

Making the Most of One's Residency Program

Trainees share their experiences.

BY ELSIE CHAN, MBBS; GUENAL KAHRAMAN, MD; LEONOR S. KOETSIER, MD; EUGENE Y.J. NG, MRCPHth; AND CHARL G. WEITZ, MBChB

Training in the United Kingdom



BY ELSIE CHAN, MBBS

I am currently completing a fellowship at St. Thomas' Hospital, a large teaching hospital in London. I commenced my ophthalmology training in Australia, and I completed it in the United Kingdom.

In the United Kingdom, ophthalmology specialist training is a 7-year program that involves rotations through district general hospitals and larger teaching hospitals in outpatient clinics, eye emergency clinics, and operating theater settings. It is a comprehensive training program that aims to provide each trainee with experience in all areas of ophthalmology. This structure is similar to the 5-year program in Australia.

I have enjoyed my experiences both at the Royal United Hospital, Bath, which is a district general hospital, and at St. Thomas' Hospital, London. At the Royal United Hospital, I was exposed to a large number of surgical cases as well as true general ophthalmology, meaning cataracts, diabetic retinopathy, age-related macular degeneration, and glaucoma. The advantage of working in a major teaching hospital is the increased exposure to subspecialty clinics and operating lists and unusual cases from tertiary referrals. Teaching hospitals also hold numerous weekly training sessions within the department and local and regional education days. Additionally, residents have the opportunity to work with other medical and surgical specialties on complex cases that require multidisciplinary input.

At St. Thomas' Hospital, I have had the opportunity to work with the internationally renowned cataract surgeon

David Spalton, FRCS, FRCP, FRCOphth. Mr. Spalton's vast knowledge, skills, enthusiasm, and dedication to clinical ophthalmology and research are inspirational. He has frequently amazed me in the operating theater by performing surgical cases that I have otherwise seen only at international meetings. Mr. Spalton also heads the cataract research group at St. Thomas' Hospital. Becoming involved with this group has motivated me to continue with long-term research. My training in Australia did not concentrate on research; therefore, pursuing research in the United Kingdom has been an invaluable experience.

While the UK Ophthalmology Specialist Training program is excellent and comprehensive, there are areas that could be improved. The first area is not easy to address and is probably ubiquitous. Trainees' experiences are dependent on the willingness of their individual consultants to teach and mentor. In order for residents to gain adequate experience to become competent surgeons, we must be offered a sufficient number and variety of surgical cases, as well as the opportunity to manage surgical complications.

Second, the needs of trainees are often at odds with the service needs of a hospital. There is increasing pressure on the National Health Service to provide health care to the general population. It is important that trainees and consultants continue to ensure that training future ophthalmologists remains a priority for both hospitals and governments.

Perhaps the greatest difficulty faced by trainees is the competition for consultant positions after completion of the long training period. There must be a more balanced workforce so that the intake of residents and consultant positions available after training are realistic.

As for myself, I am returning overseas in the latter part of 2010 to complete a subspecialty fellowship in cornea to complement the knowledge I have already gained. My hope is that this fellowship will provide me with adequate surgical experience to become a subspecialist. I think that working abroad has offered me a wonderful opportunity to develop as an ophthalmologist and a health care provider.

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Training in Austria



BY GUENAL KAHRAMAN, MD

I am currently in the fifth year of my ophthalmology residency. I have been training at St. John's Hospital, an academic teaching hospital in Vienna, for just over 1 year. My first 4 years of residency were completed at the Medical University of Vienna, in the Department of Ophthalmology. I have had the advantage of experiencing both medical settings.

The Medical University of Vienna is the largest university hospital in Austria. The program exposes residents to a wide spectrum of ophthalmology, thanks to rotations in all 19 departments and teams of ophthalmology, hands-on experience with various eye diseases, education in diagnostic and therapeutic strategies, and contact with many teaching personalities. Additionally, these programs emphasize research, as it is a prerequisite at the Medical University of Vienna to participate in research. Early in their training, residents are confronted with studies that must be conducted during or after working hours. The advantage of this is that one better understands how to perform studies, learn new diagnostic methods, write scientific articles, and participate in international meetings.

