

IS A REFRACTIVE CATARACT FELLOWSHIP NEEDED?

Four on four: surgeons answer *CRST*'s questions.

BY GILLIAN McDERMOTT, MA, EDITOR-IN-CHIEF

CRST has devoted countless pages to optimizing the refractive outcome of cataract surgery. Contributors have shared their insights into managing astigmatism, honing nomograms, refining surgical technique, addressing ocular surface disease, and making the best use of modern instruments and technology. With so many tools and techniques available, it is reasonable to wonder if ophthalmologists are receiving the education they need. *CRST* posed four questions to four established surgeons.

NO. 1. IS MODERN RESIDENCY TRAINING ON REFRACTIVE SURGERY, INCLUDING CATARACT, SUFFICIENT?

Based on his experiences with current residents, Chief Medical Editor Robert J. Weinstock, MD, says no. "It's become quite clear to me that it is just not possible to learn everything there is [to know] about cataract and refractive surgery in residency," he explains. "It has become its own subspecialty and increasingly complex in the past few years." Dr. Weinstock says it would be very challenging to expose residents to all of the different types of IOLs available, femtosecond lasers, pre- and intra-operative diagnostic devices, and surgical guidance systems, not to mention refractive surgical procedures such as LASIK, PRK, corneal inlays, and the Visian ICL (STAAR Surgical).

Elizabeth A. Davis, MD, a partner at Minnesota Eye Consultants in Bloomington, Minnesota, concurs: "There is mostly a focus on the mechanical skills of cataract surgery and less on the refractive assessment, discussion, and corrective options for patients." She asserts that residents do not receive adequate education on laser refractive surgery, which "is almost a mandatory part of a comprehensive refractive cataract training."

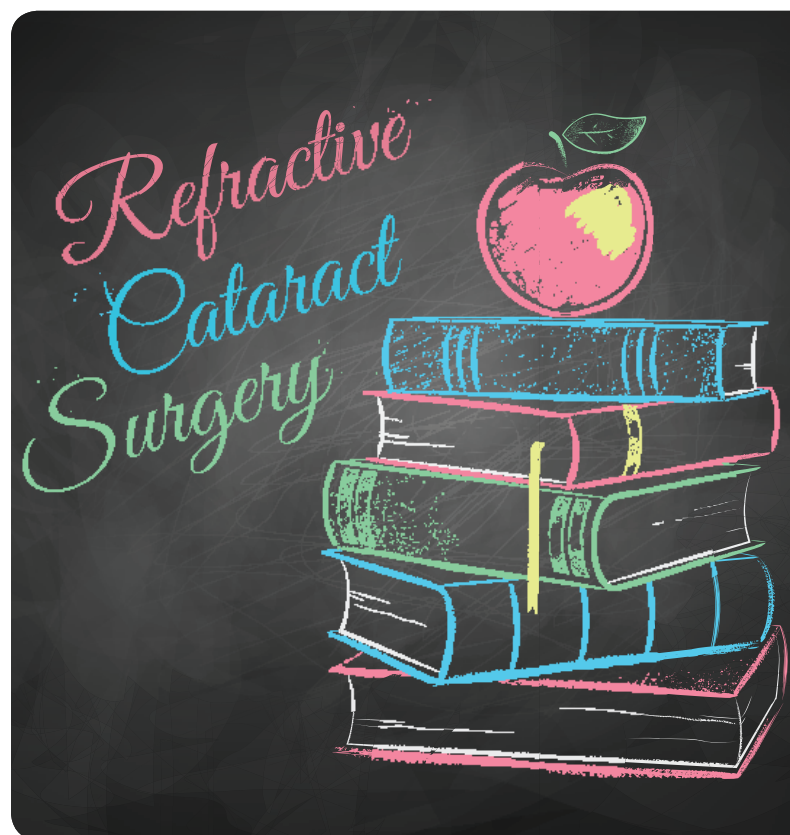
Because of their focus on disease-based medicine, university programs are not providing much guidance on "the



