I am Rebecca Craw, a University of Otago Trainee Intern completing my medical studies at Christchurch School of Medicine. I was very fortunate to be selected as a recipient of the Pat Farry Rural Health Education Trust Travelling Scholarship. For three months in 2014 I was privileged enough to travel to some of the remotest parts of the world to gain experience in medicine by working in the community and at hospitals in the Falkland Islands and Nepal. This scholarship enabled me to get off the beaten track and experience the diversity that is rural health. I travelled to two very contrasting places, which gave me a broader view of the strengths and weaknesses of different health systems.

The Falkland Islands

The Falkland Islands are an archipelago of nearly 800 islands situated around 500km off the East Coast of South America. They are a British Overseas Territory that most people will know about because of the Falklands Conflict in 1982 between Britain and Argentina. This conflict is still very topical both locally and in world news. While I was there, not a day went by without the conflict coming up in conversation in one way or another. The locals all have intrigueing and sometimes downright frightening tales about the war and frequently voice the dread of possible future escalation. Reading up on the Falklands War is a must before visiting the Islands, it will give you a much better understanding of the people and the landscape.

The total population is approximately 2,900 people of which 75% live in the capital township of Stanley. Mount Pleasant Airfield is the military base in the Falklands and employs over 2000 personnel at any one time.

The Falklands are remote. They are known as the gateway to Antarctica and the majority of people who visit are usually enroute to the Ice. Access to the Islands is via commercial airplanes from Chile, Royal Air Force airbridges from England via Ascension Island or by Cruise Ship. Flights leave only a couple of times a week and are expensive. They really are one of the most isolated places in the world.

The Health System

The Falkland Islands healthcare system is run in conjunction with the NHS and based out of King Edward Memorial Hospital (KEMH) in Stanley. KEMH has 18 inpatient beds, seven elderly care beds, a one bed maternity suite and two ICU beds. There is one operating theatre, a radiology department with X-ray and ultrasound capabilities, a laboratory/pathology department and facilities for the other health

disciplines such as physiotherapy, social work and occupational therapy etc. So the hospital is small but relatively well-equipped to deal with most presentations.

The medical staff include five to seven general practitioners, one general surgeon and one anaesthetist. The GPs provide primary care, manage the medical inpatients and will be on call for the casualty department once a week. The surgeon and anaesthetist are on call 24/7 for all surgical emergencies, manage all surgical inpatients and outpatients and will run an elective list once a week.

Tertiary level care is provided by specialists from the UK. Patients can be flown back to the UK for urgent appointments or can wait for a specialist to visit the Islands. The same consultants usually come over once a year and are available for consultation via telephone when they are back in the UK. This is a very similar system to the RuFUS scheme New Zealand's West Coast DHB and Canterbury DHB have developed. Overall the health system is very efficient compared to most.

Emergency secondary or tertiary level care that cannot be provided by the local doctors is usually provided in Santiago, Chile through an agreement between the governments. Patients are transferred direct to Santiago in a lear jet(!!). This is the only flight in or out of the Falklands that is allowed to pass over Argentinian airspace and it usually takes around 24 hours to secure permissions and compltete the paperwork.

I was pleasantly surprised to find out that the number of doctors is perfectly adequate to keep up with demand. This is quite in contrast to nearly every other rural health sector I have come across where doctors tend to be in-demand, run off their feet and cannot keep up with the ever-mounting work load.

GP appointments can be booked on the day for acute issues or later in the week for non-urgent problems. Very different to many places where people have to wait for up to a month to get a routine GP appointment. The inpatient ward is hardly ever full and if you need an operation you'll get it on the day or within a few weeks at most.

The health status in the Falklands is very similar to New Zealand. Obesity is very prevalent so heart disease, hypertension and diabetes have very high incidence. Smoking and alcohol abuse are also significant problems. Therefore presentations you see are very typical of those in a small hospital in New Zealand. However in saying that, as the only health facilities in the islands the doctors see a bit of anything and everything and have to be able to manage (even if it is temporarily) every patient that walks through the door. A lot of foreign fishermen working in the South Atlantic Ocean come to Stanley for treatment as well as cruise ship tourists. These patients presented with any number of issues varying from serious

orthopaedic trauma to severe pneumonia to acute psychosis. The doctors who work here have to be generalists in every sense of the word!