St. John's, which was founded in 1614 and is the oldest hospital in Vienna, has a highly frequented and well-known ophthalmology department comprising six consultants and four residents. Although we are involved with research, our main focus is patient care. In my opinion, the greatest advantage of working in a smaller hospital is the opportunity to conduct continuous patient follow-up. The flow of information among coworkers in such a setting is greater than in a hospital with a larger staff. Additionally, residents are given greater responsibilities and are able to work independently.

In Austria, residency takes 6 years to complete. In surgical

training, one usually starts with lid operations. In general, intraocular surgery starts in the third and fourth years; however, this depends on the head of the department and the consultant in charge of the group. There is no guarantee that every resident will receive intraocular surgical training. After 6 years of training, a resident will receive a certificate documenting his diagnostic and therapeutic skills. All trainees are required to pass a multiple-choice board exam in the last year of residency.

I began my surgical training 6 months ago after participating in wet labs and courses, with one surgeon overseeing my training. I feel that, in the beginning, it is helpful to work with just one surgeon rather than a variety of surgeons who each have different ways of doing things. He guides you through the steps of the operation and explains certain techniques during surgery, which may make your life easier or, in the worst-case scenario, a nightmare. Details such as complications management, the way one sits, the way one holds the phaco tip, and how to control the operation chair are small, but important. The best way to learn is to follow the surgeon's suggestions and perform surgery his way.

It is important for residents to attend national and international ophthalmic meetings. Congresses offer a beneficial educational opportunity through instructional courses, symposia, and scientific papers. Unfortunately, most of the meetings require a high registration fee for residents. A resident exchange program between countries or cities could improve the quality of residency training. In the future, I would like to improve my surgical skills and continue to work on clinical trials.

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Training in the Netherlands



BY LEONOOR S. KOETSIER, MD

As a fifth-year resident at the Maastricht University Eye Clinic, Netherlands, I have an informed opinion of how our cataract training program functions. During my first year, I took steps in learning how to perform cataract surgery, starting with the incision, viscoelastic injection, and capsulorrhexis. I performed my first complete cataract extraction halfway through my second year. In my third year, I did a rotation in a nonuniversity hospital for 6 months where I obtained more experience. For the past year, I have had my own surgical schedule every other week in our university hospital,

VIRTUAL MENTOR CATARACT SURGERY SIMULATION INCREASED RESIDENTS' CONFIDENCE

Residents who learned the hydrodissection portion of cataract surgery with the Virtual Mentor Cataract Training Program (Gnaritas, Boston), were more confident in the knowledge they acquired from the interactive cognitive simulation compared with traditional teaching alone, according to a study published in *Ophthalmology*.¹

The prospective, multicenter, single-masked, controlled trial was performed in seven academic departments of ophthalmology. All residents at these centers were asked to participate and were randomized to receive either traditional teaching materials (group A; n=30) or the Virtual Mentor program (group B; n=38). Both groups took online anonymous pre- (n=68) and post-tests (n=58), and answered satisfaction questionnaires (n=53).

There was no difference in the pretest scores between the two groups ($P = .62$), the study authors said. However, group B scored significantly higher on the post-test ($P = .01$). Mean difference between pretest and post-test scores were significantly better in the Virtual Mentor group compared with the traditional learning group ($P = .04$). Additionally, the residents reported that the Virtual Mentor program was "more fun" to use (24.1% vs 4.2%) and said they were more likely to use this type of program again compared with the likelihood of using the traditional tools (58.6% vs 4.2%).

1. Henderson BA, Kim JY, Golnik KC, et al Evaluation of the virtual mentor cataract training program. *Ophthalmology*. 2009;117(2):253-258.

which brings my total number of cataract extractions to approximately 350.

The surgeons who influenced me the most taught me important concepts such as (1) the steps of the procedure must be properly sequenced, (2) viscoelastic should be injected after the main incision is made, (3) the lens must rotate after hydrodissection, (4) sculpting should be deepest in the center of the lens and more shallow in the periphery, and (5) when you crack the lens, your instruments should be deep in the groove, not in the middle or

the top, because otherwise cracking is not going to happen.

Our 5-year resident program begins with the theory of cataract surgery: how to make a watertight incision, how to perform hydrodissection, and how to take advantage of fluid dynamics. This is followed with a theoretical exam. The next step is wet-lab training with porcine eyes to practice incision, capsulorrhexis, and phacoemulsification. We also take an exam at the end of this segment. The third step is training on the Eyesi Ophthalmic Surgical Simulator (VRmagic GmbH, Mannheim, Germany). Both the wet lab and the computer simulation training (see *Virtual Mentor Cataract Surgery Simulation Increased Residents' Confidence*) are good for developing hand-eye coordination. At the successful conclusion of these three steps, residents are allowed to start taking their first steps in real surgery, which usually occurs between the end of the second year and the beginning of the third year of residency.

