

# From basic to comprehensive emergency obstetric services: experience from Zanzibar

Zainab Othman and Fiona Cresswell take us through a 12-step journey at a rural hospital on the Indian Ocean island

In Zanzibar, distances are not the challenge they are in the more vast neighbouring countries. The target of everyone living within 5 km of a Primary Health Care Unit has been reached. However, access to obstetric care and back-up for complications is reliant on a single centre in the capital that provides comprehensive obstetric care services. This is the congested Mnazi Mmoja Hospital where 13 991 deliveries were conducted in 2009 and 1638 caesarian sections. The need for comprehensive emergency obstetric care (CEmOC) services (in rural hospitals has been recognised, therefore, as a Ministry of Health and Social Welfare priority. The requirements for a comprehensive service for obstetric care to be given are skilled human resources, appropriate space, necessary equipment and supplies, confidence in the service, and appropriate management. This is the story of the long journey from a rundown, poorly functioning cottage hospital to a centre in the southern area of the island providing comprehensive obstetric care and conducting caesarian sections.

Makunduchi Cottage Government Hospital lies in the rural south of Zanzibar serving a population of around 50 000. In 2007 this centre was conducting around 400 deliveries annually, staffed by an Assistant Medical Officer, a Clinical Officer, and 13 nurses. Much of the hospital was dilapidated, outpatient services were disorganised, and in-patient bed occupancy was very low. There was no access to blood transfusions or caesarian section (CS). An ambulance and a fuel allowance were provided by the Health Service Fund (Danida) so that critically ill patients could be transferred to the referral hospital in town. Dr Ru MacDonagh, a British surgeon and former colleague of Dr Mohamed Jiddawi (Principal Secretary to the Minister of Health), had spent time working in Zanzibar and recognised the need to improve services in rural areas and so founded Health Improvement Project Zanzibar (HIPZ). In December 2007, a public-private partnership was signed between the Ministry of Health Zanzibar and HIPZ with the aim of improving the facilities and the services delivered at Makunduchi Hospital.

The population on Zanzibar is around 1 million, so UNFPA guidance suggests there should be two comprehensive CEmOC facilities on the island. The other CEmOC facility is Mnazi Mmoja Hospital (MMH) 70 km away, so for many years women have had to make a convoluted journey for blood transfusion and CS, sometimes with deleterious outcomes. HIPZ are currently focusing on expanding the maternity services (*Step 1*) to meet the standard of CEmOC, namely also being able to perform blood transfusion and CSs onsite. The journey Makunduchi hospital has gone through to reach the point of successfully doing CSs has been a long one but

it makes a story worth sharing with other rural hospitals that are also trying to take this step forward.

HIPZ provided funding for the renovation of the dilapidated operating theatre to create a well functioning and clean environment in which to perform surgery (*Step 2*). The Rotary club of Zanzibar and Nailsea in the UK were approached for funding of the Glostavent anaesthetic machine, suction machine, and CS kits (*Step 3*).

Initially a Clinical Officer was sent on a CS surgical skills training course but he did not pick up the skills as hoped. Determined not to be deterred in this goal we thereafter chose Assistant Medical Officer Amour M Burhan to be trained. He attended an intensive 2-week training course in Sweden and spent a day a week at MMH assisting in CSs for a period of 3 months (*Step 4*). Our nurse psychiatrist Haji Fatawi was sent on a 1-year secondment to Kilimanjaro Christian Medical Centre in Moshi to be trained as an Anaesthetic Officer (*Step 5*). Another member of nursing staff spent 8 weeks at MMH getting experience as an obstetric scrub nurse (*Step 6*). By the end of this training period all staff members were deemed competent to function independently in a rural setting.

While this staff training was underway the hospital was working closely with the Ministry of Health in creating a blood transfusion service. The fridge was given by the referral hospital and staff training and blood provision has been managed by the Zanzibar blood transfusion centre (Damu Salaama) (*Step 7*).

