



# SAFE

Safer Anaesthesia From Education

Obstetric Anaesthesia Course

Mbarara, Uganda

June / July 2011



Ugandan Society of Anaesthesia

Association of Anaesthetists of Great Britain and Ireland

World Federation of Societies of Anaesthesiologists

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***"In the 21st Century, no woman should have to give her life to give life."***

Ban Ki-moon

*Secretary-General of the United Nations*

# Executive Summary

- The SAFE (Safer Anaesthesia From Education) Obstetric anaesthesia course is a three-day course that focuses on the delivery of anaesthesia and the management of leading causes of maternal death such as haemorrhage, eclampsia and sepsis.
- There is a training book to complement the course (Oxford University Press: Obstetric Anaesthesia for Developing Countries Ed Clyburn, Collis, Harries).
- Teaching is in small groups and each group has access to a mentor for the duration of the course.
- A Training of the Trainers (TOT) course has been developed.
- 4 SAFE courses and 2 TOT were piloted in Mbarara, Uganda over a two-week period in June/July 2011
- 126 anaesthetists were trained on the SAFE course -approximately 40% of the anaesthetic workforce of Uganda.
- The SAFE courses were combined with 2 Lifebox courses (pulse oximetry and the WHO Checklist)
- Delegates attended from all regions of Uganda, mainly from small rural health centres, as well as the regional centres in Kampala, Mbarara and Gulu. Thus women from both rural and urban areas from all over Uganda will benefit.
- Learner satisfaction was high.
- Knowledge and skills were formally assessed before and after training and showed significant improvements

- 17 anaesthetists were trained on the TOT as SAFE course facilitators, which included 11 of 12 residents in Uganda (post graduate doctors in anaesthesia). A number of these anaesthetists had the opportunity to act as 'apprentice' members of faculty
- Further SAFE Obstetric anaesthesia courses are planned
- 4 adult mannequins and 4 newborn mannequins were donated to the local faculty for use during future courses.
- The local facilitators will lead the further SAFE courses, with the aim of becoming locally independent as quickly as possible, such that over time external input will be required for quality assurance only.
- A group of senior UK anaesthesia trainees is undertaking monitoring and evaluation in delegate hospitals over the next 9 months, to include collection of logbooks, individual Key Informant Interviews and Focus Group Discussions and inspection of hospital registers where possible.

**"Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime."**

*Chinese Proverb*



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# Background

An estimated 360,000 women die from the complications of pregnancy and childbirth every year [1]. The vast majority of these deaths occur in the developing world, particularly sub-Saharan Africa and South East Asia [2]. In Uganda the Maternal Mortality Ratio (MMR) is 440 per 100,000 births with a lifetime risk of maternal death being 1 in 35 [3]; in many countries the MMR is as high as 1000: 100,000 live births [3].

Five complications of pregnancy account for more than 70% of maternal deaths: haemorrhage (25%), infection (15%), unsafe abortion (13%), eclampsia (12%), and obstructed labour (8%) [1]. Many more women survive such complications but with physical and emotional health problems. Neonatal welfare is inextricably dependent on maternal welfare, and around 4 million neonatal deaths occur each year [4].

The WHO Integrated Management of Pregnancy and Childbirth includes key interventions to improve maternal and newborn health [5]. A substantial proportion of maternal deaths occur in hospital and access to obstetric surgery and safe anaesthesia and basic critical care are essential to improve maternal and newborn outcomes [6] [7]. Provision of safe anaesthesia is a key component of safe obstetric and newborn care.

The most obvious role of the anaesthetist in the care of obstetric patients is in the provision of safe anaesthesia for Caesarean section or instrumental delivery. Anaesthesia is required to facilitate surgery in the management of life-threatening obstetric conditions including haemorrhage, obstructed labour, ruptured uterus, retained placenta and genital tract trauma.

The role of the anaesthetist frequently extends beyond the operating theatre, where they play an important role in the emergency management of severe pre-eclampsia/eclampsia, in resuscitation, pre operative optimisation and post operative care, pain relief in labour, and in the high dependency care of all seriously ill women. In many settings, the anaesthetist acts as the peri-operative physician leading the medical management of sick obstetric patients.



Poor provision of anaesthesia, or inadequate or erratic access, may be a factor in maternal deaths. Poor quality anaesthesia has been highlighted as a high risk for patients in developing countries with mortality rates as high as 1 in 133 anaesthetics [7] [8].

Anaesthesia for pregnant women is more hazardous than other areas of anaesthetic practice, and many anaesthesia related deaths are preventable. In obstetric patients, deaths are often due to unresolved hypoxia or hypovolaemia in women undergoing Caesarean section [9]. In addition, the third South African confidential enquiry into maternal deaths 2002-2004 reported anaesthesia to be one of the top four causes of avoidable death [10].

Providing anaesthesia and basic critical care for essential surgery requires a trained workforce.

Safe anaesthesia requires a trained provider (doctor, nurse or clinical officer) with access to equipment, drugs, disposables and essential facilities such as water, electricity, a blood bank and laboratory. The World Health Organisation (WHO) has issued international guidelines for the staffing and equipment to be held in hospitals caring for pregnant women [11], and both the WHO and World Federation of Societies of Anaesthesiologists (WFSA) have produced guidelines on anaesthetic facilities that should be available [12] [13]. However the reality is that many hospitals are struggling to provide the most basic of these necessities – running water, electricity and oxygen [2].

Improvements in the safety of childbirth for mother and baby are needed to achieve MDG4 and MDG5. Anaesthetists (physician or non-physician) play a key role in the management of obstetric patients in hospital. Reducing the risks of poor quality or unavailable anaesthesia requires significant investment in the provision of anaesthesia services.



# Maternal Morbidity and Mortality in Uganda

Over the last 15 years, Uganda has made great progress in terms of development. There has been a restoration of peace and stability in most parts of the country and an economic growth rate of 6.5% per annum for the last 10 years. However, poverty is still a major challenge and 30% of the population lives on less than \$1 per day.

Uganda's Maternal Mortality Ratio (MMR) had remained high for 15 years, with no significant decline. The Uganda Demographic and Health Survey of 2006 recorded an MMR of 435 deaths per 100,000 live births. This translates to about 6,000 women dying every year due to pregnancy related causes, about 16 mothers dying every day. The majority of maternal deaths occur in the rural setting.

For every woman who dies, six survive with chronic and debilitating ill health. There is no data available for obstetric fistula, chronic pelvic infection, post abortion complications, infertility and maternal ill health in general. In Uganda, infant mortality has declined from 88 to 76 deaths per 1,000 live births. Three quarters of neonatal deaths occur in the first week while the highest risk of death is within the first 24 hours.

Health systems need to be improved in the rural setting if reduction in MMR is to be realised. In particular, access to timely emergency obstetric care is required to improve both maternal and newborn survival. This requires both the appropriate infrastructure (healthcare facilities, electricity and water) and supplies of drugs and equipment, but equally, a skilled workforce to deliver quality care to patients.

There is a motivated workforce of 350 anaesthesia practitioners in Uganda, 13 of who are consultants, with 16 physician anaesthesia trainees. The majority of anaesthesia providers are non-



physician anaesthetic officers who have received 18 months basic training in anaesthesia, and often work single-handed in isolated rural hospitals, with no regular supervision or access to regular CPD [2].

The SAFE obstetric anaesthesia course has been written by experienced obstetric anaesthetists to address the major causes of maternal mortality in the rural setting in low-income countries such as Uganda. It is designed for both physician and non-physician anaesthetists, ideally to be delivered by the local physician trainers in time. It will make a valuable contribution towards improving capacity in the rural workforce, urgently required to improve the MMR in this setting.



# The SAFE Obstetric Anaesthesia Course

The course is a 3 day course for current practitioners of anaesthesia (doctors and non doctors) in less economically resourced countries to enhance their skills to the level of being able to provide good obstetric anaesthetic care.

The course programme is found in Appendix II.

The principles underpinning the proposed course are as follows:

- ▶ It is intended to improve the practice of anaesthesia and resuscitation for pregnant women to a safe standard.
- ▶ It aims to be clinically relevant and address the core and potential extended roles of the anaesthetic practitioner.
- ▶ It is educationally sound; there are a variety of educational modalities to include scenarios, skill teaching, discussions, workshops, DVDs and only 5 lectures, which are brief and succinct.
- ▶ The obstetric anaesthesia content is based on the clinical conditions causing 70% of maternal deaths, namely haemorrhage, sepsis, eclampsia, obstructed labour and the complications of abortion.
- ▶ Early newborn care (including resuscitation) is covered.
- ▶ As a 3 day intervention, it is short and deliverable, avoiding lengthy periods away from the workplace and the expense of being 'away from home' for attendees is minimised.
- ▶ It is an 'off the shelf package' supported by training material to include the book "Obstetric Anaesthesia for Developing Countries" (Eds Clyburn P, Collis R, Harries S. Oxford Anaesthesia Library, 2010), the WFSA Obstetric Anaesthesia Resource two-CD set, a facilitator manual, teaching materials and standard operating procedures.
- ▶ It works towards independent sustainability with the progressive handover of delivery and organisation to local faculty.



