DISPATCH FROM DOWN UNDER

The state of glaucoma care in Australia.

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Geographically, Australia is a big country, with the same surface area as the mainland United States, but with only 10% of the population. Most people cluster in cities (Sydney and Melbourne are the largest), so the distance between the rest of the population can be substantial. Maintaining reasonable health care access for isolated patients in regional areas of Australia is a significant challenge.

GROWING NEED

At the Royal Victorian Eye & Ear Hospital, we face a large (and increasing) number of patients (> 50,000) in our ophthalmology emergency department, although a large proportion of patients could have been offered care remotely.

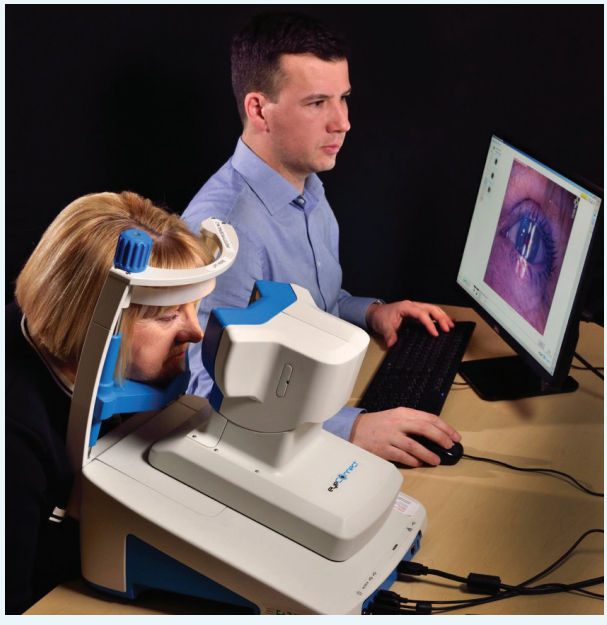

Figure 1. The eyeConnect device (Ingeneus; not available in the United States), which can be remotely controlled through the Web, takes high-quality anterior segment images, and packages data for asynchronous teleophthalmology consultation.

We have, effectively, the only site for urgent ophthalmology opinion in the state of Victoria (population 6 million).

Our emergency department services have been growing at an unmanageable rate, so in 2010, we aimed to reduce the burden on our services and decrease the community costs of unnecessary urgent care. We developed a 5-year plan that included the development of a teleophthalmology system that contained formulated history taking, visual function testing, high-quality anterior segment images (Figure 1), and IOP measurement.

Now that the system is in place, the tasks in the ophthalmic assessment are performed by emergency department physicians. We have developed a tonometer that can be used by providers who are not trained in eye care. It is intended to indicate normal (green), elevated (yellow), and markedly elevated IOP (> 32 mm Hg; red), and it has been shown to be quite accurate (Figure 2). The new system provides primary eye care triage for urgent anterior segment issues, which form the bulk of referrals to ophthalmologists. We also expect it to improve the diagnosis rate and the time to treatment for acute glaucoma.

OPTOMETRY

The role of optometry in the diagnosis and management of glaucoma continues to evolve. Although there has been an increasing role for optometry, there was a significant Australian State Supreme Court ruling last year that limited the role of optometry to the supply of existing medicines in the comanagement with an ophthalmologist. The ruling was unambiguous in the prohibition of initiating medicine for glaucoma by optometrists working independently from ophthalmologists.

SURGERY

Changing glaucoma surgery options continue to hit the headlines. Transtrabecular microinvasive glaucoma surgery devices have made some inroads into glaucoma care in Australia, although significantly less so than in the United States. Issues with reimbursement of the devices have made them less attractive, and the surgical code has yet to be worked out. *Value* is the catch-cry across the medical world, and as microinvasive glaucoma surgery generally represents

