



SAFE

Safer Anaesthesia From Education

Paediatric Anaesthesia Course

Masaka, Uganda

July 15-17 and 19-21 2014

Uganda Society of Anaesthesia

Association of Anaesthetists of Great Britain and Ireland

World Federation of Societies of Anaesthesiologists

Mercy Ships



Table of Contents

	Page
Executive summary	3
Acknowledgements	5
Background and partnerships	7
Report of the pilot course in Masaka, Uganda	9
Monitoring and evaluation	14
Summary	21
Appendices	22
Course photographs	24

Executive Summary

- The new SAFE (Safer Anaesthesia From Education) Paediatric Anaesthesia Course is a short course designed to provide refresher training in paediatric anaesthesia for anaesthesia nurses, anaesthetic officers and physician anaesthetists working in low-income countries. It uses the standard format of the 'SAFE' courses designed for the AAGBI by Kate Grady.
- The course materials have been written by expert paediatric anaesthetists from the United Kingdom, United States of America and Canada who have relevant experience in low-income countries. The topics covered were chosen following guidance from the literature and from anaesthesia providers in Uganda and Malawi.
- Two pilot courses were run in partnership with the Uganda Society of Anaesthetists in Masaka Uganda in 15-17 July 2014 and 19-21 July 2014, funded by the Association of Anaesthetists of Great Britain and Ireland (AAGBI), the World Federation of Societies of Anaesthesiologists and Mercy Ships.
- The course was directed by Dr Joseph Kiwanuka (Mbarara) and Dr Michelle White (Mercy Ships). The lead coordinator for the AAGBI was Dr Isabeau Walker and for the Uganda Society of Anaesthesia Dr Stephen Ttendo.
- There were a total of 23 facilitators for the two courses; 14 were Ugandan physician anaesthetists, 11 of whom had been trained on the previous SAFE Training of Trainers (TOT) course. There were two paediatric anaesthesia consultants and two anaesthetic registrars from the UK. One of the UK trainees was a long-term volunteer (funded by the Sustainable Volunteering Project)¹ who was working at Hoima Hospital. There was a paediatric anaesthesia consultant from Mercy Ships, a paediatric anaesthesia consultant from Boston Children's Hospital USA and a paediatric intensivist from Massachusetts General Hospital Boston, working with the Mbarara University of

¹The SVP is hosted by the Liverpool-Mulago-Partnership and promotes volunteering throughout the Ugandan Maternal and Newborn Hub (www.LMPcharity.org)



Science and Technology (MUST) Collaboration. Four UK trainers and 6 Ugandan trainers were present for both courses.

- Administrative assistance was provided by the Mercy Ships Hospital Projects Manager Krissy Close, and Mike Harvey, a self-funded medical student from London.
- A total of 104 anaesthetic officers were trained during the two three-day courses. Many of the anaesthetic officers had attended previous SAFE Obstetric Anaesthesia courses and were familiar with the SAFE format.
- Delegates attending this course were predominantly from the western region of Uganda, but many had travelled from further afield.
- Feedback from the delegates was excellent.
- Knowledge and clinical skills were formally assessed before and after the course and showed statistically significant improvements.
- Minimal equipment was required for this course; it included eight 'NeoNatalie complete' trainers purchased from Laerdal to teach newborn resuscitation and paediatric and child manikins on loan from Great Ormond Street Hospital and Boston Children's Hospital.
- Monitoring and evaluation will be undertaken after the course. This will be conducted by a UK SVP volunteer present in Uganda, and/or by one of the Ugandan faculty members. This will include an informal interview and repeat of the skills assessment and MCQ.
- The next SAFE Paediatric Anaesthesia course is planned for January 2015.

Acknowledgements

We would like to thank all the anaesthetists who have been involved in writing this course material - without their efforts, this course would not have been possible. In particular, we would like to acknowledge Benoit Beauve, Anthony Bradley, Faye Evans, Paul Firth, Elaine Ng, Judith Nolan, Philppa Seal, Jonathan Smith and Kate Wilson. Also to Dr Ollie Ross, Louise Bates, Erica Dibb-Fuller and colleagues at the Shackleton Department of Anaesthesia and the Learning Support Department at University Hospital Southampton NHS Foundation Trust who developed the video materials for the course. With grateful thanks to the patients and staff who kindly consented to filming at Southampton General Hospital UK or Tansen Mission Hospital, Nepal, and also to the Nick Simons Institute, Nepal. We are also grateful for contributions from Kester Brown and the Educational Resources Centre at the Royal Children's Hospital Melbourne and to Medical Aid Films for giving us permission to use their video on Newborn Resuscitation. Also to Mr Bip Nandi and Cyril Goddia from Malawi for sharing their expertise.