After about 2 years all the pieces of the jigsaw puzzle were in place and in theory the hospital was ready to take that giant leap of doing the first ever CS in the south of Zanzibar – not transporting a woman in obstructed labour to the ambulance and away along a dusty road but rather taking her directly to the operating theatre. After such a long journey, it was critical that the

Zainab Othman is the Hospital Manager of Makunduchi Hospital, Zanzibar; Fiona Cresswell is a Physician at the hospital and Trustee of the Health Improvement Project Zanzibar (HIPZ).

first CS was a success in order to build staff confidence. We elected to do the first CS on a day when Dr Khadija Suleiman a visiting Gynaecology Consultant would be in the hospital doing an outpatient clinic so there was an experienced person onsite in case of complications. We had to hope that a suitable case would come in on that particular day and through a stroke of good fortune one did.

Mwaka presented the evening before to deliver in the facility. Her labour had failed to progress normally and in the morning we decided her labour was obstructed due to malpresentation. She was taken directly to theatre and a CS was performed by Dr Khadija, Amour, Fatawi, and our scrub nurse (Step 8). Two healthy breech twins were delivered. Mwaka was delighted, just as we were, that she didn't have to make the bumpy journey to the referral hospital and that the operation was a success.

Since then a further six CSs have been performed successfully. Initially uncomplicated CSs were performed but later as confidence built up Dr Amour began to operate on women with a previous scar, which can be a more complicated operation due to adhesions (Step 9). We have created a CS protocol so that care is standardised and we will review this regularly to see if changes need to be made (Step 10). A CS log book is being used to keep track of demographics of patients, indication for surgery, and outcomes so we can audit our performance and improve it in future (Step 11).

The availability of blood on-site has been lifesaving on several occasions. Maintaining a supply of all blood groups at all times poses a logistical challenge and requires close coordination with the blood transfusion service in Zanzibar town. We hope one day to be able to provide a 24-hour CS service. This would require a second full time skilled health worker who can be trained in surgery (Step 12). As always, the human resources pose the greatest challenge and retention of trained staff is critical.

With some additional funding for necessary equipment and training, support from the Ministry of Health, and a healthy dose of patience and encouragement it should be possible for other rural hospitals to also take this journey towards improving maternity care for women in their communities.



A happy outcome for the first caesarean section carried out at Makunduchi Cottage Government Hospital

## 12 steps to comprehensive emergency obstetric services

- Step 1**  
Recognition of problem and need to change practice
- Step 2**  
Create appropriate space for performing surgery
- Step 3**  
Procurement of equipment: anaesthetic machine, suction machine, and caesarean section kit
- Step 4**  
Training of clinician in skills of caesarean section
- Step 5**  
Training of clinician in anaesthetic skills
- Step 6**  
Training of scrub nurse
- Step 7**  
Work with ministry of health and regional blood transfusion services to set up local transfusion service
- Step 8**  
Build confidence and create appropriate supervision for the first operation
- Step 9**  
Consider expanding service to perform elective caesarian sections
- Step 10**  
Create a protocol so that patient care is standardised
- Step 11**  
Create a log of all surgery performed and outcomes so that practice can be audited and improved
- Step 12**  
Train more staff so that a 24-hour caesarian section service can be run

### Key transferrable messages from Makunduchi Hospital and the Ministry of Health and Social Welfare of Zanzibar for other rural healthcare facilities

1. Recognise a need to change practice and make this a priority within the Ministry of Health – i.e. to combat maternal and foetal death to avoid long journeys from rural areas and to provide a comprehensive service.
2. Build on existing relationships between developed and developing countries or involve Diaspora.
3. Identify specific needs and potential donors and lobby for resources.
4. Train key skilled staff who are likely to continue working in the facility: skills required are surgical skills, basic anaesthesia and theatre nurse skills.
5. Work closely with the blood transfusion service to establish local availability of blood and training of laboratory staff.
6. Develop links with support services at the referral hospital.
7. Build confidence in key health workers who take on the responsibility of a woman's life in a close-knit community.
8. Review and appraise the services and consider ways to continue improving delivery.