The cataract surgery training at Maastricht University Eye Clinic provides insight into why it is important to learn the steps I outlined in a particular order. The program could be improved by adding training in complications management. However, reviewing videos of surgeries performed by residents helps to educate trainees in this area. Residents also must let go of being nervous and be prepared to solve complications, even when the patient is under only local anesthesia.

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Training in Ireland



BY EUGENE Y.J. NG, MRCOphth

The most striking feature of Irish ophthalmic training is the duration of the residency program. I am currently a seventh-year trainee at the Irish College of Ophthalmologists. I have 2 more years of residency to go, not including fellowships. Although there are a few disadvantages to such arduous training, my experiences have been overwhelmingly positive.

I entered this long training program directly after completing a 1-year internship. I chose ophthalmology in part due to publishing two papers on the eye in medical school. The first 2 to 3 years of residency provided general ophthalmic training. Beyond the second year, there is perpetual competition among residents to apply for and obtain progressively better training positions every 6 to 12 months. This continuous fight for survival of the fittest has unfortu-

nately caused many casualties; competent trainees have left Ireland or opted for nonsurgical jobs. On the other hand, I am surrounded by a wonderful bunch of highly motivated fellow trainees.

All of this competition is not in vain. For example, in my third year's general rotation, I performed more than 300 cataract surgeries and 24 trabeculectomies. By now, I have repaired dozens of traumatic ruptures and penetrations, performed numerous adjustable strabismus surgeries, nonpenetrating drainage procedures, lids including levator procedures, and more than 100 retinal surgeries—a subspecialty I intend to pursue in the near future. I performed all of these surgeries from start to end under the watchful eyes of highly competent subspecialists, many of whom have both the depth of knowledge and the manual dexterity to perform most ophthalmic procedures across all subspecialties.

Two main factors contribute to the high volume and quality training in Ireland. The first is our intense and lengthy training program, which includes clocking many on-call hours. I used to work an average of 75 hours per week. The second crucial factor is a result of Ireland's predominantly publicly funded health care system. A healthy proportion of private-paying patients demand choice and quality of care. A small number of highly competent surgeons tend to these privately paying patients, leaving highly motivated junior trainees (trying to get to these few top jobs) to work with the high volume of publicly funded service cost-efficiently.

However, the future for residents is uncertain, and the factors I described are rapidly changing. First, the European Working Time Directives now require residents to work no more than 48 hours per week. It is debatable if this shorter duration of training will be sufficient to train a surgeon to achieve the level of confidence that I now enjoy. Second, the number of highly skilled surgeons in any country is finite, and government's efforts to increase numbers at the top will no doubt lead to smaller volume and poorer quality training at the bottom.

Thankfully, our training system dedicates up to one full working day per week to research activities. With 1 to 2 weeks of study leave each year, I am able to annually generate one significant publication, manage a research grant, volunteer my services in rural Kenya, and still have time to enjoy my precious nonmedical activities.

There are may be more efficient ways to train a surgeon; however, there are few substitutions for learning from the best mentors. Also, sheer repetitive training on straightforward cases makes the complex ones less daunting and complications more manageable. To all of my mentors and the Irish training system, I am eternally grateful.

TAKE-HOME MESSAGE

- One difficulty trainees face is competition for consultant positions after completion of the training period.
- The greatest advantage of working in a smaller hospital is the opportunity to conduct continuous patient follow-up.
- Both wet lab and computer simulation training help to develop hand-eye coordination.
- The European Working Time Directives require residents to work no more than 48 hours per week.
- A perfect residency program does not exist, and it is up to the resident to make the most of what his program offers.

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Training in South Africa and Ireland



BY CHARL G. WEITZ, MBChB

After working for 3 years in the Department of Ophthalmology at the University of Pretoria in South Africa, I was accepted into a residency program at Pretoria Academic Hospital, in which I am completing my fourth and final year. During my residency, I did a fellowship in refractive surgery with Arthur Cummings, FRCS(Ed), at the Wellington Eye Clinic in Dublin, Ireland. My residency has been productive, but I cannot help but think that 4 years of residency (plus 3 years of training before that) is not nearly enough time to cover an ever-expanding syllabus.