Robert J. Weinstock, MD



Elizabeth A. Davis, MD



private-pay part of ophthalmology," says Daniel S. Durrie, MD, founder of Durrie Vision in Overland Park, Kansas. He states that, once they complete residency, if young ophthalmologists want to pursue high-quality refractive surgery, they generally must rely on attending industry-sponsored meetings or other outside training. Dr. Durrie started a residency training program more than 15 years ago with seven Midwestern universities in an effort to provide young ophthalmologists with some of the basics in this area. The doctors attended a weekend didactic course and a weekend laboratory course, but



Daniel S. Durrie, MD

FOURTEEN QUESTIONS NOT ADDRESSED IN RESIDENCY

BY VANCE THOMPSON, MD



Vance Thompson, MD

- 1 Do you feel comfortable with refraction, including assessing best-corrected image quality?
- 2 Can you measure ocular dominance?
- 3 Are you comfortable performing a refraction with both of the patient's eyes open in order to assess which one he or she finds more comfortable for reading and which eye for distance? Presbyopic patients do not always want their dominant eye set for distance and their nondominant eye for near; sometimes, it is the opposite that brings them the most joy and comfort.
- 4 Can you measure the physical and optical health of the tear film and understand its importance in accurate diagnostics, wound healing, and vision?
- 5 Are you comfortable reading the topography of the posterior or anterior cornea, and do you understand the maximum reasonable steepness for a hyperopic laser ablation and the maximum flatness appropriate for a myopic laser ablation?
- 6 Can you read a wavefront map, apply it to the patient's slit-lamp examination and age, and understand if the best treatment to recommend is nothing, conventional, wavefront guided, or wavefront optimized?
- 7 Do you understand optical scatter and irregularities and how to localize them to the tear film, cornea, or lens with the history, examination, and modern-day diagnostic instruments such as the HD Analyzer (Visiometrics), iTrace (Tracey Technologies), and Pentacam (Oculus Surgical)? Can you comfortably use this information to counsel a 56-year-old man whose Snellen visual acuity is correctable to 20/20 that he should not have laser vision correction because of the nighttime glare (that he is not telling you about) from increased lenticular aberrations caused by early nuclear sclerosis that is not perceptible at the slit lamp? Will you be able to explain that his best option is a refractive lens exchange, be it in 1 month or in 10 years, and that doing nothing is absolutely OK and better than laser vision correction at this point?
- 8 What would you say to a 30-year-old wanting laser vision correction who has a BCVA of 20/25, a normal slit-lamp examination, a healthy retina and optic nerve, and normal topography? Do you recognize that an overrefraction with a rigid gas permeable contact lens would be of value and that, if it corrects his visual acuity to a crisp 20/20, then dry eye disease, anterior basement membrane dystrophy, or some other anterior corneal pathology is a concern and corneal laser ablation is likely contraindicated at this point? Do you see a path to making the patient happy?
- 9 What would you do diagnostically and potentially in terms of further treatment for a patient who undergoes LASIK for -6.00 D of myopia and presents 6 months later unhappy with the plano manifest refraction and 20/20 UCVA?
- 10 Can you measure the corneal aberration profile of a patient desiring a multifocal IOL and use that information and angles alpha and kappa to make a recommendation and manage his or her expectations?
- 11 Can you help a 62-year-old with 20/20 BCVA who underwent LASIK 15 years ago and feels she cannot drive at night understand that lens surgery is probably her best option? Do you know the tests to conduct to prove this to yourself and to her?
- 12 What would you do for a demanding engineer who seems perfect for laser vision correction in all tests and discussions? How would you set reasonable expectations? If the patient were unhappy with a plano result after LASIK, what diagnostics would you perform, and how would you satisfy the patient?
- 13 What are the implications of operating on a cornea that is 480- μ m thick in an 18- versus a 65-year-old?
- 14 Have subtle topographical changes ever made you suspect patients are frequently rubbing their eyes? Would you ask them to demonstrate that behavior so as to judge if it is potentially harmful? Would you refuse to perform refractive surgery until such a patient demonstrated an ability to stop rubbing his or her eyes?