We would like to express our gratitude to Dr Fred Musana, President of the Ugandan Society of Anaesthesia for his support for the course and to Dr Stephen Ttendo for his tireless efforts to improve patient safety in Uganda and to provide educational opportunities for his fellow anaesthetic providers. We would like to say a particular thank-you to Dr Joseph Kiwanuka, Dr Andrew Kintu and to Dr George Kateregga who put a phenomenal amount of work into making sure the pilot courses ran smoothly on the day, and to Mike Harvey from King's College Hospital and Cathy Costello from Great Ormond Street Hospital who helped to prepare the course materials in the UK. Thanks also to Kate Thornton and Karin Pappenheim from the AAGBI for their help in the administrative work for the SAFE paediatric course.

Further thanks to the Association of Anaesthetists of Great Britain and Ireland (AAGBI), the World Federation of Societies of Anaesthesiologists (WFSA) and Mercy Ships for their financial support for the pilot course.



A particular thank you goes to Dr William Harrop-Griffiths, President of the AAGBI for his support for the project, and to Dr Iain Wilson who had the original idea to develop the SAFE courses.

A huge thank you goes to the faculty (Joseph, George, Andrew, Faye, Maytinee, Nick, Benoit, Ryan, Janat, Peter, Juliet, Philo, Beatrice, Rita, Joshua), and to our administrative supporters (Krissy, Mike) - for their hard work, enthusiasm and great camaraderie.

Last but not least, we would like to thank our course delegates for their welcome, friendship and for being such a pleasure to teach and to learn from.

Isabeau Walker, Michelle White

August 2014

Background

The SAFE Paediatric Anaesthesia course was developed in 2014 by representatives from the Association of Anaesthetists of Great Britain and Ireland (AAGBI), the World Federation of Societies of Anaesthesiologists (WFSA), Mercy Ships and the Society of Pediatric Anesthesia. The course materials have been written by paediatric anaesthetists from the UK, USA and Canada.

The aim of the SAFE Paediatric Anaesthesia course is to provide refresher training for both physician and non-physician anaesthetists in the essentials of paediatric anaesthesia in resource-limited countries. It is not intended as a comprehensive training course in anaesthesia, but emphasises basic principles, vigilance and competence in essential skills.

Access to safe surgery is an important component of paediatric practice in low-income countries. More than 50% of the population is under 14 years of age, and it has been estimated that 85% of children will require some sort of surgery before their 15th birthday. Children require surgery for a range of congenital conditions including surgery for cleft lip and palate, and increasingly, for traumatic injury resulting from burns or road traffic accidents.

In countries such as Uganda there are few specialist surgeons and anaesthetists, and paediatric surgery and anaesthesia are of necessity the work of the general surgeon and non-physician anaesthetist in the district hospital. Anaesthetists provide anaesthesia, pain relief and intravenous fluid management for care for children undergoing surgery. The role of the anaesthetist also extends beyond the operating theatre to include initial resuscitation and basic critical care for seriously ill children.

Children present particular challenges to surgeons and anaesthetists, and providing anaesthesia and basic critical care for essential surgery in children requires specific knowledge, skills and training. Application of well-established principles, particularly with respect to perioperative care and postoperative pain control, has the potential to relieve unnecessary suffering in many children.



The SAFE Paediatric Anaesthesia Course is a three-day course addressing the special needs of children who require surgery, and the particular differences between paediatric and adult practice. It has been written by paediatric anaesthetists with relevant experience, and includes sessions on newborn and paediatric life support, pain management, fluid resuscitation, paediatric trauma management, as well as the common conditions of childhood. There are five brief lectures, with the rest of the course run as modular breakout sessions. The participants are divided into four pre-allocated small groups and the groups rotate around four sessions for each course module.

The SAFE paediatric course has been designed as an 'off the shelf package' supported by a facilitator manual, teaching materials and standard operating procedures, based on the concept of the 'SAFE' courses designed for the AAGBI by Kate Grady. Evidence from the literature and feedback from surgeons and anaesthetists in Uganda and Malawi has been used to ensure that the course is clinically relevant and will improve the practice of anaesthesia for children to a safe standard. The course is educationally sound and recognises the specific needs of the adult learner. In keeping with this it comprises a range of teaching modalities including skill stations, scenarios, demonstrations, discussions, workshops, DVDs, and interactive lectures.

