



## Project Report

### Dar es Salaam Refresher course in Obstetric Anaesthesia

Muhimbili National Hospital, Dar es Salaam, Tanzania, 29<sup>th</sup> October-9<sup>th</sup> November 2012

#### Background

Maternal and newborn mortality in Tanzania are unacceptably high. At close to 0.5%, the maternal mortality ratio is over 100 times higher than in Sweden. 1 in every 30 babies dies in association with being born. A major determinant of maternal and newborn mortality is the care that a mother receives in hospital if a complication arises. This emergency care includes caesarean section or other surgery that involves anaesthesia. Poor quality anaesthesia is a common occurrence in developing countries. It can result in complications being missed, acute treatments being delayed or omitted, suboptimal choice and practice of anaesthesia and, all too frequently, the death of the mother or child. The quality of obstetric anaesthesia is crucial for emergency care and improving obstetric anaesthesia could save the lives of significant numbers of mothers and babies.

Muhimbili National Hospital is the largest hospital in Tanzania and functions as the highest level referral hospital in the country. The hospital has 1500 beds, 1100 out-patients are seen each day and 55000 patients are admitted annually. Approximately 10000 babies are delivered each year at Muhimbili, many of which are complex cases referred from other facilities. 50% are delivered by caesarean section in the two obstetric theatres, necessitating anaesthetic input. Anaesthesia is also required for obstetric haemorrhage, placental removals and hysterectomies.

Resources for obstetric anaesthesia are severely limited. The department of Anaesthesia and Intensive Care at Muhimbili has 4 specialist doctors, to provide anaesthesia in all the hospital's 14 operating theatres plus supervising the Intensive Care Unit. There are no specialists in Obstetric Anaesthesia. The doctors are not able to provide round-the-clock supervision of the obstetric theatres: the anaesthesia is usually carried out by nurses or partially trained anaesthetic officers. The knowledge of these staff was gained during their initial vocational training, supplemented by informal "on-the-job" diffusion from colleagues. Prior to MKAIC, none of the staff had been on refresher training courses in obstetric anaesthesia. A recently conducted study by MKAIC found the weakest parts of obstetric care at Muhimbili to be knowledge levels among staff and routines for conducting safe anaesthesia. The consequences at Muhimbili are severe: one in a hundred mothers and one in ten babies die.



Apart from Muhimbili, Dar es Salaam has three regional hospitals and eight district hospitals/health centres. None of these hospitals have specialist anaesthesiologists: anaesthesia is conducted solely by anaesthetic nurses and anaesthetic officers. Resources for obstetric anaesthesia are even more stretched than at Muhimbili, and none of the hospitals have an Intensive Care Unit for managing critically ill patients.

Karolinska University Hospital is a tertiary referral hospital in Stockholm, Sweden. Like Muhimbili, it is a Super-Specialty Hospital providing highly specialized care. The hospital has 1600 beds, 4000 out-patients are seen each day and 100000 patients are admitted annually. The department of Anaesthesia and Intensive Care at Karolinska has 72 Specialist Anaesthesiologists, 36 Trainees (ST-doctors), 120 anaesthetic nurses and 70 Intensive Care nurses. There are three specialists in Obstetric Anaesthesia, at least one of whom is on duty everyday to provide anaesthesia for the 1000 caesareans and other obstetric and gynaecological operations carried out annually. Many of the staff



have formal training in obstetric anaesthesia, the facilities are modern and advanced and the standard of the care given can be regarded as good as anywhere in the world. Less than one mother dies each year in Karolinska and neonatal mortality is around 0.1%.

The Muhimbili-Karolinska Anaesthesia and Intensive Care Collaboration (MKAIC) was initiated in 2008. A letter of intent has been signed by the departmental directors emphasising the desire in both hospitals to develop a fruitful partnership. The aims of the partnership are to sustainably improve anaesthetic and intensive care provision in the two hospitals, and increase international and cross-cultural understandings. Previous activities have included teaching courses, staff exchanges, equipment donations and research projects. This report is for the fourth teaching course in the collaboration, in Obstetric Anaesthesia.



