

**The Optometric Trends Discovery Group's  
2023 Report on**

**Corneal & Lens-Based  
Refractive Surgery:  
INSIGHTS &  
TRENDS**

**By Dr. Justin Schweitzer, OD, FAAO**



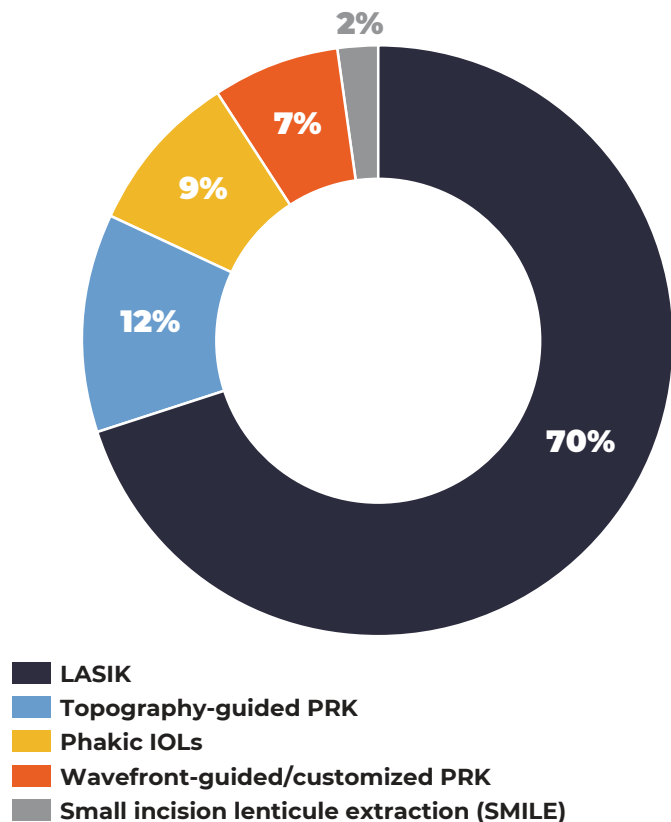
**FUNDINGSLAND  
GROUP**

Optometrists play a crucial role in **corneal & lens-based refractive surgery**. Their responsibilities encompass pre-operative evaluations, ensuring patients are suitable candidates for surgery by assessing eye health and addressing conditions like dry eye. They collaborate closely with ophthalmologists to ensure optimal results, provide continuity of care, and address potential complications. By offering comprehensive care before and after surgery, optometrists are essential in ensuring the safety and satisfaction of patients undergoing corneal and lens-based refractive procedures.

Here we'll review data from the 2023 Optometric Trends Discovery Group (OTDG) Survey to better understand clinical practice patterns and opinions of US optometrists as they relate to the corneal and lens-based refractive surgery.

## Landscape of Corneal & Lens-Based Refractive Surgery Procedures

Based on the survey data, 72% of optometrists engage in co-management, with the average respondent overseeing 76 eyes annually. A notable highlight from the findings is that LASIK stands out as the most frequently co-managed and referred refractive procedure, as shown in Figure 1. I anticipate that LASIK will maintain its dominant position in the next five years, though there may be a slight decline. Conversely, I expect a modest rise in the prevalence of both topography-guided PRK and small incision lenticule extraction (SMILE). The growth in topography-guided PRK can be attributed to technological advancements and the evolution of corneal collagen crosslinking. These methods are already being embraced, evident in my own practice. As more insights and research emerge on SMILE, I expect its acceptance to steadily grow, fueled by continuous education on the technique and the advantages it offers.