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much remained uncovered, he says. For example, attendees did not learn how to talk to patients, how to select the best candidates for procedures, how to determine which procedure best suits a given patient, or how to assess equipment. "They certainly didn't learn any of the business of refractive surgery and marketing and the other details," Dr. Durrie remarks. "So, I think it's been necessary for anybody who really is serious about making this a significant part of their practice that they've had to look for outside training. It just isn't available in the universities."

Vance Thompson, MD, is the director of refractive surgery for Vance Thompson Vision in Sioux Falls, South Dakota, and a professor of ophthalmology at the Sanford USD School of Medicine. His response to CRST's question was to pose 14 of his own that he says represent a fraction of refractive surgery (see *Fourteen Questions Not Addressed in Residency*). Refractive corneal, lens, and phakic IOL surgery is a discipline fine-tuned through extensive reading and listening to other surgeons, Dr. Thompson asserts, and he adds that a fellowship can therefore be extremely helpful.

No. 2. HOW HAVE DEMOGRAPHIC CHANGES ALTERED WHICH PROCEDURES ARE TAUGHT IN REFRACTIVE SURGERY FELLOWSHIPS?

In the early 1990s, Dr. Thompson was researching PRK, but radial keratotomy (RK) was the most common form of refractive surgery. "It was also a time of learning automated lamellar keratomileusis, and because I made a lot of flaps (well past the minimum to be in the study) and had an excimer laser in the PRK trials, it led to the opportunity to be in the first hinged-flap LASIK study in our country," he recalls. "That was a transition time from RK's being the most common procedure in the early 90s to PRK in the mid-90s to LASIK in the late 90s. Whatever was the most common procedure of that time was the most common procedure taught in fellowship. In the mid-90s, the same surgeons that introduced PRK and LASIK to the world worked hard on phakic IOL research for very high corrections, and eventually, approval was obtained. And, if anything is the hallmark of refractive surgery in this century, [it] is the amazing technologies the companies have brought us for understanding the aging of the lens diagnostically and, not only when to *not* perform corneal laser refractive surgery, but [also] when to perform lens-based surgery and then, if necessary, use the laser to fine-tune the vision to truly hit the refractive endpoint meant for that implant rather than leave the patient's vision 90% optimized. The lasers and implants have improved so much that restoration of both lens functions of clarity and reading ability are now commonplace in our practice."

Dr. Thompson continues, "If someone wants to deliver whatever is the most respected refractive procedure(s) of that era, they need to be able to deal with change through



AT A GLANCE

- Residency programs generally focus on the mechanical skills of cataract surgery. Residents lack exposure to the refractive side of the procedure and to the wide array of technologies available. Training on refractive surgery has also decreased as the LASIK market has sagged and cataract volume has increased.
- Surgeons interested in refractive cataract surgery will require additional training to fill in the gaps of residency. According to the panel, an excellent option is to pursue a fellowship in this discipline.
- Peer-to-peer education can move the field forward and benefit patients.

a passion for excellence and focused study of new diagnostic and treatment technologies and how best to use them."

According to Dr. Weinstock, residents were able to gain extensive education on and experience with corneal refractive procedures from 1998 to 2004, the so-called LASIK boom. LASIK volumes have consistently declined during the past decade, however, and so has residents' exposure. At the same time, the aging of the baby boomers has dramatically increased cataract surgery volume. "These patients' expectations, along with an explosion of new technology in the cataract realm, have transformed 'refractive surgery' from a mostly cornea-based specialty to include lens-based surgery," Dr. Weinstock states.

