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## Elective Report

**Location:** Mulanje Mission Hospital (MMH), Malawi

**Duration:** 8 weeks (1/1/14 to 26/2/14)

**Specialty:** Tropical medicine (multiple departments)

**Supervisor:** Clare Shakespeare



I chose Malawi because I am very interested in infectious diseases and wanted to go somewhere where I could gain more experience with patients with HIV and associated infections, malaria and other tropical diseases. I also wanted to better understand the environment in which these diseases could thrive as well as resulting cultural impact. Finally I wanted to experience life in a developing country, understand important issues such as child and maternal health, access to water and nutrition, and what barriers there were to improving health on a personal and population level.

Mulanje is a district in the South of Malawi on the Mozambique border, surrounding the spectacular Mulanje plateau. The district is home to over 550,000 people who live in numerous villages. Mulanje town is home to the district hospital and adjacent to a number of tea plantations and a trading centre called Chitakale. MMH is located at Mulanje Mission, 4 km from Chitakale and 6 km from Mulanje by road. The nearest city is Blantyre, 60 km away, which is home to Queen Elizabeth Central Hospital, the country's main referral hospital, as well as the University of Malawi's College of Medicine.

MMH has 204 inpatient beds split between two general adult wards: male and female, a children's ward and the maternity wing. Maternity includes labour and post-natal wards and a nursery with an attached kangaroo mother care unit. The outpatient department triages and admits patients to the inpatient wards as well as providing numerous services such as palliative care and management of HIV and other chronic conditions. The hospital also has an extensive primary care program, which focuses on environmental health, mother and child health, nutrition and HIV/AIDS. The hospital has an immediate catchment area of 80,000 people in 72 villages that interface with 12 outreach clinics.



For my 8 week elective I spent the first week in the community with the primary care department. After that I spent 2 weeks each on the adult male ward and the children's ward. Finally I spent one week in the hospital laboratory and about a week and a half in the maternity department. The work was similar to my other clinical rotations as a student although I did find at times that I had a greater influence on patient management. After getting oriented my first week was spent attached to the primary care unit. I attended a number of outreach clinics which focused on child health, antenatal care, family planning and HIV testing and management. The patients were women with children, who waited in a large group and used songs to reiterate public health messages.

The childhood immunisation schedule is much simpler than the Australian one, with all immunisations completed by 1 year. They still use the oral polio vaccine and routinely give the BCG vaccine, as well as supplementing vitamin A every 6 months to the age of 5. These differences reflect the particular disease risks in Malawian children. Other medical preventative therapies I learned about were the use of tetanus toxoid and SP malaria prophylaxis in pregnant women, as well as the use of prophylactic co-trimoxazole in all HIV+ patients. After the outreach clinics I followed a mosquito surveillance program where they were evaluating the efficacy of indoor residual spraying at cutting mosquito populations in houses. The other major preventative measure was the provision of treated bed nets for children and pregnant women.

I then spent 2 weeks on the general adult male ward, where I saw a large variety of patients. Many had general medical and surgical problems we are used to in WA, such as asthma, cerebrovascular disease, inguinal hernias and trauma. Interestingly there was hardly any ischaemic heart disease. While the disease processes may have been similar they often had different impacts on a patient's life. An uncomplicated inguinal hernia could be devastating if it prevented a man from earning an income from manual work. A large proportion of the patients were HIV+ or "seroreactive" as it was euphemistically described. In some cases this was just a comorbidity while others came in with complications of the disease such as Kaposi's sarcoma, cryptococcal meningitis or a mycobacterial infections. I learned that while there was ARV treatment available patients would still come in regularly with severe complications.

