

ELECTIVE (SSC5c) REPORT (1200 words)

A report that addresses the above four objectives should be written below. Your Elective supervisor will assess this.

Elective Report Claire Morris

I undertook my elective in Jinja, Uganda. Uganda is found in East Africa and Jinja is small town, around the 14th largest in Uganda but a popular destination for tourists with many visiting Jinja to visit the Source of the River Nile and to enjoy various outdoor pursuits including rafting and horseback riding. I spent 6 weeks in the paediatric department of Jinja Regional Referral Hospital a government hospital within Jinja town. The paediatric department is on a different site with an outpatient department, emergency room, malnutrition unit, a research unit and 2 general wards. It which has approximately 50 beds but often has 65 to 70 inpatients at any one time.

Initially I had planned to spend half my time between the paediatric and obstetric department but organisational issues meant I spent my full 6 weeks in Paediatrics, as a result of this I have modified my predetermined objectives in order to better reflect my learning and experiences in Jinja.

Objective 1.

Describe the pattern of disease/illness in the population and in the context of global health.

Describe the presentation and management of tetanus in the paediatric population.

Tetanus can present in several different ways within the paediatric population. Most commonly as generalised or neonatal tetanus.

Tetanus occurs due to infection with Clostridium tetani which produces tetanospasmin a neurotoxin which ascends from the site of entry to the central nervous system and prevents the release of the inhibitory neurotransmitter GABA causing excessive neural excitation. Tetanus is preventable by vaccination.

In Uganda the official vaccination schedule provides tetanus vaccination 3 times before the age of 1 year but not all children are fully vaccinated and those that are may not receive the appropriate booster doses and are unlikely to receive a booster after injury

Furthermore during antenatal care pregnant mothers should be vaccinated twice, two doses 6 months apart and this should be sufficient to protect their unborn child from contracting neonatal tetanus which has a mortality rate approaching 80%.

Tetanus can present in several different ways within the paediatric population. Most commonly as generalised or neonatal tetanus.

Generalised tetanus occurs in the unvaccinated or inadequately vaccinated population and usually occurs secondary to an injury on the lower limb or feet and begins with a wound infection with clostridium tetani a bacterium found in soil.

Neonatal tetanus occurs in neonates of unvaccinated or inadequately vaccinated mothers. Infection often occurs via the umbilical stump and was historically to use of mud or dung on the severed umbilical cord by traditional medical practioners. Nowadays it is thought to be more common with

homebirth and the associated unsterile delivery practices. In 2011 the WHO declared Uganda free from neonatal tetanus (less than 1 case from every 1000 live births) however the following year the incidence rose. These neonates present from 3 days of age with the development of poor feeding, poor mouth opening and increased tone. I have seen one case of neonatal tetanus during my time in Jinja, the child presented at 7 days of age with poor feeding and opisthonus was noted, unfortunately the child passed away within 24 hours of admission.

During my time in Jinja I have witnessed numerous cases of generalised tetanus. Most have recovered but one or two have not survived secondary to respiratory failure and aspiration pneumonia and I have assisted in the resuscitation of one such child who we manually ventilated for over an hour and a half but unfortunately the child arrested again out of hours and passed away.

The child often presents in opisthonus with hyperextended neck and spine, reduced mouth opening and the classical spasms. Diagnosis is clinical and requires careful observation of the patient and history to differentiate between spasms and convulsions which may occur in meningitis or cerebral malaria. A history of penetrating injury may or may not be reported. Management centres on reducing the spasms which are often triggered by light, touch and sound so nursing in a dark quiet side room is the ideal although not always possible. Additionally sedative medication is given regularly IV alternating between diazepam and chlorpromazine (swallowing can be affected and aspiration pneumonia is a common cause of death in these patients). Early NG tube placement allows for nutritional support and lowers the risk of aspiration than if the caregivers attempt oral feeding. Anti tetanus immunoglobulin is given in developed countries but it is not available in Jinja so we use Anti Tetanus Serum 1500IU which is derived from horses but which families must purchase themselves at a cost of 60,000UGX (£15). The guidelines state the ideal dose of ATS to be 10000IU but this is unfeasible for most of our patients so either 1500IU or occasionally 3000IU are given alongside the sedatives and adequate analgesia.

Interestingly children who recover from tetanus are not protected against future infection and they require tetanus toxoid vaccination on discharge, at 6 weeks and again at 6 months.

Objective 2

Describe the pattern of health provision in relation to the country which you will be working and contrast this with other countries.

Uganda has a complicated healthcare system in which the state, private companies and NGOs/charitable institutions operate.

Unlike in the UK trust in the state healthcare system is not strong and so those with money will often chose to attend a private institution instead.

In government hospitals initial management is free and there are no hotel or nursing costs but patients often will incur some costs for medication or investigations. Some drugs are not stocked and some run out in which case families will be asked to purchase drugs from one of the pharmacies in town

I worked at the Regional Referral Hospital in Jinja which has the largest population outside of Kampala the capital. Examples of drugs which must be bought include anti tetanus serum and phenobarbitone for seizures.