Each session has guidance on the learning objectives to be achieved. The course manual contains teaching laminates required for the course, and printouts of the lectures and slide presentations used in the breakout sessions.

Michelle White, Isabeau Walker

August 2014

Partnerships

The course was held thanks to the continued support and funding from:

- The Association of Anaesthetists of Great Britain and Ireland
- The World Federation of Societies of Anaesthesiologists
- Mercy Ships



The SAFE Paediatric Anaesthesia Pilot

July 2014 Masaka, Uganda

This was the first pilot of the SAFE paediatric anaesthesia course, and the 7th 'SAFE' anaesthesia course run in collaboration between the Uganda Society of Anaesthesia and the Association of Anaesthetists of Great Britain and Ireland since 2011. The course was held at the Hotel Maria Flo, Masaka, Uganda.

The training was run as two three-day courses 15th -17th July and 19th-21st July. A total of 104 delegates attended the two courses.

Course materials, logistics and funding

The course materials were written by UK/USA/Canadian paediatric anaesthetists with experience working in Uganda, Kenya, Rwanda, Guinea, Republic of Congo, Nepal, Bangladesh and elsewhere. Preparation of course materials was co-ordinated by Michelle White and Isabeau Walker, who both edited and reviewed all the sessions. Input to the course content was sought from a consultant paediatric surgeon and an anaesthetic officer in Malawi (Bip Nandi, Cyril Goddia). Training videos were prepared by Dr Ollie Ross in Southampton, funded by a grant from the AAGBI. Teaching materials were e-mailed to the Uganda faculty in advance of the course.

Teaching materials, which included 100 copies of the delegate manual, 15 copies of the facilitator manual, laminates, participant assessments and feedback forms, were prepared in the UK by a medical student volunteer; the international faculty all had charity flights so had sufficient luggage allowance for these materials. NeoNatalie resuscitation manikins were purchased in the UK from Laerdal Global Health; stationary and delegate bags were provided by the AAGBI and also taken out by the faculty. Two infant manikins and one child manikin were borrowed from Great Ormond Street Hospital and from Boston Children's Hospital. Additional manuals and laminates were printed locally as required.

All delegates received a copy of the Oxford Handbook of Anaesthesia (sent in advance by the AAGBI via Teaching Aids at Low Cost), a copy of the course delegate manual, and key

laminates including resuscitation guidelines and basic calculations in paediatrics. AAGBI delegate bags were used for the first course (from the AAGBI Group of Anaesthetists in Training meeting).

Dr Ttendo contacted hospital superintendents to encourage them to release the anaesthetic officers to attend the training course, which was advertised through the USoA networks. The Uganda Society Annual Meeting was held on 18th July, in between the two courses, which allowed a number of anaesthetic officers to attend this meeting as well. A maximum of 100 course participants were expected; in the end, a total of 104 anaesthetic officers attended.

A grant was received for £5600 from the AAGBI to support flights for three international faculty and local course expenses, and from the WFSA for \$12,000. The hospital superintendents were asked to fund travel expenses for the course participants, and the AAGBI/WFSA funded their meals and accommodation for the duration of the course. Funding from the AAGBI/WFSA was also used for the faculty accommodation and meals and for the venue hire. No per diems were paid to faculty members or to course participants. Separate funding from the AAGBI was used for the book donation and for the development of video materials.

Venue

The course was held at the Hotel Maria Flo in Masaka, which was familiar to both the USoA team and members of the AAGBI faculty. The lectures were held in the hotel conference room, and the breakout sessions were held in small marquees in the hotel grounds.

Audiovisual support was available in the conference room. White boards and marker pens were available in the marquees, provided by the AAGBI.



Dr. Isabeau Walker and Dr. Nick Boyd teaching a breakout session.

Accommodation for the participants and the faculty was provided in the Hotel Maria Flo or in a local guest house with a shuttle bus provided to the venue. All meals were served at the Maria Flo, including breakfast. The support for the course by the hotel was outstanding and allowed the sessions to start on time with regular breaks for refreshments.