- ▶ It is supported by a 'Training of the Trainers' course to achieve the above independent sustainability. This component of the course is delivered to the more able participants before / at the end of the SAFE Obstetric anaesthesia course, who then go on to work as apprentice faculty
- ▶ It is locally relevant and in keeping with national 'in country' policies, achieved through local partnerships. Every faculty meeting was attended by Dr Ttendo and discussion re local issues was had with him to ensure that all teaching was locally relevant
- ▶ It is supported by a robust Monitoring and Evaluation (see Appendix VII) system and rigorous quality assurance.
- ▶ It promotes North-South skill and knowledge transfer with the ultimate aim of South-South sharing of learned interventions.
- ▶ It promotes the retention of learned interventions through the provision of CPD and other materials.
- ▶ It will offer advocacy for equipment and drugs provision and professional and educational support for non medical and medical anaesthetists
- ▶ It addresses the significant need for anaesthesia support in Uganda, one of the poorest countries in the world, with seriously underfunded training and health systems.
- ▶ It recognises that obstetric morbidity and mortality is high in Uganda and obstetric anaesthesia comprises a significant part of the anaesthetic burden and contributes to obstetric morbidity and mortality.
- ▶ Mbarara, the site of the pilot intervention is well known to members of the AAGBI/WFSA.



# The June/July 2011 Intervention

The SAFE Obstetric anaesthesia course was held in Mbarara, at the Mbarara University of Science and Technology (MUST). The aim of the course as stated above was to improve the quality and safety of obstetric anaesthesia and management of critical complications with which the attendees are confronted.

Two separate courses took place over 3 days each during a 2 week period from 26th June 2011 to 7th July 2011. Accompanying the course was a separate day of either the Training of Trainers (TOT) or Lifebox project (pulse oximetry and WHO checklist) training.

The faculty arrived on Sunday the 26th June in Mbarara late in the afternoon. We used Monday, 27th June to plan the teaching stations; set up the all necessary equipment, become familiar with the environment and tie up any loose ends... and to prepare for the following day...

On Tuesday 28th June the faculty were split into 2 groups. Group one was covering the Training of the Trainers, teaching a group of 8 attendees who were identified by Stephen Tendo as possessing intuition and the knowledge base to be able to take forward the SAFE courses and assist as faculty on the SAFE courses. The TOT was a hugely successful exercise. It allowed the participants to learn, appreciate and practise different styles of teaching and learning. They were coached in how to prepare and give a lecture – all participants were expected to give a lecture through the course of the day, - and rose to challenge with surprising enthusiasm, vigour and get-on-with-it attitude.

The rest of the day comprised of how to teach a skill (e.g. neonatal resuscitation) to a group of learners and how to run and teach a scenario. All attendees were successful in their endeavours and passed the TOT course.

This was an absolute highlight. The achievement was enough to ignite a spark of commitment to the SAFE course in the newly trained instructors. They were mainly the training medical anaesthetists and are respected amongst the anaesthetic officers – which in turn contributed to promoting the course.

The second group of faculty taught all the other participants of the SAFE course on all aspects of pulse oximetry-an invaluable teaching session. Included in these teaching sessions was an introduction and implementation of the WHO checklist – an eye opening exercise for many of the participants as well as the faculty.



The delegates were asked to express their experiences 1) where possessing a pulse oximeter or 2) having introduced the WHO checklist would/ could have made a difference in their practice and the survival of mothers treated. This was done in the form of an essay competition – these personal experiences were poignant accounts of harsh reality in a Ugandan setting. The response was overwhelming – touching and impressive expressions of overcoming adversity, at the same time emphasising the importance of the Lifebox project and the WHO checklist. The winners of various categories received a cash prize (winners were celebrated with African cries from the delegation at the closing ceremony).

On Wednesday, 29th June the SAFE obstetric course began – the setting was four rooms duplicated over 2 floors in the university building running 2 concurrent courses with groups of 8 to 10 delegates (total of 78 delegates) who had travelled from the vast layout of Uganda – from all throws of institutions and rural communities. The commitment and thirst for knowledge and continued professional development was evident, not to mention the focus of wanting to offer the best of themselves in their given circumstances.

Most of the participants, on the morning of registration, completed a pre-course MCQ test and many undertook pre-course skills tests, which were repeated at the end of the course as part of the monitoring and evaluation process.

The modules covered by the course are:

- ▶ Basic Airway Management
- ▶ Advanced Airway Management
- ▶ General Anaesthesia to include the promotion of the WHO checklist
- ▶ Spinal Anaesthesia, difficulty and complications
- ▶ Critical care and resuscitation to include neonatal resuscitation and care of the newborn
- ▶ Obstetric Haemorrhage
- ▶ Eclampsia and severe pre-eclampsia to include transfer of eclamptic patient from a level 4 clinic to a district hospital
- ▶ Other obstetric emergencies to include anaesthetic management and resuscitation of the pregnant malaria patient

Enclosed in appendix II is the course timetable and breakout sessions covered. A Ugandan marathon of teaching and knowledge flowed forth over the 3 day course – made all worthwhile by the stories of potential for implementation of much of the teaching material. The stamina of participants (and faculty) was echoed in all



sessions through their enthusiasm, diligence and their commitment to completing what they were here to achieve - an opportunity to potentially contribute to decreasing mortality and morbidity in Ugandan mothers.

After every day on the course a faculty meeting was held, where difficulties in learning and problem areas were highlighted and emphasised. These points were re-emphasised to participants in a short presentation at the start of the following day. Note was taken of adjustments to be made to course material to embrace local practice.

The course culminated in the participants being awarded a certificate of attendance and completion; individual from chosen hospitals were awarded their very own pulse oximeters, through the Lifebox project and the trained trainers were acknowledged as future bearers of SAFE obstetrics in Uganda. This was attended by a representative of the Ugandan Department of Health, Dr Arti who highlighted the importance, awareness and significance of what had taken place.

A celebratory event was held on the last evening of the course, where the solidarity of purpose between participants and faculty was etched and expressed through African dancing and a banquet of Ugandan cuisine. The intensity of the previous 3 days melted away into a joyful sense of promised improvement.

The course was repeated the following week in much the same setup. This week, it was the turn of the anaesthetists, who during the first week had manned the respective obstetric outposts. Another 9 trainers were trained – this time including anaesthetic officers which were chosen for their teaching potential.

The SAFE course offered a secure environment to acquire knowledge and skills to be taken forward to the delegates' respective places of work.

<b>WEEK 1</b>	Sat 25 June	Sun 26 June	Mon 27 June	Tues 28 June	Wed 29 June	Thurs 30 June	Fri 1 July
	Travel: Base-Heathrow-Entebbe	Arrive: Kampala – Mbarara	Faculty meeting: briefing, allocation of team roles	Life Box course Training of the Trainers course	SAFE group 1 day 1	SAFE group 1 day 2	SAFE group 1 day 3
<b>WEEK 2</b>	Sat 2 July	Sun 3 July	Mon 4 July	Tues 5 July	Wed 6 July	Thurs 7 July	Fri 8 July
	USA AGM Faculty rest day	SAFE group 2 day 1	SAFE group 2 day 2	SAFE group 3 day 3	Life Box Course Training of the Trainers course	Travel: Mbarara-Kampala. Visit to Ministry of Health	Travel: Entebbe – Heathrow- Base

# The Team

The faculty and organisers of the SAFE obstetric course comprised local and international members.

The local organisers were represented by the President of the Ugandan Society of Anaesthesia – Dr Steven Ttendo. Under his watchful eye and through his participation in faculty meetings, we were able to maintain a Ugandan flavour and relevance to the course material. And any adjustments or concerns were addressed as a joint venture.

The international faculty comprised of medical and non-medical staff from the United Kingdom, Ireland and Canada. The medical faculty from the UK comprised of consultant and specialist registrar anaesthetists (ranging from all sub specialist areas of anaesthesia.) well versed in the course material, the consultant anaesthetists being leaders and renowned in their respective fields. The medical faculty from Canada comprised of a consultant anaesthetist from Ontario (and her husband – Ed who assisted us in acquiring any local resources and equipment required for the smooth running of the course) and a theatre nurse specialist manager, who was of great assistance in interviewing over 50 delegates as to what registers and data was being collected in their workplace.

The non-medical faculty comprised of highly organised administrative assistance with remarkable sheepdog-like reflexes and instincts for the herding and overall efficient running of the SAFE course. Another faculty member of the Canadian faculty was involved specifically with statistical analysis of the various ongoing audits and projects.

Also part of the faculty was a reporter / observer specifically involved with the reporting of the Lifebox project (achieved through various interviews with delegates; ongoing tweeting and updating of the UK base). This component proved extremely useful. As faculty we got a feel for the overall and bigger impact of the SAFE course amongst delegates locally, not to mention a taste of personal accounts; and the potential effect of such an intervention in their environment.

The teamwork amongst the above mentioned players achieved an extremely high level of interaction and impact.

The team formed a platform conducive to teaching and imparting of the course material to the delegates. This is surely a testament to both the course material and organisation of such an intervention. Things worked and happened!



