Mornings began with rounds at SCBU. Antenatal care is very limited in Zambia as there are few midwives, let alone prenatal ultrasound. Multiple births would often come as a surprise, and it was difficult to estimate prematurity. Our patients came as small as 500g with very poor prognoses. This is partly due to our poorly resourced unit. There was only one oxygen machine, which fluctuated between functional and "at the workshop". We could give IV fluids to only one neonate at a time as there was only one syringe pump. The poorly designed incubators allowed cockroaches to crawl into the warm spaces; however the insect bites prevented apnoeas in patients with poor respiratory drive. Our pharmaceutical arsenal was reduced to IM antibiotics and aminophylline. The mortality of these patients was startling. By the 5th of January, we had five neonatal deaths in the year 2010.

Next came the paediatric ICU, where a child would frequently arrest over the course of the ward round. In my limited experience, an average of two children would die each day, and the overall mortality was 10%. I became proficient in ventilating and performing chest compressions. The doctors would often administer 1mg intracardiac adrenaline if circulation did not spontaneously recover. Patients here were usually cerebral malaria cases who had presented late. Many parents are not concerned until their children start displaying seizure-like activity. Patients may live up to 300km from the hospital, most do not own motorised transportation, and so late presentation is common. Resuscitation was rarely successful, and when it was, the patients often arrested later that day. Therefore I also examined many deceased patients in order to pronounce them dead.

There was a minority of meningitis cases admitted to ICU, many of whom were misdiagnosed as malaria by the clinical officers. I came across a 2½ year old patient who was admitted with fits, fevers and a cough. Although she was RDT (rapid diagnostic test for Plasmodium falciparum) negative as well as blood slide negative, she had been started on quinine and left in the general ward. On examination she had an increased respiratory rate and widespread crepitations, so I moved her to the ICU and started her on oxygen, IV benzylpenicillin and chloramphenicol (to cover sepsis as well as an LRTI). Over the next 48 hours, she failed to respond and in consultation with the director, we decided to start her on dexamethasone as well as ceftriaxone. The patient showed no neurological improvement and developed fixed, dilated pupils. After consulting the family, we decided to trial gentamicin to cover a gram negative sepsis, but would withdraw treatment if she failed to improve.

The most heart-wrenching cases were in the acute malnutrition corner. Children would often come in malnourished and oedematous, having very poor physiological reserves, and be extremely unwell from concurrent infection. All malnourished children received vitamin A and cotrimoxazole, and if they had a concurrent illness they were upgraded to ampicillin and gentamicin. They were all screened for malaria and given F75, a high-calorie supplement, to feed them to within one standard deviation of their median weight for height. Many children were malnourished not due to poverty but secondary to a defective alimentary tract, such as a cleft palate or lip.

One five month old presented with an acutely distended abdomen and abdominal x-rays displayed dilated bowel loops. He was diagnosed with Hirschsprung's disease and we attempted to insert flatus tubes to relieve the pressure on the megacolon. Unfortunately he died before surgery could be performed. Death is not uncommon as children with malnutrition have the poorest prognosis, with a mortality of 30%.

The general ward provided great opportunities for learning as it held a wide range of pathology: from chronic illnesses like lymphoma to acutely unwell children with malaria. Soon I could take basic histories in Nyanja, the local language, and could quickly assess and triage children.

The most varied and interesting part of my day was the afternoon clinics. Held in the jam-packed St Lukes clinic, there would often be five doctors, two translators, and as many patients as possible. There was only one bed available and this was often taken with acutely unwell patients who required immediate admission. Patient privacy was negligible as translators would often have to shout across the room to be heard.

This was a difficult environment to discuss sexually transmitted infections, especially when using relatives as translators. Many women presented with non-specific lower abdominal pain and vaginal discharges. Due to a paucity of resources, we were unable to swab all of our patients, and we relied on syndromic management. It became extremely difficult to explain the need for partner treatment and importance of contraceptive use in this population. The translators we used were very staunchly Christian, and they would sometimes use inappropriate or judgemental tones with patients. For example, I had a 14 year old patient who presented for a police report following being sexually assaulted. The translator proceeded to lecture her about the importance of abstinence while I filled in the paperwork. As she was speaking in Nyanja, I was unaware what she was saying until after the consultation had ended.

