Masanga Field Report

28thFebruary – 15th May 2013

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Introduction

In February 2013 I travelled to Masanga as a newly qualified consultant in Obstetrics and Gynaecology. I hope that this report is found to be useful for the board of Masanga UK and anyone planning to spend any time in the near future at Masanga.

I heard about Masanga whilst working in Plymouth as a registrar. I was fortunate enough to negotiate 3 months of unpaid leave as part of a Post CCT Fellowship in Plymouth. My flights and accommodation were paid for by Capacare.

This report is laid out in the following parts

Obstetrics and Gynaecology at Masanga

Prospective audit of The Grace Emergency Assessment Unit

Proposals for student elective projects

The potential future contribution of Masanga UK staff

Obstetrics and Gynaecology at Masanga

It is hard to overstate quite how different rural Sierra Leone is from the UK. It is a contrast that is even starker given that it is possible to fly directly from London to Freetown in a little over 6 hours. It takes some time to adjust. As one of the 2 resident doctors told me 'the soul travels by horse'. The disparity in healthcare facilities is enormous. Expectations are lower. The maternal and infant mortality rates are widely reported as being amongst the worst, but there is no shortage of optimism, and it is possible to do a great deal with very little.

When I arrived there were two resident Dutch doctors who had been at Masanga for one and two years respectively. They have become by necessity incredibly versatile doctors with skills across most branches of Medicine and Surgery including O&G. After witnessing an internal version for a hand presentation in a dead baby, I realised I was going to have to raise my game. In order to help them I saw that I would also have to become as much a generalist as possible. As such I had to remember that I was a doctor first and an Obstetrician second. I felt sufficiently comfortable after a few weeks to share the on call work with them. There is a significant advantage to being an Obstetrician in this respect however as the majority of out of hours work is O&G and having some surgical skill makes it possible to cope with many basic surgical problems. For the rest Paediatrics and General Medicine present the biggest challenges.

An important aspect to Masanga isits role as an educational centre. Whilst there is a medical school in Freetown, from which there are about 25 graduates every year, the majority of clinical work in the rural areas is undertaken by Clinical Health Officers (CHOs). Masanga is one of a number of hospitals in the country that train CHO students. Masanga is also the principle hospital for the Surgical Training Program.This is an additional 3 year program, for CHOs, designed to enable them to perform routine surgical procedures. This is funded by Capacare, a Norwegian Non-Governmental Organisation (NGO), and one of the partners in the Masanga project.

I had therefore both teaching and clinical roles.

The Maternity ward has 20 beds. This is usually sufficient to accommodate all Maternity and Gynaecology cases, although there was occasionally an overspill into other areas. Those patients requiring oxygen, blood transfusion or intensive observations were generally cared for on the Emergency Ward.

During my time at Masanga there were 99 deliveries. The live birth rate was 75%. Many women were referred in from other units with complications in labour and in many of these cases the babies were stillborn. There were also a number of postnatal complications from delivery at home or in other units. There were 4 maternal deaths during this period. These were secondary to eclampsia, sepsis, postpartum haemorrhage and a sudden deterioration in a woman with hepatocellular carcinoma. A 5th woman who remained in a coma for 4 days following a significant haemorrhage at a home delivery, was taken back home by her family.

36 Caesareans were performed during my visit, and I was involved with 26 of these. The crude Caesarean rate is 36%, although this is heavily influenced by the referral of women with obstructed labour.

	Deliveries	Vaginal Births	Caesarean Sections
Self-referral to Masanga	73	57 (78%)	16 (22%)
Referral from PHU/Hospital	26	6 (24%)	20 (76%)
Total	99	64 (64%)	36 (36%)

There is also plenty of gynaecology at Masanga with fibroids and prolapse the principle issues. Some of these cases are challenging. Ketamine is the mainstay of anaesthesia. Instruments are limited and sutures are occasionally in short supply. There is no diathermy and the average starting haemoglobin was about 7. Clearly elective surgery in these circumstances needs careful consideration and counselling. The fact that women do so well is a testament to their fortitude. The table below represents the operations performed by me, or those performed by the STP students under my supervision.