# Monitoring & Evaluation and Results

The course evaluation comprised of 4 levels of evaluation:

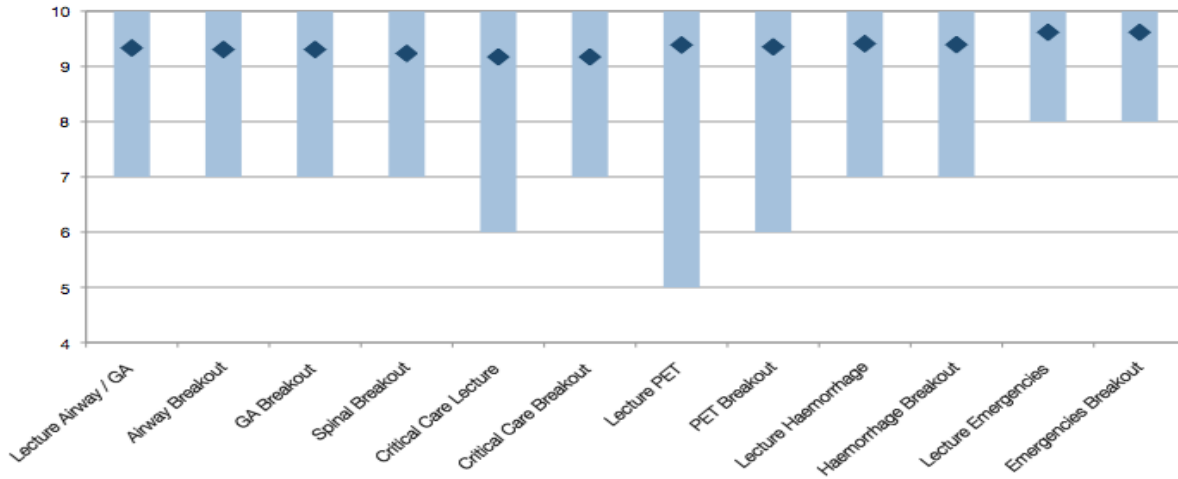
- Participants' feedback (both overall course feedback and individual sessions)
- Pre and post course knowledge (MCQ) assessment
- Pre and post course skills assessment
- Logbooks (post course intervention, assessing impact -see 'post intervention activity')

## Participants' feedback

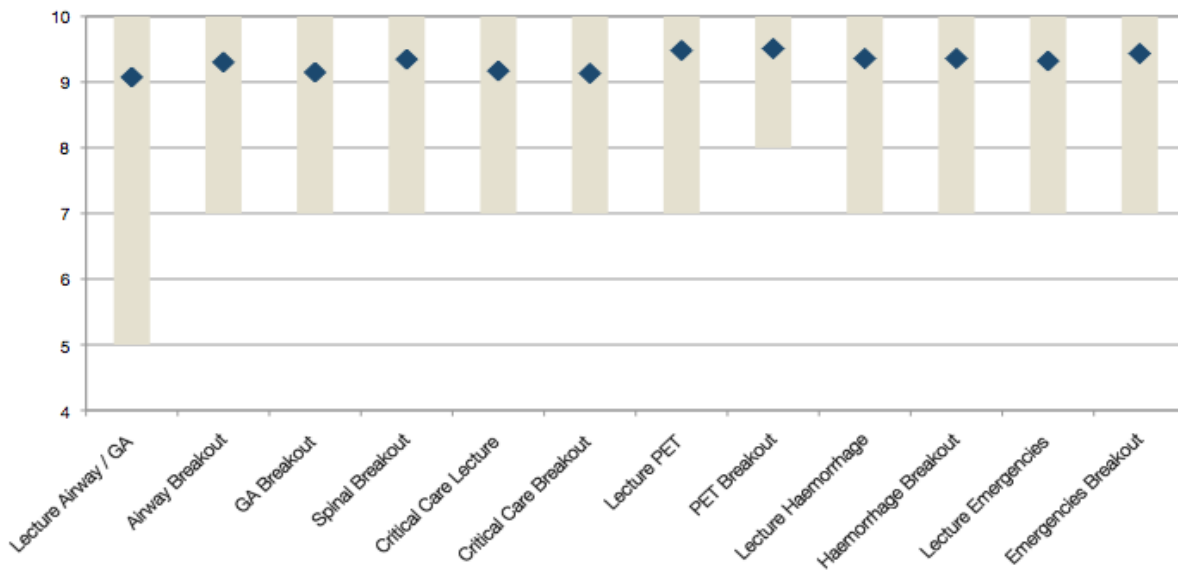
The comments from participants were extremely encouraging in terms of course content and execution but more importantly pointed towards a greater desire for change in the provision of obstetric services in Uganda. Many of these feedback forms were taken along on a visit to the Ministry of Health by the faculty executive. These feedback forms were kept by the Ministry as a sample of feedback, to be used as a platform to offer further support and change.

The graphs below illustrate session specific feedback from both courses. Feedback was on a scale of 1-10. The graphs show the spread of the scores and the average.

### Course 1



### Course 2





Some of the comments in the feedback included:

- ▶ "I wish it could be done regularly"
- ▶ "I very much commend the good work the lecturers have done to improve my anaesthetics and help save mother' lives. I therefore recommend that such courses should be conducted regularly. Yours in service...."
- ▶ "Teaching in breakout sessions is wonderful and one learns more freely. You are wonderful mentors ... thank you for moving that long distance to Uganda to refresh us. This is going to help us save our mothers and their children. May God bless you."
- ▶ "My earnest prayer for me is to go out there to implement this, teach others... I hope to have this done again even in more African countries."
- ▶ "come again"
- ▶ "I would like to be sent updates. Such courses should be organised for other specialities for us. Follow up participants and assist them to formulate protocols and drills locally to improve maternal mortality. Safe journey home."
- ▶ "It has been an excellent update and teaching and I am now tuned to go and handle obstetric mothers skilfully. Thank you for your efforts to train me."

TOT specific feedback was extremely encouraging. This training course was marked highly in all facets and aspects.

Some of the specific feedback included:

"It is a wonderful training course. We are going to run it here locally at Mbarara hospital."

"More courses like these need to be given to the senior anaesthetic officers to improve anaesthetic teaching in Uganda."

We thank the participants of all the courses for their frank, honest and beneficial feedback which will be used to further the course.

## Pre and post course knowledge assessment

Adequate time was allocated for completing the assessment. The pre test was conducted after registration on the first day. The post test was done on the last day following the last break out session before the final ceremony.

The delegates' names were written on the questionnaire so that the same delegates undertook the post test.

However the results were made anonymous for statistical analysis. Sixty-four (64) participants undertook the pretest and 62 completed the post test. The extra two pre course participants were excluded in the analysis. The MCQs were marked out of 50.

For statistical assessment a paired student t-test was used for analysis.

### *MCQ Results*

	Average Mark Course 1	Average Mark Course 2
Pre Course	34.0	35.78
Post Course	41.8 (22.9% increase)	38.4 (7.3% increase)
P Value	$2.01 \times 10^{-14}$	0.0079

A p-value of less than 0.05 was considered statistically significant.

Between both pre and post course MCQs on both courses there was a statistical increase as illustrated above.

## Pre and post course skills assessment

In both courses there were improvements in skills in all four skills components tested. Assessment took place before the start of the course on the first day after registration and after the final break out session the final day.

### Course 1

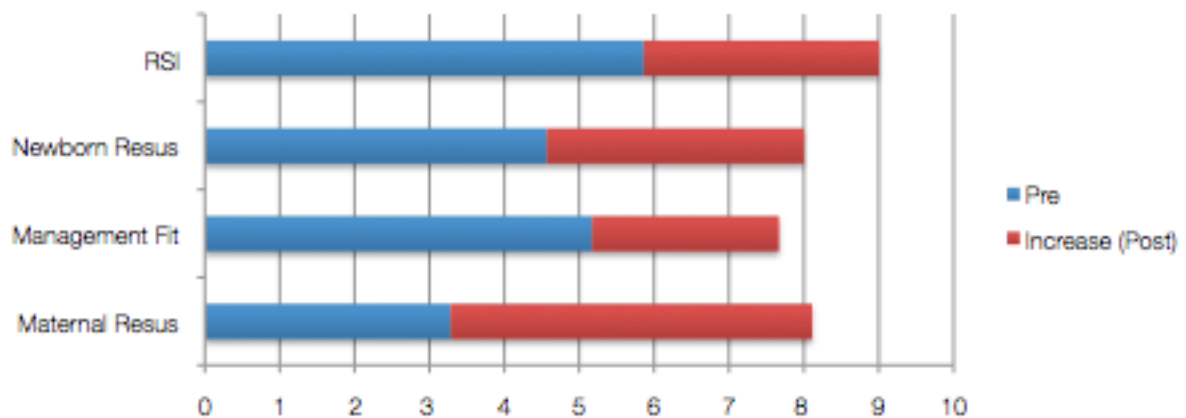
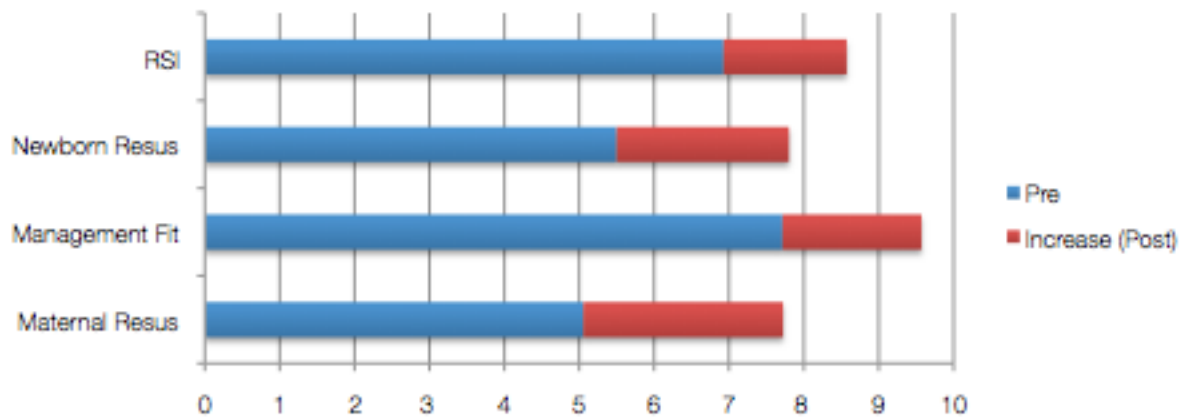
	Pre Skills (average)	Post Skills (average)	p value*
Maternal CPR	5.06	7.72	0.025
Maternal Fit	7.71	9.57	0.022
Newborn CPR	5.5	7.8	0.009
RSI	6.93	8.57	0.074