The course

The aim of the pilot course was two-fold – firstly to provide the annual CPD for anaesthetic officers to improve knowledge, skills and attitudes required to deliver safe paediatric anaesthesia care, secondly, the pilot provided an opportunity to modify and improve the course materials and curriculum based on feedback from the course participants and on detailed feedback from the faculty members.

The course lectures were as follows:

- Overview of paediatric anaesthesia
- Safety in paediatric anaesthesia
- Recognition of the sick child
- Trauma in children
- Newborn care.



Dr Michelle White demonstrates intraosseous access using a Cadbury's Crunchy bar covered in plaster of Paris.

All course modules were delivered by a member of the international faculty who worked alongside a Ugandan trainee; the sessions were all repeated, which allowed the local faculty member to take over the role of teacher.

The faculty demonstrated assessment of the sick child and trauma assessment at the end of the relevant lectures. The Medical Aid Films video 'Newborn Resuscitation' was shown to all participants during the newborn resuscitation breakout session.

As for previous SAFE courses, a prize essay competition was held, which also enabled the facilitators to learn more about the clinical conditions faced by the anaesthetic officers. The titles included: 'My most memorable case', 'A child we saved because we did the right thing', 'A child who died who should have survived', 'A child who was saved by the Lifebox pulse oximeter'.

Time keeping and daily faculty meetings were organised by Dr Joseph Kiwanuka and Dr Andrew Kintu. Faculty were helped to keep to time by giving them a 10 minute and 5 minute warning before the end of the session. A number of sessions included ‘working tea’ to maximise training time, which allowed us to finish on time everyday, despite a packed daily schedule.



Daily faculty meetings to review course content

The course modules were as follows:

Module 1 – Basic Principles of Paediatric Anaesthesia

- Preoperative assessment
- Basic calculations
- Preoperative preparation and fasting
- Maintenance fluids

Module 2 – Paediatric Airway

- Paediatric airway: basic airway management
- Paediatric airway: intubation
- The anaesthetic plan: induction and maintenance
- Extubation

Module 3 - Pain Management in Children

- Pain Assessment
- Pain Management
- Caudal Block
- Hernia Block

Module 4 – Special circumstances – Part 1



Dr George Katergga and Dr. Maytinee Lilaonitkul teaching a breakout session on typhoid perforation

- ENT surgery
- Cleft lip and palate
- Eye surgery
- Handover and recovery

Module 5 – The sick laparotomy

- Preparation for sick laparotomy; typhoid perforation
- Airway management: sick laparotomy
- Intraoperative management: sick laparotomy
- Post-operative High Dependency Care

Module 6 – Resuscitation

- Child Basic Life Support (1)
- Child Basic Life Support (2)
- Recognition of the sick child
- Intraosseous Access



Dr. Maytinee Lilaonitkul teaching basic life support.

Module 7 – Special circumstances – Part 2

- Seizures
- The child with cardiac disease
- Inhaled foreign body
- Other airway emergencies

Module 8 – Trauma in Children

- Trauma assessment
- Assessment and management of shock in trauma
- Head injury
- Patient transfer

Module 9 – Burns in Children

- Burns: Assessment
- Burns: Size estimation and fluid resuscitation
- Burns: dressing changes and principles of sedation
- Burns: difficult airways



Hands-on training in newborn life support

Module 10 – Newborns

- Newborn resuscitation (1)
- Newborn resuscitation (2)
- Emergency surgery for newborns
- Pyloric stenosis

Table 1. The faculty timetable

Sun 13th July	Mon 14 th July	Tue 15 th July	Wed 16 th July	Thurs 17 th July	Fri 18 th July	
Flights from UK to Entebbe	Travel to Masaka, Faculty Meeting & preparation of venue. Delegates start to arrive	SAFE day 1 Faculty meeting	SAFE day 2 Faculty meeting	SAFE day 3 Faculty meeting	Uganda Society of Anaesthesia Annual Meeting Faculty meeting	
Sat 19th July	Sun 20 th July	Mon 21 st July	Tue 22 nd July	Wed 23 rd July	Thurs 24 th July	Fri 25 th July
SAFE day 1 Faculty meeting	SAFE day 2 Faculty meeting	SAFE day 3 Faculty meeting	End of course; delegates and faculty depart	Time off	Time off	Flights to UK

Monitoring and evaluation

The monitoring and evaluation for the SAFE course is based on the Kirkpatrick model, 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 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 below.

