IOL procedures**:



Presbyopia-Correcting IOLs



By Filomena Ribeiro, MD, PhD, FEBO

In the Presbyopia-Correcting IOLs section of the 2018 Clinical Trends Survey, delegates reported that 7% of their current cataract procedures involve presbyopia-correcting IOLs, up slightly from the previous 6%. Of all current presbyopia-correcting IOL procedures, 13% use toric presbyopia-correcting IOLs, as opposed to spherical presbyopia-correcting IOLs.

When asked which type of presbyopia-correcting IOL technology is used in the majority of their presbyopia-correction patients, delegates responded: 56% trifocal, 20% extended depth of focus (EDOF), 20% bifocal, 2% accommodating and 2% others. Trifocal use continues to rise, up from 39% in 2017.

Some 64% of delegates cited the cost to patients as their biggest concern for not performing more presbyopia-correcting IOL procedures; 44% cited reduced night-time visual quality; and 37% noted loss of contrast visual acuity as barriers.

Delegates believe functionally significant visual aberrations at night in otherwise healthy eyes with no residual error to be 3% for a monovision patient with two monofocal IOLs; 6% for a bifocal presbyopia-correcting IOL patient; 5% for a trifocal presbyopia-correcting IOL patient; and 5% for an EDOF presbyopia-correcting IOL patient. When asked if a postoperative residual cylinder of ≥ 0.25 to ≤ 0.75 D is likely to affect visual quality and patient satisfaction, 69% of delegates believe so with a bifocal or trifocal IOL, and 54% with an EDOF IOL.

With respect to the presbyopia-correcting technology that delegates are most interested in integrating during the next five years, 60% cited extended range of vision multifocal IOLs; 60% named trifocal/quadrifocal IOLs; 24% noted light-adjustable IOLs; and 22% identified shape-changing IOLs.

Astigmatism with Presbyopia: Toric IOLs?

Residual corneal astigmatism remains the main cause of low-quality vision, potentially causing glare, monocular diplopia, meridional magnification, visual distortion and asthenopia. Correcting astigmatism is essential to improving visual results with presbyopia-correcting IOLs. Although EDOF IOLs have increased tolerance for residual astigmatism, nevertheless it is fundamental to minimise residual astigmatism for best outcomes.

Toric IOLs are predictable and therefore provide better visual quality compared with corneal incisions, since this is associated with poor long-term stability and can induce higher-order aberrations. A correct evaluation, proper use of the calculators and consideration of the intraocular position of the lens and the relevance of the posterior surface of the cornea will provide accurate refractive results for patients.

IOL Diversity

It takes chair time to customise solutions for our patients. We must rely on our expertise to assess patients' lifestyle demands and expectations and discuss realistic visual goals. Both age and refractive history are also very relevant to the indication and choice of the best therapeutic solution. For example, observing the patient's near reading behaviour preoperatively is fundamental.

The emerging technology of EDOF IOLs has the potential to greatly expand the use of presbyopia-correcting lenses to provide functional intermediate vision. This trend is also happening in the evolution of traditional monofocals, with the ability to expand depth of focus to achieve functional intermediate vision for everyday tasks such as computer use, dashboard driving and visibility when walking on uneven surfaces — we must not forget that the use of progressive glasses is associated with a greater number of falls in the elderly, with sometimes dire personal and socio-economic consequences.

The Future is Bright

We look forward to the results of new developments such as the new fluid-driven IOL, considering accommodative lenses are the most physiological solution. So far, however, they have not fully demonstrated their efficacy and are very susceptible to capsular bag contraction. Another important line of development is the lenses that allow a postoperative correction of residual errors, and also transformation of a monofocal concept to toric and multifocal (and vice versa), either through laser or electro-active correction.