### Course 2

	Pre Skills (average)	Post Skills (average)	p value*
Maternal CPR	3.28	8.11	$5.84 \times 10^{-5}$
Maternal Fit	5.17	7.67	0.13
Newborn CPR	4.56	8	$2 \times 10^{-6}$
RSI	5.86	9	0.03

The same skill test was taken by the delegate pre and post course and each performance was marked by the same assessor before and after the course, blinded to the original score. All components were marked out of ten (10) except neonatal resuscitation which was marked out 9 after adjustment. P-value of less than 0.05 was considered statistically significant. Thirty-six delegates partook in pre course 1 skill testing and 34 in post course 1 testing. The 2 extra pre course participants were excluded in analysis and a paired student t-test was used. Course 2 assessed 38 participants in skills before and after. For a breakdown of the individual skills assessed refer to appendix VII.

## Course 1 Skill Assessment Difference Pre and Post Course



## Course 2 Skill Assessment Difference Pre and Post Course

### Logbook

See post intervention activity.

# Post Intervention Activity

The Monitoring and Evaluation applied to the SAFE course is as follows:

- ▶ Level 1: Reaction and enjoyment – measured by numerical analogue scores
- ▶ Level 2: Change in knowledge – assessed by before and after MCQ test
- ▶ Level 3: Change in skill ability – assessed by before and after skills test
- ▶ Level 4: Change in behaviour and ability in the workplace – recorded in logbook and through Key Informant Interviews and Focus Group Discussions
- ▶ Level 5: Institutional (and ultimately widespread) change – assessed by analysis of institutional records

**Levels 1 - 3** were assessed during the course and the results are published in this document in the monitoring and evaluation section.

During the course 50 delegates were interviewed to get contact details and to enquire what registers etc are kept in their workplace.

## **Level 4 and 5**

Change in behaviour and in the workplace is going to be measured by the keeping of logbooks. A sample of the logbook is given in appendix VII. The logbook has a brief introduction and pages for 30 examples of care that was improved for having attended the SAFE Obstetric anaesthesia course.

Through the period from August 2011 until May 2012 we will have a continual presence of UK Anaesthetic SpRs working in Mbarara, Uganda, with a specific remit to visit the 38 centres where delegates to whom logbooks were given, work – to go through the cases recorded in the logbooks, and carry out individual Key Informant Interviews and Focus Group Discussions.

Email and cell phone contact will be made for feedback from other delegates whose contact details were collected at the course.

The UK SpRs will, with permission observe registers and records kept by the institutions they visit. To date, those visits have commenced.

Reflection and feedback, with active input from the delegates and faculty as to how teaching on the course might be improved, has resulted in minor changes to the course materials and an inclusion within the manual of 'footnotes for Uganda'.

The course prompted an invitation to the Ministry of Health on 7 July 2010 where descriptions and results of the courses were enthusiastically received by Dr Alidria, Dr Jacinto and Dr Arti.

We are keen to publish quality reports of the outcomes and attract further funding for this project.

See Initial Field Work :Appendix VII.



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# Appendix I: Map of Uganda





# Appendix II:

# Course Programme

## Ugandan Society of Anaesthesia / WFSA / AAGBI - SAFE Obstetric

### Anaesthesia Course

#### Day 1

8.45 Registration

9.00 Pre-course MCQ

9.15 Pre-course Skills tests

9.30 Welcome: Dr Stephen Ttendo, Dr Isabeau Walker,

10.00 Purpose, structure and introductions: Dr Kate Grady

10.10 Break

10.25 Lecture: The Airway and General Anaesthesia: Dr Paul Clyburn

10.45 Airway breakout sessions:

Session	Assess	M <sub>x</sub>	RSI	Extubat <sup>n</sup>	Assess	M <sub>x</sub>	RSI	Extubat <sup>n</sup>
Room	1	2	3	4	5	6	7	8
10.45	A	B	C	D	E	F	G	H
11.10	D	A	B	C	H	E	F	G
11.35	C	D	A	B	G	H	E	F
12.00	B	C	D	A	F	G	H	E

12.25 Meal and meet your mentors



13.25 Advanced Airway breakout sessions:

Session	Diff Int <sup>n</sup>	Failed Int <sup>n</sup>	Crico thyrroi-dotomy	Pulse ox and monitoring	Diff Int <sup>n</sup>	Failed Int <sup>n</sup>	Crico thyrroi-dotomy	Pulse ox and monitoring
Room	1	2	3	4	5	6	7	8
13.25	A	B	C	D	E	F	G	H
13.50	D	A	B	C	H	E	F	G
14.15	C	D	A	B	G	H	E	F
14.40	B	C	D	A	F	G	H	E

15.05 Break

15.20 General anaesthesia breakout sessions:

Session	Assess and prep <sup>n</sup>	WHO check-list	GA	Recovery	Assess and prep <sup>n</sup>	WHO check-list	GA	Recovery
Room	1	2	3	4	5	6	7	8
15.20	A	B	C	D	E	F	G	H
15.45	D	A	B	C	H	E	F	G
16.10	C	D	A	B	G	H	E	F
16.35	B	C	D	A	F	G	H	E

17.00 General discussion and feedback

17.10 Faculty meeting

## Day 2

8.45 Registration

9.00 Video- Routine Spinal Anaesthetic – commentary and discussion by Dr Alex Bojarska

9.20 Spinal anaesthesia breakout sessions 1:

Session	Anat- omy/conduct	Failed/difficult spi- nal	Hypoten- sion	High/total	Anatomy/ conduct	Failed/difficult spi- nal	Hypoten- sion	High/ total
Room	1	2	3	4	5	6	7	8
9.20	A	B	C	D	E	F	G	H
9.45	D	A	B	C	H	E	F	G
10.10	C	D	A	B	G	H	E	F
10.35	B	C	D	A	F	G	H	E

11.00 Tea and coffee break

11.15 Spinal anaesthesia breakout sessions 2:

Session	PDPH	Neurol comp's	advantages	Urgency of CS	PDPH	Neurol comp's	advantages	Urgency of CS
Room	1	2	3	4	5	6	7	8
11.15	A	B	C	D	E	F	G	H
11.40	D	A	B	C	H	E	F	G
12.05	C	D	A	B	G	H	E	F
12.30	B	C	D	A	F	G	H	E

12.55: Meal and meet your mentors

13.55: Lecture: Critical care and resuscitation – Dr Alison Carling

14.15: Critical care and resuscitation breakout sessions 1:

Session	Physiol pregnancy	Sick obs pt	Principles of CC	Setting up HDUs	Physiol pregnancy	Sick obs pt	Principles of CC	Setting up HDUs
Room	1	2	3	4	5	6	7	8
14.15	A	B	C	D	E	F	G	H
14.40	D	A	B	C	H	E	F	G
15.05	C	D	A	B	G	H	E	F
15.30	B	C	D	A	F	G	H	E

15.55 Break

16.10 Critical care and resuscitation breakout sessions 2:

Session	Maternal CPR	Sepsis / HIV	Cardiac disease	Neonatal resus	Maternal CPR	Sepsis / HIV	Cardiac disease	Neonatal resus
Room	1	2	3	4	5	6	7	8
16.10	A	B	C	D	E	F	G	H
16.35	D	A	B	C	H	E	F	G
17.00	C	D	A	B	G	H	E	F
17.25	B	C	D	A	F	G	H	E

17.50 General feedback

18.00 Faculty Meeting

## Day 3

8.45 Registration

9.00 Lecture: Severe pre-eclampsia and eclampsia- Dr Rebecca Jones

9.20 Severe pre-eclampsia and eclampsia breakout sessions:

Session	Rx hypertension	Mx fit	Pre-op prep <sup>n</sup> for CS	Fluid balance	Rx hypertension	Mx fit	Pre-op prep <sup>n</sup> for CS	Fluid balance
Room	1	2	3	4	5	6	7	8
9.20	A	B	C	D	E	F	G	H
9.40	D	A	B	C	H	E	F	G
10.00	C	D	A	B	G	H	E	F
10.20	B	C	D	A	F	G	H	E