**FIGURE 1.** What category are the majority of your referred/comanaged refractive procedures CURRENTLY?

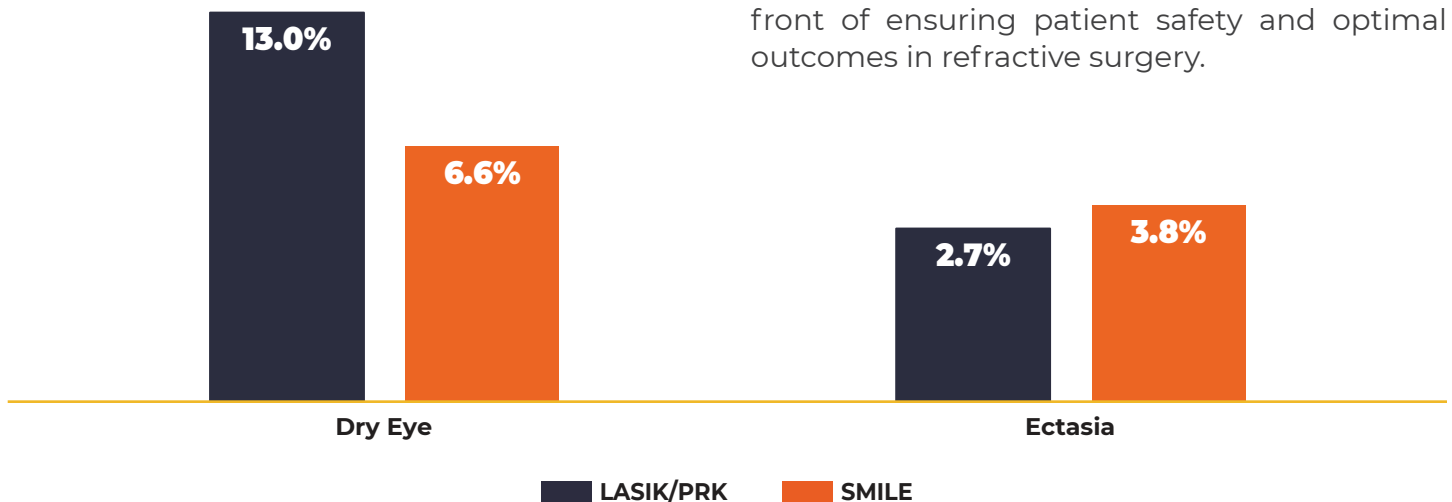
## Optimizing Refractive Surgery Outcomes

A recurring concern in many inquiries pertains to minimizing risks or complications in corneal refractive surgery. How do we achieve this? Why is it vital for optometrists to be vigilant about it? Since optometrists often make the initial recommendations, how can we ensure optimal results?

1. **Preoperative Dry Eye Treatment:** It's essential to address dry eye conditions before surgery. Neglecting this can lead to complications that compromise patient comfort and visual outcomes. An assertive approach to treating the ocular surface is imperative.
2. **Tomography:** Tomography remains the gold standard for identifying early signs of ectasia or keratoconus. Although not every optometrist possesses this technology, there are other risk assessment methods. For instance:
3. **Family History:** A patient's family background can provide insights. Some genetic tests can gauge the risk, though they should not be the sole determinants.

4. **Eye Rubbing:** Simply inquiring if a patient habitually rubs their eyes can provide a risk indicator.
5. **Corneal Biomechanical Properties:** Measuring properties like corneal hysteresis can be indicative. Though the data is mixed, some findings suggest a thin cornea with low hysteresis may signal a heightened risk for early keratoconus or post-surgical ectasia.
6. **Epithelial Mapping:** This has gained traction in pinpointing early disease signs.
7. **Topography Measurements:** Noting K-values or topographies exceeding 47 diopters should raise concerns.
8. **Inter-eye Asymmetry:** A significant discrepancy in astigmatism between the eyes, like one eye at -1 Plano sphere and the other at Plano -2 sphere, is a warning sign.
9. **Rapid Astigmatism Changes:** Swift shifts in a patient's astigmatism are alarming.

In conclusion, while advancements provide optometrists with various tools and techniques, their expertise and diligence remain at the forefront of ensuring patient safety and optimal outcomes in refractive surgery.



**FIGURE 2.** What percentage of your LASIK/PRK or SMILE patients experience dry eye or ectasia after the procedure?

## Adverse Events Following Refractive Surgery

An intriguing observation shown in Figure 2 is that respondents believe that patients undergoing SMILE, in comparison to LASIK and PRK, are less prone to dry eye but more inclined to experience ectasia. There is much debate about whether any marked difference in the incidence of dry eye following LASIK and SMILE procedures, but I would like to highlight a few studies that I think help inform this topic.

A 2015 study found that, over a six-month period, SMILE patients experienced fewer dry eye symptoms than those who underwent LASIK.<sup>1</sup> This initial result was confirmed by a 2020 study found that both procedures, LASIK

and SMILE, result in decreased corneal sensitivity.<sup>2</sup> In the first six months, the effects are more pronounced in LASIK than in SMILE. Yet, by the end of the first year, the difference between the procedures isn't statistically meaningful. This study further found that when evaluating the Ocular Surface Disease Index (OSDI) and patient-reported dry eye symptoms, no distinction was found between LASIK and SMILE. So over the first 6 months post-procedure, those concerns of elevated risk dry and decreased following LASIK relative to SMILE may be warranted, but this difference doesn't appear to persist long-term.