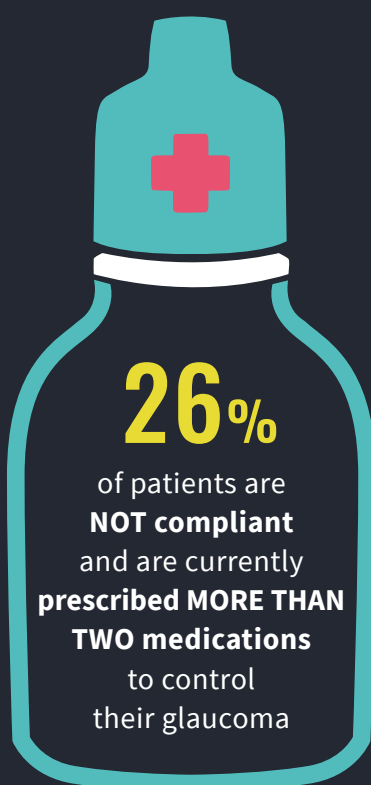
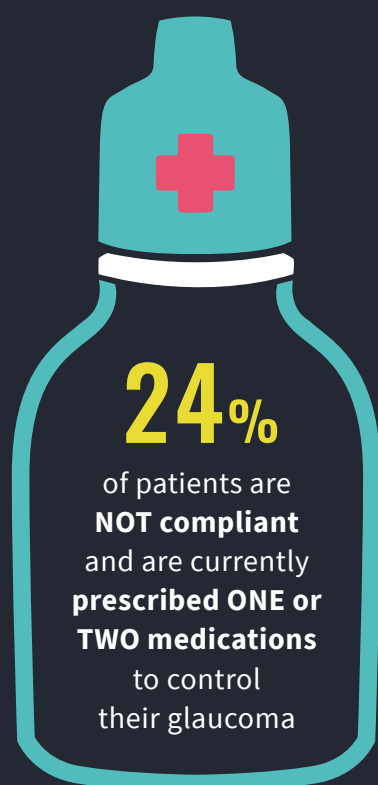
I am also excited about the new multifocal add-on sulcus lenses in piggyback strategy, at the same operative time with monofocal lenses, in cases of less precise indication, and for post-op correction of pseudophakic presbyopia. We are fortunate to practice in this era of amazing technological development in the field of ocular medicine.

“ The emerging technology of EDOF IOLs has the potential to greatly expand the use of presbyopia-correcting lenses to provide functional intermediate vision

Glaucoma Data

27 average number of patients seen each month that are **considered to have glaucoma**

18% average percentage of cataract patients estimated to have glaucoma



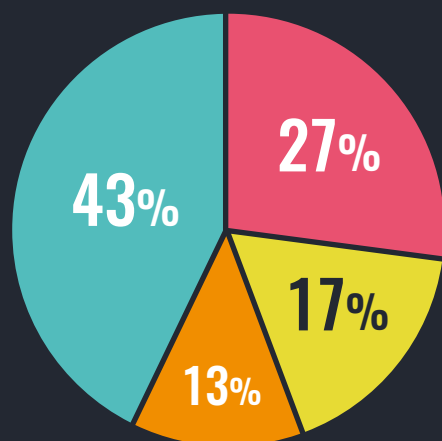
12%

of cataract surgery patients, currently on **topical therapy** for **glaucoma** are candidates for a **minimally invasive glaucoma surgery (MIGS) device**

56%

of respondents currently **use MIGS** or plan to **offer MIGS** in the **next 12 months**

Do you **perform** any **glaucoma surgery** (including **MIGS**) or **laser procedures**?



- Yes, I perform glaucoma surgery and laser procedures
- Yes, I perform glaucoma surgery
- Yes, I perform glaucoma laser procedures
- No, I only have a medical glaucoma practice

Glaucoma

By Roberto Bellucci MD, PhD



The figures from this year's glaucoma section of the Survey showed little change over last year's, with physicians citing 27 as the average number of patients seen each month who are considered to have glaucoma. Delegates estimate that about 18% of their cataract patients have glaucoma; that 24% of patients on one or two glaucoma control medications are not compliant; and that 26% on more than two such drugs are not compliant.

Being involved only in private practice, I see little reason for my patients to spend money and time for my experience and expertise, and then to be non-compliant with my prescriptions. I suspect I am not the only doctor who feels this way, and yet I observe about 10-15% of my patients who have only ocular hypertension are non-compliant. I've also noticed that 100% of those who are experiencing a decrease in their vision are compliant with their treatment plans and medication schedules.

MIGS Treatment

Survey respondents estimate that about 12% of their cataract surgery patients currently on topical therapy for glaucoma are candidates for a minimally invasive glaucoma surgery (MIGS) device; 56% report that they currently use MIGS or plan to offer it in the next 12 months.