Level 4. Change in behaviour and in the workplace is going to be measured by interviewing the anaesthetic officers in their place of work. The intention will be to identify

examples where practice has been changed, and cases where the knowledge gained from the course has been put into practice. The Ugandan residents and AAGBI/SVP volunteers from the Maternal and Newborn Hub will undertake this follow-up.

Participant feedback

The feedback regarding the overall course was extremely positive and encouraging. Modifications to the course will be made in the light of feedback.

Feedback on individual sessions

SESSION	First course 15 th -17 th July 2014			Second course 19 th -21 st July 2014		
	Number of respondents	Median score (0-10)	Range	Number of respondents	Median score (0-10)	Range
Lecture: The child is not a miniature adult	35	9	6-10	41	10	7-10
Preoperative assessment breakout sessions	35	9	6-10	41	10	8-10
Paediatric airway breakout sessions	34	9	7-10	41	10	7-10
Pain management breakout sessions	34	9	6-10	41	10	8-10
Lecture: Safety in paediatric anaesthesia	34	9	6-10	41	10	7-10
Speciality areas in paediatric anaesthesia breakout sessions	34	9	7-10	40	10	8-10
Emergency surgery breakout sessions	33	9	7-10	41	10	6-10
Lecture: Recognition of the sick child	34	9	6-10	41	10	6-10
Critical care and resuscitation breakout sessions	35	9	6-10	41	10	8-10
The sick child breakout	33	9	6-10	41	10	7-10

sessions						
Lecture: trauma in children	34	9	6-10	41	10	6-10
Trauma in children breakout sessions	35	9	6-10	41	10	6-10
Burns in children breakout sessions	33	9	7-10	41	10	7-10
Lecture: neonates	34	9	7-10	40	10	7-10
Neonates breakout sessions	32	10	7-10	40	10	8-10

Overall evaluation of the course

	First course 15 th -17 th July 2014			Second course 19 th -21 st July 2014		
	Number of respondents	Median score (0-10)	Range	Number of respondents	Median score (0-10)	Range
Was the course enjoyable?	35	10	8-10	40	10	8-10
Did the course improve your knowledge?	35	10	8-10	40	10	8-10
Do you think the course will change your clinical practice?	35	10	8-10	40	10	8-10
Was the course relevant to your day to day work?	35	10	7-10	40	10	8-10
Do you think what you have learned will improve the care you give to children?	35	10	8-10	40	10	8-10
Would it be a useful course to run in your hospital?	35	10	8-10	40	10	8-10

General comments on the courses 15th-17th July and 19th-21st July 2014

The feedback comments were positive; the main suggestions for improvement were to increase the number of training courses and to provide financial support for training.

- *The course has been good and it will improve my skill*
- *Extend the duration of the course*
- *Thank you for the oxford handbook it's a great gift. Hope you don't mind changing venue next time to allow people to tour different parts of the country*
- *More anaesthetic providers should get this training. It should be done regionally. God bless*
- *It should be run once a year for all anaesthetic providers*
- *1. Reduce our eating and give out little out of pocket 2. Give us money and we accommodate ourselves 3. Otherwise, faculty was wonderful, place nice and menu excellent. 4. Hope for more educative conferences like this in the future. Well done.*
- *More trainings needed*
- *We are grateful for the opportunity. There can never be any better venue than this one.*
- *Yes, you should continue with this kind of training to update us with current safer anaesthetic practice. Thanks*
- *Maintain the spirit. Well done facilitators, may we have it again in Maria Flo*
- *The course should be repeated again. What to learn was too much but the time was not enough. Frequent refresher training to awake us.*
- *The period was short*
- *Geriatric anaesthesia or general medical conditions anaesthesia conference should also be organised*
- *Fluid maintenance 10. Extubation 10. Maria Flo meals and accommodation 10.*
- *It was interesting but time was short*
- *Request of conduction of at least three anaesthesia conferences in a year, including one for geriatrics*
- *Paediatric kits are not available in some of the hospitals eg Gulu RRH and we end up giving IV anaesthesia to all children*
- *Special thanks go to the Uganda SOA and the partners involved in promoting the success of service delivery for anaesthesia needs and beneficiaries of the training. However, among all the equipments provided for the use during anaesthesia training are good, essential and necessary, recommended also to include the small notebooks for few points to note during the training*
- *1. Make it a must for every anaesthesia provider 2. It needs 4 days in order to gain maximally*
- *I suggest that we continue these workshops at least more than once a year*
- *Excellent presentation.*
- *Organise more of these courses*
- *Hope it would be continuous for others to benefit i.e. those who have not attend[ed] this time.*
- *We need to have continuous workshops so as to keep updated and bridge the knowledge gap.*
- *To have another refresher course in paed as this will review the knowledge got today and the experience after the course*
- *It was a very good course but the time was not enough.*
- *We need to be motivated in terms of out of pocket.*
- *The last day morning was not enjoyable. It recalled [reminded me of] my lost daughter. March 2014*
- *Support supervision to our place of work.*