Some aspects were particularly confronting. Patients would present in organ failure and die far younger than in our corresponding population. Patients died from preventable conditions such as hepatitis B (or cervical cancer in the female population). Patients also frequently presented late with acute illness or injury decompensating or dead on arrival or with infected and necrotic wounds many days after an injury. Even some of the trauma was probably preventable with changes to behaviour and infrastructure, we had patients present with severe burns, lightning injuries and trauma after structures collapsed in bad weather, a number of them died. I believe many aspects of these problems are due to poor education/understanding of the benefits of medical care, as well as lack of access to transport and concerns about the cost of treatment. One interesting and unfortunate misconception was the association of oxygen therapy with death, leading many patients/guardians to refuse it. In one alarming case a parent absconded with an unwell child because they didn't want them receiving oxygen therapy.

The impact of poverty was widespread. Patients were mostly extremely poor, struggling to afford to eat in many cases. Malnutrition was not uncommon. There was a widespread lack of resources and infrastructure in the country. Supplies of power, water, fuel as well as drugs and other medical supplies were unreliable. Diagnostic testing was limited to some point of care tests, basic cell counts and microscopy, limited biochemistry, plain X-rays and ultrasound. I did gain a lot of experience in clinical assessment of patients and improvisation on the wards. Treatment was limited too. I learned a lot about the basics of keeping patients alive, e.g. interpreting vital signs, basic airway management in unconscious patients without access to intubation or mechanical ventilation.

Paediatrics was much more acute, with a very high turnover of patients. Over 70% of the presentations were due to malaria. I learned much about the features of uncomplicated and severe malaria, as well as management principles for malaria and other acute paediatric conditions. Another disease specific to the population was severe acute malnutrition, I saw patients with classic features such as the Kwashiorkor syndrome and learned about the acute and longer term management. I spent a week in the laboratory which was a very interesting experience. I was able to observe how a laboratory works in this setting and relate it to a clinician's experience. I observed and performed some simple haematology tests, the more interesting ones being the X-match and blood transfusion process. The main skill I wanted experience with was malaria microscopy. The lab used Field stains on thick films which are relatively quick and highly sensitive for malaria. I was able to understand how it was a useful test to exclude malaria with a negative rapid diagnostic test which is much less sensitive. My last week and a bit were spent on the labour ward. This was very interesting as it is such an important part of the hospital's services. It was surprisingly similar to how obstetrics is practiced back home.

I felt I achieved my original aims for the elective, although in a different fashion than I expected. HIV, malaria and tuberculosis were commonplace and their management was relatively simple. For instance ARV therapy has been divided into 9 regimens by the WHO, of which 3 were formerly first line (1, 2 and 5 for adults, children and pregnant/breastfeeding women, respectively), the others used for adverse events/treatment failure. Now all adults are being transitioned to regimen 5(A), which has a better side effects profile and is not very different to first-line therapy in the developed world. Uncomplicated malaria is treated with oral LA, an artemisinin combination therapy, severe malaria with parenteral quinine and supportive care. Tuberculosis is managed with RHZE/RH  $\pm$  streptomycin. Maternal care is similarly protocolised with the WHO partograph.

Medicine was practiced very differently from my experience. The hospital was staffed by mostly Malawian clinical officers and nurses with only a couple of doctors at any one time. The clinical officers were very impressive, particularly with their procedural skills. A major difference was the level of diagnostic uncertainty in this setting. A lot of treatment was empirical out of necessity, for instance patients were routinely given broad spectrum antimicrobial therapy for possible sepsis that could not be confirmed by blood cultures. Some protocols embrace this idea, for instance syndrome based therapies for sick children in some WHO guidelines. It is better to over treat than the alternative. I heard a doctor (John Myburgh) quote recently "protocols prevent disaster but inhibit excellence". In some ways this approach is a compromise but absolutely necessary with such limited resources.

I learned that the most important determinants of health are not clinical. The complex and troubled history of Africa has lead to a state where much of the population lives in extreme poverty. Education and economic development would have a far greater impact than any medical intervention. This is applicable to practice in Australia, particularly with rural indigenous populations which face many of the same problems. Overall my elective was an amazing experience and impossible to sum up in 2 pages. It has given me experience with infectious diseases that are rarities in Australia, as well as a better understanding of global health and better clinical judgement and confidence.