Caesarean Section	26 (Including 5 uterine ruptures)
Internal version	2
Perineal Repair	2
Abdominal Hysterectomy	9
Vaginal Hysterectomy	6
Salpingo-Oophrectomy	5
Colpocliesis	1
D&C	1
Laparotomy (Surgical cases)	4
Abscess Drainage	2
Wound Debridement	3
Lipoma/Sebaceous Cyst Excision	2
Skin Graft	1

I expected my judgement to be tested whilst at Masanga, and I wasn't disappointed. Being faced with familiar situations in an unfamiliar environment and making the best decision is not always easy, but it made me think.

I found myself scanning a lot. This was indeed a great personal benefit as like many trainees I found it difficult to get the time to do it. I had quite a practice in antenatal scanning going. The ability to see, scan and operate on patients within 24 hours is a wonder.

Teaching the STP students was perhaps the most rewarding aspect of the experience. It took me a few weeks to feel sufficiently comfortable with the environment to allow the trainees to operate, but letting go a bit and stepping back, finding the best way to explain things was ultimately very rewarding.

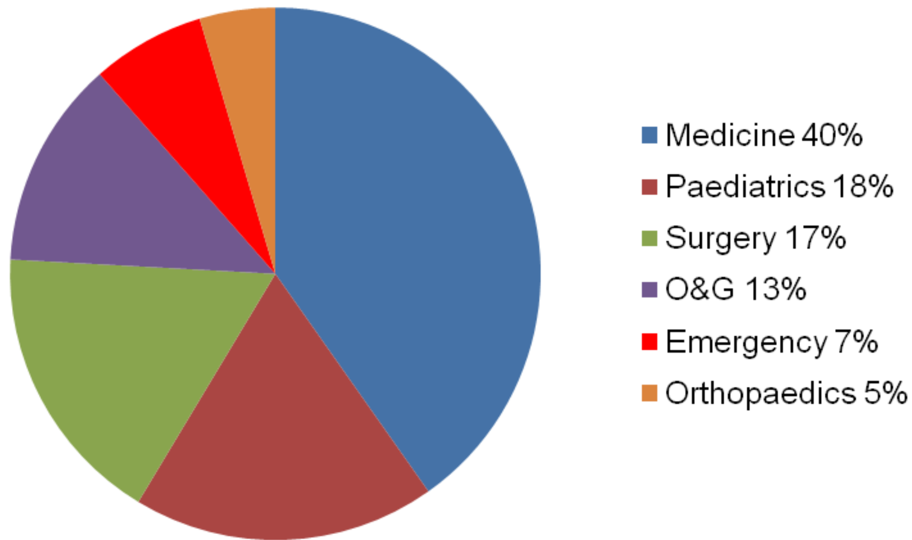
The Grace Emergency Assessment Unit

There can be no doubt that The Emergency Unit is a great success. It only opened in January 2013, but it is difficult to imagine how the hospital functioned without it. Credit should go to all those involved, both with fund raising in the UK and with project management at Masanga.

Over a 30 day period from 3rd April until the 3rd May all attendances in the Emergency Unit were recorded prospectively. The following information was collected: Name, age, sex, admission and discharge date and working diagnosis. Patients were grouped into one of Surgery, Medicine, O&G, Paediatrics, Orthopaedics or Emergency Care. Reason for admission was also classified into one of Assessment, Post-operative Care or High Dependency.

Findings:

There were 87 attendances during this period.



There is a marked seasonal variation in the number of paediatric admission at Masanga. At the onset of the wet season as the mosquitoes begin to breed there is a well-recognised surge in the rate of childhood malaria. Certainly that was our anecdotal experience for May. This unfortunately is not captured in this data set.

