I joined Health Volunteers Overseas and spent two weeks in Lima teaching and training anaesthetists in July 2011.

Health Volunteer Overseas

Health Volunteer Overseas (HVO) is a private, non-profit organisation dedicated to improving the availability and quality of health care in developing countries through education, mentoring and professional developmental opportunities to health care providers in over 25 countries.

Background

The World Bank classes Peru’s economy as “upper middle income”. In 2011 it was the fastest growing economy in the world, however 30% of the population is still below the poverty line.

Lima has a population of 10 million with only 730 physicians, 50 intensive care beds and performing over 16,000 operations per year. With Peru’s economy booming, their national health system is being left behind and their health care is suffering with limited resources.

Hospital Sabogal

Hospital Sabogal where I was based is in a very impoverished area of Lima, which generally meant patients had multiple comorbidities which were often untreated and would present with advanced pathology.

The theatre complex consists of 10 theatres, performing both elective and emergency procedures in the following specialties:

- Cardiac – CABG and valve repair. Bypass time 5-7 hours for CABG
- Thoracic – pneumonectomy and lobectomy
- Paediatrics – ENT, urology and laparotomy
- ENT – basic ENT and large retrosternal goitres
- Obstetrics
- Plastics
- General/Urology
- Orthopaedics
- Eyes

Staff

Anaesthetic training in Peru consists of 4 years as a resident, after which they apply for an attending post, similar to the North American system. There are no ODPs and anaesthetic rooms, so theatre nurses and the residents set up theatres.
The anaesthetists I worked with had extensive theoretical knowledge and practical skills, a lot of which was self-taught from textbooks.

Language barriers
The primary language spoken in Peru is Spanish. Very few of the patients and staff, including the attendings at Hospital Sabogal were able to speak any English at all, other than the odd phrase. The majority of the anaesthetic residents however, spoke English with a few being fluent. I spent most of my time in theatres attached to a resident who would translate both to theatre staff and patients. I never found my inability to speak Spanish or theirs to speak English a problem in getting information across.

Equipment and Monitoring
The majority of theatres had Datex Ohmeda Modulus II machines with sevoflurane and isoflurane as the volatile of choice. Monitoring consisted of ECG, blood pressure, saturations and end tidal capnography. There was no FiO2 or end tidal volatile monitoring and the vapourisers were filled to a few millilitres at a time, requiring constant vigilance.

Endotracheal tubes (ETT) consisted of Magill’s and reinforced ETT. No RAE or nasal tubes were available, and due to the use of mainline capnography the ETT would kink especially in paediatric ENT cases. They had not heard of bougies or had anything even close to a difficult airway trolley or even ambubags in any theatre.

Regional anaesthesia consisted of 16G Tuohy needles, spinal anaesthesia was not an option. A normal 20 millilitre syringe filled with 0.5% bupivacaine was used for loss of resistance, as they felt normal saline would dilute the local anaesthetic.

Sharp bins consisted of a cardboard box.
**Drugs**
Each anaesthetist would pick up a box from pharmacy in the morning consisting of drugs required for the day. Muscle relaxant and opioids were generally avoided in children due to the fear of respiratory depression postoperatively. Aminophylline was given as soon as bronchospasm was suspected.

No drug labels were available, and drugs were simply remembered by the size of syringe.

**Recovery**
There was a 10 bedded recovery, with monitoring according to AAGBI minimum standards. Patients stayed in recovery until they were fully awake and pain free, similar to the UK.

**Patient Pathway**
Patients were delivered to a “reception” area after which they were wheeled into the theatre complex and left by the entrance. They were then wheeled into theatre, where the anaesthetist would see them for the first time. Pre-assessment consisted of a first year resident seeing the patient the night before.

There were no name bands or allergy bands present, meaning identifying the correct patient was solely dependent on them answering to their name and a black and white paper photo of the patient in the notes.
My Teaching and Training

My teaching consisted of power point presentations, which I had prepared prior to going to Peru and topics I’d prepared on request once arriving there. These topics were:

- WHO Surgical Checklist – evidence and importance
- DAS guidelines
- Management of perioperative bronchospasm
- Uses of Magnesium
- Preeclampsia

I also did daily theatre-based teaching covering topics such as:

- Gas induction of paediatric patients
- Management of the shared airway
- Use of muscle relaxant in paediatric patients
- Transversus Abdominal Plane Blocks
- Ilio-inguinal and ilio-hypogastric nerve blocks
- Assessment on one lung ventilation
- Management of the large retrosternal goitre

A few critical incidents during my time in Lima highlighted a few rectifiable deficiencies in the system. They were able to fund for oesophageal doppler monitoring, yet had no bougies, a variety of endotracheal tubes or ambubags. I contacted the head of department and presented them with the International Standards for a Safe Practice of Anaesthesia from The World Federation of Societies of Anaesthesiologists, outlining the minimum standards required to provide anaesthesia in their institution. I have also contacted a manufacturer who has agreed to provide bougies free of charge to Hospital Sabogal.

Summary

I cannot emphasise enough how rewarding and enjoyable I found this trip both on a professional and personal level. The staff in Lima were extremely welcoming, friendly and eager to learn. My time in Lima has highlighted how much we take basic equipment for granted, and how as doctors are able to adapt and work in different environments. There will always be differences in practice both within and between developed and developing countries, some due to a lack of resources and funds and others due to cultural and training differences. These aren’t going change overnight and we shouldn’t expect them to. I’ve learnt a lot from these differences, which I use in my day-to-day practice back in the UK.

I am very grateful to the AAGBI travel grant for this trip which helped pay for part of my flight and make my trip possible.