Elective Grant Report

A stop off at El Questro on route to Fitzroy Crossing

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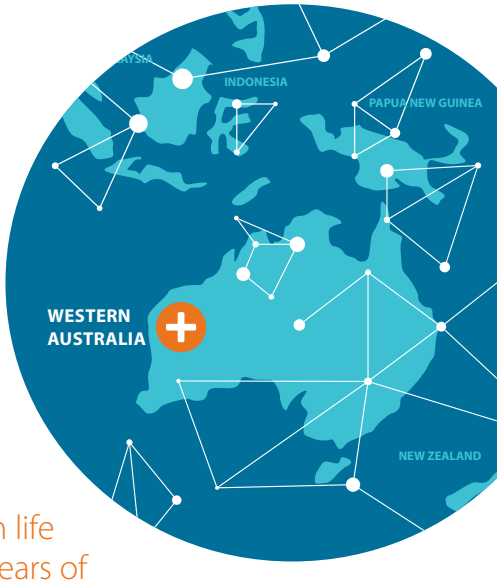

This was not only the last few weeks of my medical school education, but also the best. Sometimes I feel like medical school selects intelligent individuals with a general curiosity in life and a passion for learning, and then, through years of cramming and examination it beats that love of learning right out of them. I know this happened to me as my final year dragged on. All that changed with this elective. Ophthalmology has been the first time in some time that I have had my curiosity set alight. Inspired by the patients, the science and the ophthalmologists themselves, suddenly the direction seems clear to me now.

For Aboriginal people, perhaps the greatest determinant of personal development is to have good mentors to look up to. With that in mind, my reflection will focus largely on the three doctors who had the greatest impact on my time up North – Dr Hessom Razavi, Dr Mike Brown and Dr Angus Turner.

Dr Razavi, or Hess, was my first contact, having met him at the Australian Indigenous Doctors' Association conference just the week before. Although not being indigenous himself, in sad irony, he found that his refugee background helped him empathise with the story and current situation of Aboriginal Australia. In addition to working with Lions Outback Vision (LOV), he also services many of the metro ophthalmology hubs with high indigenous patient representation. Hess mentored me for the majority of the Kununurra leg, taught me the 14 steps of cataract surgery, showed me how difficult pan retinal photocoagulation with a dodgy laser can be, and last but not least found a way to get me a room in the hotel with the team for the last 2 nights of my Kununurra stay (removing me from a room full of 5 chain-smoking Italians, for which I was truly grateful).

Mike is a hot shot young ophthal having just finished his last set of college exams. Impressively, he pushed through the challenging ophthal vocational program without failure or delay. I got a sense that Mike was a little sceptical of my presence in the Van and the first day together was pretty slow. However, I think my persistence in asking the right kind of questions and giving the right kind of answers resulted in a 180 degree attitude change toward me. He actually admitted that he was a little burnt out from the string of medical students just "trying to tick another box". Having been given thousands of boxes to get ticked throughout medical school, I could definitely relate to his frustration.

Mike and I became best mates over the trip. We probably spent a total of more than 30 hours in the car together. Exploring canyons, assessing strabismus, debating politics, looking for foreign bodies, getting bogged 4WDing in the middle of nowhere, lasering posterior capsular opacifications, watching a wild crocodile pass us whilst fishing, finally getting my first full retina view, and chasing an AWOL drone through a midnight lightning storm while spot-fires grew around us… My time with Mike went from tense to truly awesome, and I'm looking forward to many more years of friendship with Dr Brown.

Last but not least; Associate Professor Angus Turner. Angus is the kind of guy whose reputation really does precede him; Ophthalmologist, rower, quartet singer, director of LOV, Rhodes Scholar and perfect gentleman. Despite the fuel for hubris, the man you meet is a humble and relatable guy. Although I feel like Angus and I definitely grew up on opposite sides of the train track, we shared a remarkable amount of interests, with Indigenous eye health not being the least. I put forward a safety and quality audit proposal to Angus which he not only responded well to, but decided to use the community component of the MIGA Elective Grant to instigate.