Dr. Davis agrees. "Given the aging population, there is more emphasis on teaching refractive cataract surgery, [but] in our fellowship, we are quite comprehensive," she remarks.

The major trend to watch in ophthalmology right now, Dr. Durrie asserts, is one of gender. "If you look at the people who are in ophthalmology now, 74% of them are male, but the majority of ophthalmologists in training right now are female," he says. "This is a very important demographic switch." It is one that excites Dr. Durrie, whose daughter is an ophthalmologist, and one that he says will influence the field. For one thing, he says, "I [have] found that female ophthalmologists are very interested in refractive surgery." This in itself may affect residency education and the pursuit of a fellowship in this specialty. He adds that the gender shift also pressures residency programs to pay more attention to lifestyle choices. As chairman of the American Academy of Ophthalmology's subspecialty day committees,

Dr. Durrie says he and colleagues are already discussing how the organization can adapt to demographic changes.

No. 3. HOW IMPORTANT IS IT FOR SOMEONE WHO WANTS TO FOCUS ON REFRACTIVE CATARACT SURGERY TO DO A FELLOWSHIP IN THIS DISCIPLINE?

None of the surgeons with whom *CRST* spoke argue that a fellowship in refractive cataract surgery has become mandatory, but they agree that all new surgeons will require further education, whether in the form of a fellowship or not.

Comments Dr. Davis, "It is possible to go without a fellowship, but likely, the surgeon will need to seek additional training on their own after residency to make up for the deficiencies."

According to Dr. Durrie, almost all residency programs do an excellent job of teaching basic cataract surgical skills, but that is not enough. "In order to do refractive cataract surgery, and especially refractive lens exchange, you know, on a 50-year-old who expects near and distance vision without glasses for a lifetime, you have to learn refractive surgery skills," he points out. "It's not something that's just going to come from the cataract side, so I think that there is a big gap here and real need for a better system of training in the refractive surgery skills." Additional necessary areas of education for young surgeons, he says, are how to build a refractive surgery practice, measuring and improving patients' and employees' satisfaction, whether or not to participate in insurance plans, and how to access a pool of patients who have cataracts.

Echoing a point made earlier in this article, Dr. Thompson says the emphasis in refractive surgery has shifted from the cornea to judging whether to recommend a cornea- or lens-based surgery. Although the number of refractive surgery consultations has held steady at his practice over the past 2 decades, the volume of lens-based surgery is much higher than in the past. Dr. Thompson says they are doing less LASIK compared to 10 to 15 years ago not because of fewer consultations but owing to a better understanding of when to operate on the cornea and when not to. He says that young surgeons who are comfortable with that change and can answer his aforementioned 14 questions may not need a refractive surgery fellowship. For those who do not receive this level of training during residency, a fellowship is very helpful. "Have I seen surgeons who did not get this level of residency training become excellent at refractive corneal and lens surgery without a fellowship?" he asks. "Indeed I have, but it was with great commitment to intensive study, including travel and time spent with other refractive surgeons who are always willing to teach these things. That is why we [ie, Vance Thompson Vision] have a fellowship in anterior segment surgery, and it is why we host surgeons and their staff: we love to teach."

According to Dr. Weinstock, "Fellowships can be an

extremely rewarding and valuable experience. Some would say we are moving in a direction where a fellowship in cataract and refractive surgery will be considered as mandatory as a retina or corneal fellowship in order to get the necessary skills and knowledge to be a safe, competent, and successful surgeon. Can you be successful without a fellowship? Of course you can. There are always opportunities to work hard [and] learn in residency or even once you are in practice. What is probably the most important point, regardless of whether one does a fellowship or not, is to find a mentor. A good mentor is often the key to a rapid learning curve and successful transition into practice after residency."

No. 4. IS THERE A ROLE FOR A MORE FORMAL FELLOWSHIP IN REFRACTIVE CATARACT SURGERY?