My Experiences

As the only medical student in the hospital you get to do everything that a junior doctor would do without the paperwork! You also get complete control over your timetable so you can spend your time wherever you find it most beneficial to you. I spent a lot of time in ED working up patients. I would take the history, examine them and come up with a management plan, which I would then present to one of the doctors. By the end of the placement the doctors were happy for me to investigate the patient before calling them in and also treat and discharge any minor cases with supervision from the experienced ED nurse only. I got to practice many essential clinical skills such as blood taking, cannulating and suturing in the ED. I went out on all the ambulance callouts and assisted with all helicopter transfers. Flying in the RAF Sea King helicopters is very impressive and a lot of fun!

I assisted in theatre quite a lot as well. I would start off with the anaesthetist – cannulate the patient, administer the drugs, manage the airway then intubate the patient – and then get to scrub in with the surgeon and be first assistant. The surgeons were super friendly and would let you really get your hands dirty and would always let you close up. After I would go back to helping the anaesthetist and wake the patient up and follow them around to recovery. It was great to be able to follow a patient through every step of the process and gain a bit of understanding about the patient experience.

Every morning there is a ward round where all patients get discussed. This is ideal for finding out what is going on each day and you can then pick and choose where you want to go for the day. There were plenty of teaching opportunities too. All the doctors were friendly and happy teach throughout their clinics and on ward rounds. Visiting specialists (ortho, paeds, derm and anaesthetics while I was there) will do lectures for all the staff and teaching clinics for the doctors where you get to see the more weird and wonderful presentations. We even had a couple of paediatric resuscitation training sessions.

During my stay there was a fatal motor vehicle accident that saw three trauma cases come to us in ED. The patients were transferred by helicopter to a nearby sports field where I got to take the handover and transfer the patients to the hospital. I then assisted throughout the management of each patient.
The first patient was a 24 year old who was thrown 30ft from the vehicle. He sustained a fracture dislocation of his left shoulder, a stable pelvic fracture, a full thickness scalp laceration and numerous other smaller lacerations.
The second patient was the 24 year-old's father. He was the driver and had been wearing a seatbelt. We were unable to clear his C-spine with x-rays so he spent the next few days in a hard collar. Other than bruises from his seatbelt he had no other major injuries.

The third patient was also thrown from the vehicle. On x-ray he had fractured one of his fingers and we once again couldn't clear his C-spine, so he also had to have a hard collar. This complicated things as he also had significant facial and scalp lacerations which resulted in his entire head and neck swelling up significantly and nearly compromising his airway.
After stabilising each patient we took the first to theatre to reduce his shoulder and clean up his scalp. The third patient was also taken to theatre and had around 30 stitches to the two major lacerations on his scalp and face and we splinted his fractured finger.
All three patients required urgent CT scans so the wheels were set in motion to get them flown out. Saturday afternoon things finally got moving and it was back into the helicopter to see them safely transferred to the airport. It was really satisfying to see all three patients stable and comfortable on the aeroplane knowing they had all been in pretty dire straits only two days before.

It was great to be able to take an active role in the initial management of these patients instead of just standing back and observing like we usually have to do back here in New Zealand. I learnt a lot about prioritizing patient management in multi-traumas. It is important to be able to recognize which patients need your attention first or even occasionally to make the decision to step back because any efforts to resuscitate or stabilize would be fruitless. We only had one x-ray machine and one theatre, so quick evaluations had to be done to decide who went where.

As the only health facilities in the Falklands are in Stanley it is a bit difficult for residents living on the other islands to access healthcare. Adaptations have therefore had to be made. Every day one of the GPs in KEMH has several appointment slots set aside for telephone consultations. Anyone from settlements outside of Stanley is able to ring up and request one of these slots where they can discuss any problems with the doctor. It was actually not that long ago that these consults were conducted via two-way radio! According to the locals everyone used to gather around their radio sets during the doctors allocated time and listen in to everyone's consults!! So much for patient confidentiality!
Obviously there are limitations to telephone consults as you can't even examine the patient let alone perform any necessary investigations! There are 31 medical chests spread out around the Islands. These chests contain a fairly comprehensive selection of medications for camp residents. If the doctor wants to prescribe a medication for a camp resident then they are able to go to their closest medical chest and get the medication immediately. This prevents delays in treatment from trying to fly drugs out of Stanley everyday. Each chest is looked after by one person who keeps records of what goes in and out of the chest. Fortunately dishonesty is not a common trait in

Falkland Islanders as a system like this could easily be abused! It seems to work very well here though and means there are medications available in times of emergency.
Alternatively to telephone consults, residents can wait for a doctor's visit.
These visits are one of the more fun things you get to do as a doctor in the Falklands as you get flown out to some of the more remote islands to see patients. Every week one of the GPs heads out to a few of the settlements to see people who can't get into Stanley so easily. When I went along I was able to sit in on all the consults, examine the patients, take blood pressures and take any bloods that need doing.

