

Clare Attwood: Travel report

Hi, my name is Clare Attwood and I am an anaesthetic trainee from the UK, currently between SHO and Registrar training. I recently spent 4 months in Juba, the capital of South Sudan, which gained independence and became the world's newest nation on 9th July 2011. My husband had worked in Juba in 2008 and we were invited back to help with the introduction of postgraduate medical education. However, we both knew that we would also want to "muck in" and undertake clinical work whilst we were there; myself in anaesthetics and David in acute medicine. As expected, it was both a culture shock and a steep learning curve (I am, after all, relatively early on in training), but it was also an experience that I wouldn't change for anything. Having detailed my plans to attempt to increase rates of spinal anaesthesia use for caesarean section, I received an AAGBI travel grant. I also received invaluable advice and assistance from the AAGBI, as well as from the charities with which it is affiliated during my stay. Below is a summary of some of my work in South Sudan. I have also included a write up of my spinal anaesthesia audit as a separate document. This is due to be published in the SSMJ (South Sudan Medical Journal) in the near future.

Ketamine is the drug of choice at Juba Teaching Hospital for most procedures and it is apparent why that is. Apart from two doctors very recently transferred from Ethiopia and Kenya (under an East Africa medical programme), the workforce is comprised entirely of specialist nurses, known as anaesthetic medical assistants (AMAs). They have been working with Ketamine for decades (throughout the civil war) and most have had no ongoing training since starting work. Ketamine is easy to use and it can be used even when there are limited resources. There is frequently no electricity (it cutting out mid-procedure is a daily occurrence) and this means that there is often no running water. As most patients maintain their own airway with Ketamine, less face masks and endo-tracheal tubes are used – something that there are not many of; there were only size 6.0 and 9.0 ETTs for adults available in the department. There was not always oxygen in the tanks supplying the anaesthetic machines, but we did have some relatively reliable oxygen concentrators. Sadly, these were also mains electricity dependent, the batteries having become flat years ago. However, they were vastly preferable to using the ancient anaesthetic machines, with sticky valves and bellows, exhausted soda lime and exhaustable oxygen supplies. In short, in South Sudan everything points to Ketamine. The anaesthetists taught me a lot about its use and I soon came to realise that it is a useful drug in plentiful supply and one that I also became reliant on in my anaesthetic practice in South Sudan.

As mentioned, one of my aims in coming out to South Sudan was to promote spinal anaesthesia for caesarean section, due to its well recognised safety profile. Visitors before me had noted the low use of spinal anaesthesia and the high rate of anaesthetic complications. I soon realised that it was true and that upon my arrival only 13.3% of cases were performed under spinal anaesthesia. However, I also realised that the anaesthetists used spinal anaesthesia for almost every other procedure below waist level and that their skills in the procedure were pretty honed. I asked why they were not used more for caesarean section and found out that the reasons were multifactorial. They were mostly unaware of the benefits of spinal anaesthesia and some were convinced that the procedure was a failure if the mother felt anything at all (a belief enforced by some surgeons). This combined with a lack of confidence by some anaesthetists, pressure given by the surgeons and an occasional lack of Ephedrine within the country led to the high rate of Ketamine anaesthesia for caesareans. Some education about the benefits of spinal anaesthesia, some advice regarding the use of well diluted Adrenaline, some gentle encouragement and some leading by example resulted in the rates of spinal anaesthesia for emergencies reaching the dizzying heights of around 50.67% by November 2011.