10.40 Break

10.55 Lecture: Haemorrhage – Dr David Snell:

Session	Blood loss	Replacement	Haemcontrol	Venous access	Blood loss	Replacement	Haem control	Venous access
Room	1	2	3	4	5	6	7	8
11.15	A	B	C	D	E	F	G	H
11.35	D	A	B	C	H	E	F	G
11.55	C	D	A	B	G	H	E	F
12.15	B	C	D	A	F	G	H	E

12.35 Lunch and meet your mentors

13.35 Lecture: Obstetric Emergencies – Dr Andrew Kintu / Dr Tony Sousalis

13.55 Anaesthesia for obstetric conditions sessions:



Session	Rupt uterus	Ectopic	Cord prolapse	Anaemia / malaria	Rupt uterus	Ectopic	Cord prolapse	Anaemia/malaria
Room	1	2	3	4	5	6	7	8
13.55	A	B	C	D	E	F	G	H
14.15	D	A	B	C	H	E	F	G
14.35	C	D	A	B	G	H	E	F
14.55	B	C	D	A	F	G	H	E

15.15 Post course skills assessment

15.30 Post course MCQs

15.45 Tea break and handing out of certificates

16.00 Group photographs

# Appendix III: Training of Trainers Programme

Ugandan Society of Anaesthesia / AAGBI / WFSA Training of the Trainers Course

## COURSE PROGRAMME

09.30-10.15 Lecture Principles and practice of adult learning

10.15-10.45 Demonstration Skills teaching

10.45-11.00 Break

11.00- 13.00 Practise lecture in small groups:

Room	1	2	3
	A	B	C

13.00- 14.00 Lunch

14.00-16.30 Lecture performance, skills teaching, scenario teaching:

	Lecture	Scenarios	Skills
14.00-14.45	A	B	C
14.45-15.30	C	A	B
15.30-15.45	Break	Break	Break
15.45-16.30	B	C	A

16.30-17.00 Briefing for ensuing course

17.00 Photographs, certificates and closing remarks



# Appendix IV: Delegate List

	Name	Hospital / Category	Email	Course
1	Sr. Nabbosa Mary Prospera *	Villa Maria ; UCMB		29 Jun - 1 Jul
2	Sr. Nankya B. Denis *	Nkozi Hospital ; UCMB	nkozi.hospital@yahoo.com nko-zi@ucmb.com	29 Jun - 1 Jul
3	Khasitsi Khalayi Agnes	Busiu HCIV ; Government		29 Jun - 1 Jul
4	Babuji Charles	Koboko HCIV Government	Babuji.charles@gmail.com	29 Jun - 1 Jul
5	Osoru May	Masindi General ; Government	osorumayrose@yahoo.com	29 Jun - 1 Jul
6	Okwonga Simon	Lacor Hospital,Gulu	simonokwonga@yahoo.co.uk	29 Jun - 1 Jul
7	Ndhote Moses	Nkokonjeru Hospital	nkoko@ucmb.co.ug	29 Jun - 1 Jul
8	Kato Kenneth	Buluba Hospital	buluba@ucmb.co.ug	29 Jun - 1 Jul
9	Nakasango Amina	Bududa Hospital		29 Jun - 1 Jul
10	Arinaitwe Ruk Innocent *	Kambuga Hospital	ruk-inno@yahoo.com	29 Jun - 1 Jul
11	Katagira Alex *	Kabuyanda HC IV	alexkatagira@yahoo.com	29 Jun - 1 Jul
12	Okello Peter	St. Joseph's Hospital		29 Jun - 1 Jul
13	Baluku Timothy *	Kilembe Mines Hospital	kilembe@ucmb.ug.com	29 Jun - 1 Jul
14	Apiny Merhab Nalumu *	Mukono H/C IV		29 Jun - 1 Jul
15	Odoch Wilfred	Goli H/C IV		29 Jun - 1 Jul
16	Ecoku Maxton	Mulago	maxtecob@yahoo.com	29 Jun - 1 Jul
17	Adubi U. Jimmy	Angal Hospital	angal@ucmb.com	29 Jun - 1 Jul
18	Fabian Awokubariho	Mbarara RRH		29 Jun - 1 Jul
19	Asiimwe K. Frank *	Kisoro Hospital	fkalekezi@yahoo.com	29 Jun - 1 Jul
20	Kamagaju Benny *	Kabale RRH	bennykamagaju@yahoo.com	29 Jun - 1 Jul
21	Kutuusa Ellen	Kamuli District Hospital		29 Jun - 1 Jul
22	Alal Irene	St Joseph's Hospital	alalirene@yahoo.com	29 Jun - 1 Jul
23	Dusabe Elizabeth *	Mutolere Hospital		29 Jun - 1 Jul
24	Apio Margaret Rose	Alebtong H/C IV		29 Jun - 1 Jul
25	Acam Jane Sylvia	Ngora Hospital		29 Jun - 1 Jul
26	Zainabu Mukyala	Atatur Hospital		29 Jun - 1 Jul
27	Apili Anna Mary	Abim Hospital	Apili.anna@yahoo.com	29 Jun - 1 Jul
28	Okuda John Bosco	Guhu Hospital	Johnbosco201199@yahoo.com	29 Jun - 1 Jul
29	Nassali Rose *	Entebbe Hospital		29 Jun - 1 Jul
30	Mugoya Sarah	Mulago Hospital	Sera2mugo@yahoo.com	29 Jun - 1 Jul
31	Naggayi Rosemary *	Kalisizo Hospital	naggayirose@yahoo.com	29 Jun - 1 Jul
32	Vincent Kisomose Kasoma	International Hospital, Kampala	kasomavk@yahoo.com	29 Jun - 1 Jul
33	Nekesa Juliet *	Kitovu Hospital		29 Jun - 1 Jul
34	Mugisa Emma A. *	Mbale Hospital		29 Jun - 1 Jul
35	Abunu Moreen	Student Mulago		29 Jun - 1 Jul
36	David. T. Byakika	P.A.O	dbyakika@yahoo.com	29 Jun - 1 Jul
37	Kasule Sarah	Mbarara		29 Jun - 1 Jul
38	Byamukama Evalist	Student Mulago		29 Jun - 1 Jul



	Name	Hospital / Category	Email	Course
39	Eriapu Joseph *	Kumi hospital		29 Jun - 1 Jul
40	Masereka Paul	Mulago Hospital	Paulmasereka@yahoo.com	29 Jun - 1 Jul
41	Tamwendawo Florence	Women's Hospital International	tamwerdawof@yahoo.com	29 Jun - 1 Jul
42	Muwanguzi Florence *	Kayunga Hospital		29 Jun - 1 Jul
43	Kuule Yason	IHK	Kuuleyason@yahoo.com	29 Jun - 1 Jul
44	Silanda Pascal	GMH Lugalo	silandap@yahoo.com	29 Jun - 1 Jul
45	Kasango Robinah	Bumanya H/C IV		29 Jun - 1 Jul
46	Okema Alfred	Kalong Hospital	okemaa@yahoo.com	29 Jun - 1 Jul
47	Opira Quinto	Padibe H/C IV		29 Jun - 1 Jul
48	Can – Oroma Gladys Otto	Madi Opei H/C IV		29 Jun - 1 Jul
49	Odeke Charles	Mbarara RRH	Charlesodeke29@gmail.com	29 Jun - 1 Jul
50	Waniala Francis	Budadiri H/C IV	wanialafrancis@yahoo.com	29 Jun - 1 Jul
51	Byaruhanga Ivan *	Rugazi H/C IV	byaruhangaivan@yahoo.com	29 Jun - 1 Jul
52	Miriam Nakanda *	Rugarama Hospital	Namirm2001@gmail.com	29 Jun - 1 Jul
53	Opolot Otim Nelson	Mulago Paramedical School	nelsonotimopolot@gmail.com	29 Jun - 1 Jul
54	Mayende Mary *	Mubende RRH		29 Jun - 1 Jul
55	Kamusiime Nuruati *	Itojo Hospital	kanuati@yahoo.com	29 Jun - 1 Jul
56	Atim Gertrude Ojok	Kiryamdongo		29 Jun - 1 Jul
57	Lamwaka Leotina	Pajule Hospital	lamwakaleotina@yahoo.co.uk	29 Jun - 1 Jul
58	Muroga William	Moyo Hospital	murogawilliam@gmail.com	29 Jun - 1 Jul
59	Matovu Zachary	Wagagai	Matovu_zac2000@yahoo.com	29 Jun - 1 Jul
60	Nanyanzi Christine	Kawembe H/C IV	kusatinah@yahoo.com	29 Jun - 1 Jul
61	Nanziri Zura *	Fort Portal Hospital		29 Jun - 1 Jul
62	Mumbere John *	Bwera Hospital		29 Jun - 1 Jul
63	Nakasinde Gertrude	Nsambya Hospital		29 Jun - 1 Jul
64	Twongyeirwe Jackson	Mayanja M Hospital	Jackson_twongyeirwe@yahoo.com	29 Jun - 1 Jul
65	Okwel Tom	Lira RR Hospital	okwelt@yahoo.com	29 Jun - 1 Jul
66	Juliet Tumwebaze	Buwambo HC IV	Tumweb74@yahoo.com	29 Jun - 1 Jul
67	Ajok Jacinta *	Amacha HC IV		29 Jun - 1 Jul
68	Elizabeth Asienzo	Aber Hospital		29 Jun - 1 Jul
69	Dr Kintu Andrew	Mulago		29 Jun - 1 Jul
70	Dr Namwanya Paul	Mulago		29 Jun - 1 Jul
71	Dr Kaddu Ronnie	Mulago		29 Jun - 1 Jul
72	Dr Kabuye Richard	Mulago		29 Jun - 1 Jul
73	Dr Emma Ayebale	Mulago		29 Jun - 1 Jul
74	Dr Sharon Mpumwire	Mulago		29 Jun - 1 Jul
75	Dr Bugembe Richard	MUST		29 Jun - 1 Jul
76	Dr Sadic Kagwa	MUST		29 Jun - 1 Jul
77	Ilukunyang Cornelius	Kabong Hospital		3 Jul - 5 Jul
78	Acidri Stanley	Moroto RRH		3 Jul - 5 Jul
79	Veronica D Isah *	KIU Bushenyi	veronicaisah@hotmail.com	3 Jul - 5 Jul
80	Ezaru Hellen	Kuluva		3 Jul - 5 Jul