The pathology I saw at the outpatient clinics was astounding. There were many cases of late-presenting tumours which I referred on to the surgical ward. For example, a female in her thirties presented with a two year history of a breast growth. It was pungent, dripping with pus and had a peau d'orange appearance. I admitted her to the surgical ward for further management.

There were often trauma cases, mainly motor vehicle accidents, which presented via outpatients. I became adept at reading X-rays and we managed many fractures and orthopaedic injuries. I saw a 14 year old boy who presented with a right leg mass following a fall one month ago. We diagnosed him with an osteosarcoma and referred him to the surgeons who recommended an amputation, along with chemotherapy. Unfortunately, due to the acute onset of his tumour, and his general good health, it was difficult to explain the severity of the situation to his parents. They refused treatment and took him home to trial traditional therapies.

Another interesting case was a 38 year old woman who presented with a two month history of chest pain, headaches, irregular paravaginal bleeding and a mass sensation in her lower abdomen. She was convinced she was pregnant and may be miscarrying, however a pelvic ultrasound revealed a non gravid uterus. CXR revealed cannonball metastases and her urine ßHCG was positive. She was diagnosed with choriocarcinoma and we referred her to the gynaecologists for further management. Although she commenced chemotherapy, she soon absconded from treatment and has since been lost to follow up.

There were many cases of "western-style" medicine in the elderly population, for example hypertension, GORD and type two diabetes. Patients have poor knowledge about these diseases, which makes it difficult to counsel patients about the cause of their illness and lifestyle modification. Locals believe that obesity is a sign of good health as they see high mortality in malnourished, cachexic people. They also see salt as a luxury so it is difficult to implement exercise and dietary changes.

CONCLUSION

I highly enjoyed my elective at St Francis Hospital. This experience was a real eye-opener to the poverty and illness of the developing world. There was great cultural difference compared to working in a New Zealand hospital, and working with translators and poorly educated patients was certainly a challenge.

The steep learning curve forced me to develop on both a professional and personal level. Seeing patients on my own helped me decipher signs and symptoms and formulate management plans. The complexity of the cases allowed me to study whole new avenues of tropical medicine. I developed new skills, performing lumbar punctures and pleural taps. It was difficult to see so many children die despite our best resuscitation efforts; always wondering if I could have done more to prevent their deaths.

I would highly recommend this hospital for anyone wanting to experience the pros and cons of tropical medicine in Africa.

REFERENCES

1. Thwaites GE
Improving the bacteriological diagnosis of the tuberculous meningitis
Journal of Clinical Microbiology. 2004; 42:378-9

A taste of medicine in Zambia

Victoria Gates
House Officer
Tauranga Hospital

Dr Victoria Gates graduated from Auckland Medical School in 2010, and is currently a first year House Officer at Tauranga Hospital. She loves sports and the outdoors, especially tramping and skiing.

Victoria Gates undertook her elective during her Trainee Intern year at St. Francis Hospital, in Katete, Eastern Province, Zambia.

I chose Saint Francis Hospital and Zambia, as an elective destination, for several reasons. Firstly I had always wanted to do my elective in Africa. In recent years, several students at the Auckland medical school had been to Zambia for their electives, and it consistently receives positive reports from the students. Zambia is a very poor country that is currently relatively safe for visitors. This, and the fact that Saint Francis Hospital has English-speaking staff, made it an obvious choice for me over other options in Africa.

I also wanted to challenge myself by travelling to a country outside my comfort zone. Developing world medicine has always appealed to me. I believed doing this for my elective would be a great opportunity to get a lot of hands-on experience making clinical decisions as well as learning procedures.

OVERVIEW

My time at the hospital was spent on the adult medical and paediatric wards. I also spent several days in surgery. My days would start at 8am every day, apart from Tuesday and Thursday, when there were clinical meetings at 7.30am. Ward round would go until 1pm, and often we would have to briefly go back to the ward after lunch to finish jobs. The afternoons were spent in OPD (outpatient department) which would keep us busy until 6pm and sometimes later! I also did many evenings and several weekends on call.

