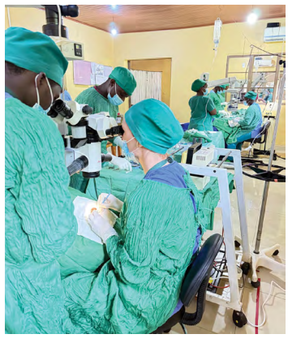
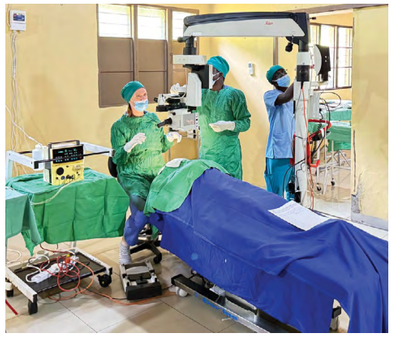
Eyes on Rwanda: Lessons from an international ophthalmology experience

BY KATHERINE MCGINNITY

On the 26 February 2025, I travelled to Rwanda on the invitation of a former Belfast trainee, Michael Mikhail. Michael is now one of only two vitreoretinal (VR) surgeons in Rwanda, a country with a population of 14 million.

Born in Egypt, Michael trained entirely within the UK ophthalmology system, completing Certificate of Completion of Specialist Training (CCST) and two vitreoretinal fellowships before progressing to a full-time VR consultant post. However, in 2022 he embarked on a different journey, driven by the dire need for ophthalmology services in Africa, and began working as a missionary ophthalmologist at Kabgayi Eye Unit (KEU) in Rwanda.

In the short space of three years, Michael has upgraded the VR service infrastructure, is training locally a Rwandan vitreoretinal surgeon, and is in the process of setting up a local VR fellowship, for Rwandan doctors and beyond, with the University of Rwanda. He organised the first International Ophthalmic Conference in Rwanda in 2024, has set up a state-of-the-art wet lab training facility, and was appointed Vice President of The African Ophthalmology Council (AOC) in 2024. It was therefore a unique privilege for me to be invited to partake at the specialised teaching programmes which attracted distinguished African, American and European professors as guest speakers over five days.

My responsibility was to deliver a presentation on glaucoma at the 2nd Rwandan International Ophthalmic Conference 2025, assist with the Wet Lab Anterior Vitrectomy Course, and assist teaching at a three-day Foundation in Ophthalmology Wet Lab Course, as well as roll out selective laser trabeculoplasty (SLT) laser training on a new laser machine which was purchased with funds donated from Belfast.

My international ophthalmology network has expanded rapidly, and I have forged strong working relationships with staff at KEU, particularly with the two most recently appointed consultants, who are my contemporaries. We discussed cases, shared experiences of training, and had time to exchange clinical knowledge and guidelines, as well as surgical skills in phacoemulsification, squint, and corneal work. I was really impressed with their knowledge and experience, having completed a four-year residency at the Rwanda International Institute of Ophthalmology in 2024.

Over the next two weeks, I had the opportunity to get down to work. There was no shortage of patients attending outpatients – around 350 daily – travelling from within Rwanda as well as from surrounding countries, including Burundi, Uganda, and the Democratic Republic of Congo. Case mix ranged from paediatric, retinopathy of prematurity screening, to the elderly with a broad spectrum of disease. Undiagnosed glaucoma, often presenting with advanced changes, was particularly harrowing, and medication is generally beyond reach, both from a practical and cost perspective. The staff quickly picked up SLT laser training, which will now help protect a significant cohort from glaucoma blindness over time. Young children with atopic keratoconjunctivitis and resultant corneal scarring was particularly prevalent and disabling, especially without sunglasses protection, and recently restricted US aid medication funding.

The eye unit has a complement of five consultants who work interchangeably between outpatients and theatres. Ophthalmic clinical officers (OCOs) are key to the efficiency of the unit who work up patients extensively, seeking the specialist's opinion only in the more complex cases. They undergo a three-year advanced diploma in eyecare, and all are trained in ophthalmic assessments including fundal imaging, biometry, ultrasound, periocular anaesthesia and minor surgery. An electronic database allows an almost paperless system and OCOs input the data for the surgeons. This scribe role is invaluable, particularly in theatre, which facilitates uninterrupted phaco surgery.

Theatres have a capacity of around 40 cases daily, with cases ranging from cataract, corneal, squint, oculoplastic and orbital work. One-stop cataract surgery is provided for patients who require sequential second-eye surgery the next day. There is a separate VR theatre. Three surgeons operate in parallel in an open-plan theatre, facilitating interaction and support to the more junior surgeon and trainees. The senior ophthalmologists at KEU are the most skilled surgeons I have ever seen. I was completely awestruck by the challenging cases they successfully performed with limited instrumentation, including hyper-intumescent cataract, zonulopathy, and seclusion papillae. Vision blue is readily available, but important adjuncts such as pupil expander devices or capsular supports are lacking.

Observing the surgical management of highly complex cataracts was an exceptionally valuable learning opportunity. I benefited greatly from undertaking several phaco surgeries under the watchful eyes of those masters. I conquered my initial nervousness, overcoming the challenges using unfamiliar equipment in less familiar surroundings. I completed several cases of pterygia, strabismus, small incisional cataract surgery and enucleations. Beautiful African and religious music relax both patients and staff, creating a highly favourable working environment. The most striking aspect was the use of circular economy, maximising sustainability, by reusing ophthalmic instruments, theatre attire, drapes, cassettes, tubing, etc. and low waste generation.

Surgeons initially scrub in and keep the same gown on for the entire session, changing gloves between cases. Reported rates of endophthalmitis were low, with only one case of postoperative endophthalmitis following a VR surgery and none reported after cataract surgery in the last three years.

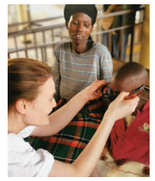
Theatre efficiency was remarkable, with a turnaround time of less than one minute. Ophthalmic clinical officers deliver ocular anaesthesia and manage patient flow. The care is highly patient focused, by great teamwork and without time pressure.

Ophthalmology training in Rwanda is four years in comparison to seven years in the UK. This includes small-incision cataract surgery, with a caseload of 200 by the completion of training. Phacoemulsification is not currently on the curriculum, but this is being addressed.

In conclusion, Rwanda maximises its scant resources and drives efficiency without compromising patient care. Highly skilled staff work interchangeably between theatre and outpatients, resulting in no theatre cancellations. Ophthalmology residents are exposed to intensive surgical training, which accelerates their skill acquisition. Teamwork between ophthalmologists and OCOs underpins a highly efficient system, facilitating high throughput in both theatres and outpatient clinics. Waste management is commendable both for instrumentation and consumables. Morale is high and colleagues work in close proximity – providing timely support when surgical difficulty arises and this generates a great work ethos in a setting which cultivates both high productivity and a high standard of patient care.

It was a privilege and such a refreshing experience for me to have the opportunity to work with this dynamic team that place a high value on education and training. I was deeply touched by the hospitality, humour, and welcome of the Rwandan people, and experienced great food and an equally impressive climate at the cooler altitudes on the Rwandan plateau. I strongly encourage any trainee or consultant to visit this eye unit. The learning is reciprocal. If you could train a doctor in a particular specialist skill, you will have a highly rewarding experience.

AUTHOR



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