An Argument for
Formalized Training in
Laser Refractive Surgery

Formal training would best prepare residents and fellows to become safe, competent refractive surgeons.

By David S. Gartry, MD, FRCS, FRCOphth, DSc(Hon), BSc(Hons), DO, FCOptom

In the United Kingdom, laser refractive surgery is the second most common surgical procedure after cataract surgery, with approximately 125,000 procedures (mainly LASIK with femtosecond laser flap creation) performed per annum in approximately 110 clinics. Despite significant patient demand for this highly successful treatment, government hospitals do not currently offer formal training in laser refractive surgery. Generally speaking, most consultant ophthalmologists in the United Kingdom are fully trained to practice cataract surgery, with approximately 125,000 procedures performed per annum. However, laser refractive surgery requires a separate set of skills. Whereas a junior doctor or fellow becomes specialized in performing cataract surgery through working closely with an experienced supervising consultant for several years, this scenario is not applicable to laser refractive surgery; large training facilities do not currently exist for this subspecialty. How does one get trained to do this work?

GOVERNMENT VERSUS PRIVATE

Of the approximately 4,600 laser refractive procedures performed in 2010 at Moorfields Eye Hospital, 92% were private and 8% were funded by the National Health Service (NHS). Unlike fully government-funded procedures like cataract surgery, laser refractive surgery is generally considered a lifestyle choice. Some surgeons in the cornea and anterior segment subspecialties who do not support laser refractive surgery label it cosmetic surgery. They consider that because the patient can usually wear spectacles or contact lenses, they should not take any unnecessary risk, however small. This of course ignores the risks associated with contact lenses. (Contact lens infective keratitis is still more common than infection associated with LASIK.)

The NHS will fund laser refractive surgery only for clinically relevant indications. For example, laser treatment is deemed clinically relevant if refractive error is iatrogenic (ie, created by previous cataract or corneal surgery) or if there is a large, intolerable difference in spectacle prescriptions between eyes (ie, anisometropia). The NHS will also fund laser refractive surgery for patients who have severe disability due to stroke or trauma and patients with neurologic conditions, such as Parkinson disease or multiple sclerosis, and are physically unable to put their spectacles on or take them off without help. These are the minority indications, as evidenced by the relatively small number of NHS-funded pro-

Point/Counterpoint:
Should Training in Laser Refractive Surgery be Formalized?

Two surgeons from different subspecialties discuss their views on where laser refractive surgery belongs in teaching hospitals.

BY DAVID S. GARTRY, MD, FRCS, FRCOPTH, DSC(HON), BSC(HONS), DO, FCOPTOM;
AND JOHN DART, MA, DM, FRCS, FRCOPTH
 procedures carried out each year at Moorfields. As a result, the vast majority of patients undergoing laser refractive surgery are private patients who choose to pay for the services of an experienced physician. These patients do not want to be offered surgery by a junior surgeon or a fellow in training. This presents the problem of how to properly train young ophthalmologists to perform the mechanics of laser refractive surgery and conduct pre- and postoperative assessments. Additionally, the absence of training in government hospitals, limited funding for laser refractive surgery from the NHS, and lack of support from anterior segment and corneal and external disease experts has made it difficult to generate backing for formalized training in laser refractive surgery.

CURRENT STANDARDS

Residents. There are no requirements in the United Kingdom for ophthalmology residents to receive any direct refractive training in laser refractive surgery. Junior doctors will encounter a few refractive laser surgery questions on their final examinations, but these require only superficial knowledge of the subject.

Fellows. After their residency, doctors can spend an additional year in a fellowship program gaining experience in a subspecialty area such as retinal, strabismus, or corneal surgery. There are currently no official 1-year refractive surgery fellowships in the United Kingdom. Some fellows who come to Moorfields to work in the corneal service have limited exposure to laser refractive surgery as part of their overall corneal fellowship, but this exposure is not uniform or consistent, and there is no specific syllabus or program in place.