Our lab keeps a small stock of blood but this can run out and so families are sent with a vial of blood to crossmatch and purchase a unit of blood from a local private clinic for transfusion. Investigations can also have cost implications, ultrasound and x ray are available at the mainsite a 10minute walk away but these machines can break and then families will have to go to a local clinic for these tests.

Most patients do not live close to the hospital and will initially visit a local clinic which may or may not have a doctor on site. Here they often receive oral antimalarial therapy and oral antibiotics. If the clinic is unable to manage the patient for example they require blood transfusion due to anaemia or the patient worsens then they will refer to JRRH for care. It can be frustrating receiving these patients as it can be unclear whether prescribed drugs were actually given and these patients can arrive comatose or peri-arrest and I have witnessed at least 2 children die who had prior to admission been managed at another centre then referred to us after several days and despite our best efforts they have not been enough but one wonders that if they had come sooner would their outcome have been different.

Complicated cases once stable such as cardiac disease requiring ECHO and cancers are referred to Mulago hospital in Kampala the only national referral centre in Uganda. Any surgical cases cannot be death with on the paediatric site so will be sent to the surgical team on the main site or if they are unable and the patient sufficiently stable for the 2hour drive they will be sent to Mulago.

Objective 3

Health related objective

Compare treatment of medical paediatric patients in Uganda compared to the UK. Are there any cost effective ways to improve care?

Are there things that the hospital is already implementing that could be shared with other hospitals in the country?

The Children's department at Jinja Regional Referral Hospital has benefitted in the last 2 years through a partnership with the Royal College of Paediatrics who have sent British doctors who are in specialist training to the hospital to improve mortality through improving standards of care, as such it is difficult to ascertain how different JRRH is from other government hospitals in Uganda. I have enjoyed talking to the doctors currently here about their projects, implementing clearer monitoring procedures and documentation around temperature in the special care unit and fluids management on the paediatric site. I knew from previous experience that personal care in Uganda is undertaken by the family rather than nursing staff but had not realized that observations of pulse, respiratory rate, saturations and temperature are not regularly performed. It is difficult to determine whether this is due to time constraints that the nursing staff are too busy taking blood, cannulating and giving medication. It is certainly true that the patient to nursing ratio is stretched, with one trained nurse caring for up to 10 sick children in the emergency department alongside taking blood for all the patients attending the outpatient department with the support of a nursing student or 2 who may be in their first few months of training. On the other paediatric wards the staffing ratio between trained nurses and patients can be up to 1 nurse to 35 patients.

During our morning ward rounds I have been able to direct and assist the student nurses in taking observations, particularly respiratory rate which they can struggle with and teaching them about oxygen saturations and using the oxygen concentrator and noting down the amount of

supplementary oxygen the patient is on. I have also tried to encourage them to interpret their observations and ask which patients are you most worried about?

This has been helpful since our ward rounds can flow smoother and we are able to review patients in order of severity and to use the respiratory rate to assess whether an admitting diagnosis of pneumonia is accurate when taking into account the age and respiratory rate of the child.

I hope that these students will take the practice of taking observations daily onto their other rotations.

A non-medical cost effective way of improving mortality has been the introduction of an inverter system which stores energy to use during times when the local grid power supply is off. This means that children who require oxygen can continue to receive oxygen via an oxygen concentrator and visibility is better at night which is particularly useful when cannulation is required after dark. Whereas prior to the introduction of the inverter when there was a power cut oxygen could not be given unless the hospital generator was turned on but often petrol supplies for the generator were lacking. It is hoped that the special care unit on the mainsite beside the maternity unit will have an inverter installed shortly so that oxygen, lighting and heating for the incubators will be available during power outages also.

Objectives 4.

Appreciate how children present to hospital and how simple interventions and education are being implemented.

Many children present to the hospital with suspected malaria. Any child who presents to our triage department with fever is sent directly to the lab for a blood smear to detect malaria parasites. Often Ugandan friends of mine will feel febrile and then self prescribe oral anti malarial therapy. Many of the children will have come via a local clinic and already initiated oral therapy. For severe cases oral therapy is not sufficient and the majority cases of malaria that present to us are given a course of IV artesunate if they meet the following criteria; cerebral signs, tea coloured urine, severe anaemia, difficulty breathing, >3 convulsions in 24 hrs, vomiting everything or prostration. A number of the children presenting with malaria I have seen have complicated disease with either severe anaemia (Haemoglobin as low as 1.0g/dL) or cerebral malaria. Often the cases of cerebral malaria can be difficult to distinguish between meningitis and often patients are initiated on joint therapy until their GCS improves enough for a lumbar puncture to be performed.

Malaria is a difficult disease to eradicate and work by the Bill and Melinda Gates foundation on a vaccine is positive but by no means a complete solution, its efficacy in reducing infections is only by a third. Education is necessary in teaching families about the importance of preventing mosquito bites by sleeping under nets and shutting doors and windows before dusk. Furthermore local government support is needed in ensuring treated nets are available and those donated are distributed wisely and work is needed to eradicate stagnant water pooling which attracts and provides a breeding ground for the mosquitos.

Local healthcare services also need to improve their identification of children in the community who are febrile, ensuring blood smears are performed and if they are negative that other causes of fever are considered and those not improving on oral antimalarial therapy are referred to a hospital before they deteriorate with reduced GCS and seizures.