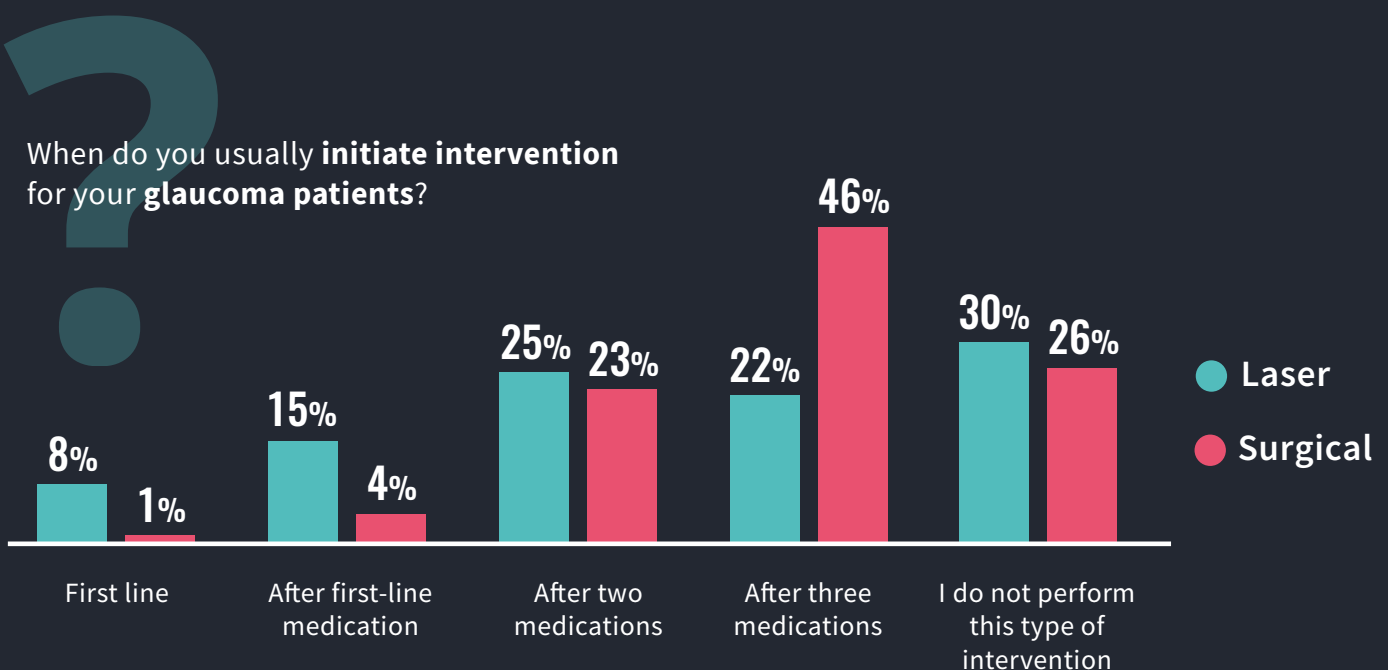
In my practice, I use MIGS as a substitute for deep-sclerectomy or trabeculectomy. I prefer to perform cataract surgery first and add some glaucoma procedure if the intraocular pressure remains elevated. I perform many types of glaucoma surgeries; however, I prefer laser trabeculoplasty, deep sclerectomy and subconjunctival MIGS implantation.

To surgeons who are beginning to implement MIGS in their practice, I advise that when it comes to postoperative management, generally every glaucoma surgery works well in the short term. We can usually rely on immediate postoperative success, but we continue to closely monitor the patient. A hypotensive drug will typically be required during the second year after surgery.

“...I use MIGS as a substitute for deep-sclerectomy or trabeculectomy. I prefer to perform cataract surgery first and add some glaucoma procedure if the intraocular pressure remains elevated

When to Intervene


Deciding when interventions are appropriate for my patients with glaucoma requires some individual judgement, but my rule of thumb is: when a third medication becomes necessary, I cannot expect my patient to be as precise and compliant as required, and I usually suggest surgery. Therefore, I set “after two medications” as the time to start talking with patients about more aggressive treatment options.




Ocular Surface Disease Data

44 average number of dry eye patients seen each month

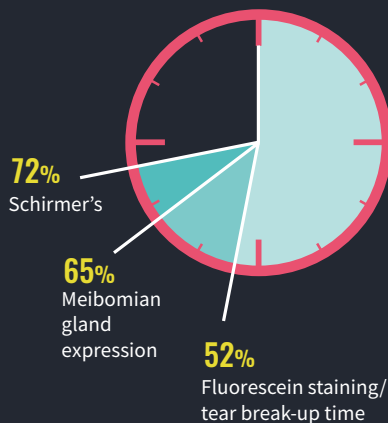
37% average percentage of dry eye patients that have MGD as a component of their dry eye