The average length of stay was 2.7 days. Of the 66 admitted from home, 35 were discharged, 7 died and the balance admitted to the other wards.

The largest single diagnosis was Malaria (17% of attendances); followed by Pneumonia 7% and TB 6%.

Of the 87 patients seen on the ward in this time, 55 were seen for assessment. 17 cases were post-operative. Of these post-operative cases, 5 required high dependency care, in addition to a further 15 non-surgical high dependency cases.

Electricity at Masanga is intermittent. It is provided by a generator which supplies power to the entire hospital compound for 3 hours every evening and during times of surgery. There is an additional small generator which is able to provide power to the Emergency unit to drive the oxygen concentrator. Electric light is available at all times via a battery bank which stores energy from the main generator when it is running. It is clearly difficult to administer IV fluid and medication in the dark and the Emergency unit provides an environment in which drugs can genuinely be provided 3 or 4 times a day. The ability to provide Oxygen for sustained periods has been lifesaving.

Patients receiving Oxygen, Blood and IV Fluids/Drugs on the Emergency Unit between 3 April-3May.

Oxygen	8
Blood	13
IV Fluids	17
IV Drugs	46

Potential Student Elective Projects

There is any number of potentially interesting and useful projects that could be undertaken by visiting students. The following ideas are by no means exhaustive, but would be of use to the hospital as well as interesting to a wider audience.

1. An audit of the management of Osteomyelitis in children at Masanga.

The WHO Surgical Care at the District Hospital text book is a useful standard of care by which to audit practice. The hospital care of childrenis an excellent reference. The choice of antibiotic, mode of delivery, duration and consistency of delivery could all be usefully measured. Timing of surgical drainage, (sequestrectomy) and the use of x-ray for the monitoring of treatment should also be measured.

2. What is the surgical wound infection rate at Masanga?

There is currently no running water in the theatres at Masanga. Surgical scrub techniques are therefore by necessity simple. Anecdotally the wound infection rate is about 10%. Clearly if it is much higher than this one would question the appropriateness of elective surgery. If it is much lower we might question the value of prophylactic antibiotics.

3. What is the level of anaemia in pregnancy?

Anaemia is common in West Africa. Women become more anaemic in pregnancy and can bleed during delivery. The majority suffer no consequence. It would be interesting to have a normal range of haemoglobin concentration amongst pregnant women at Masanga, with a control group of non-pregnant women (nurse students). It would also be useful to validate the Masanga laboratory haemoglobin assay perhaps with a bedside monitoring device such as 'Haemacue'.

4. An audit of the management of hypoglycaemia in children with Severe Malaria.

This is a common condition at Masanga. Quinine exacerbates hypoglycaemia causing convulsions and brain damage. The World Health Organisation (WHO) have developed protocols for management. They are set out in the hospital care of children. These make an excellent standard from which to work and to audit current practice. During my time at Masanga more lives were lost to Malaria amongst young children than any other condition and quite possibly as a result of hypoglycaemia.

The potential future contribution of Masanga UK staff

This part of the report has been included in response to the idea that UK Military medical personnel may in the future travel to and work at Masanga. I hope this information helps those involved with implementing such a scheme. Having been an ARMY Medical Officer I can clearly see the benefits to both The Service and The Individual. I also hope however thatthis report is useful to all doctors considering a period of work at Masanga. As a doctor I have written this report principally for doctors, but there are also opportunities for the allied professions.

Background.

Masanga hospital was opened as a leprosy hospital in the 1960s in a location specifically chosen for its isolation. It was run until the civil war in the 1990s by the Sierra Leonean Adventists. During the war the hospital closed. In 2005 it was reopened by a Danish Surgeon, Dr Peter Bo, with private funds. It has grown from an outpatient clinic to a hospital employing 120 staff, with 100 beds offering Emergency, Paediatric, Maternity and Surgical Care.

