SAFE

Safer Anaesthesia From Education

Obstetric Anaesthesia Course
Antananarivo, Madagascar

September 29th – 1st October 2015

Association of Anaesthetists of Great Britain and Ireland

In Partnership with Mercy Ships

Compiled by

Dr Lindsey Arrick, Dr Kate Holmes and Dr James Leedham
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Executive Summary

This was the second SAFE (Safer Anaesthesia From Education) Obstetric Anaesthesia Course to be run in Madagascar. It has again proved itself to be successful when delivered in this context with the help of French interpreters.

This course is part of a much bigger Mercy Ships initiative within Madagascar. Over a 10 month period they plan to repeat the course multiple times, include it as part of the local residency training program, donate training equipment and train enough instructors to establish the course in Madagascar.

The course was attended by a total of 39 delegates:
- 30 anaesthetic nurses/anaesthetic officers
- 9 obstetricians

Delegates attending this course were all from the hospitals located in and around Antananarivo, the Capital city of Madagascar.

The course was conducted in partnership between the AAGBI and Mercy Ships. Prof Tsiry the chief of anaesthesia in Madagascar provided Mercy Ships with a list of delegates to recruit for this course. The Africa Mercy hospital ship is presently docked in Madagascar and their generous support and efficient organisation enabled the course to take place. They provided faculty transportation within Antananarivo, accommodation for the travelling faculty, all of the necessary medical equipment, teaching materials and meals during the course.

The course was directed by Dr James Leedham, visiting UK anaesthetist.

The teaching faculty consisted of 4 anaesthetists and 1 obstetrician from the UK plus 1 Australian anaesthetist currently working on board the Africa Mercy ship.

6 bilingual French interpreters worked extremely hard throughout the course.

All delegates were assigned an individual mentor to whom they had access throughout the course.

Knowledge and clinical skills were formally assessed before and after the course. Both showed improvements.

Feedback from delegates and their appraisal of the course was excellent.

Monitoring and evaluation will be undertaken in the following months.
Acknowledgements

This course could not have taken place without the involvement of Mercy ships and Prof Tsiry the chief of anaesthesia in Madagascar. Medical capacity building manager Krissy Close and medical capacity programmes co-ordinator Joan Kotze recruited delegates and organised this course.

We are grateful to the Motel d’Antananarivo for providing an excellent venue for the course.

We thank Dr Michelle White (Mercy Ships Deputy Chief Medical Officer and Medical Capacity Building Director) for supporting this course and continuing to support other SAFE initiatives.

We are grateful to the Association Anaesthetists of Great Britain and Ireland (AAGBI) for their support and financial contributions towards our flight costs.

The teaching faculty worked incredibly hard and performed well as a team.

We are especially grateful to our 6 French interpreters who worked tirelessly.

Dr Benoire Beauve and Mr Sebastian Mallet assisted in the translation of some course materials into French.

Lastly we would like to thank all of our course delegates, many were only at the beginning of their anaesthetic training but all were eager to learn and a delight to teach.
Background

The overall maternal mortality ratio (MMR) in Madagascar was recently estimated at 410 per 100,000 live births.

There are approximately 110 physician anaesthetists in Madagascar, most of these are based in the country’s teaching hospitals.

Most obstetric anaesthesia is delivered throughout the country by anaesthetic nurses who all complete a 3 year undergraduate training programme. Some complete an additional 2 years of post graduate training as part of a masters programme. There are approximately 250 anaesthetic nurses who have masters degrees working throughout the country.

Mercy ships has been working in Madagascar since 2014. In addition to providing surgical treatments on board the Africa Mercy hospital ship they are also trying to enhance the capacity of Madagascar’s medical services to deliver healthcare. This involves working closely with the ministry of health and other partner organisations including the AAGBI to deliver courses such as SAFE Obstetric Anaesthesia.
The venue (Motel d’Antananarivo)
The October 2015 Course

The goal of the course was to deliver the SAFE Obstetric Anaesthesia course to French speaking anaesthetic officers and obstetricians. We also intended to deliver the SAFE Training of Trainers (TOT) course in French to a group of senior anaesthesiologists and had translated the course materials into French in preparation.

Mercy Ships and its partners have been conducting other educational programmes in the country, including Lifebox pulse oximetry, WHO Safe Surgery Checklist and theatre team communication.

The SAFE Obstetric anaesthesia course also covers these topics in brief. However, it takes longer to cover the same subject matter using French interpreters so for these reasons the course timetable was modified to make it suitable.

A total of 38 healthcare workers from Madagascar attended the course. The teaching faculty comprised of 7 individuals and 6 interpreters. Including the 2 members of Mercy Ships administration team this took the total number attending this course to 53.

Obstetricians only attended days 2 and 3 of the course. They were not included in the pre and post course testing and some parallel sessions were organised for them by our obstetric member of faculty covering additional topics such as maternal early warning scores, partogram interpretation and obstetric management of dystocia.

Delegates were divided into 4 groups of 8-10 for breakout and skills stations which proved to be a good number and an effective way of delivering information.