## Aim of the teaching course

To improve the Obstetric Anaesthesia knowledge and skills of staff at the hospitals in Dar es Salaam thereby improving care for patients and to increase understanding and cooperation between Karolinska and Muhimbili.

## Objectives of the course

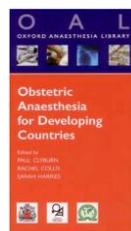
By the end of the project:

1. Knowledge and skills about obstetric anaesthesia among doctors and nurses at the hospitals in Dar es Salaam will have improved
2. At least five staff from Karolinska will have spent between one week and two weeks at Muhimbili
3. There will be a greater mutual understanding between the staff at Muhimbili and Karolinska, and increased knowledge about the best ways to take MKAIC forwards
4. A plan for the next projects within MKAIC will have been discussed and decided upon
5. Obstetric anaesthesia at Muhimbili will have improved

## Planning

During 2012 the course was planned. The teachers from Karolinska were Prof Lars Irestedt, Dr Berith Tingåker, Dr Tim Baker, Dr Henrik Jörnvall, Dr Richard Shore, Dr Christin Edmark, RN Gunilla Wihlke, RN Kia Rosberg. The local coordinator at Muhimbili was Dr Moses Mulungu and the teacher from Muhimbili was Dr Sunil Laxman.

Two generous donations of \$8000SEK from the World Federation of Societies of Anaesthesiologists and £2500 (\$4000) from the Association of Anaesthetists of Great Britain and Ireland (AAGBI) were received and further funds were raised locally by MKAIC. AAGBI donated 100 Handbooks "Obstetric Anaesthesia for Developing Countries" and Lifebox donated 26 pulse oximeters. Dr Mulungu chose the course participants and organised all practicalities.





## Schedule (See Appendix A)

The first day (Monday 29<sup>th</sup> October) was for the introduction of the Karolinska and Muhimbili staff to each other and orientation to the hospital. Several important meetings were also carried out with departmental heads at Muhimbili.

Days 2-4 (Tuesday, Wednesday, Thursday) were for the refresher course. The teaching consisted of formal lectures interspersed with interactive sessions. These included role play scenarios, group discussions and recap sessions. A test was conducted at the start and end of the course, and feedback from the participants was sought both written/anonymous and open.



Days 5-6 (Friday & Saturday) were for a Training-of-Trainers course (ToT). Three doctors from Dar (Moses Mulungu, Sunil Laxman and Christopher Mnzava) were trained in teaching methodologies in interactive learning sessions.

The following week was for bedside teaching, interactive learning between the staff from Muhimbili and Karolinska, a half-day workshop in "Improving Obstetric Anaesthesia at Muhimbili" and several key meetings.

## MKAIC saves a mother's life

On the third day of the course, "Mrs A", a 24 year old woman, underwent a caesarean section due to obstructed labour.

At 16:00 twin babies were delivered. In the recovery room at 22:00 she was found to be bleeding. She was in shock: pale, cold and unconscious with a heart rate of 140 and her blood pressure was not measurable. Her uterus was not contracted like it should and she was lying in a pool of blood.

She was cared for by a trainee anaesthesiologist and a trainee obstetrician who had just completed our three day course. They quickly resuscitated her, started intravenous fluids and called for blood. In total she received 4.5litres of fluid and 4 units of blood transfusion.

At 00:00 hrs she began to improve and at 06:00 she was no longer bleeding, she was alert & responding, and her heart rate and blood pressure were normal. She was transferred to the ward and later discharged together with new twin babies.

The following morning the trainees came to find us and said: "Congratulations MKAIC - before the course we would not have given so much fluid or been able to resuscitate the mother – thanks to the course the patient is still alive and the twins still have a mother!"