During my time at the hospital I was exposed to an amazing range of pathology. In general, the patients are in an immunosuppressed state and so the presentations and aetiology of common diseases, such as COPD, cirrhosis and epilepsy, differed from that in New Zealand. The main aetiology of COPD in New Zealand is cigarette smoking, but in Zambia the disease predominantly affects women (who do the cooking and have high exposure to toxic gases in poorly ventilated houses). Cirrhosis in Zambia is commonly caused by aflatoxin exposure (from mould), schistosomiasis, hepatitis B and alcohol (only the latter two are usual in New Zealand). Portal hypertension from schistosomiasis can be dramatic and may present with massive ascites or malaena. Often the most revealing information in the history is that the patient is a fisherman! A stat dose of praziquantel is standard treatment, and therapeutic ascitic drainage may also be required. Adult onset epilepsy in Zambia with no history of trauma is usually due to neurocysticercosis, which is also treated with praziquantel.

ADULT MEDICINE

On the wards, I saw patients on my own and decided on management with support from the doctor if necessary. By the end of my time here I had gained confidence in making management decisions. I was able to perform ascitic taps, chest drains, and lumbar punctures. I also made up and administered chemotherapy for patients with Kaposi's sarcoma (KS) and lymphoma. The wards were understaffed with only a few nurses who, in addition to their ward jobs, had to translate for us. This made the ward rounds much less efficient.

Some particularly interesting cases on the ward were Addison's disease presumed secondary to TB, toxic epidermal necrolysis, transverse myelitis, and Stevens-Johnson Syndrome from antiretrovirals. I also assisted in managing several emergencies such as an iatrogenic pneumothorax that required immediate intervention..

There is one old ECG machine in the hospital that requires a lot of wiring up and is used very infrequently partly due to the staff's lack of operating knowledge. Also, there is very little ischaemic heart disease in Zambia so the main indication for an ECG is to check for arrhythmias or for evidence of hyperkalaemia (since the lab cannot test for electrolytes). One day there was a 60 year old patient who had presented in shock following a collapse and we initially suspected the cause to be cardiogenic. We managed to carry out a 'Zambian exercise ECG test', which involved asking him to run up and down the ward and then lie down quickly while we attached all the leads – quite a task!

SURGERY

My brief time in surgery gave me an appreciation of the stark contrast between the surgical management here and at home. In the wards, there are patients lying in traction for weeks, with no operations done on simple conditions such as fractured neck of femur, bed rest being the only option. However there were also some remarkable operations performed, such as

a case of a severe snake bite, where it seemed inevitable that the patient would lose their leg but the outcome was successful. Skin grafting is done frequently, mostly for burns victims who are often epileptics and have fallen into a fire.

In theatre, I spent time with the anaesthetist and was able to perform many spinal anaesthetics. It was sometimes alarming to see how anaesthetic drugs would be injected straight into a vein without drawing back or cannulation, for procedures such as manipulation of fractures under anaesthesia. There was also limited monitoring of patients under general anaesthesia.

OUTPATIENT DEPARTMENT (OPD)

My afternoons in OPD were one of the highlights of my time at the hospital. Extremely busy and unpredictable, it was a great way to get exposure to a wide range of conditions and decide on management. Right from the first day, I saw patients on my own but had support from a doctor when required. There was a spectrum of presentations, ranging from stable to critical patients. Many of the children had life threatening malaria and required immediate resuscitation with dextrose and fluids.

Some interesting cases I saw included the snake bite mentioned above, eardrum perforation by lightning, decompensated liver disease with huge ascites requiring immediate drainage, massive lymphoedema from filariasis, and a new diagnosis of ankylosing spondylitis. There were also lots of fractures and accidents, and patients with police reports; we had to examine the patient and decide if our findings were consistent with the alleged assault/injury. I was able to do many procedures in OPD, such as participating in resuscitations, diagnostic ascitic taps, and reduction of a rectal prolapse. Patients would usually present late with spectacular pathology, partly due to difficult and long distance travel for medical attention. Many patients would walk for days to reach the hospital.

In OPD, privacy was non-existent as there would be four doctors, four patients and two translators in a room. The translators would end up shouting across the room to patients, and swapping between different consultations. The result was that every patient in the room knew exactly what was going on with everyone else – this would be unheard of in New Zealand! Also, there was one examining couch in the corner with a screen that had to be shared by everyone. The waiting area was extremely crowded and it was often difficult to even get into the room to start the clinic with so many patients jammed up against the door.