**Attendance at the course**

Day 1 = 29 Anaesthetic Nurses  
Day 2 = 30 Anaesthetic Nurses + 9 Obstetricians  
Day 3 = 30 Anaesthetic Nurses + 8 Obstetricians  

3 days of course completed = 29 delegates  
2 days of course completed = 1 delegate + 8 Obstetricians  
Only 1 day of course = 1 Obstetrician
**Training of the Trainers Course**

The Training of Trainers (TOT) day could not run on this course despite our willingness to be flexible with course dates due to the limited availability of senior local delegates. This highlights some of the difficulties involved when organising these courses in countries where the provision of key anaesthetic services and the training of the anaesthetic workforce is incumbent upon small numbers of individuals.

The TOT course will be further evaluated during future courses.
The SAFE Antananarivo Team

The SAFE Obstetric Anaesthesia Course commenced on Tuesday 29th September.

The course was directed by Dr James Leedham.

*The teaching faculty consisted of 7 doctors:*

- **Dr Vicki Clark**  
  Consultant Anaesthetist  
  *Edinburgh (retired)*

- **Dr Kate Holmes**  
  Consultant Anaesthetist  
  *Plymouth*

- **Dr Alana Kirkwood**  
  Specialist Trainee 7 Anaesthetist  
  *London*

- **Dr Lindsey Arrick**  
  Specialist Trainee 6 Anaesthetist  
  *Plymouth*

- **Dr Lindsay Sherriff**  
  Associate Specialist Anaesthetist  
  *Australia*

- **Dr Helen Allott**  
  Consultant Obstetrics and Gynaecology  
  *Basingstoke*

*French interpreters:*

- Rakotomanga Anjatiana
- Rakotoarisoa Koloina Andrianina
- Rabefaritra Minosoa Tinah
- Ialison Tiana Fabie
- Rakotoarisoa Tojonavalona Tsiferana
- Rabenaly Charles Dominque

<table>
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<tr>
<th>Sun 27th September</th>
<th>Mon 28th September</th>
<th>Tues 29th September</th>
<th>Wed 30th September</th>
<th>Thurs 1st October</th>
<th>Friday 2nd October</th>
<th>Sat 3rd October</th>
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<tbody>
<tr>
<td>Flights from UK to Antananarivo</td>
<td>Faculty Meeting, venue preparation, visit to local hospital</td>
<td>SAFE course day 1</td>
<td>SAFE course day 2</td>
<td>SAFE course day 3</td>
<td>Proposed TOT course</td>
<td>Return flights from Antananarivo to UK</td>
</tr>
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</table>
Monitoring, Evaluation and Results

The course evaluation involves the following 5 steps:

‣ Delegates’ feedback (about the course overall and individual sessions)
‣ Pre and post course knowledge (MCQ) assessment
‣ Pre and post course skills assessment
‣ Logbooks - reviews will occur in forthcoming months
‣ Field work to include cell phone and email interviews

Delegates’ feedback

All delegates were pleased to receive their copy of key emergency management protocols to complement the content that is taught on the course.

All delegates attending the final day of the course complete a feedback form. The scores are very encouraging.

The chart below displays the overall course feedback. It was on a scale of 1-10 (nothing at all – extremely helpful).

![Course Feedback Chart](image)

Fig 1. Candidates overall course feedback
Fig 2. What candidates found most interesting about the course

Fig 3. Which topics candidates found most interesting
SAFE Course, Antananarivo, September-October 2015

Fig 4. Most common 5 skills which candidates reported they learnt

- ABCD approach: 21 candidates
- Haemorrhage Mx: 12 candidates
- Eclamptic seizure Mx: 11 candidates
- Severe PET Mx: 9 candidates
- Obs emergency Mx: 7 candidates

Fig 5. The 4 most common changes to practice candidates intend to make

- ABCD approach: 13 candidates
- Left lateral tilt: 7 candidates
- Team communication: 6 candidates
- Haemorrhage Mx: 7 candidates
Fig 6. The 5 most commonly predicted barriers to intended changes

- Lack of materials: 25
- Staff attitudes: 10
- Lack of technical skills: 5
- Access to blood: 2
- Lack of staff: 1

Fig 7. The 5 most common suggestions made by delegates for improving the course

1. Use medical translators: 10
2. Repeat course: 9
3. Make course longer: 4
4. Make available to others: 2
5. Include other topics: 5
Overall the course feedback was positive, encouraging and constructive. Some of the comments made by participants are listed below:

*It is very beneficial and we'd like you to do it frequently*

*Thank you very much*

*Everything was perfect*

*Translators should be aware of medical vocab*

*Increase the length of the workshops*

*Send me mails about other training + news*

*Include more members of the multidisciplinary team (midwives, nurses and paediatricians)*
Pre and Post Course Skills Assessment

29 candidates underwent a skills test before and after the course. The four skills tested were:

1. Maternal cardiac arrest
2. Management of eclamptic seizure
3. Rapid sequence induction
4. Neonatal life support

Each candidate repeated the same test post-course as they had undertaken pre-course. Each time they were assessed by the same members of faculty.