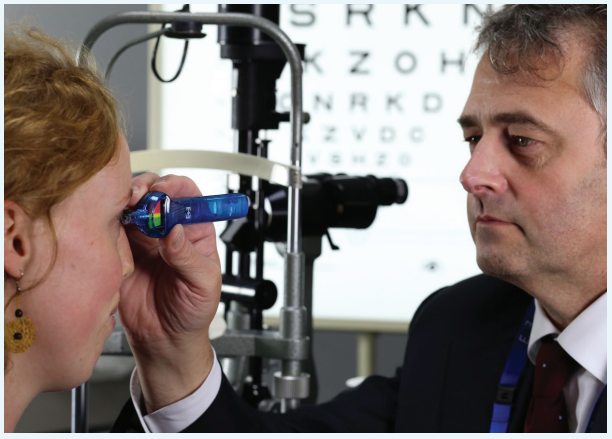

Figure 2. A simplified tonometer can be used by providers who are not trained in eye care.

increased cost and probably less lowering effect on the IOP than traditional surgeries, it is likely that there will be ongoing resistance to full funding of these devices.

DRUG DELIVERY

Drug delivery is an area we are excited to see coming along. The most promising development is targeted slow-release systems that are being developed by a number of companies. Allergan is evaluating its Bimatoprost SR anterior chamber delivery system, which is so far meeting (or exceeding) the company's expectations. Australia has been the largest site outside the United States for recruitment in the FDA trial (Figure 3).

Other companies are joining the movement for sustained release of ocular hypotensives. With the addition of other medicines, I look forward to having alternatives to topical administration for my patients with medically controlled glaucoma. This is especially helpful for the remote populations we treat.Targeting medicines to where they are needed, and at a much lower dose, reduces noncompliance and side effects, the two biggest problems we have with drops.

RESEARCH

The Centre for Eye Research Australia (CERA) is the biggest eye research organization in our region and ranks highly with the best in the world. CERA's managing director, Jonathan Crowston, MD, PhD, is focused on methods of detecting optic nerve health to get a lead index for glaucoma. There are compelling data on electroretinogram changes seen in the animal model, and glaucoma doctors may someday be able to reduce their reliance on the visual field and look more toward direct measures of nerve health. We are currently performing electroretinograms on our patients with glaucoma and hoping to refine the parameters to improve utility. CERA's glaucoma surgical unit has developed

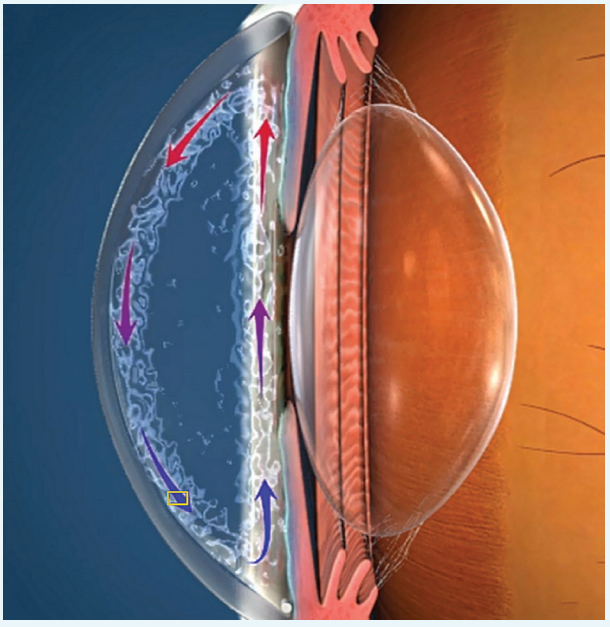

Figure 3. The Bimatoprost SR anterior chamber delivery system.

a new implant—it has two tubes and is for experimental use only—that we use for testing the porosity around the plate. Modeling and experimental evidence suggest that capsular porosity is the most important element determining the IOP following glaucoma surgery. We can now directly measure capsular porosity directly using the CERA implant, and the information about the factors that affect success and failure of an operation are likely to be surprising. Our site continues to train future generations of glaucoma specialists to meet the demanding challenges of huge geography, limited providers and access, and continued limitations in health care budgets. ■

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