- *Hopefully next time, a nerve block method like caudal block will be thought [taught] since it has not been taught and being very effective in most paediatric pain management.*
- *Thanks to the entire group for the general skills and to update our knowledge, also special thanks to all the funding organisation. A BIG THANK-YOU. SAFE JOURNEY HOME*
- *The course has been too useful and educative most especially for me working in a hard to reach area eg update of use of ketamine in head injury + Atropine & suxamethonium in eye surgery. So I recommend that you continue organising for such refresher courses, and I suggest that you lobby for more funds & come down to our centres & for our administrators to [appreciate] the impact of this & support us where necessary.*
- *Thank you very much for this refresher course and I pray that you continue equipping us with knowledge.*
- *The training needed more time because it was a crash programme. Anaesthetists need more trainings like other health workers at least every quarter.*
- *The training should be non-residential.*
- *No. Only appreciating all the anaesthesiologists from world federation of various societies including Uganda for their tireless efforts made to make this paediatric anaesthesia course and conference successful.*
- *Organise more courses to update our knowledge/skills*
- *It's a good course, but transport facilitation because more would have attended.*
- *Knowledge and equipments should be given to participants.*
- *Upkeep/allowance*
- *This course is very important and has helped me. I will be able to improve in my daily service delivery for paediatric patient.*
- *There should be follow up on ground supervision now that we have learnt.*
- *Ever inform the head of the H/C unit, hospital directors as you call us for any participation so that we get permission [early] as you know we are the only ones in the stations of work.*
- *Upkeep and transport refund is necessary. Much as the knowledge is most important some of us distance is very far and a quick call preparation is needed and our salaries don't [word not clear] the work we do.*
- *Yes, we get new information and changes*
- *Provide support supervision to our work places.*
- *I am so grateful [for] the workshop because it has made me improve the care I will give to the child. I suggest that many of these SAFE courses should be brought to us many times every year because this is CME [Continuous Medical Education]. Then another suggestion is that give us per diem instead of paying meals or hotel accomodation.*
- *We request for more workshops to keep us updated*
- *Devise means of attracting more participants.*
- *Lobby for funds from well-wishers, foreign missions etc to motivate participants as in the past.*
- *Otherwise thank you very much. Come again and again.*
- *More trainings and if possible provide us with paediatric kits/equipment to use.*
- *We request to be considered whenever we come for these courses to be given some allowances and transport fee which would also motivate us more. Since when nurses and midwives go for workshops they are being paid. God bless you.*
- *The course was very relevant and it should continue for effective and safety of anaesthesia in this country.*
- *The handout should be made properly durable that can take time.*
- *I have benefited a lot from this course and believe it has put my knowledge at a higher level. God bless you all.*

- *I have learnt a lot and I think [I] am going to improve care given to children.*
- *Such short courses are very helpful to us and please keep it up.*
- *We leave our contacts with you, but you don't communicate to every person: I [for] one [don't have an] e-mail address, use the telephone contact.*
- *Need for transport refund.*
- *We wish to have more similar sessions at least twice in a year to be updated.*
- *Thanks very much. Live long.*

Pre and post course knowledge assessment

Participants completed a pre-course Multiple Choice Questionnaire (MCQ) as well as a practical skills test in one of four stations (basic life support, intubation, trauma assessment, newborn resuscitation). At the end of the course, participants repeated the MCQ and the same skills test to measure knowledge gained and acquisition of skills.

Adequate time was allocated for completing the assessments. The pre course assessment was conducted after registration on the first day of the SAFE Paediatric Anaesthesia Course. The post course knowledge assessment was conducted on the last day, following the last breakout session and before the closing ceremony.

100 delegates completed both the pre and post course knowledge assessment and skills assessments.