One patient I saw on this visit suffered from depression and wanted to discuss their citalopram dose. She had been feeling more down than usual over the last month or so. I felt she was in a rather precarious situation. She lived alone and around an hour's drive from the nearest neighbours in the middle of West Falkland. Her social supports were nearly non-existent.
This case really highlighted the isolation of this place for me. I take my hat off to the people who live out here in the middle of nowhere forging their livelihood out of the land. They are often hours away from their nearest neighbours and can go for weeks without seeing another person. I certainly couldn't live in that much isolation. It also makes things difficult managing these sorts of patients.
We can't ensure we have a follow up appointment in a few days time to check how they are going as the doctor won't be back out there for another 5 weeks. So we have to rely on the telephone service to check in. We discussed that it was important for the patient to check in with neighbours every day or so and to call the hospital anytime if they need to. We adjusted the citalopram dose slightly and they seemed to leave us in relatively good spirits but there is always a slight gnawing doubt about what could happen out here in the middle of no man's land.
However, I find home visits like these very rewarding. Being able to see patients in their own home gives you a greater understanding of who they are and what their lives are like. This is even more important for rural communities where your patients may live a long way away from the nearest town or health service. To be able to see the isolation first hand ensures you create management plans that suit the patient. Patient education also plays a huge part in management. Empowering the patient and giving them an understanding of what their condition means and how best to manage it will make them much more likely to adhere to treatment plans when you cannot provide regular follow up yourself.
The flight also gave a stunning view of the islands and is definitely the best way to travel to and from work!

Final Reflections

When planning my elective I wanted to gain experience in rural medicine by working in an isolated place but within a health system similar to New Zealand's. I couldn't have gone anywhere more befitting than the Falkland Islands. It is one of the remotest places on earth. I learnt so much about the challenges rural doctors face and the huge variation in patients they see. The Falklands is a truly spectacular travel destination too. The wildlife and landscapes are completely unique. It is quite the experience to sit completely alone in the middle of a colony of thousands of penguins and have them come up to you and nibble your boots. You can explore the hills, (carefully avoiding the landmine fields!) and find discarded items from the war. Sail out and watch the whales come and go or be guided into harbor by a pod of Commerson's dolphins. Or head out to one of the outer islands and stay with a local family who will welcome you like a long-lost relative. The Falkland Islands is where rural doctors come into their own and I would highly recommend KEMH to anyone interested in doing a locum stint in the South Atlantic.

Nepal

Nepal is among the poorest and least developed countries in the world, with about one-quarter of its population living in poverty.

Nepal has many domestic issues including overcrowding, persistent power shortages, underdeveloped transportation infrastructure, civil strife and labor unrest, and its susceptibility to natural disaster. In 2014 156 people were killed by a landslide in a Northern district and 43 people were killed in a snowstorm on the internationally popular Annapurna Trekking Circuit. While I was there, Mt Everest witnessed the worst ever disaster where 16 Nepalese guides were killed in an avalanche.

However what is even more devastating than these freak events are the rates of preventable disease. Communicable diseases such as tuberculosis and gastroenteritis run rampant through the overcrowded housing. The lack of reliable power leads to cooking with open flames which reults in thousands of cases of burns every year. Roading is appalling and it is worrying just how often you hear of a van or bus tumbling down a cliff or ravine with fatal consequences. Blind corners result in plenty of head-on crashes which holds traffic up for hours. My heart was in my mouth numerous times travelling on tourist buses winding along the narrow roads through the valleys of Nepal. The terrible roading and lack of reliable transport makes travelling to and from the city very difficult.

Agriculture is the mainstay of the economy, providing a livelihood for more than 70% of the population and accounting for a little over one-third of GDP. As a result only 17% of the poplation lives in an urban setting. Healthcare facilities are limited and many of those who live in rural areas will walk for hours or even days to catch a bus to get them to their nearest hospital. Often by the time they reach a hospital, their disease has progressed so far that it is too late for doctors to save them. Occasionally they do not even make it to their destination.

Due to the overwhelming poverty, the burden of disease in Nepal is obviously very different to that of Western countries such as New Zealand. I expected this but it was still an abrupt and steep learning curve for me when I arrived in Nepal and was faced with the horrors of third world disease.

The Health System and Kanti Children's Hospital

During my time in Nepal I worked at the Kanti Children's Hospital. Over 30% of Nepal's population (of 30 million people) is under the age of 15. Kanti is the only children's hospital in Nepal so caters for all of those.

Some 65% of patients presenting to Kanti come from outside of the Kathmandu Valley from the rural areas of Nepal. This is due to a lack of adequate healthcare in the rural areas resulting in late presentations and diseases that have progressed to late stages which are therefore difficult to treat.