Dr. Davis' answer to this question is a resounding yes. "I did a fellowship in refractive, cataract, and cornea surgery and felt that it gave me an expertise and confidence I wouldn't otherwise have had," she explains.

"I do feel there is a role for a more formalized training process," Dr. Weinstock comments. "Things have changed so much. Cataract patients' expectations have become very high. They are looking for a fast, safe, painless, and quick-recovery procedure where they no longer have to wear glasses. The technology has exploded, with dozens of implants and devices to master. My partner Neel Desai, MD, and I were inspired to start a fellowship in cataract and corneal refractive surgery last year, and it has been one of the best decisions we have made. I urge my colleagues that are experts in this space and love to teach to take a fellow. Teaching your craft will allow you to have a much bigger impact on many more patients than you could ever accomplish yourself. It will also make an amazing impact on the fellows' careers, and they will appreciate it forever."

In his response, Dr. Thompson cites his strong refractive philosophy toward cataract surgery. Noting that refractive cataract surgery has revolutionized his practice, he asserts that it will be the most exciting area of ophthalmology in the future, and he expresses great excitement about IOL technologies in development that will allow surgeons to better customize patients' visual outcomes. With that in mind, he says, "It is worth putting in the time to learn refractive cataract surgery well, and a fellowship is [a] wonderful way to do that. If you are in private practice and you can't do a fellowship, you can learn refractive cornea and lens surgery with a commitment to time and excellence, and it will add a dimension to your professional life that will bring you joy and fulfillment in your career for the rest of your practicing days."

The idea of a refractive cataract surgery fellowship is timely, notes Dr. Durrie. He was asked by the Refractive Surgery Alliance (refractivealliance.com) to put together a formal

educational program for ophthalmologists in refractive surgery. Dr. Durrie, who has taught a fellowship program in refractive surgery for the past 35 years, is asking about 50 fellows who have trained with him to serve on a steering committee of sorts to help him create this MBA of refractive surgery, as he is calling it. He explains, "Somebody not only in residency training but somebody that's been out in practice for years could invest the time, just like you did if you decided to go get your MBA in business, but you can spend the time and have a set-up curriculum that you can go and train with the best and learn all the details that you need to be successful in this."

Dr. Durrie is excited about the effort and says the former fellows he has enlisted are, too. Whereas he himself can only train one or two fellows per year, he notes that this program can serve larger numbers of people.

"I was fortunate enough to grow up in refractive surgery in the late 70s, early 80s, and at that point in time, we taught each other," he recalls. "Industry wasn't involved." Dr. Durrie and his colleagues took courses and met collaboratively to design better instruments and procedures such as keratomileusis and RK that gave rise to LASIK, corneal inlays, and refractive lens exchange. Unfortunately, he says, residency programs and professional ophthalmology did not endorse the efforts. "What happened is industry came in and then started providing education on this laser or this lens implant

or this phaco machine," he continues. "... [We] moved away from kind of the classic peer-to-peer educational process that made [the field] grow so rapidly in the early stages. And then, it's been about companies fighting over market share or my laser's better than your laser, and it got more into what the businesses wanted to see rather than what our patients needed and what practices really needed. So, I think that we've come kind of full circle. That hasn't worked very well. Refractive surgery is not growing, and I think it really comes down to not [having] the proper educational [approach] so [that] an ophthalmologist can have the confidence that he [or she] can put the time and the resources and energy into having a successful practice in refractive surgery. And people just kind of dropped back to, you know, doing cataract surgery, because that was something they had the basis in."

Dr. Durrie sees a need for a return to peer-to-peer education in ophthalmology. "We don't need industry to tell us what the best equipment is," he says. "We need to tell the industry what they need to create for us." Ophthalmologists need to resume teaching each other, he argues, and a refractive cataract surgery fellowship fits this model. "It's a good move forward," he concludes. ■

Dr. Weinstock is a consultant to Abbott Medical Optics, Alcon, Bausch + Lomb, and STAAR Surgical.