

With the generous support of the Andrew Dent Scholarship, I was able to spend the month of January living and learning in the small Pacific island nation of Samoa. My trip had three primary purposes: the first was to conduct groundwork related to instituting the neonatal Guthrie test in Tupua Tamasese Meaole (TTM) Hospital; the second, to complete short clinical placements in obstetrics, gynaecology and paediatrics; and the third, to learn as much as possible about Samoan culture in order to gain a holistic understanding of the lives and health of the Island people.

The Guthrie test - otherwise known as the heel prick test - is a routine component of neonatal screening used to detect a number of metabolic conditions, such as congenital hypothyroidism, phenylketonuria, and cystic fibrosis. To perform the test, small samples of blood are collected from a newborn's heel, which are then run through analytical machinery to determine the serum levels of certain hormones and enzymes. If any aberrant results are found, further testing is then conducted in order to diagnose and treat the neonate in a timely manner. This simple screening therefore prevents some of the devastating, life-long consequences that can result from a short delay in getting appropriate care for these conditions. For example, a mere 2-month delay in treating congenital hypothyroidism can result in an irreversible form of mental retardation and stunted physical growth known as 'cretinism'. Though congenital hypothyroidism has a cheap treatment regimen, tragically cretinism is still a reality in many less developed countries that lack the Guthrie test, with Samoa being just one example.

Melbourne University medical students Hok and Alyce Lim began work on having the Guthrie test performed at TTM after observing a baby with cretinism while on clinical placement in Samoa in 2013 (Alyce with the assistance of an Andrew Dent Scholarship). Their idea was to have the blood samples collected at the hospital and then sent to New Zealand for analysis. To this end, they teamed up with TTM-based paediatric registrar Litara Esera and some doctors in New Zealand who agreed to sponsor the initiative. They also formed a small collective of medical students - of which I am part - to research the logistics and write up an official project proposal. It was this initial work in Australia that led me to travel to Samoa to gather information and understanding that couldn't be obtained from afar. I met with Dr. Esera who spearheads the project at TTM, spoke with various other doctors, had discussions with nurses in the neonatal unit, visited the laboratory technicians, and trawled through medical records. I focused particularly on collecting information about pre-existing neonatal testing, the documentation protocols in place at TTM, the optimal time for the Guthrie test to be performed, the practical barriers to its institution and the profiles of previous cases, as well as acquiring more specific statistical data on the incidence of congenital hypothyroidism. With this information and with the work of the rest of the team coming together, it is hoped that the Guthrie test will soon be conducted on all neonates at TTM. At first, it will be used solely for the detection of congenital hypothyroidism, but it may also be used to test for other metabolic conditions in the future. This is all part of the much-needed shift to a more preventive paradigm of care in Samoa.

As well as working on this clinical research, I divided my time between the ONG and paediatrics wards. One thing that surprised me about entering the hospital environment was that everyone was wearing thongs - patients, nurses, physicians, and surgeons alike. More specific to obstetrics though was the realisation of the very high fertility rate in Samoa. A routine dialogue while admitting women was "do you have any other children?", "oh, yes, 10". This is supposedly due to lack of education about contraception and a deep-seated cultural embarrassment about its use in Samoa, leading to women having many children in close succession. You notice it outside of the hospital too, where the towns and villages abound with young children. Another thing that stood out about ONG and TTM at large



was the lack of resources, from basic prenatal screening tests (excepting ultrasounds) to CT scanners and surgical equipment. The surgical theatre has only one bed, meaning that c-sections and other such operations are somehow squeezed in between every other procedure at the hospital. However, the most critical thing the hospital lacks, even more so than technology and beds, is staff. Many of the doctors move overseas for salaries that are more than 5-fold what they get in Samoa and there's not enough local training of allied health professionals. This brings to mind one memory in particular: One morning during ward rounds, we were examining a woman with a complicated pregnancy who began sobbing quietly and said "I'm so scared I'm going to lose my first baby". One of the registrars from New Zealand then asked if a social worker could be brought in to chat with her. The Samoan consultant replied, "we don't have any social workers, she will have to be strong".

After a fast-paced, high-yield period in ONG, I moved downstairs to be welcomed into the paediatrics team. My very first case was a little girl with all of the telltale Jones criteria of rheumatic heart fever. This was just one of the many diseases I witnessed that is rare in most of Australia but sadly still commonplace in the Pacific. Amongst many other things, I also saw typhoid, pseudomonas abscesses, sepsis, osteomyelitis, and an inordinate number of children with cerebral palsy. There was one case of a very ill little boy with sepsis and osteomyelitis who had been taken to have a traditional healing massage before coming to the hospital. This was one instance that clearly highlighted the tension that exists between ancestral and modern medicine in Samoa; many Samoans believe the massages can cure any ailment, while exasperated doctors say "they purely serve to delay appropriate care and hasten the spread of Staphylococcus around the entire body". Even more striking in this ward though was that the vast majority of the patients, upwards of 90%, suffered severe and oftentimes life-threatening respiratory problems. Time and time again, I heard severe bilateral crepitations on auscultating the lungs of children. This prompted me to visit the maternity clinic one afternoon to find out more about the vaccination schedule in Samoa. I read down the short list of routine vaccinations in search of pneumococcal to no avail, partly helping to explain the extremely heavy burden of pneumonia. I was told by the head paediatrician that it was too expensive, but having seen the significant time and cost involved in treating pneumonia and the devastating cachexia of some of the children, I truly hope the economic justification of investing in it is soon realised and that, if need be, they'll get outside support to do so.

Despite lamenting all that is lacking in the hospital, I had another important realisation in Samoa when a visiting Australian vascular surgeon presented at a Continuing Medical Education (CME) forum. A consultant in the audience asked her about the types of dressings and wound care we have access to in Australia, leading to a long, impressive description of various cutting-edge resources. However, midway through her account, she stopped, looked around, and said something along the lines of, "while



these things are excellent, the truth is you don't really need fancy, expensive equipment in order to provide effective care and achieve rapid healing". I saw this again and again in Samoa. That is, while there is definitely a desperate need for certain things - e.g., a CT scanner, the pneumococcal vaccine - they do a wonderful job with what they have. Necessity obliges Samoan clinicians to develop precision in the physical examination and they combine this with basic clinical investigations to do the best they can. I hope to be such a doctor myself - developing sharp skills to be able to operate effectively in such a context.

My third and final aim - to gain insight into Samoan culture - began with a formal cultural orientation at Oceania University. I then left the main town of Apia to see the more rural areas of the country, both on the main island of Upolu and later on the adjacent island of Savai'i. I stayed in a Samoan hut or 'fale', attended a church service, tried traditional foods, and swam with village children amidst waterfalls. I listened as women shared their stories with me and saw first-hand both the beautiful and unsettling aspects of the culture. While in Savai'i learning about the traditional way of life in Samoa, I also had the opportunity to visit the main rural hospital. After walking around the wards and speaking at length

with the nurses, I was struck yet again by how many challenges they face in such a place – from the inescapable humidity, to the lack of very basic equipment, to the extreme shortage of doctors. I sincerely thank the Pacific Health Fund for enabling the eye-opening, life-changing experience I had in Samoa. The project to put the Guthrie test in place at TTM being partly initiated by another Andrew Dent Scholarship holder is a testament to the ongoing value of the fund. I genuinely hope to have an enduring connection to Samoa too, now that I'm acutely aware of the medical need in the Pacific and the possibilities we have to support development.