Kanti is a government-funded hospital but the money they receive does not cover the costs required to run a hospital. They rely heavily on fundraising and donations for the up-keep of facilities and resources and to pay over 50% of the staff. Government funding also does not mean the healthcare is free. Patients must pay for each night they stay in the hospital and also for any medical equipment or drugs they require. It is a very different health system compared to New Zealand.

The typical course for a patient presenting to Kanti would be the following: the patient will present to the hospital reception and purchase a numbered ticket. Patients will then be seen in the outpatient department in roughly numerical order. The doctor will see the patient, take a very brief history, perhaps examine them and then prescribe whatever they deem necessary.

If the patient requires admission the doctor will then write out a prescription for all the medical equipment they will require: cannula, IV fluids, medications, blood sampling kits, lumbar puncture kits etc. This script is then given to the family who must go off and purchase the equipment from a shop and bring it back to the hospital for the staff. Medical supply shops line the surrounding streets of the hospitals and quality and sterility of the equipment is very questionable.

If blood, CSF or anything else is collected this will also be given to the family who are required to take it to pathology themselves, then return to the doctor with the results. The patients hold on to all their medical records and x-rays and bring them with them every time they present to hospital. Compared to what I am used to I find this system full of flaws and it seems to cause numerous avoidable delays, but it does somehow seem to work for them.

Patient confidentiality is non-existent. The consulting rooms will be bursting with patients and their families. Everyone listens in on everyone else's consults and watch as the patient is undressed and examined there beside the desk. The children however are extraordinarliy well behaved. They sit still, stand and turn when asked and don't make a sound or even flich when they have bloods taken or even a lumbar puncture performed.

As mentioned earlier, Nepal is a very poor country and not everyone is able to afford medical care. Fortunately here at Kanti there is a free-ward where all medical costs are covered if the family is deemed to be unable to afford healthcare. I do not know who makes the decision whether patients "qualify" for this ward but it is always full and without it many more lives would be lost.

Medical Experience

I was able to rotate around three different departments during my stay; general medicine, general surgery and oncology.

General Medicine

General medicine in Nepal is basically infectious diseases. TB, pneumonia and gastroenteritis are everywhere.

I along with the Nepali medical students had a very observational role during my attachments. I did get to examine a few children but was always wary when I did due to the risk of infection. Infection control is basically non-existent in Nepal. The medical ward is full of TB patients coughing away without so much as facemask on. The doctors happily examine each patient without any protective gear and don't bother to even wash their hands between patients. Gloves, gowns or masks were nowhere to be seen. This was definitely a bit of a shock compared to New Zealand where a patient with TB would be quickly quarantined and anyone entering the room would be covered head to toe in PPE.

The gastroenteritis cases really took me by surprise. It is considered to be a bit of a benign disease here in NZ as it is easily prevented and easily treated. In Nepal though it causes significant morbidity and mortality. The water supply in Nepal is very dubious and often contaminated and all fresh fruit and vegetables have to be washed in iodine before they are safe to consume. Unfortunately many of the locals do not have access to these luxuries so are very susceptible to these pathogens. Many parents will wait a couple of days to see if their child will get better before presenting to medical facilities and when they do decided to come it can take several days to get to the hospital. This leads to a very late presentation, often too late. Some children come in severely dehydrated and too often no matter how hard the doctors try they cannot resuscitate the children quick enough. It was devastating to see a preventable disease, which is usually easy to treat, cause so many deaths.

At medical school we constantly learn acronyms to help us remember the symptoms of various diseases. Often we learn these for our exams and never actually get to see clinical cases. One patient I met had presented with vomiting and diarrhoea. Initially it was thought to be yet another case of gastroenteritis, however after a thorough history was taken it was discovered that the boy had drunken an unspecified chemical. On examination it was noted the child was quite hot and sweaty, seemed

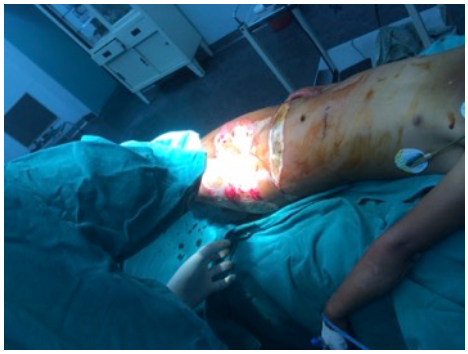
to be continually crying even though he did not appear distressed and had small pupils. In the case of organophosphate poisoning, the acronym SLUDGE stands for salivation, lacrimation, urination, diarrhoea/diaphoresis, gastrointestinal upset and emesis. One of the many acronyms I had rote learnt finally had a use! Fortunately he had not drunk too large a quantity of whatever the substance was and he was well managed with supportive cares.