<table>
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<tr>
<th>Skills Test</th>
<th>Median</th>
<th>Interquartile Range</th>
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</thead>
<tbody>
<tr>
<td>Maternal cardiac arrest (Pre Course)</td>
<td>4</td>
<td>3.0 – 5.0</td>
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<tr>
<td>Maternal cardiac arrest (Post Course)</td>
<td>8.5</td>
<td>7.8 – 9.0</td>
</tr>
<tr>
<td>Rapid sequence induction (Pre Course)</td>
<td>3.5</td>
<td>3.0 – 5.0</td>
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<tr>
<td>Rapid sequence induction (Post Course)</td>
<td>8.5</td>
<td>7.5 – 9.0</td>
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<tr>
<td>Neonatal life support (Pre Course)</td>
<td>3.0</td>
<td>2.5 – 4.3</td>
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<td>7.4 – 9.0</td>
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<tr>
<td>Management of eclamptic seizure (Pre Course)</td>
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<td>Management of eclamptic seizure (Post Course)</td>
<td>8.0</td>
<td>7.0 – 9.0</td>
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<tr>
<td>Combined Skills Tests (Pre Course)</td>
<td>3.5</td>
<td>3.0 – 5.0</td>
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<tr>
<td>Combined Skills Tests (Post Course)</td>
<td>8.5</td>
<td>7.5 – 9.0</td>
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</table>
Pre and Post Course Knowledge Assessment

Candidates were given a multiple choice question (MCQ) paper containing 50 questions to test their knowledge before and after the course. This was conducted under examination conditions and adequate time was allowed for completion. After registration on the first day the pre course skills test was immediately followed by the pre course MCQ paper.

On the last day of the course all candidates completed the post course MCQ paper and took it in turns to take their post course skills test.

29 delegates completed the pre-course MCQ and 30 completed the post-course MCQ.

Median

<table>
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<tr>
<th>Knowledge Test Score</th>
<th>Median (%)</th>
<th>Interquartile Range (%)</th>
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</thead>
<tbody>
<tr>
<td>Pre Course MCQ</td>
<td>33 (66)</td>
<td>31 – 35 (62 – 70)</td>
</tr>
<tr>
<td>Post Course MCQ</td>
<td>37 (74)</td>
<td>35 – 39 (70 – 78)</td>
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</table>
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 pre and post course MCQ tests
‣ Level 3: Change in skill ability – assessed by before and after course skills tests
‣ Level 4: Change in behaviour and ability in the workplace – recorded in logbook
‣ Level 5: Institutional (and ultimately widespread) change – assessed by analysis of institutional and national data where possible

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

Level 4 and 5
Change in behaviour and in the workplace will be measured by the keeping of logbooks. The logbook contains brief introductory information and spaces for 30 examples of care that was improved having attended the SAFE Obstetric Anaesthesia course. Logbooks were presented to all delegates at the end of the course.
Summary

30 anaesthetic delegates were trained, all were non physician anaesthetists reflecting anaesthetic practice within Madagascar. 9 obstetricians also attended the course. Their contribution was much appreciated and facilitated a multidisciplinary approach to the management of obstetric anaesthetic emergencies.

Skills in the four key areas of anaesthetic practice assessed were shown to have improved as a result of this course. These skills along with the many others acquired during the course will help to reduce maternal and infant mortality and morbidity in Madagascar.

This SAFE Obstetric Anaesthesia course was extremely well received by local delegates. Working in partnerships with Mercy Ships represents a very constructive path towards disseminating this course throughout Madagascar in the short to medium term. It also enables us to work towards establishing a self-sufficient, sustainable SAFE Obstetric Anaesthesia training programme in this country and other parts of Africa in the longer term.
Appendices:

Appendix 1 – Delegate List

Appendix 2 – Course Photographs
Appendix 1:

INSPC = Institut National de Sauté Publique et Communautaire
IFIRP = Institut de Formation Interrégionale des Paramédicaux
IFSP = Institut de Formation Supérieure des Paramédicaux

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<td>Joeline</td>
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Appendix 2: Course photographs

Top: Lecture being given by Lindsay Sherriff
Bottom: Workshop, CPR demonstration by Kate Holmes
Top & Bottom: Maternal Haemorrhage Workshop, estimating blood loss
SAFE Course, Antananarivo, September-October 2015

Top Left: Lecture being given by Kate Holmes
Top Right: Workshop, difficult intubation, Kate Holmes
Bottom Left: Presentation being given by course director, James Leedham
Bottom Right: Ever-cheerful interpreters
SAFE course teaching faculty, interpreters and administrators making the final preparations the day before the course.
Bottom Right: Helen Aliott teaching a breakout session
Bottom Left: Lindsay Sherriff breakout teaching
Top: Kate Holmes and Lindsey Arrick breakout group teaching
SAFE Course, Antananarivo, September-October 2015

Vicki Clark giving the SAFE Obstetric Haemorrhage lecture