## Phakic IOLs

Patients with myopia are considered ideal candidates for phakic IOLs. While those with lower degrees of myopia might explore alternatives such as LASIK, PRK, or SMILE, it is crucial to discuss the potential benefits of phakic IOLs with them. High myopes, in particular, are well-suited for phakic IOLs, as they often do not meet the criteria for corneal refractive surgeries like LASIK, PRK, or SMILE.

Should these patients elect to get a phakic IOL, optometrists are equipped to manage these patients both on the front end and back end of surgery. One front-end role is in educating patients on the advantages of phakic IOLs. Briefly, one advantage of phakic IOLs over corneal refractive surgery is their ability to spare the cornea, making them an excellent option for patients for whom corneal surgery may not be suitable. Moreover, phakic IOLs are associ-

ated with a reduced risk of visual disturbances like glare, halos, and low-light issues, which can be more common in high myopic treatments.

Moreover, should the patient choose to pursue phakic IOL surgery, optometrists help prepare the ocular surface to obtain the best possible outcome, like they would with other refractive procedures.

Anticipating the growth of phakic IOLs is a reasonable expectation, driven by the increasing number of patients seeking alternatives to glasses and contact lenses. As patient demand continues to rise, ongoing technological advancements in phakic IOLs promise to further enhance their performance and safety, making them an increasingly attractive option for a diverse range of individuals seeking refractive solutions.

---

1. Denoyer, A., Landman, E., Trinh, L., Faure, J. F., Auclin, F., & Baudouin, C. (2015). Dry eye disease after refractive surgery: comparative outcomes of small incision lenticule extraction versus LASIK. *Ophthalmology*, 122(4), 669-676.

2. Ma, K. K., & Manche, E. E. (2022). Corneal sensitivity and patient-reported dry eye symptoms in a prospective randomized contralateral-eye trial comparing laser in situ keratomileusis and small incision lenticule extraction. *American Journal of Ophthalmology*, 241, 248-253.

# Did you KNOW?



**91%**

of respondents are confident in managing corneal refractive procedures postoperatively



**7.2%**

of currently comanaged refractive surgery patients are considered candidates for phakic IOL procedures



**24%**

of respondents believe there is a significant adverse impact of LASIK on the sales of contact lenses and spectacles in their practice

# The Optometric Trends Discovery Group

(OTDG) Survey was launched on February 4, 2023. The survey included 141 questions developed and reviewed with the OTDG leadership board. The survey questions explored doctors' understanding and current practice patterns across a number of areas of optometric care, including presbyopia, astigmatism, corneal therapeutics, ocular surface disease, glaucoma, lid management, corneal refractive surgery, dry AMD and geographic atrophy, and myopia management.



Nearly 300 optometrists responded to the survey which was closed in mid-March 2023. You can access interpretive reports on additional OTDG topics as they are released by visiting [otdg.tfgeducation.com](https://otdg.tfgeducation.com) or scanning the QR code.



## Meet the Board

MELISSA  
BARNETT



MARC  
BLOOMENSTEIN



GLORIA  
CHIU



CECELIA  
KOETTING



SELINA  
MCGEE



MOHAMMAD  
RAFIEETARY



JUSTIN  
SCHWEITZER



ERIN  
TOMIYAMA



## Meet the Author

*Dr. Justin Schweitzer*  
OD, FAAO



Dr. Justin Schweitzer is a fellowship-trained optometrist specializing in the treatment of glaucoma, corneal-related vision conditions, and cataracts at Vance Thompson Vision in Sioux Falls, SD.

An adjunct clinical professor at The Illinois College of Optometry and Kentucky College of Optometry, Dr. Schweitzer is a national leader in glaucoma, anterior segment surgery, and anterior segment pathology who lectures to his colleagues nationwide.

Dr. Schweitzer is a member of several industry organizations, has held many leadership positions within them, is the current president of the South Dakota Optometric Society, and is involved in community eye care initiatives. He currently serves as a chief medical editor for Modern Optometry and is the Optometric Externship Director for the Illinois College of Optometry at Vance Thompson Vision.

Justin looks forward to time with his wife, Nissa, and their two children. Some of his favorite pastimes are camping, spending time at the lake, running, biking, and swimming.

A Minnesota Vikings fan, Justin loves following his team throughout their NFL football seasons and counts down to their season opener regardless what time of year it is.