## Course Participants

49 participants took part in the course:

- 2 Specialist Anaesthesiologists
- 2 Anaesthesia trainees
- 3 Anaesthetics Officers
- 12 Nurse Anaesthetists
- 12 Doctors in Obstetrics & Gynaecology
- 18 Nurses

## Essays

An essay competition was held for all the participants. The \$50 dollar first prize went to Everlyn Kilimba from the paediatric ward for her essay "A mother I will always remember" (Appendix C)

## Pulse Oximeters

We distributed 26 pulse oximeters to anaesthetics staff working in hospitals in Dar with the generous assistance of Lifebox. The oximeters have been specially developed by the WHO for use in low-resource settings, they are robust and simple to use and spare parts are cheap. All the staff received training in the use and upkeep of the oximeters and Lifebox plans to follow-up their use during 2013.



2	Lugalo Hospital	3	Amana Hospital	3	Temeke Hospital
1	Mbagala Hospital	1	Sinza Hospital	1	Mkuranga Hospital
1	Kisarawe Hospital	3	Mwanyanamara Hospital	7	Muhimbili Hospital
1	Mnazi Mmoja Hospital	2	CCBRT Hospital	1	Vijibweni Hospital



## Knowledge Test

Each participant received a test at the beginning of the course, and again at the end. (Appendix B)

In the pre-course test the participants scored an average of 11 correct answers out of 18. After the course the average score was 15. This is a relative increase of 36% meaning that the course has led to a significant improvement in the participants' knowledge of intensive care.

## Course Feedback

A feedback form was distributed at the end of the course. The feedback was overwhelmingly positive. 88% of the participants felt the course was "very useful" for their work.

### Some comments:

- "I enjoyed the course as it gives me the interest to know more about how to reduce maternal mortality in our country"
- "The course was short but useful and interesting. Be blessed"
- "I improve about how to breastfeed early the baby out of uterus"
- "Keep it up"
- "Very informative and good scenarios and ABCD. Motivation and teamwork was excellent"
- "The course is most important to us so please do as many as possible at least 2 times per year"
- "ABCDE is life saving and many nurses and doctors have forgotten its importance"
- "Thank you for improving anaesthesia in Tanzania and for the support you gave us"
- "MKAIC shall never die"





## Budget

The total cost of the course was 130815 Swedish Kronor (\$20000 USD)

Item	
Return Flights Stockholm - Dar	78788
Visas	4000
Transfers in Stockholm	1320
Transfers in Dar	660
Accommodation Dar	46047
	<b>130815 SEK</b>

## Future plans for MKAIC

Discussions were held about how to take MKAIC forwards. It was decided that the following activities would be prioritised for 2013:

- Six 2-4 week exchange visits between Karolinska & Muhimbili
- Introduction of Obstetric Theatres Recovery Room Critical Values Protocol
- Repeat refresher Course in Obstetric Anaesthesia
- Six month placement of Swedish Anaesthesiologist at Muhimbili
- Analysis of data from Anaesthesia Checklist for Caesarean Sections
- Initiation of two year project on Emergency Care for Mothers including steering group, institutional agreement, involvement of Obstetricians and funding
- Reanimate Tanzania Anaesthesia Society and initiate collaboration with Swedish Association of Anaesthetists
- Intervention research project in Intensive Care – Vital Signs Directed Therapy
- Resident projects in Anaesthesia & Intensive Care
- Equipment delivery (including pulse oximeters, bedside haemoglobin machines and books)
- Expanding the data collection system
- Increased fundraising



## Conclusions

Overall the course has been a great success. The reception at Muhimbili was extremely positive, the staff from Karolinska found it rewarding and interesting, the participants gave the course very positive feedback and the test showed a dramatic improvement in knowledge levels. Most of all it was clear that there is a huge need for an initiative in Anaesthesia and Intensive Care. MKAIC has both a well defined role and the capacity to fulfil that role. Improvements are important and achievable, and if MKAIC can continue to achieve its objectives there is potential to directly save many lives.