Regarding my surgical training, I was fortunate to be taught in part by Paul Roux, MD, Head of the Department of Ophthalmology at Pretoria Academic Hospital. I am eternally grateful to Dr. Roux, an experienced and well-rounded surgeon with a special interest in glaucoma surgery. Fortunately, there is no lack of surgical opportunities in South Africa. It is not uncommon for students to have performed 500 cataract extractions before starting a residency program. During residency, trainees have the opportunity to acquire hands-on experience in all surgical subspecialties.

Looking back at my surgical learning curve, there are a few factors that I now consider paramount to successful supervised surgical training. Ophthalmic surgery has little tolerance for error; therefore, it is important to have con-

tinuity of teaching so that a relationship based on trust can develop between the resident and his supervisor. Without continuity there is no trust, and the resident ends up with limited hands-on experience. Next, and equally important, residents must be taught by a surgeon who has a special interest in teaching, as this is not a job for everyone. Last but not least, it is up to the resident to make every precious second count. My advice to fellow residents is this: Be early, be prepared, and be enthusiastic.

A perfect residency program does not exist; therefore, it is up to the resident to make the most of what his program has to offer. South African residency programs offer quality hands-on experience but lack manpower and resources due to that country's service-delivery-driven health care system. This often leads to overbooked clinics and inadequate patient consultation time, which can have a negative impact on training and the quality of patient care. Also, due to resource shortages, there are occasional shortcomings in quality surgical supervision in South African residency programs. In spite of these shortcomings, I would not hesitate to choose Pretoria Academic Hospital again for my residency. Quality and quantity of hands-on surgical experience in all subspecialties are priorities in my opinion.

I have been fortunate to perform a fellowship in refractive surgery in Dublin with Dr. Cummings, who is a consultant at the Wellington Eye Clinic and an investigator and member of the beta-site group for WaveLight AG (Erlangen, Germany). He has a special interest in custom laser ablations. The focus of my fellowship was refractive laser surgery and collagen crosslinking (CXL). Research projects included a study of the safety and efficacy of simultaneous laser correction and CXL for progressive keratoconus patients (simLC) and an ongoing study using the Wavelight BioGraph to acquire IOL power in vivo. Apart from the close friendships that I made in Ireland, my fellowship complemented my residency in many ways. In particular, it improved my research skills, familiarized me with the high visual demands of private patients, and gave me ample experience in performing refractive surgery.

Upon completion of my residency, I plan to join a private practice in my hometown of Pretoria, doing general ophthalmology with a special interest in refractive surgery. ■

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thalmology training is poorly structured. There are no formal training programs. Several teaching clinics offer training positions. After graduating from medical school, it is up to the trainees to make sure that they find appropriate teaching positions to fulfill the requirements for board certification. Requirements include the following:

- 1 year of clinical training in a nonophthalmic discipline;
- 4 years of ophthalmology training, which includes a minimum of 1 year of training at an A-level teaching hospital, such as a university hospital or a large regional training center, and 1 year of training at another teaching hospital;
- 6 months in a private practice (optional); and
- a theoretical exam that is usually combined with the European Board of Ophthalmology exams.

One year of research can be counted as one of the 4 years of ophthalmology training. Also, residents are permitted to train abroad for 1 year.

Not all ophthalmologists in Switzerland receive intraocular surgical training. After completing their training requirements, residents must complete an additional 2 years of surgical training at a certified teaching institution. There is also an additional theoretical examination for the surgical career.

This unusual system offers both advantages and disadvantages. The major downside is that the quality of training depends to a certain degree on the trainee's motivation and activities. On the other hand, this structure allows outstanding trainees to pursue attractive training opportunities in Switzerland or abroad.

In my opinion, ophthalmology training is poorly structured in Switzerland, and there is much room for improvement. Under the current structure, nonsurgical training must be completed first, and only a minority of ophthalmologists in the country are surgically trained. ■

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TAKE-HOME MESSAGE

- French residents have greater access to hands-on surgical experience compared with trainees in other countries.
- Doctors tutor and mentor one or two residents at a time in Italy.
- The applied residency program in Poland provides skills in the diagnosis and treatment of eye disease.
- After graduating from medical school in Switzerland, it is up to the trainees to fulfill the requirements for board certification.