OUTREACH HIV CLINIC

The hospital also had an extensive HIV service which offered pre- and post-test counselling, dispensed antiretroviral (ARVs), and provided follow-up for patients. The rate of HIV in outpatients was about 20%. The quantity of medication dispensed was massive; approximately 15,000 patients were provided with ARVs, both through the hospital as well as the outreach clinics. Patients attended for follow-up every month or three months depending on their condition, and had their CD4 count as well as any side effects monitored.

I travelled to one outreach clinic, which was an amazing experience. It was located in a village about 45 minutes drive from the hospital, down a bumpy road. Each month, an outreach team came to see patients due for follow up, as well as anyone else on ARVs. The team consisted of people from the pharmacy, medical laboratory, doctors, and a nurse. The nurse took blood pressure and temperature readings for every patient before they were seen. I saw patients with the help of a local woman who was able to translate.

The clinic was a great way to learn how ARVs are prescribed and their side effects. It definitely gave me a better appreciation for the magnitude of the disease in Zambia and the huge challenges faced in the future. With the hospital pharmacy noting an average of over ten new cases each week, it made me wonder how sustainable it was to provide ARVs free of charge to a rapidly increasing number of people. The consequences of loss of funding and overseas support would be disastrous.

Clearly, education is central to controlling the disease but the resources required to increase awareness of safe sex are also huge. Even in the hospital OPD, there were numerous cases where a known HIV positive man would come in with an STI and we would discover that he was having unprotected sex with his multiple wives. The concept of having consideration for the partners' wellbeing was really foreign.

Victoria faced many challenges during her elective, some of which are not uncommon for health professionals practicing medicine in the developing world. These challenges included limitations of health resources, communication difficulties, and cultural differences. Victoria outlines these challenges.

1. LIMITED RESOURCES

Investigations

There were only basic lab investigations available and often the results would take days to come back, if at all. The FBC machine was broken most of the time I was there, although usually we were able to get a haematocrit but not electrolytes. Alternative methods were sometimes used to investigate patients when we did not have the basic resources. Examples of this are using the ECG machine to look for evidence of hyperkalaemia (no K blood test available), and requesting US scans on women as a pregnancy test (no urine pregnancy tests available). I found this really unfortunate as it seemed to me that the hospital was using even more resources by trying to compensate for the lack of basic tests.

Another consequence of limited investigations was diagnostic uncertainty, resulting in the patient being started on treatment for multiple conditions. This was particularly relevant for CNS lesions in HIV positive patients.

The main differential diagnosis for headache/fever/confusion in such patients is meningitis (cryptococcal, TB, toxoplasmosis, bacterial), neurocysticercosis, or a space occupying lesion due to toxoplasmosis, TB, or lymphoma. While a few tests could be done on the CSF (including cryptococcal antigen, gram stain, and rapid plasma reagin), the result would often be inconclusive and we would be left trying to decide which treatments to use. A chest x-ray would be done to look for evidence of pulmonary TB, as well as sputum samples if the patient had a productive cough. TB treatment is for six months so it is not a diagnosis to be made lightly. On the other hand, even if a diagnosis of TB seems unlikely, starting treatment immediately can be life saving especially in an HIV positive patient. In addition, there was no way of testing for toxoplasmosis (usually done with CT imaging at home).

Studies have shown that in HIV positive patients, the most likely CNS lesions are TB and toxoplasmosis so all patients would generally get cotrimoxazole (for toxoplasmosis) for four to six weeks, start TB medications (for six months), and sometimes also get amphotericin (for possible cryptococcal), medendazole and praziquantel (for neurocysticercosis), as well as chloramphenicol and penicillin (standard antibiotics for bacterial infection). The amount of medication the patient would be on was surely a drain on the already limited resources.

Blood

Shortage of blood for transfusions was another major issue. The hospital frequently ran out of blood, receiving only a certain number of units every fortnight. On occasions when patients required blood urgently, we had to carry out person to person transfusions on the ward. When there were no blood packs (that enable a donor's blood to be given into a bag and then to transfuse the bag to the patient), we used multiple syringes.