I experienced more than a few "hairy" moments during my time at JTH. I was often the "go to guy" in the department, because I am a doctor and was seen as their senior. The AMAs were aware that I have not completed my training, but the buck still stopped with me! I became better at coping with the stress, but my resting heart rate was often faster than the patients' when they were driven by Ketamine! Patients often came to theatre very clinically unstable, despite resuscitation to the best of Juba Teaching Hospital's ability. In spite of the lack of some of the most basic amenities, we were the referral centre for the rest of the country. Patients had often travelled for days before they arrived at JTH. All patients came in through "out-patients", where there is very limited triage and over 300 patients seen daily by about 8 doctors and 2 nurses. We had no facilities to test renal function or even a full blood count. Some patients had their Hb checked on admission, but there was no blood bank and we relied on blood donations of relatives, who were often unable or unwilling to donate. In summary, by the time that patients arrive in theatres they were often in a very poor state and we did not have the facilities to pre, intra or post-operatively care for them adequately. Despite our best efforts, patients died, who would have survived if they were not in South Sudan. One of the major causes of death was haemorrhage and I am proud to be part of a team (with Harvard University) and the JTH laboratory that set up a "virtual blood bank". In an emergency, blood could be taken from our small supply and replaced later with blood from the recipients relatives or our volunteers; mostly members of the ex-pat community. It also became possible to arrange type specific donations for less urgent situations. The "virtual blood bank" will stay in place until JTH has the facilities (most notably a reliable electricity supply) available to develop a standard blood bank.

In November, the Samaritan's Purse team came to JTH, equipped with their own staff, drugs, equipment and generator. They were here to operate on over 40 cleft lips and were a pleasure to work with. During this time I learned a lot about anaesthetising very small children (something I was later very grateful for). The old adage rang true: "If you don't use it, you lose it" and while I had lost confidence anaesthetising little ones, I recognised that my fellow anaesthetists had become a bit rusty on the ABCs of patient care. I spoke to them more about it and it became clear that they were desperate for education. What they wanted most was to be sent away for courses (something that the hospital could not afford) and they wanted reference materials. I had noticed that there were no books in the department and they confirmed that (apart from one AMA) they had no books at home. So I started writing and teaching an A,B,C course and got writing to the AAGBI. I was put in touch with the OAF (Overseas Anaesthesia Fund), who, via TALC (Teaching Aids at Low Cost) arranged for over 40 books to be sent to me in South Sudan. Unbelievably, they got here just a few weeks later and the AMAs (mostly tall, quietly-spoken Dinka men and women who have seen more horrors than I could ever imagine) were very happy, albeit in their proud, reserved way. The AAGBI also put me in touch with Lifebox (an organisation whose work I was aware of but whose help I didn't anticipate needing), in order to provide us with some pulse-oximeters.

There were some clear holes in the AMAs' knowledge, which I tried my best to fill in. Some of the AMAs (not all by any stretch) thought that 50% nitrous oxide and 50% oxygen was adequate for maintenance of full anaesthesia for a nephrectomy. They had not had any Halothane for many months, so I used some Propofol (a very limited supply found at the bottom of a fridge) boluses and later wrote some regimes for bolusing Propofol and Ketamine. When the textbooks from the OAF and TALC arrived, we were able to use some of the other regimes suggested. This experience explained why earlier, when I suggested "dialling up" some Entonox on the anaesthetic machine for a patient who was feeling uncomfortable during a caesarean section the same AMAs asked: "Why give a general anaesthetic when the patient has a spinal?". I used this as an opportunity to explain about the different IV and inhalational anaesthetics and (I think) successfully taught the concept of MACs!

Although Samaritan's Purse generously left behind some drugs and smaller pieces of equipment, the biggest hurdle that the anaesthetic department faced was a lack of drugs and small equipment. Whereas this used to be supplied via Khartoum, this was no longer an option since Independence. Coupled with this, the hospital had very little money. The Ministry of Health tasked me with compiling a study to work out the drug and equipment needs of the anaesthetics department. I undertook this study and presented my findings to senior members of the hospital and the Ministry, including the Deputy Minister of Health. As a direct result of my study, it was agreed that the department would be provided with two new Glostavent anaesthetic machines, as well as a quarterly budget for drugs and equipment.

Working in South Sudan was a truly life-changing experience. It was a privilege to be accepted as part of the anaesthetic team and to be given position of such responsibility. Any changes that I implemented I was careful to make sure were sustainable; my work with the blood bank being handed over to the Harvard team and my work within the anaesthetic department being continued by the anaesthetic doctors from Ethiopia and Kenya. Although the Ministry of Health provided accommodation during my stay in South Sudan, the AAGBI travel grant helped considerably with the cost of flights, visas, insurance, food and drink, at a time when I was not earning an income. Thank you.