**OOPT Written Report**

I did my OOPT with Medecins Sans Frontieres in the village of Tari, Papua New Guinea. Tari Hospital is located in the remote highlands of PNG. The only cemented road is the air strip and dirt roads connect the neighboring villages. The next nearest hospital with surgical facilities is 350km away. We provide surgical services and sexual/family violence counseling as part of the hospital set up for the local province. There is one major operating theatre and another small minor operating theatre unit which functions as the hospital A&E/Minor Trauma Unit. The surgical team includes the expatriate surgeon, expatriate nurse and the expatriate anaesthetist (myself), together with the local national staff and the resident anaesthetic technical officer. The aim of this OOPT was to experience working in a remote environment within a developing country. The opportunity to function independently and autonomously within an operating team structure was also one of the learning objectives. This placement also allowed me to understand more about Non-governmental aid/charity agencies and how they function. It gave me a glimpse into organizational policies, country politics and set up of hospital infrastructure.

My normal work day starts at 8am with the surgical ward rounds across the 3 units that we cover. (High Dependency Unit/Recovery Unit. General Adult Ward and the Paediatric + Woman Ward). Cases that have pitched up overnight are reviewed and an operating list is generated after the rounds. The cases are then done according to urgency of surgical need, followed by paediatric cases (youngest first) and finally elective cases. An average normal day time theatre list can be anywhere from 3-10 patients. We try to start around 10am in the morning and operate till lunch break and continue after lunch if there are no surgical clinics. The surgical/review clinics are held every Tuesday and Thursday starting at 1am and can have anywhere from 16-36 cases. The patients are seen by the surgeon or anaesthetist and sometimes both. We try to end the clinic by 3/330pm so that we can slot any other cases that need to be done or leftover from the morning. Any emergencies that are bought in during normal hours are reviewed by the surgeon or me and a management plan made after initial assessment by local staff at the minor OT department. The normal work day ends at 5pm and the on call person is then on duty for supporting the departments that we cover. This includes attending to all ward queries, review of all new admissions and consult for any cases that present via A&E/Minor OT. Obviously if there is a surgical need to have an operation after work hours, the entire team will therefore be mobilized for the case. On the Saturday we try not to operate after lunch and on Sundays, we do not operate unless it is clearly an urgent/emergency case. However the ward rounds continue at 8am every Sunday regardless. The on call pattern is essentially a 1 in 5 rota. There were medical team meetings at 530pm every Thursday to discuss any medical matters, updates or complicated patients. Hospital meetings were done every Friday 8am where the entire project team will come together go through hospital project matters. This included administrative, security, logistic and technical teams. The respective department will give their summary of the previous week activity and update on any forthcoming events or plans. The expatriate team has their own fortnightly meetings to dissimilate organization news and update.

I logged in a total of 395 cases and this does not include neonatal resuscitation. The majority of anaesthetic was performed as ketamine anaesthesia. Spinal anaesthesia accounted for 23% of my cases. The case mix is essentially infections (50%), trauma related (35%), Ob/Gyn (5%) and elective cases (10%). The overall breakdown is as follows in the logbook.

There was no direct supervision and difficult cases were retrospectively discussed with my supervisor based in London. This was done via email and text messaging through whatsapp platform. Work based Assessment was sent to her for review. Complicated cases were managed by group consensus but anaesthetic management was pretty much left to me. MSF have an anaesthetic adviser based in Amsterdam for urgent advice if required. There was also an internet forum based platform called TeleMed where difficult cases in MSF projects were discussed and advice given by a panel of international specialists. The Anaesthetic Technical Officer was under my direct supervision and her role was a hybrid of ODP/Anaesthetic Nurse Practitioner duties. She could function independently and could perform General, ketamine and spinal anaesthesia for uncomplicated cases. She could also administer wrist, elbow, axillary and ankle blocks. We function as a team and took turns doing the anaesthetic and the assisting. Ideas were shared and knowledge exchanged between us while we learnt from each other.

My role in the project was also supervision and education of the inpatient ward nurses and the minor/major OT nurses. This involves weekly teaching sessions in small groups. With the minor OT nurses, we did simulation training for ABC assessment/Triage. This was to help them cope as first provider while managing the minor OT/AE during office and non-office hours. The inpatient nurse educational sessions included ABO blood grouping and transfusion, use of a GE DASH monitor and also Antibiotics policy and prescribing. We were in the process of collecting a cohort of paediatric patients with difficult osteomyelitis which had resulted in a change of our antibiotic policy.

I have met all the objectives I had set for myself before the start of this OOPT and have had an interesting time. It was a challenge adapting to a patient population with limited understanding and knowledge of anaesthesia. Throw in the language barrier and the lack of equipment that you are so routinely used to, provided a few uncomfortable situations. The additional duties that are undertaken outside of anaesthesia management can be overwhelming at times but unfortunately essential due to limited medical personal. Overall, an extremely good learning experience.