To do this, the relatives of the patient were consented first to have their blood cross-matched and checked for HIV, hepatitis B, and syphilis. If this came back clear and the group was compatible, we would proceed. The main risks with such transfusions were that the relative could be in the 'window period' for HIV, and that the hospital could not test for hepatitis C. In most cases however, the relative accepted this risk and it was thought to be minor compared to the benefit of saving the patient's life. In a few cases where a relative was not able to donate blood due to anaemia, or failing the infection screen, a doctor with a compatible blood group would donate blood. This type of practice raises huge ethical and political questions, and was quite a dilemma for the hospital while I was there.

Medications and treatment options

Another challenging aspect of work here was the limited management options, with only a small range of medications and other therapy available. In Zambia, people have limited access to good healthcare, which I found frustrating. This could be seen at both ends of the spectrum: outpatients without medication for their benign prostatic hyperplasia (no alpha blockers and no surgical options), through to resuscitation situations where some medications and equipment were unavailable.

On my first morning on the male adult medical ward, a patient had become extremely septic overnight (and the nurses had not called the on call doctor, which often happens). He was peripherally shut down when we arrived and was going into shock. We started resuscitation with stat IV fluids and boluses of IV antibiotics but it was too late – he went into cardiac arrest minutes later and died despite our attempts at CPR and IV adrenaline.

I found it difficult at first to accept that in critically ill patients such as this, there was often nothing more we could do. In New Zealand, the patient would have been intubated, ventilated, and monitored intensively. However in Zambia, once a patient got to such a critical stage any attempts at resuscitation were futile.

2. COMMUNICATION

Another major challenge was communication. All the hospital staff spoke English but very few patients did. On the wards, nurses would translate and in OPD there were translators. Although the language barrier made it difficult to build rapport with a patient, I found that I was still able to connect with patients with basic greetings, body language, and attempts at using their language – which were often laughed at!

In OPD, working with translators was enjoyable but challenging at times. It made me appreciate the value of being able to ask open questions and have the patient talk freely to you in their own language. Even open questions were answered briefly, and because the patients would not volunteer relevant information (such as the fact that a heavy spade had fallen on their abdomen while in the field on the day their abdomen pain started) it made history taking much less efficient. The history became more like an interrogation to extract the necessary information.

There were a few times when miscommunication occurred. For example a patient had injured his eye and the translator told me it was from a 'door', which seemed unusual. On further questioning, it turned out to be a 'thorn'!

Sometimes it was difficult to convey emotions through a translator, for example empathy, when telling a pregnant woman that the foetus had died. Often in the hectic OPD, the exhausted translators would occasionally take their emotions out on patients, so my empathetic tone was lost. Furthermore, attempts to lower my voice when discussing sensitive topics with the patient were lost on the translator, who would repeat the question loudly.

3. CULTURAL BELIEFS

It was interesting to see how cultural beliefs played a large part in attitudes to health and healthcare. Often patients would go to a traditional healer before coming to hospital, or self discharge to go to a healer if there was no rapid improvement in hospital. One morning in special care baby unit (SCBU), we discovered that all the babies had lost weight. The midwife then informed us that a baby had died yesterday just after being given milk so all the mothers were now afraid to feed their babies. Also certain cultural practices such as the men having multiple wives or women usually covering their knees, were very different to New Zealand.

Attitudes towards life and death were also very different from home. I found myself frequently giving bad news to patients and relatives, and their attitude were always of acceptance with plans to go home to spend time with family. People accepted death as a natural part of life.

It seemed to me that as a consequence of high mortality rates in the hospital (average mortality over a month in the adult wards ranged from 5 – 20 %), life was not valued as much as in New Zealand, and sometimes only limited efforts were made by nursing staff to keep patients alive. The normality of daily deaths on the ward was a real shock to me.

CONCLUSION

My elective was an amazing experience and one that I believe will stand me in good stead for starting work as a junior doctor. I gained a lot more confidence in making management decisions and I really thrived in an environment where limited resources meant clinical assessments and problem solving were more important than investigations. On the medical wards each patient had many disease processes and clinical findings, and it was great to learn about tropical diseases which are rarely seen in New Zealand. Although the days were long and exhausting, it was thoroughly enjoyable.

I felt privileged to work with the Zambian people and learn about their culture. The patients in general are so friendly and unassuming, with a great sense of humour.

This elective has definitely inspired me to return and work either here or in another developing country in the future. It is so rewarding to work in a place like this where people have so little but are grateful for everything. I believe I achieved all my goals in coming here and definitely made the most of my elective.