Pre and post course knowledge test and skills assessment

Course 1 Mean Scores (MCQ out of 50, skill station out of 10)

	MCQ	Skill: BLS	Skill: Intubation	Skill: Trauma Assessment	Skill: Newborn Resuscitation
Pre-course	37/50	5.3	4.9	5.8	6.5
Post-course	43/50	7.8	7.4	6.8	10
% increase	11%	24%	25%	15%	35%

Table: Course 2 Mean Scores (MCQ out of 50, skill station out of 10)

	MCQ	Skill: BLS	Skill: Intubation	Skill: Trauma Assessment	Skill: Newborn Resuscitation
Pre-course	36/50	5.4	7.2	4	4.8
Post-course	45/50	8	8.9	6.2	9.3
% increase	19%	26%	16%	22%	46%

At the end of the first course, participant knowledge as measured by the MCQ test was significantly improved, $t(43) = 10.1, p < 0.001$, with a mean increase in score of 11%. Similarly, practical application of knowledge as measured by the skill stations was significantly improved, $t(49) = 9.65, p < 0.001$, and a mean increase of score of 24%.

For the second course, participant knowledge was significantly increased at the end of the course on the MCQ test, $t(47) = 16.1, p < 0.001$, with a mean increase in score of 19%. Likewise the participants showed a significant increase in practical skills, $t(46) = 9.4, p < 0.001$, with scores increasing by 31% on average.



Summary

The Uganda pilot of the SAFE Paediatric Anaesthesia course was well received with excellent feedback from the course participants. The training materials were generally appropriate, and we were able to modify and further improve them after discussion with the faculty members and the course participants during these two pilot courses. The Ugandan faculty was actively engaged in teaching and running the course, reflecting experience gained during the previous AAGBI SAFE anaesthesia courses, also the great leadership of this young group of anaesthetists.

The next step will be to finalise the training materials for the SAFE paediatric course and to publish them under a creative commons licence. We have been invited by the Uganda Society of Anaesthesia to run another course in Uganda, planned for January 2015 in the same venue, for which we will need to seek funding. We intend to translate the course into French so that it can be piloted on Mercy Ships for French-speaking anaesthetists from West Africa. We intend to publish a pocket book of drug doses and important calculations that the anaesthetic officers can carry with them.

Appendix I: Faculty List

Dr Stephen Ttendo	Consultant anaesthetist (Mbarara University of Science and Technology, Uganda) (Local course organiser)
Dr Joseph Kiwanuka	Lecturer in anaesthesia (MUST) (Local course coordinator)
Dr Andrew Kintu	Lecturer in anaesthesia (Makerere University, Mulago Hospital) (Local course coordinator)
Dr George Kateregga	Resident in anaesthesia (MUST) (Local course coordinator)
Dr Michelle White	Consultant paediatric anaesthetist (Mercy Ships) (International lead)
Dr Isabeau Walker	Consultant paediatric anaesthetist (Great Ormond Street Hospital, London UK) (International lead, AAGBI)
Dr Faye Evans	Consultant paediatric anaesthetist, Boston Children's Hospital USA.
Dr Maytinee Lilaonitkul	SpR anaesthesia, Derriford Hospital, Plymouth UK
Dr Benoit Beavue	Consultant paediatric anaesthetist (Manchester Children's Hospital, UK)
Dr Nick Boyd	SpR anaesthesia, SVP volunteer Hoima Hospital
Dr Ryan Carroll	Consultant paediatric intensivist, Programme Director MGH-MUST collaboration
Dr Mary Nabukenya	Resident in anaesthesia (Mulago Hospital)
Dr Janat Tumukunde	Resident in anaesthesia, Mulago Hospital
Dr Peter Agaba	Resident in anaesthesia (Mulago Hospital)
Dr Philo Nambooze	Resident in anaesthesia (Mulago Hospital)
Dr Juliet Nalwoga	Resident in anaesthesia (Mulago Hospital)
Dr Beatrice Kabajumba	Resident anaesthesia (Mbarara Hospital)
Dr Rita Nkwine	Resident anaesthesia (Mbarara Hospital)
Dr Joshua Sempira	Resident anaesthesia (Mulago Hospital)
Dr Nodreen Ayupo	Resident anaesthesia (Mulago Hospital)
Dr Ezra Mugisha	Resident Anaesthesia (Mulago Hospital)
Krissy Close	Lead, Educational Programmes, Mercy Ships
Michael Harvey	Medical student, Guys, Kings and St Thomas' Hospitals London



Members of the faculty

Course Photographs