MSF had arranged a 5 day course called Participant Pre-Departure training in Bonn, Germany. This allowed us an opportunity to know more about the organization and also go through problems or issues that might present working in a developing/remote country. This was very informative and helpful. As I had arranged this OOPT as a volunteer for MSF, they arranged all the administrative matters which included medical licensing, visas and flights. The accommodation was on site next to hospital ground and was actually much better than I expected. We had some limited access to wifi broadband, had hot water throughout the day and comfortable sleeping arrangement. Water supply was filtered via rain water and electricity was rationed through the local power grid or via the onsite generator. The cooking and cleaning was undertaken by the local domestic team and security in my opinion was not an issue. I communicated with an anaesthetist in that project via email about a few months before departure and also with another anaesthetist who had previously worked in that project. They gave me a rough summary of anaesthetic practice in Tari Hospital. I also had the privilege of a 3 day handover from the incumbent anaesthetist.

**MSF Tari Summary**

Total Time Spent: 11wks

Anaesthetic Equipment and Drugs

Thiopentone, Ketamine, Morphine, Fentanyl, Suxamethonium, Vecuronium, Heavy 0.5% Bupivacaine, Marcain 0.5%, Lignocaine 1%, Ephedrine, Dopamine, Adrenaline, Atropine, Neostigmine

Labetalol, Hydralazine, Magnesium, Dexamathasone

Oxford inflating Bellows Ventilator with Halothane as Volatile

O2 via oxygen concentrator with 5L flow maximum

No propofol, noradrenaline, metaraminol, glycopyrolate

No Central line, block needle or spinal introducer. No epidural/CSE kit, infusion pump or syringe drivers.

 Anaesthetic Review

395 total cases with 191 regional/block involvement. 91 Spinal Anaesthesia and 76 Attempted Axillary Blocks (70-80% success rate). 23 cases involving ventilation with halothane (5.8% of total cases). Mostly General Surgery and T/O cases. 23 Elective Cases (Lumps, Bumps and Hernias) which made up 5.8% of cases.

Memorable Cases

* GSW to Abdomen (died on table)
* Diaphragmatic Injury from stab wound left chest
* Cancellation of Elective Hernia Case (High BMI, Hypertension, COPD)
* Anaesthetic Crisis on Table
* Trauma to face/Nose Reattachment
* Skin Graft to Face/Head Trauma

Paediatric

Total 84 cases out of 395, 9 Emergency or out of hours

< 1 : 10,1-5 : 21, < 16 : 53, all general surgery other than 2 which was gynaecology

Intubated only 2 cases, 7mth old for I/D neck abscess early in my stint and an appendicectomy

Problems encountered

* Uncertain Age
* Poor IV access
* No proper paediatric circuits

Complicated cases

* 2 respiratory apnoea
* Skin Graft to Scalp in 10mth old
* A skin graft on a leg burn with difficult access
* Sugar Cane in Throat of 9mth old

Obstetrics and Gynaecology

42 cases in total, 14 LSCS, 7 MROP, 12ERPC/D&C, 1 Hysterectomy, 2 ectopic

Memorial Cases

* CbD 3-Crash section Sunday
* Obs haemorrhage Hb 2.8, No transfusion 48hrs
* Uterine Rupture/Hysterectomy

Deaths

* 55yr old Trauma/Chopping
* 10 yr old post 60% burns
* 8yr old Septic Hip/Thigh
* Stabbing to back
* GSW head
* GSW Abdomen
* Drowning
* Obstetric Patient
* RTA/Brain Stem Injury

Major Incident Events

* RTA – 1 fatality, 2 other casualties ( 1 Major OT, 1 Neuro Obs)
* RTA - 34 Patients (no major OT cases)
* Police shooting – 1 DOA, 1 Major OT (died), 12 othe casualties
* Fight –

Teaching and Policy Planning

* Involved in regular training of local staff
* Scenario Based Simulation for Trauma/ABC assessment
* Medical Emergencies on Ward
* Transfusion and ABO testing
* Operating a GE DASH Monitor
* Formulating Antibiotic plan for osteomyelitis
* Framework for Mass Casualty Plan
* Training, Supervision and Managing of Anaesthetic Technical Officer

Reflection

The OOPT was an interesting experience. Working for an NGO allowed me to appreciate the working of providing care and aid from the ground up. This involved organization policies, the workings of hospital management and also the logistics involved. My role involved providing anaesthetic and medical care in a rural and developing world setting with limited anaesthetic and medical resources. I have a better understanding of the logistics and working of operating a hospital and department through this experience.

I appreciated the chance of working independently and being a part of the operating team. Skills with ketamine, halothane and axillary blocks were picked up and refined. There was sharing of knowledge and also opportunity for me to impart and teach the local staff. Living and working in constant proximity of the expatriate group and hospital was kind of like a social experiment with interesting results. It was not always smooth sailing but it cultivates tolerance, patience and communication skills.