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Lions Outback Vision Van

No phone reception, in the middle of nowhere, trying to get out of a sand bogged situation. Fortunately, Dr Mike Brown and I are still smiling!

After a day's work in Kununurra

Associate Professor Angus Turner

One of the interests Angus and I share is the little town of Albany, where I am about to begin my internship. As a direct result of my elective up North, he has invited me to conduct a research project in the screening of diabetic retinopathy in a primary care setting, using the latest handheld retinal cameras and AI diagnostic technology. This project is one of those rare gems that actually has the potential to make huge real-world impact on clinical practice across rural and remote Australia. So, thank you again MIGA, as it seems as if one door opening has in turn opened a cascade of others.

With regard to the MIGA Elective Grant funding, LOV hopes to implement my safety and quality audit proposal and perform the necessary software upgrades required to collect the data needed. To summarise the audit; LOV aims to address the unique challenges of delivering quality specialist eye care to regional, remote and Indigenous communities across Western Australia, providing specialist ophthalmology services throughout the Pilbara, Kimberley, Goldfields, Midwest and Great Southern.

As cataracts are currently a leading cause of visual impairment in both Indigenous (20%) and non-Indigenous Australians (14%), cataract surgery forms a significant part of the service. Despite a higher relative prevalence, the cataract surgery coverage rate is lower for Indigenous compared to non-Indigenous Australians (61% versus 88%) and the wait times are longer. As of 2018, approximately half of all patients receiving cataract operations by the LOV service identify as Indigenous, representing the service's focus on closing the Indigenous eye health gap.

The success of cataract surgery is determined not only by a surgeon's skill, but through synergy with comprehensive clinical assessment, appropriate Intraocular Lens (IOL) selection and continuity of care. If the power of IOL inserted is incorrect, then no matter how well other aspects of the process are conducted, the patient will be left with a sub-optimal refractive result (known as 'refractive surprise'). In order to accurately calculate the power of the IOL, both corneal curvature and axial length must be determined, and this process is known as biometry. For this, the service uses two different methods; Optical and Manual (Contact Ultrasonography + Keratometry).

Where possible the service employs the IOL master 500, which is an optical technique used by LOV in approximately 77% of its cases. The advantages include less cross contamination (noncontact), speed and ease of use. However, it has several limitations which necessitate the use of manual methods. These include axial opacities (reducing accuracy), the need for fixation (thereby requiring 6/60 VA or better, nil nystagmus, etc…) and its limited portability and availability. These limitations are frequently encountered by LOV where the patient population serviced often have dense and/or posterior subcapsular cataracts and poor visual acuity, and pre-operative clinics may be run from local hospitals which do not have an optical biometry machine, such as the IOL master 500.

The manual biometric method used by LOV involves an ultrasound probe to determine axial length and keratometer for calculating corneal curvature. This method overcomes the above limitations of the IOL master, however, it is known to be more prone to subjective error (particularly due to corneal compression). Although the primary focus of this audit is to compare these two biometric methods, due to the multitude of confounders and variables, it would be meaningless to compare them in isolation. Thereby this audit demands the collection of a multitude of variables at pre-, intra- and postoperative periods. These in turn will aid in the exclusion of confounders, and accurate regression analysis, whilst also creating a more holistic picture of cataract surgery in LOV. Overall, this audit aims to inform the implementation of procedures that will achieve better refractive outcomes for our cataract patients.

Thanks to this elective I today know a group of ophthalmologists who are now not only senior colleagues, but have actually become friends. We keep in touch regularly, discussing future projects and ways to improve rural and remote eye health. Thank you again to MIGA. Without their support of this elective, all the good things which have sprouted from it would have likely never happened.

Each year MIGA's Elective Grants Program offers 10 Grants of $3,000 to medical students undertaking electives in developing communities. Each Grant includes $1,500 to cover the student's personal elective costs and $1,500 to provide medicine or other aid to the local community. To be inspired by other past recipients and find out more about applying, visit our website.