	Name	Hospital / Category	Email	Course
81	Katureebe Lydia Mary *	Bwizibwera		3 Jul - 5 Jul
82	Achen Dhorine Cissy	Kaberamaido		3 Jul - 5 Jul
83	Muhindo Faridah	Kawempe HCIV		3 Jul - 5 Jul
84	Kasule Sarah	Mbarara RRH		3 Jul - 5 Jul
85	Gastone Zirahire	Mbarara RRH		3 Jul - 5 Jul
86	Ssenteza Kajubi *	Kiwoko	Ssenteza.kajubi@gmail.com	3 Jul - 5 Jul
87	Jabo Patrick Cosnat	Adjumani Hospital		3 Jul - 5 Jul
88	Nakatte Jennifer *	Bugiri Hospital		3 Jul - 5 Jul
89	Mukasa S kisémbó *	Jinja RRH	brucekagoma@yahoo.co.uk	3 Jul - 5 Jul
90	Mukasa Bruno	Tororo Hospital		3 Jul - 5 Jul
91	Amu Francis	Busolwe		3 Jul - 5 Jul
92	Drabua Robert *	Bombo Military Hospital		3 Jul - 5 Jul
93	Nakye Zemolili Mary Esther	Magale HCIV ; Manafwa		3 Jul - 5 Jul
94	Masika Felista	Rwesande HCIV		3 Jul - 5 Jul
95	Kanzira Kyarampe Stella *	Mitooma		3 Jul - 5 Jul
96	Tumwesigye Stephen *	Kitagata Hospital	tumwesigyestephen@yahoo.com	3 Jul - 5 Jul
97	Ajidiru Josephine	Bishop Asile HCIV		3 Jul - 5 Jul
98	Kyarikunda Ruth	Itojo Hospital		3 Jul - 5 Jul
99	Labolo Josephine Sally	Kitgum Hospital		3 Jul - 5 Jul
100	Ssebuggwawo Mathias	Kalangala H/C IV		3 Jul - 5 Jul
101	Agwang Pauline	Kappchorwa Hospital		3 Jul - 5 Jul
102	Namaganda Agnes *	Lyantonde Hospital		3 Jul - 5 Jul
103	Ongom Philip *	Ibanda Hospital	ongomphilip@yahoo.com	3 Jul - 5 Jul
104	Masereka Edward	Hoima Hospital		3 Jul - 5 Jul
105	Sr kyomugisha B Mary	Mulago Hospital	Ssmary225@gmail.com	3 Jul - 5 Jul
106	Muron John *	Atatur Hospital		3 Jul - 5 Jul
107	Naggayi Rosemary	Kalisizo Hospital	naggayirose@yahoo.com	3 Jul - 5 Jul
108	Dr Peter Agaba	Mulago		3 Jul - 5 Jul
109	Dr Lameck Ssemwogerere	Mulago		3 Jul - 5 Jul
110	Dr Mary Theresa Nabukenya	Mulago		3 Jul - 5 Jul
111	Kasaija Jerome Baguma	IHK		3 Jul - 5 Jul
112	Kibuka R	Gombe		3 Jul - 5 Jul
113	Dr Kiwanuka Joseph	Mbarara RRH		3 Jul - 5 Jul
114	Byiringiro Chris	Mbarara RRH		3 Jul - 5 Jul
115	Kirunda Christopher *	Nsambya		3 Jul - 5 Jul
116	Lawach Lucy *	Anaka		3 Jul - 5 Jul
117	Beinomugisha Charles *	Ruharo		3 Jul - 5 Jul
118	Masereka Bisanji Raphael	Mbarara RRH		3 Jul - 5 Jul
119	Murungi Teopista	Student Mulago		3 Jul - 5 Jul
120	Aol Grace	Student Mulago		3 Jul - 5 Jul
121	Apiny Merhab Nalumu	Mukono H/C IV		3 Jul - 5 Jul
122	Kabaireho Frank *	Nyakibaale Hospital		3 Jul - 5 Jul



	Name	Hospital / Category	Email	Course
123	Wedunga Charles	Mbarara RRH	cwedunga@yahoo.com	3 Jul - 5 Jul
124	Okello Santos Briggs	Aber		3 Jul - 5 Jul
125	Dr Ngonzi/ DR Ttendo	Bundibujo Hospital		3 Jul - 5 Jul
126	Acia Richard *	Kagando Hospital		3 Jul - 5 Jul

\* Participants who were assigned SAFE logbooks



# Appendix V: Faculty List

<b>Kate Grady</b>	<i>Consultant Anaesthetist / SAFE Course Organiser (Manchester)</i>
<b>Isabeau Walker</b>	<i>Consultant Paediatric Anaesthetist / Oximetry Course Organiser (London)</i>
<b>Paul Clyburn</b>	<i>Consultant Anaesthetist (Cardiff)</i>
<b>Ellen O'Sullivan</b>	<i>Consultant Anaesthetist (Dublin)</i>
<b>Alison Carling</b>	<i>Consultant Anaesthetist (Newport)</i>
<b>Alex Bojarska</b>	<i>Consultant Anaesthetist (Manchester)</i>
<b>Saramin Galinski</b>	<i>Consultant Anaesthetist (Canada)</i>
<b>David Snell</b>	<i>Specialist Registrar Anaesthetics (Newcastle)</i>
<b>Tony Sousalis</b>	<i>Specialist Registrar Anaesthetics (London)</i>
<b>Rebecca Jones</b>	<i>Specialist Registrar Anaesthetics (Cardiff)</i>
<b>Louise Finch</b>	<i>Specialist Registrar Anaesthetics (Exeter)</i>
<b>Marnie Buchanan</b>	<i>Midwifery and obstetric Theatre Nurse Manager (Canada)</i>
<b>Sarah Kessler</b>	<i>Lifebox Project Liaison / Reporter / Observer (London)</i>
<b>Bethan Clyburn</b>	<i>Logistics/ Administration (Cardiff)</i>
<b>Fiona Roberts</b>	<i>Logistics / Administration (Dublin)</i>
<b>Jessica Fry</b>	<i>Statistical Analyst / Epidemiologist (Canada)</i>



# Appendix VI: Training of Trainers Delegate List

Dr Andrew Kintu	<i>Mulago</i>
Dr Paul Namwanya	<i>Mulago</i>
Dr Ronnie Kaddu	<i>Mulago</i>
Dr Richard Kabuye	<i>Mulago</i>
Dr Emma Ayebale	<i>Mulago</i>
Dr Sharon Mpumwire	<i>Mulago</i>
Dr Richard Bugembe	<i>Mbarara Institute of Science and Technology</i>
Dr Sadic Kagwa	<i>Mbarara Institute of Science and Technology</i>
Masereka Bisnaji Raphael	<i>Mbarara RRH</i>
Lawach Lucy	<i>Anaka</i>
Dr Peter Agaba	<i>Mulago</i>
Dr Lameck Ssemwogerere	<i>Mulago</i>
Dr Mary Theresa Nabukenya	<i>Mulago</i>
Sr Kyomugisha B Mary	<i>Mulago Hospital</i>
Dr Kiwanuka Joseph	<i>Mbarara RRH</i>
Veronica D Isah	<i>KIU Bushenyi</i>
Kibuka R	<i>Gombe</i>

# Appendix VII: Monitoring and Evaluation System

## Learner Satisfaction with Academic Sessions

### Feedback form

Please complete this after each session

How useful were each of the following?