General Surgery

The surgical teams deal with all sorts of presentations both elective and acute. The daily theatre lists I was involved in included investigation and treatment of Hirschprung's disease, hernia repairs, anorectal malformation repairs, burn debridements, circumcisions and plenty of abscess drainages.

I had never seen a case of Hirschprung's disease before I went to Nepal. I am unsure whether I just coincidentally saw several cases while I was there or whether Nepali people have higher rates of the condition. Either way it was very interesting to see these young babies go through the process of diagnosis through x-ray and then full-thickness rectal biopsy with colostomy formation followed by a colostomy reversal and reconstructive procedure once the biopsy result had been returned. In most western countries this would all be done in a single procedure due to the ability to get instant diagnosis with frozen-section biopsy. Unfortunately this is unavailable in Kanti but the children still do very well with the two-step procedure.

On one list we had two 56-day-old twins from a wealthy family come in for inguinal hernia repairs. We also had a nine year old boy who had pyrexia of unknown origin who needed a drain put in to aspirate a liver cyst. Unfortunately this boy was from a very poor family who could not afford any of the surgical supplies that was needed. The doctors however added the equipment he required to the lists of the twins (without telling the family) and therefore ended up with two sets of supplies for the underprivileged boy. The odd underhand thing like this went on in the hospital, which to us seems utterly unethical but in Nepal is just how they get things done.



As I mentioned earlier due to the lack of reliable electricity in Nepal many families cook with gas and open fires. This results in very high cases of burns and the majority of these affect children. Burn debridements are seen on most theatre lists. One young girl I saw came in with 25% body surface area burns over her abdomen and thighs. I cannot imagine the excruciating pain she was in. This is yet again another example of a preventable problem brought about by the poor living conditions in which many Nepali people live.

Oncology

I found the oncology ward very interesting. I have had very limited exposure to paediatric oncology through medical school so it was great to see such a wide variety of cancers all at once. Cases included retinoblastomas, Wilm's tumors, sarcomas, teratomas, various brain tumors, Hodgkin's and Non-Hodgkin's lymphomas and many cases of leukaemia.

When you think of a child cancer ward you tend to imagine a very depressing environment full of sadness. I found the oncology ward to be perhaps the brightest and most positive ward in the hospital. All the staff work tirelessly to raise awareness and fundraise and this has resulted in all essential oncology treatment being free of charge, including hospital stays.

Every patient had their own individualized chemotherapy schedule which were all very up to date with the latest agents available. The children get surgery and radiotherapy very promptly if they require it and their chemo regimens are outlined clearly so parents now when their child needs to come back for the next round.

Yet again the most common presentation to the oncology ward is a result of infection. Nearly all the patients on the ward were admitted for febrile neutropenia. Unfortunately despite the fact most treatment for cancer patients is free this doesn't extend to non-essential therapies. Granulocyte colony-stimulating factor, which is recommended for all febrile neutropenic patients, is included in this category. It was very frustrating to see so many families unable to afford this expensive drug. They would simply have to hope that their child would improve without it.

It is access to medications like these that we take for granted in NZ. People often get up in arms about PHARMAC not funding certain medications designed for various, usually rare, diseases. I know it is tough on those individual patients who may benefit, but we must try to remember how fortunate we are that as a population we are generally able to readily access the healthcare that we need when we need it with very minimal cost.

Final Reflections

Working in Nepal really made me appreciate how lucky we are to live in a country like New Zealand. We often complain about various aspects of the public health structure or Pharmac but in the big scheme of things we have a very efficient health system. Ninety-eight percent of the time we are able to get the treatment we need, when we need it without having to pay for it. That is a luxury we have come to expect that millions of people around the world do not have. It was heart breaking watching families turn down life saving treatment for their children because they could not afford it. We take for granted that every day we can go home to a warm house, drink clean water, and have food on our tables every night. The lack of these basic human needs in Nepal results in a huge burden of disease that is entirely preventable. However much is being done to try to improve this. Every year thousands of volunteers contribute their time to helping educate and empower the Nepali people and to improve their living conditions. By helping build houses, installing water purification systems or providing training in basic first aid and nursing skills they are helping out in many communities. There is of course a long way to go and much that needs improving. I only hope one day I can return to Nepal to give back to the communities that truly opened my eyes to the way some people live.

If you are ever interested in volunteering or working in Nepal there are many volunteer organisations out there that would assist you with this. I would highly recommend it.