Certification. Four years ago, the Royal College of Ophthalmologists (RCO) developed an examination in the field of refractive surgery with a formal syllabus and five main component parts. Surgeons gain the Certificate of Competence in Laser Refractive Surgery if they fulfill the RCO requirements and pass this examination. Key areas assessed include knowledge of the laser equipment, patient selection and counseling, management of complications, aspects of advertising, clinical governance, RCO guidelines for best practices, ethics, and the presentation of an audit/portfolio and case reports. Candidates must also provide evidence of continuing education and training, continuing professional development, and up-to-date appraisal. Attending short, 2-day courses offered throughout the United Kingdom on LASEK and other refractive laser procedures is also a popular means of education in this area.

A TEMPLATE FOR FORMAL TRAINING

I believe that training in laser refractive surgery should be a formalized part of resident and fellow training because it has become a commonly practiced and important subspecialty in ophthalmology. Ideally, residents would gain a working knowledge of this field by observing live surgery and spending time in refractive laser clinics to follow patients pre-, peri-, and postoperatively and to develop an awareness of how to manage patient expectations and complications.

In my opinion, a 6-month fellowship that functions like an apprenticeship, whereby the fellow is supervised until he or she is experienced enough to perform surgery independently, would effectively prepare young ophthalmologists to be safe, competent laser refractive surgeons. Over a 6-month training period, a fellow could conceivably complete 50 to 100 treatments, with the first 30 to 40 cases carefully supervised. The supervising surgeon would decide when the fellow is ready to treat on his or her own. Ideally, fellows would be trained in a range of laser refractive procedures, including LASIK with and without femtosecond laser flap creation, LASEK, epi-LASIK, and retreatments. In addition to learning the mechanics of surgery, fellows would also become skilled in the vitally important areas of patient selection, managing patient expectations, and dealing with complications. Hands-on pre-, peri-, and postoperative training would be essential.

I believe that, in an effort to offer residents and fellows training in refractive laser surgery, formal programs should be set up in teaching hospitals such as Moorfields. For this type of proposed program to function, an experienced laser refractive surgeon might devote 1 day per week to running a clinic and treating patients for a significantly reduced hospital fee, perhaps in tandem with a local optometry department. The optometrists, visual scientists, hospital residents, and fellows could form the basis of this refractive clinic. Residents would not be trained in surgery but rather in preoperative patient counseling and postoperative management. Fellows would gain hands-on surgical experience as well as experience in pre- and postoperative assessment.

In addition to the obvious benefit of providing residents and fellows with substantial training in laser refractive surgery, this program would present opportunities for research and long-term follow-up. Patients would receive services either free of charge or at a significantly reduced rate on the basis that they agree to return for follow-up. Typically, private laser refractive surgery patients are young, busy, and active professionals. As such, they are less likely to come back for longer-term follow-up unless it is part of a reduced fee agreement made in advance.

CONCLUSION

Over the past 21 years, since I carried out the first PRK treatments in the United Kingdom, laser refractive surgery has evolved to an extremely high level of sophistication,
REFRACTIVE SURGERY BONUS FEATURE

with numerous advances leading to almost fail-proof methods of ensuring that our patients achieve excellent results. In the same way that contact lenses were resisted initially but are now accepted as a viable and safe form of refractive correction, laser refractive surgery is here to stay despite criticism from certain quarters. In a sense, a paradigm shift has already occurred. The criticisms leveled against procedures such as LASIK in the early- to mid-1990s no longer apply. Rather, refractive laser procedures are safe and highly successful and represent a significant advance in ophthalmic surgery. Therefore, it is crucial that doctors entering our profession be properly trained in laser refractive surgery to provide our patients the service, expertise, and results that they expect and deserve.

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Laser Refractive Surgery: A Public Versus Private Matter

A cornea and external disease subspecialist provides his perspective on training in laser refractive surgery.

By John Dart, MA, DM, FRCS, FRCOphth

In the United Kingdom, ophthalmic surgeons are trained almost exclusively within National Health Service (NHS) public sector hospitals. The NHS provides most of the health care for the UK population (86% in 2006) and provides the same procedures as in the private sector, except for those that are not considered to be for medical indications. These include cosmetic plastic surgery procedures such as facelifts and, in ophthalmology, refractive surgery procedures for low myopia and hyperopia. For this reason, surgical training for nonmedical indications is limited in the United Kingdom, as private hospitals are not set up for training.