<b>Lecture on airway and general anaesthesia</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Airway breakout sessions</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>General anaesthesia breakout sessions</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Spinal anaesthesia breakout sessions</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Lecture on critical care and resuscitation</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Critical care breakout sessions</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Lecture on pre-eclampsia and eclampsia</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Pre-eclampsia and eclampsia breakout sessions</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Lecture on haemorrhage</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Haemorrhage breakout sessions</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Lecture on obstetric emergencies</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	
<b>Obstetric emergencies breakout session</b>										
1	2	3	4	5	6	7	8	9	10	
not									extremely	





## Pre and Post Course Knowledge Test

### 1. When assessing the airway

- a. The Mallampati test should be done with the patient lying down
- b. A class 1 Mallampati score is highly suggestive of a possible difficult intubation
- c. A thyromental distance of 10 cm is a sign of a possible difficult intubation
- d. Tilting of the head backwards is a useful test of whether a patient might be difficult to intubate
- e. Putting the chin on the chest is a useful test of whether a patient might be difficult to intubate

### 1. Rapid sequence induction

- a. should only be used if the patient has not been starved
- b. always requires pre-oxygenation of the patient
- c. involves bagging of the patient to keep saturations high once the muscle relaxant has worked
- d. always requires an anaesthetic assistant
- e. the cuff should be inflated gently whilst listening for a leak around the tube

### 2. Extubation

- a. can cause laryngeal spasm
- b. should always be carried out with the patient deep to avoid laryngeal spasm
- c. should be carried out in the supine position so the patient can be re-intubated quickly
- d. is a skill which can be carried out by recovery nurses
- e. can cause problems which mean the patient has to be re-intubated

### 3. Difficult intubation

- a. is usually due to inadequate muscle relaxation
- b. can always be predicted if a proper assessment of the airway has been done
- c. may be made easier by using a long bladed laryngoscope
- d. can always be resolved by using a Gum Elastic Bougie
- e. is more common in pregnant patients

#### 4. **The WHO Surgical Safety Checklist**

- a. is a check list for all the theatre team
- b. it should be carried out only after the operation has finished but before the wound is closed
- c. guarantees that there will be no errors in the operating theatre
- d. makes the anaesthetist more aware of the possibility of haemorrhage
- e. identifies whether the patient has any allergies

#### 5. **Spinal anaesthesia**

- a. requires an aseptic technique
- b. will only cause hypotension if the patient has not been given an intravenous fluid pre-load
- c. should always be done in the sitting position
- d. can cause a headache
- e. can cause damage to the spinal cord

#### 6. **Venous thromboembolism (DVT/PE)**

- a. only occurs in patients who are immobile
- b. is less likely in pregnancy
- c. does not occur in the antenatal period
- d. prophylaxis should be considered a high priority in the sick obstetric patient
- e. can only be prevented by heparin

#### 7. **Anaemia / Malaria**

- a. A drop in haemoglobin concentration during pregnancy is abnormal
- b. Sickle cell disease may cause anaemia
- c. Malaria in pregnancy may present with impaired consciousness and seizures
- d. Doxycycline is the antimalarial of choice in pregnancy
- e. Hypoglycaemia complicating malaria is less common in pregnancy

#### 8. **Ruptured Uterus**

- a. Uterine rupture is only possible in a patient who has had a previous Caesarean section



- b. One of the most common symptoms of uterine rupture is increasing and continuous abdominal pain
- c. Blood loss is usually minimal
- d. Uterine rupture may be managed non-surgically
- e. The majority of uterine ruptures occur during labour

## 9. Ectopic Pregnancy

- a. During the initial management of a patient with suspected ectopic pregnancy, the first priority should be to determine gestational date
- b. Ectopic pregnancy is one of the leading causes of maternal death
- c. Analgesia should not be given until after an operation
- d. Sudden collapse may be the first sign of a patient with a ruptured ectopic pregnancy
- e. IV fluid resuscitation should be started only if 2 or more litres of blood loss are suspected

## Pre and Post Skills Tests

### Rooms 1 and 5 - Maternal cardiopulmonary resuscitation

Ask participant to demonstrate to you how they would approach a patient who cannot be roused by the midwife. This is a 38/40 pregnant patient. Tell them they have a table with equipment and a junior midwife to assist. Simple questioning is allowed to make clear whether they are achieving and the last point is in the form of a question.

Demonstrates the following steps:

Key treatment point	Yes	No	Mark (1 for each point)
Shake and shout (1)			
Call for help (1)			
Open airway (1)			
Assess breathing (1)			
Check pulse (1)			
Give rescue breaths (1)			
Start cardiac compressions (1)			
Tilt (1)			
Arrange to perform CS (1)			
Ask for 2 most common causes in pregnant patient expect Thromboembolism and haemorrhage (½ + ½)			
Total 10			

*Footnote: The answer 'thromboembolism' as a common cause will be change to fit with local pathology.*

## Rooms 4 and 8 - Newborn resuscitation

Ask participant to demonstrate to you how they would manage a baby born at CS who appears lifeless. Tell them they have a table with equipment and a junior midwife to assist. Simple questioning is allowed to make clear whether they are achieving.

Demonstrates the following steps:

Key treatment point	Yes	No	Mark (1 for each point)
Call for help (1)			
Start the clock (1)			
Dry and wrap in fresh towel (1)			
Assess heart rate at apex (1)			
Assess APGAR – know breathing, heart rate, colour, tone (1 mark if all 4, ½ mark if 2 or more)			
Open airway (1)			
Assess breathing (1)			
Give 5 rescue breaths (1)			
Reassess heart rate – say it is 40/minute (1)			
Start chest compressions (1)			
Total 10			

*Footnote: Marked out of 9 – “start the clock” was not taught as a priority on the course.*

## Rooms 2 and 6 - Management of a fit

Ask participant to demonstrate to you how they manage a fitting patient. She is 38/40 pregnant. Tell them they have a table with equipment and a junior assistant. Simple questioning is allowed to make clear whether they are achieving and the last two key treatment points are in the form of a question.

Demonstrates the following steps:

Key treatment point	Yes	No	Mark (1 for each point)
Call for help (1)			
Tilt or lateral position (1)			
Assess and open airway (1)			
Assess breathing (1)			
Put oxygen on (1)			
Check for a pulse (1)			
Get iv access and give magnesium(1)			
Know dose they use locally (1)			
Ask what next –say must be delivered (1)			
Ask whether anything first – say BP must be controlled (1)			
Total 10			

## Rooms 3 and 7 - Rapid Sequence Induction

Ask participant to demonstrate to you how they would carry out a rapid sequence induction. This is a pregnant patient for emergency CS. She weighs 65 kg. Tell them they have a table with equipment and a junior assistant. Simple questioning is allowed to make clear whether they are achieving.

Demonstrates the following steps:

Key treatment point	Yes	No	Mark (1 for each point)
Checks equipment and brings close to pt (1)			
Prepares drugs – ask them what and what dose will use – expect Thiopentone 250-400 mg, sux 50-100 mg (1)			
Explains to assistant, checks they know how to do cricoid and tells them not to take off until instructed (1)			
Explains to pt (1)			
Gets iv access (1)			
Pre-O <sub>2</sub> for > 3 minutes (1)			
Thio, immediate sux 1			
No ventilation (1)			
Places tube and tells assistant to inflate cuff (1)			
auscultation (1)			
Total 10			



## Course Logbook Template

### 'SAFE' COURSE FOLLOW UP CASE REPORTS

Name:

Position:

Institution:

Contact details:

Cell phone:

Email:

Other:

We are very grateful to you for sending details of how the course may have improved the way you have treated a patient.

If you think the course has made a difference in the way you managed this patient we would like you to complete the following form:

Please keep all these case reports and we will be in touch to discuss them with you.

Date of case:

Reason for your involvement e.g. anaesthesia for routine caesarean section, anaesthesia for laparotomy for ruptured uterus:

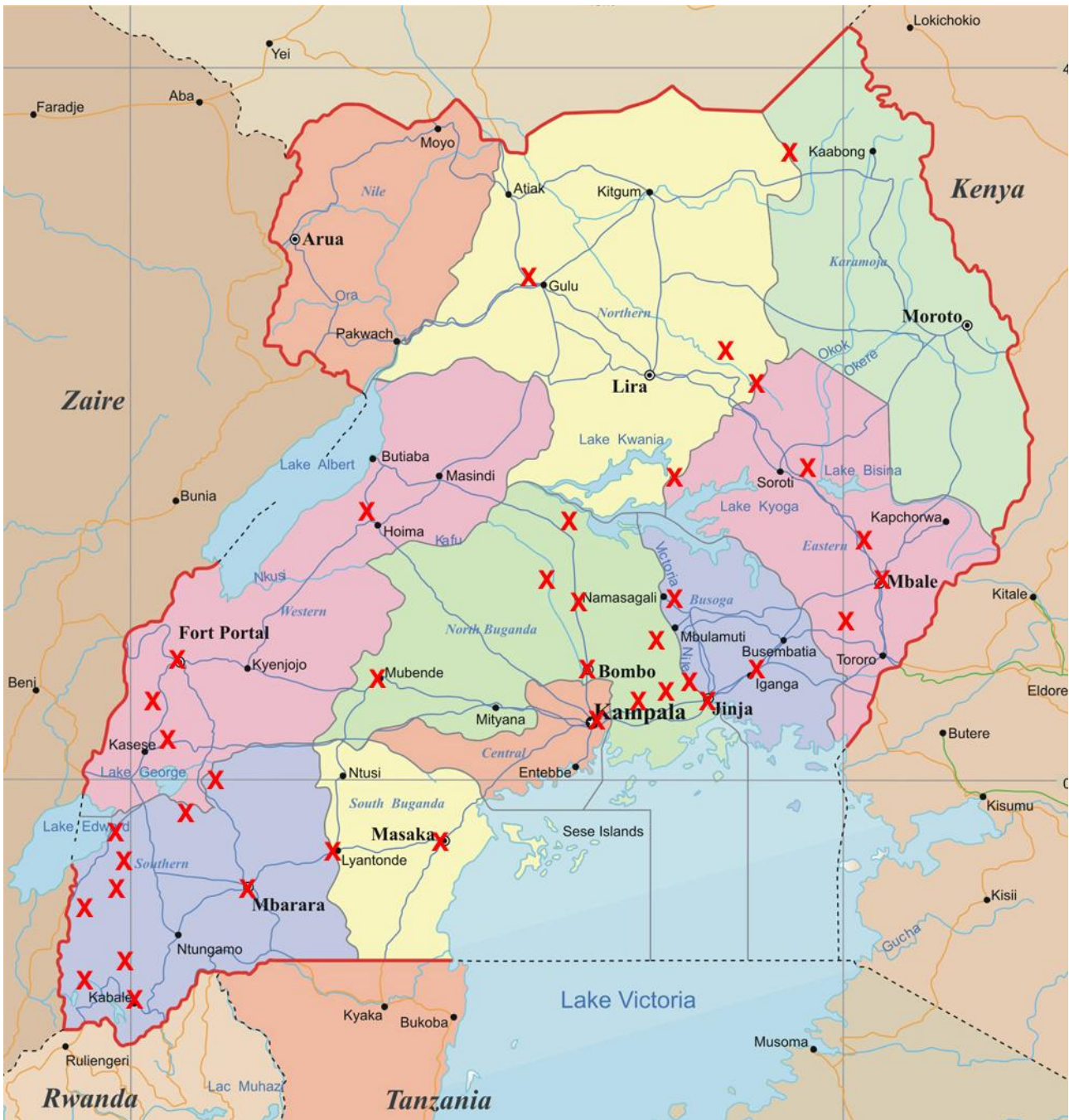
Problem that happened:

Skills you used which you learned on the course:

Describe the management of the problem:

Did the patient survive?

## Course Logbook Distribution Map



*Logbook Distribution Points indicated by red crosses*

# Initial Field Work

The faculty are in the process of collecting this data through independent assessors. This report describes the preliminary findings to date. Although it presents valid field data it should not be seen as an all-inclusive complete report which will follow on completion of follow up by the assessors. It does not aim to provide a complete report on Uganda's health infrastructure and the medical-social and socio-economic issues that face it. This will be covered in the final report.

## **Methods**

### ***Assessors***

It was decided that candidate assessment and course feedback should be collected by independent assessors. 2 assessors were chosen with significant experience of work, teaching and travel in resource poor countries, especially across the African continent. Both are senior trainees in anaesthesia in the UK and are experienced in teaching at a post-graduate level.

The process of candidate and course evaluation is being carried out according to the four accredited stages as described above; reaction, change in knowledge and skills, logbook evaluation and workplace behavioural changes. It was also felt important to try and assess any social impact the course may have had both on the individual practitioner and the wider medical community and administration.

### ***Recruitment***

A total of 40 candidates were recruited and consented to being contacted by the assessors. Of those 20 candidates agreed to keep a logbook of cases where they believed the course had made a direct impact on the management of a particular case whether it resulted in a positive or negative outcome.

Candidates selected were both physician and non-physician and worked in a range of medical facilities from the more rudimentary health centre 4s to the regional referral hospitals. The assessors are endeavouring to visit, in person, all the recruited candidates. When, for travel security reasons, this is not feasible the interview will take place by telephone and be recorded as such.

### ***Data Collection***

Candidates are contacted in advance and a suitable time arranged. Where possible the data collection takes place at the candidate's place of work. Data collection involves:

- Key Informant Interview

- Course feedback including most useful aspects, worse aspects, suggestions for improvement and new material
- Clinical impact of the course (in conjunction with logbook where applicable)
- Social impact of the course including working conditions and inter-departmental and managerial relationships
- Availability of drugs and equipment to ensure safe practice of anaesthesia with particular focus on airway equipment
- Major issues facing practice of anaesthesia in candidates work place
- Logbook centred case based discussion (where applicable)
- Interrogation of theatre record book and other sources recording workload, mortality and morbidity.

A Focused Group Discussion will be held to explore some of the issues raised by the course in greater detail.

## **Results**

### ***Overview to date***

This preliminary report will focus on the course feedback, with specific examples, received to date. The full report will include socio-economic and socio-medical discussion.

17 candidates have undergone Key Informant Interviews (KII) in the format of 13 face to face and 4 telephone discussions. 42 candidate documented log book cases have been collected and discussed through KII. In addition a further 17 course specific cases have been discussed during telephone consultations. This makes a total of 59 documented cases where practice has been changed due to the course.

Data has been collected from the theatre records books where available, including any maternal deaths. A record of availability of drugs and equipment has been made. Each candidate has discussed the major issues facing them in the work place. These findings will be discussed in the final report.

### ***Course feedback***

The course received extremely positive feedback. Of specific note was the setup of the course, being in workshop format plus minimal lectures giving the participants time to involve themselves on a practical level. This was found to be a new way of adult learning within the Ugandan healthcare education system. 15 out of 17 candidates were found not to be receiving any continuing medical education as part of their daily working. All these participants were non physician anaesthetists who rely on courses such as these to update and improve their practice.

*Comments were as follows:*



“It sharpened my practice” “The course empowered me to continue my work” “You coming to see me has given me courage to use the skills I have learnt” “It has changed my practice” “More babies are surviving” “It empowered me to get working suction machines in our theatres”

### *Positives*

During all the KII there were common themes of popular topics that the candidates found to be extremely useful in their daily practice. These were

1. Neonatal resuscitation skills.
2. Positioning mothers in the sitting position for spinals.
3. Cricoid pressure for rapid sequence induction.
4. Management of haemorrhage.

### *Suggestions*

One anaesthetic assistant wanted more workshops rather than lectures on the next course. Although outside the scope of this course, paediatric training was seen to be lacking.

### **Case examples of change in practice**

<b>Case</b>	<b>Change of Practice</b>	<b>Number of cases</b>
Risk of aspiration	Cricoid and suction	11
Neonatal Resuscitation	Inflation breaths, suction	10
Hypotension	Left Lateral Tilt, fluids, head up	10
Haemorrhage	Fluids, blood, oxygen	9
High Spinal	Left Lateral Tilt, fluids,	4
Difficult spinal	Change of position to sitting	3
Post Spinal Headache	Fluid, regular analgesia	2
Laryngeal Spasm	Oxygen, airway manoeuvres	2
Management of pre eclampsia	Control of BP prior to LSCS	2
Hypoxia	Airway Manoeuvres	2
Shivering	Pethidine	2
Uterine Rupture	Use of salbutamol Inhalers	1
Airway Assessment	Mallampati scores	1

### **Workload**

All candidates were working 24 hour shifts. Most were working with 2 other anaesthetic officers/assistants. Holidays were rotated for periods of one month a year, often leaving the rota short during this time. There were health centres in which there is only one anaesthetic practitioner on the rota.

### Barriers to learning and practice

Common problems that led to the candidates not being able to practise skills taught on the course were lack of equipment such as spinal needles and local anaesthetic.

### **Discussion**

"When's the next course?"

This is one of the most frequent questions we are asked during our follow up discussions. The course has been extremely well received in a country where there is a huge desire for CME but lacking the infrastructure to provide it.

For many candidates this has been their first exposure to workshop based adult learning and it has created a cohort of candidates that are motivated to seek out further educational opportunities.



Early data demonstrate a clear link between the skills and knowledge taught on the SAFE course and the change in clinical practice of anaesthetic practitioners. Indeed the information also demonstrates individuals who have felt empowered to educate colleagues across specialities and interact more confidently with management.

Clear examples of this can be seen in the comments on neonatal resuscitation and the request for an improvement in equipment maintenance and procurement (note the request for the repair of suction equipment).


Rotas, funding and lack of staff are but some of the barriers facing anaesthetic practitioners seeking CME. It is beyond the scope of this preliminary report to discuss these issues in detail but they will be addressed in the final submission.

Despite these barriers running a regular course is a feasible option. In order to achieve this, close working relationships need to continue to be developed between the UK based faculty and the senior national clinical figures in Uganda.

SAFE has taken huge steps towards this by already running a 'Training the Trainers' (TOT) workshop, many of whom are looking forward to using their new gained educational skills.

In short interim data reflects a course that has provided practitioners with new found education, skills, empowerment and motivation to tackle some of the issues surrounding maternal and neonatal morbidity and mortality at a local and national level.

# Appendix VIII: Course Certificate Templates



THIS IS TO CERTIFY THAT

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HAS COMPLETED THE

**SAFE** (Safer Anaesthetics From Education) **Course**

JULY 2011

AT

**Mbarara Teaching Hospital,  
Mbarara, Uganda**

SIGNED: \_\_\_\_\_  
Uganda Society of Anaesthesia

SIGNED: \_\_\_\_\_  
Association of Anaesthetists of Great Britain and Ireland



THIS IS TO CERTIFY THAT

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HAS COMPLETED THE  
**SAFE course Training of the Trainers**

JULY 2011

AT  
**Mbarara Teaching Hospital,  
Mbarara, Uganda**

SIGNED:

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Uganda Society of Anaesthesia

SIGNED:

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Association of Anaesthetists of Great Britain and Ireland

# Appendix IX: SAFE Course in Pictures