 **21%** Average percentage of cataract surgery patients who present for their preoperative consult with OSD symptoms

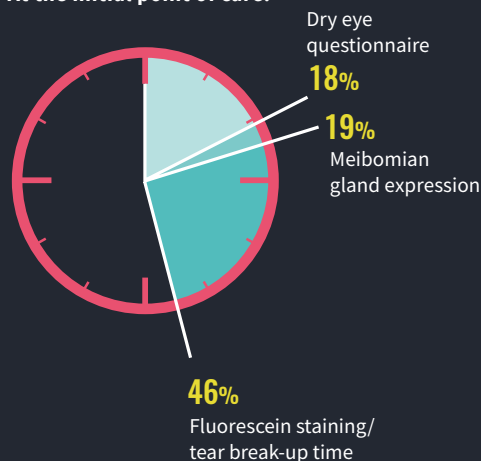
 **17%** Average percentage of cataract surgery patients who present as asymptomatic of any OSD prior to surgery, but develop symptoms postoperatively

Time of Diagnostic Testing

On a case-by-case situation, as decided during the consultation:



At the initial point of care:



Top therapies and treatments for managing the following (beyond artificial tears and lid hygiene):

Moderate dry eye

- Ciclosporin
- Topical corticosteroid
- Oral omega-3

Severe dry eye

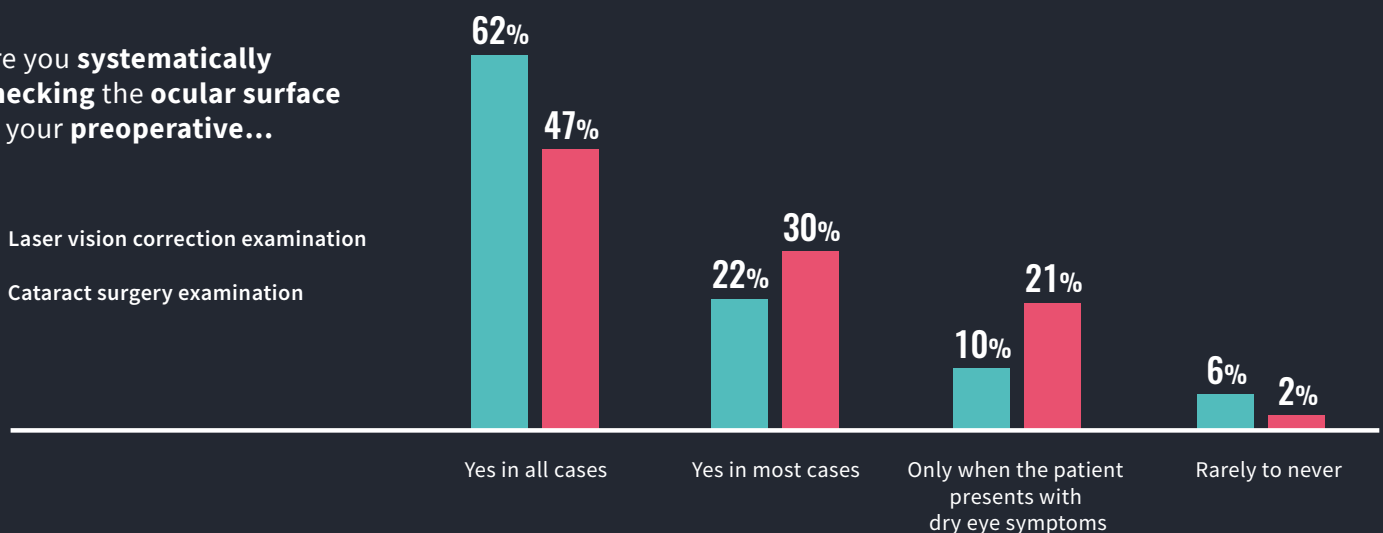
- Ciclosporin
- Punctal occlusion
- Oral omega-3
- Topical corticosteroid

MGD

- Conventional/commercial warm compresses
- Meibomian gland probing

Are you **systematically checking the ocular surface** in your preoperative...

- Laser vision correction examination
- Cataract surgery examination



Ocular Surface Disease



By Jesper Hjortdal MD, PhD

In surveying delegates about their ocular surface disease (OSD) treatment preferences and practices, they report seeing an average of 44 dry eye patients each month. Of those, 37% have meibomian gland dysfunction (MGD) as a component of their dry eye disease. About 21% of cataract surgery patients present for their preoperative consult with OSD symptoms, and roughly 17% present as asymptomatic of any OSD prior to surgery but develop symptoms postoperatively.

