Report

Visiting: Kilimanjaro Christian Medical Centre (KCMC), Moshi, Tanzania
Mentor: Andrew Bastawrous, Co-founder of Peek Vision & TED fellow
Pilot inter-observer study of the Portable Eye Examination Kit (Peek) for the diagnosis of diabetic retinopathy in Tanzania
Aim: To investigate the capacity of health care clinics in the vicinity of Moshi's Kilimanjaro Christian Medial Centre (KCMC) to accept and utilise peek's new smartphone technology to screen for diabetic retinopathy.

My summer project was based at Moshi town in the Kilimanjaro region in Tanzania. The region is famous for its coffee and influx of brave foreign visitors to climb the largest free standing mountain in the World. I was based at the Kilimanjaro Christian Medical Centre (KCMC) in the 'Macho' (Swahili for eye) department. KCMC is the major hospital in the region, however I spent most of my time out in the field in smaller health centres.

The study I worked on centred on the diagnosis of Diabetic retinopathy (DR), a common complication of Diabetes and if untreated, a conditions that can result in blindness. In well-developed health systems diabetic patients undergo regular screening. Lack of resources and poor infrastructure mean relatively few low and middle-income countries (LMIC) have an established DR screening service.

Portable Eye Examination Kit (Peek) is a smartphone-based system enabling comprehensive eye examinations without the need for high levels of training or infrastructure. It is anticipated that Peek will be able to provide retinal images of sufficient quality to provide an affordable, portable and easy to use solution for DR screening in LMIC.

There are twenty-three health care clinics near the KCMC which will be used to house the Peek technology and subsequently detect DR in local diabetic patients. I was tasked to assess each health centre to look at their resources, facilities, staffing and quality of patient records in preparation for the pilot study. The aim was to assess usability of Peek and evaluate methods of achieving effective feedback on the user experience. It was also an opportunity to sensitise health workers and influential individuals in the region before the pilot began.

The project Landover set off at 7am every day with a mix of Tanzanian ophthalmic nurses, public health workers and researchers alongside one English medical student. It was invaluable to have local elder colleagues who had respect from people in the villages. Health centres ranged from overflowing urban hospitals to remote Christian clinics up in the foot hills surrounded by banana plantations. It was a great experience to visit such a range of health settings and try to understand challenges they face in incorporating new technology into their practice.

Due to poor roads and wide geography area we had to cover, the team and I visited two health centres a day. Language was a problem as most people did not speak very good English. However I had an accomplished translator and learnt some Swahili phrases and polite introductions. I also learnt very quickly the customs of Tanzanians and how important a formal introduction was to start proceedings. Every member of team introduced themselves and their role to the security guard, the nurses, the doctors and the medical director after a signing the visitors book. Life also took a much slower pace than London though I was made to feel very welcome at all the sites and most included a tour.

It became immediately obvious that medicine in Tanzania is completely different to medicine back in London. We take so many basics for granted in western hospitals such a stocked medicine cabinet, a lab to interpret results and sterile instruments that aren't readily available. A fundoscope was almost non-existent. Nevertheless the staff working in the diabetic clinics were so passionate about their work. It was a great opportunity to work with these passionate people on an exciting project with the potential to make a significant difference in access to eye care and preventing blindness.

Reaction and feedback to the PEEK campaign video from health workers was extremely positive at the sites. Health workers immediately identified the advantages of the technology for their patients and were keen to be a part of the roll out. Questionnaires based on attitudes towards smartphones showed a positive attitude towards the introduction and use of smartphones in a health setting. However, only few staff had been trained in retinal examinations and medical knowledge had room for improvement. Several decision makers including hospital Medical Directors, Regional eye coordinators and village leaders were engaged and together with staffing, network coverage and GPS location, contact details of the all the personnel responsible for the running of each diabetic clinic were collected. It is so important that all stakeholders are involved from the very start when setting up a project like this.

Overall, this project was a success in fulfilling its purpose to gain an understanding of the capacity of health centres and attitudes of the people who will be using the technology towards PEEK. I met some passionate people and gained a key interest in working on global health project to tackle preventable sight loss. I learnt that you can travel half way across the World and be in the middle of nowhere without the right equipment or resources, but there is still the same compassion and commitment for health workers to improve care for their patients.

On my last day in Tanzania we played a round of golf at a club just out of town. I didn't mind getting beaten handsomely by the local players as it's not every day you play a round of golf with a view of Kilimanjaro.