The project is now run by The ‘Masanga International Board’, which is an affiliation charitable organisations consisting of The Sierra Leonean Adventists Abroad, Masanga Denmark, Masanga Holland, Masanga UK and Capacare. The operating budget is about 300 000 Euros per annum. The rapid growth of the project has created problems, but it is a sign of its success that people travel from all over the country for treatment. There are currently two full time resident doctors whose salaries are funded by the project. Their roles currently include both clinical and administrative tasks and it is recognised that this is now too much for two doctors. Efforts are underway to recruit both a Financial Manager and a Field Manager, but there is clinical work enough for another doctor. The project is financially stretched however and this is not something the Masanga Board can currently fund.

Masanga has no shortage of additional visiting medical staff who come for periods from as short as a few days to a few months. They are usually involved with teaching on the Surgical Training Program which is run and funded by Capacare. This is a Norwegian based charity whose aim is to train local Community Health Officers to undertake common surgical and obstetric procedures. These visiting staff undertake a variable amount of clinical work, dependent upon their experience and duration of stay.

Doctors at Masanga fall into three groups, although there is overlap between them.

1 Resident Medical Officers

2 Visiting doctors, usually with a specialty interest

3 Surgical specialists teaching on the Surgical Training Program, usually sponsored by Capacare.

If the intention is to assist in the clinical and administrative running of the hospital it is essential that staff stay for a period of at least 3-6 months. Clearly working in a rural hospital in West Africa is different from Europe and it takes time to learn the ropes. It is also essential that clinical staff are generalists and remain as flexible as possible... When ‘on-call’, doctors can be asked and expected to deal with Medical, Paediatric, Surgical and Obstetric emergencies.

To date all of the resident doctors have been Dutch. They have all been trained in Holland on a ‘Tropical Doctor’ training program consisting of a year of Surgery and a year of Obstetrics and Gynaecology. To say that they are impressive individuals is an understatement. They routinely undertake laparotomies for gastric and Typhoid perforations as well as rupture of the uterus requiring hysterectomy. The role also includes continual training of the nursing, theatre, pharmacy and laboratory staff. There are logistics, financial and communication problems as well as negotiations with the Local Chiefs and National Department of Health. As training in the UK has changed in the last few years it is unclear whether or not staff will have the ability or willingness to undertake this role. People inevitably learn on the job however and it is as much about determination as anything else.

Situation

Sierra Leone is a member of The Commonwealth, situated firmly in the Tropics, lying just 8 degrees north of The Equator, but in the same Time Zone as The UK. Lungi International Airport is 6½ hours flight time from London and there are currently 3 direct flights per week. The capital Freetown lies on the opposite side of a large estuary which is crossed by a ferry from Lungi. A new road is under construction making the journey inland to Masanga more straight forward.

Masanga is located roughly in the middle of Sierra Leone about 4 hours drive from Freetown. The village of Masanga has grown with the hospital and has a population of about 2000. The nearest town is Magburaka with a government hospital, although no surgical facility. Makeni is about an hours drive away, where there are 4 hospitals, banks and supermarkets.

Communications

Mobile telephone coverage is widespread in most areas, certainly in the towns. It is however patchy at Masanga. Of the two networks, Africell and Airtell, the former has better coverage currently. There are spots on the high ground where calls can be made and the cost of a call to the UK is approximately 20pence per minute. Texts are inexpensive. Calls between mobiles in country are generally straight forward. Internet communications are difficult and whilst it is possible to connect via a mobile phone to the internet in practice this is very slow and expensive. Internet café's exist in Makeni, but connection is slow.

There is no effective postal service.

Infrastructure

The Hospital consists of The Grace Emergency/Admissions Unit, Maternity Ward, Paediatric Ward, Surgical Ward and Stabilisation Centre. There are a total of about 100 beds. There is a Labour Room, Dressing Room and 2 Operating Theatres. There is a plain X-ray facility and 3 basic ultrasound machines.