Based on what I've seen in practice, I think the current numbers are representative. I work at a university eye clinic, and the majority of my patients have some sort of increased risk for complications. Those with OSD typically are severe, and we do everything to optimise the ocular surface before surgery. In addition to lid hygiene and viscous (gel-based) eye drops, treatments include punctal occlusion, bandage contact lenses, oral doxycycline/tetracycline for two months and even autologous serum eye drops. Our residents, who perform the preoperative evaluation of cataract patients and who evaluate conventional patients before refractive surgery, are aware of the signs of OSD. If mild OSD is present, they will consult a more experienced ophthalmologist, and adequate treatment will be prescribed before surgery.

OSD Screening

Screening can include several components: fluorescein staining is done in all patients, as well as evaluating the tear meniscus and the appearance of the inner side of the lower lid. This is the minimal evaluation at our clinic.

Advanced Tear Film Diagnostics

We do not use advanced tear film diagnostics routinely. Today, reimbursement from the public health system for cataract surgery is pretty low and does not allow for routine screening with advanced techniques; in the Survey, this was the most frequently cited objection (41% of respondents) to including advanced tear film diagnostics in a practice. We prefer to do a simple screening by slit-lamp examination and talk to the patients about symptoms. If more advanced testing is needed, we have the necessary technologies available. If more advanced screening is to be implemented as routine, it has to be evidence-based and actually make a difference for the final result and patient satisfaction.

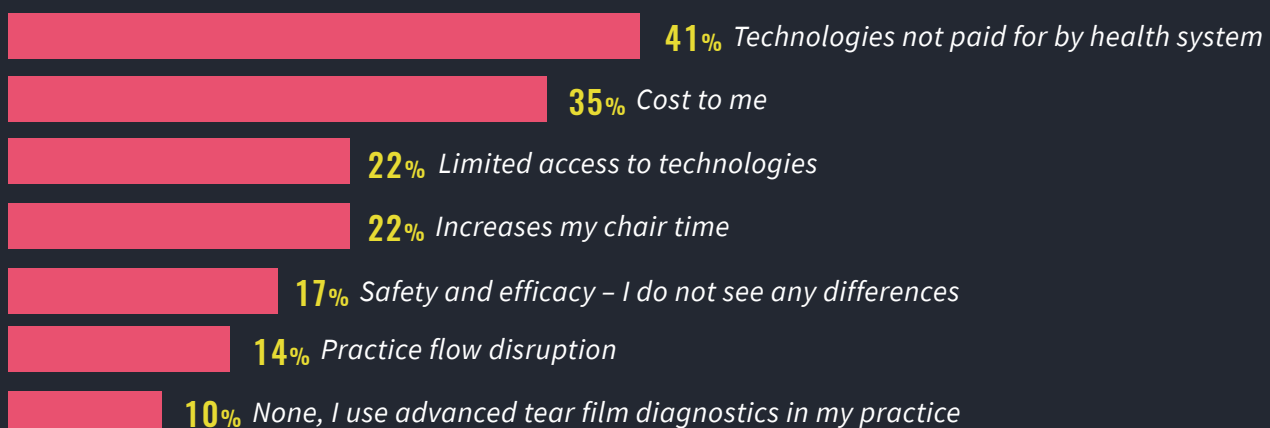
OSD & MGD Treatments

Mild OSD is treated with artificial tears and lid hygiene, but there seems to be limited evidence for any beneficial effect of oral omega-3. In my clinic, we do not recommend this approach. We may suggest the use of a mild topical steroid twice daily (hydrocortisone 3.35 mg/mL) for two weeks and then slowly taper it off. In severe dry eye cases, we also use punctal occlusion, special soft or scleral RGP contact lenses and eventually serum eye drops.

In patients with MGD, conventional commercial warm compresses are used, and if ineffective, we recommend the use of azithromycin drops twice daily for three days, repeated after two weeks. If even that fails to work, we use doxycycline/tetracycline orally. We base treatment adjustments on subjective complaints and traditional objective findings by slit-lamp examination. With persistence and a range of treatments, both OSD and MGD can be resolved usually within a month.

“ In severe dry eye cases, we also use punctal occlusion, special soft or scleral RGP contact lenses and eventually serum-eye drops

Key objections to including advanced tear film diagnostics in a practice:





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EUROPEAN SOCIETY OF
CATARACT & REFRACTIVE
SURGEONS