It was tiring at times working 7 days a week 24 hours on call and the workload and anaesthetic cases I did reflected that. However it was satisfying to believe that a difference was made and people’s lives were impacted by the services we provided.

Anaesthesia Education in Ethiopia

From November 2011 to May 2012 I worked in Gonder University Hospital (GUH) in the Amhara region of Ethiopia working as a tutor on a new MSc in Advanced Clinical Anaesthesia. In common with many African countries, Ethiopia has a severe lack of physician anaesthetists with only eleven currently working in a country with a population of approx 85 million. As a consequence, most anaesthetics are given by non-physician anaesthetists who study a four year BSc level degree course directly on leaving high school aged 18. This course follows a curriculum with the first two years being generic health sciences with only the last two years being dedicated anaesthesia training. On graduation anaesthetists work entirely unsupervised and there are no opportunities for higher training. There are no physician anaesthetists currently working in GUH. The majority of the department are relatively inexperienced, the average time since graduation being around three years. Due to the lack of higher training opportunities, there has historically been a high rate of attrition from within the department.

In order to try and overcome some of these issues and improve patient safety, an MSc programme in Advanced Clinical Anaesthesia has been developed by two UK-based anaesthetists. The programme is 18 months long, with 12 of these being focused anaesthetic training. It is a modular curriculum with each module being 8 weeks long. Modules include paediatrics, obstetrics & gynaecology, trauma and general surgery. The course is open to four students per year who have all been qualified anaesthetists for a minimum of two years. It is competency based with students completing workplace-based assessments modelled on those currently in use in UK anaesthetic training. The course is delivered by anaesthetists recruited from the UK who are employed directly by the University of Gonder. Two tutors are present in Gonder at any one time, meaning that the students benefit from one on one clinical supervision. As well as supervision in the operating theatre, there is also one dedicated day of classroom teaching per week.

I travelled to Gonder in November 2011. I had a one week handover from the departing tutor before taking over full responsibility for the course in week two. I was also accompanied by another tutor for the first two months, followed by one month alone, followed by the arrival of a second tutor for the final three months. At the point at which I took over the four students were completing their final six months of the programme; which consisted of one clinical module in GUH before travelling to Addis Abeba to complete placements in Critical Care and Neurosurgery, followed by a return to Gonder to work on dissertation projects. In early January whilst the senior students were in Addis Abeba a new intake of students started the course.

When I arrived, the senior students had benefited from 6 months of full supervision and training and hence were very organised with regards to completing workplace based assessments and taking responsibility for their own learning. They had already been taught advanced skills including TAP blocks, peripheral nerve blockade using a nerve stimulator, paravertebral blocks, caudals and epidurals. My role was to oversee their plan for each patient and supervise them in theatre. On the Wednesday classroom teaching days I taught on topics including paediatric anaesthesia, opthalmics, acute and chronic pain, neuroanaesthesia, plus 1 full week of critical care teaching. I also organised vivas at the end of each module of classroom teaching and supervised the completion and presentation of an audit by each student. I helped to arrange their placements at a hospital in Addis Abeba and accompanied the students for the first week of their placement.

For the second half of the placement I had two groups of students, the senior MSc students and the junior students starting their first modules. The senior MSc students required less input, however the junior students had never studied in this way before, so the first month required a lot of orientation to workplace based assessments. Supervision was much more hands on starting from agreeing the anaesthetic plan to demonstrating advanced skills to post operative management, especially focusing on analgesia. I tried to highlight the importance of patient safety, planning and judgement, so each list focused on these issues. The students initially struggled, before making a noticeable change in their approach to perioperative management.

Classroom teaching covered pre-op assessment, equipment and monitoring, non-technical skills, essay planning and how to read journals as well as co-morbidities. I also supervised the development and presentation of an evidence-based guideline by each student, and set and marked several essays as well as encouraging case presentations of interesting cases. Just before the end of my placement we ran several simulation-based workshops on airway management and anaesthetic critical incidents, which the students were extremely positive about.

As well as the teaching role, the placement required a large organisation and management role. Several issues arose which required liaising between the students, the Dean of the Medical School and the course administrators, based in London. One major problem involved the senior students’ dissertation projects. There was a lot of conflict regarding the acceptable format and type of project, as well as appropriate supervision. The ethical approval process was also a major stumbling block requiring much negotiation. It revealed to me the difficulties inherent in working within a different culture, and having to discover for myself the institutional approach.

Overall I feel that this placement was an overwhelmingly positive experience. I feel that I have gained invaluable experience in clinical supervision and significantly developed my teaching, organisational and management skills. I have also been exposed to a completely different way of working and seen disease processes rarely seen in the UK. I feel that working in a low resource environment has taught me to be much more flexible, and handling major cases on my own such as thoractotomies has massively increased my confidence.