In hospitals where corneal lasers are available to NHS patients for medical indications, these lasers are normally funded by the private sector for refractive procedures but...
made available to the relatively few NHS patients who need laser procedures for medical indications. This arrangement has generally been possible only in large NHS ophthalmology clinics, such as that at Moorfields Eye Hospital, so that training in the medical aspects of laser (as well as the nonmedical refractive indications) has been limited in the United Kingdom. The major medical indications for the use of corneal lasers in the subspecialty of cornea and external disease include phototherapeutic keratectomy (PTK) for managing ocular surface diseases such as anterior corneal dystrophies; laser refractive surgery for postkeratoplasty or postcataract anisometropia and astigmatism that cannot be successfully managed with contact lenses; and recently, laser-assisted keratoplasty. This article addresses the issues relating to access to training in corneal laser surgery for those undertaking cornea and external disease training fellowships in the United Kingdom.

TRAINING
At Moorfields, we are fortunate to have corneal lasers that are funded by the Moorfields private service but made available for publicly funded NHS treatments for medical indications. As a result, fellows who work in the cornea service for 1 to 2 years will have reasonable exposure to using corneal lasers. They will be trained in PTK and laser refractive surgery for postkeratoplasty and postcataract anisometropia and astigmatism. Two colleagues perform laser-assisted keratoplasty; they are exposing trainees to this, but the procedure currently adds substantial costs and time to keratoplasty with uncertain benefits, presenting us with funding issues. I train my fellows in PTK, but not in laser refractive surgery because I no longer practice this. I pass that task on to my colleagues, most of whom are performing laser refractive surgery regularly, and who provide some training in this for fellows.

Because corneal lasers are generally available only in private institutions, corneal laser surgery training is not formally available to residents and fellows within the NHS in most centers. Instead, training in refractive laser surgery is conducted outside the formal NHS-based training system at short, multiday courses. This is a dilemma because cornea and external disease subspecialists require training and access to corneal lasers for medical indications, but there is little resource within the NHS for providing this training. However, it is now possible to fund NHS hospitals partly from any private sector work that pays for the use of NHS facilities. This income stream generally comprises a facility fee that is used by the hospital to provide additional funding for both its NHS and private facilities. The surgery fee is retained by the surgeon.

A HOSPITAL-BASED SOLUTION
In an effort to offer residents and fellows training in refractive laser surgery and strengthen the position of refractive surgery as a more valuable fundraising endeavor for public hospitals, one solution may be to appoint salaried staff to perform refractive surgery. Patients would have the option of going through the hospital rather than a private surgeon. Currently, primary care providers fund all hospital procedures that are covered by the NHS. Because laser refractive surgery would still not be offered as a NHS service, patients would pay the hospital directly for their surgery. Thus, more money would be going into the hospital, making it more feasible for public hospitals to own a laser. Additionally, with refractive surgery being done in NHS hospitals, supervised training could be implemented and incorporated much more effectively than it currently is.

CONCLUSION
This scenario may be a solution for moving toward more formalized training in laser refractive surgery and positioning refractive procedures as more economically beneficial to public hospitals. However, refractive surgeons’ private work might be affected by competition with NHS-based refractive laser services in what are often well-established and highly regarded NHS ophthalmology clinics. This competition between privately and NHS-provided procedures is currently the case for all medical indications for treatment. Ultimately, positioning laser refractive surgery as a privately funded but NHS hospital-based procedure could allow more public hospitals to justify having a laser, which would be beneficial to cornea and external disease services, to trainees, and for refractive surgery in general in the United Kingdom.

TAKE-HOME MESSAGE
• In the United Kingdom, laser refractive surgery is generally not funded by the NHS, and teaching hospitals do not have formalized training programs in this field.
• A 1-day clinic that offers services at a reduced fee, or appointing salaried staff at teaching hospitals to perform laser refractive surgery, are potential scenarios that would allow residents and fellows to receive training in this field.

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