The laboratory is able to perform Haemoglobin concentrations, Malaria parasite, HIV and Hepatitis B rapid tests, Urinalysis and Urine Microscopy. Stool tests for common parasites can also be performed. Gram staining is also possible as well as TB acid fast bacillus testing. HCG and Blood Glucose tests are usually available in the Emergency unit as well as in the lab. There is also a small, simple, but effective blood bank. There is no facility for anything more elaborate such as FBC, U&Es or CRP.

Electricity is provided by generator. There are 2 large diesel generators, (although only one is required to provide electricity for the entire compound and they are run alternately one week on/off). This runs for 3 hours every evening from dusk until 2200. The large generator also runs during operations which are scheduled for Tuesdays and Thursdays but also for Emergencies. Power is

supplied to the entire compound when the generator is running. There is also a small generator which can provide a limited amount of power to the Emergency Unit, sufficient to power lights, monitors and the oxygen concentrators. Fuel costs represent a significant proportion of the operating budget and availability is a continual logistical problem. This means that difficult decisions occasionally need to be made regarding provision of Oxygen.

Presently there is no running water at the hospital or in any of the accommodation buildings. Water is carried by hand from the well. This obviously places limitations on the cleanliness of the wards and theatres. Surgical scrub techniques are simple. There is a water tower which is filled from the well by means of solar energy and there is an on-going project to fix the running water supply to theatres and then to the rest of the hospital.

The Masanga Project also includes a Nursing School and a number of businesses which are grouped together under the banner of The Masanga Sustainability Project. This includes a bicycle shop, a tailor shop, a carpentry shop and a canteen. It was envisaged that these would generate an income to offset some of the operating costs of the hospital, but to date this has only been cost neutral. The Nursing School is in its first year and is not expected to run at a profit for a couple of years.

Accommodation is provided in the form of a number of houses which have been reclaimed from the jungle following their falling into ruin in during the war. There is a hostel which can accommodate about 20 together with a number of smaller houses. The cooking, cleaning and security is generally provided by local staff and is of a good, if basic, standard. The costs of food and accommodation are about £5 per day.

The project currently has 5 roadworthy vehicles which are co-ordinated by a logistics manager and employed to source fuel, drugs, groceries and transport staff, including to and from the airport.

Safety and Security

It is now 10 years since the end of the war. There would seem to be no political, cultural or religious instability at this time. Foreign companies are investing and transport links are improving. There is a nascent tourist industry. This is however West Africa and recent history of the region is full of conflict. There was a weapons amnesty at the end of the war and I certainly did not see any weapons during my visit.

Theft is possible and the discrepancies in wealth obviously provide incentive, but simple precautions are suffice.

The major threats to visitors are road traffic accidents and Malaria. The risks are difficult to quantify, but should be taken seriously. Most people do not drive at night as there are often unmarked/unseen obstacles on the roads. Malaria chemoprophylaxis and mosquito nets are recommended and even then will not prevent all cases of Malaria. It is however usually relatively easy to treat.

Giardia and gastroenteritis are relatively common amongst European visitors to Masanga. Fever of some sort affects most people during their stay. These usually settle quickly with local treatment. Untreated well water is drunk by the local people, but it is recommended that this is filtered and treated. Bottled drinking water is widely available as an alternative.

Tuberculosis and Hepatitis are common problems in the population and vaccination is recommended.

Lassa Fever is endemic in Sierra Leone and is obviously a concern. Last year there were 4 confirmed cases at Masanga, all of whom died. There was no cross infection to staff or patients and the risks of this are thought to be low provided simple barrier nursing is observed.

As simple as it is Masanga is one of the best hospitals in Sierra Leone. It goes without saying that any serious injury or illness is difficult to treat locally to European Standards. Health Insurance that covers repatriation is recommended.

Summary

I consider myself very fortunate to have had this opportunity. It has been fulfilling both personally and professionally. Thank you to all those in Plymouth who gave me encouragement and support. Thank you to all those at Masanga UK and doctors and students from The Peninsula who have set up and helped grow the project. I would encourage others to take advantage.