mMOET 3e manual updates

The following are changes made following publication of them mMOET 3e manual. Some of these may be incorporated in reprints, but a full list is included here for completeness.

Trauma update July 2019

Recent mass casualty incidents in the UK have included pregnant trauma victims (Grenfell fire, London Bridge terrorist attack) and highlight the relevance for obstetric teams in keeping trauma skills up to date.

Following a review of selected literature, and with input from Trauma experts, the mMoet trauma review group has updated the Trauma Demo and Trauma Simulations to reflect up to date practice in trauma management. There are new ideas for obstetric teams to embrace if they are to provide the best care for the pregnant trauma patient in the resuscitation room.

The advent of Trauma Networks in England centralising trauma care, plus the knowledge gained from recent military experience, has led to changes in trauma management in the UK.
These changes include the principle of "first clot is best clot", changes in fluid management in the initial resuscitation, hemodynamic goals, radiological investigation by trauma CT, the role of damage control surgery and interventional radiology to control haemorrhage.

The Trauma updates to mMOET are in Preparation, Handover from pre-hospital team, Streamlined assessment, Damage Control Resuscitation, "Turning off the tap" at C, Interventional Radiology and Tranexamic Acid.

Click here for the statement on Trauma from mMOET.

Additional change to MUD and Tilt

1) Statement on manual uterine displacement:
"Manual uterine displacement (MUD) is preferential to lateral tilt in cases of trauma and cardiac arrest. The use of Ms Mud is designed to aid remembering this. Tilt can still be used to relieve aortocaval compression in other situations and Mrs Tilt can still be used as a reminder there."

2) Statement on surgical airway:
In line with DAS guidelines we will teach front of neck access using surgical cricothyroidotomy.

Summary of formal reprints

June 2016	• Airway management:
	  ○ cricoid pressure advice
	  ○ surgical airway - following updated national guidance where surgical cricothyroidotomy is preferred to the needle technique MOET will stress this but teach both.
	  ○ The WHO Checklist is crucial in all theatre situations and prior to general anaesthesia

	should include a plan should intubation fail. • Manual uterine displacement being preferential to tilt - please note: 'Mrs. Tilt' references have been updated to 'Ms. Mud' (Manual uterine displacement). • Inclusion of the 2015 ILCOR guidance
January 2017	• Resuscitation Council update – NLS algorithm

Chapter	Dates of changes noted below
1. Introduction	
2. Saving mothers' lives: lessons from the Confidential Enquiries	June 2016
3. Structured approach to emergencies in the obstetric patient	
4. Recognising the seriously ill patient	June 2016
5. Shock	
6. Sepsis	June 2016
7. Intravenous access and fluid replacement	
8. Airway management and ventilation	June 2016
9. Cardiopulmonary resuscitation in the nonpregnant and pregnant patient	June 2016
10. Amniotic fluid embolism	June 2016
11. Pulmonary thromboembolism	June 2016
12. Resuscitation of the baby at birth	June 2016, January 2017
13. Introduction to trauma	Trauma update – July 2019
14. Domestic abuse	Trauma update – July 2019
15. Thoracic emergencies	Trauma update – July 2019
16. Abdominal trauma in pregnancy	Trauma update – July 2019
17. The unconscious patient	Trauma update – July 2019
18. Spine and spinal cord trauma	Trauma update – July 2019
19. Musculoskeletal trauma	Trauma update – July 2019
20. Burns	Trauma update – July 2019
21. Abdominal emergencies in pregnancy	
22. Cardiac, diabetic and neurological emergencies in pregnancy	June 2016
23. Perinatal psychiatric illness	June 2016
24. Pre-eclampsia and eclampsia	June 2016
25. Major obstetric haemorrhage	June 2016
26. Caesarean section	
27. Placenta accreta and retained placenta	June 2016
28. Uterine inversion	June 2016
29. Ruptured uterus	
30. Ventouse and forceps delivery	
31. Shoulder dystocia	

Chapter	Dates of changes noted below
32. Umbilical cord prolapse	
33. Face presentation	
34. Breech delivery and external cephalic version	
35. Twin pregnancy	
36. Complex perineal and anal sphincter trauma	June 2016
37. Symphysiotomy and destructive procedures	
38. Anaesthetic complications in obstetrics	June 2016
39. Triage	
40. Transfer	
42. Human factors	
42. Consent matters	

Chapter 4

Page	Change	Date
25	1st sentence of intro: The 2014 MBRRACE report for the period 2009-2012 once again highlighted….	June 2016
Appendix 4a	Final sentence: In an emergency situation, a decision should be made by a senior clinician on the most suitable radiological modality.	October 2018

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Chapter 6

Page	Change	Date
52	Title of CMACE report..: Change to Confidential enquiry deaths: Then: The 2006-08 report Saving Mothers Lives highlighted a worrying increase in deaths from genital tract sepsis and placing it as the leading cause of direct maternal death with 29 deaths. Fortunately this rising trend has reversed and whilst still an important and the second most common cause of direct death accounts for 20 deaths from 2009-2012. Timely recognition, fast administration of intravenous antibiotics and escalation of care to involve senior clinicians are key areas for future improvement and education of frontline staff remains a priority. See Box 6 for causes of sepsis in obstetric patients	June 2016
53	Last para at the bottom: Other organisms seen in recent confidential	June 2016

	reports include…	

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Chapter 8

Page	Change	Date
85	Consequently for a surgeon or obstetrician, "the use of a supraglottic airway device, such as a laryngeal mask (LMA) or ..."	June 2016
94	Replace "no bagging" bullet point with "Consider gentle bagging, max 20 cm water pressure".	June 2016
94	…using the bag and mask technique. The joint guidelines from the DAS and OAA, 2015, suggest a maximum of 2 attempts, with a third only being attempted by an experienced colleague	June 2016
94	(following section on correct placement of endotracheal tube on p.94) **Failed intubation in the obstetric patient** Failed intubation is more common in the obstetric population. There are a number of agreed algorithms to deal with this situation (the MOET course refers to the OAA/DAS guideline). Despite the recommendation from the OAA/DAS guideline, if considering conversion to TIVA (total intravenous anaesthesia) after a failed intubation where there is subsequent concern about uterine tone, we would advise extreme caution as: It is a technique associated with a high risk of patient awareness Converting to TIVA is adding a complex task in a situation where the anaesthetist is already likely to be stressed and may increase the risk of errors Converting to TIVA is adding a complex task in a situation where there is already a high task load Converting to TIVA is adding a complex task in a situation where a high level of vigilance is already required Uterine tone can be managed with a number of other pharmacological methods without the need to change from volatile anaesthetic agents. It is worth remembering that judicious use of opioids can also reduce inhalational requirements. If TIVA is used, we would recommend depth of anaesthesia monitoring to minimise the risk of awareness	October 2017
95	Change subtitle The Laryngeal Mask Airway (LMA) to Supraglottic airway	June 2016

	devices (SAD)	
95	…further predisposing to regurgitation. Newer second generation SAD's have a gastric port which allow access to gastric contents and may offer better airway protection than the older first generation devices, but are not protected airways.	June 2016
95	Surgical Airway – First bullet point paragraph to be deleted.	June 2016
97	change "patent" to "protected"	June 2016
99	Insertion of the LMA (A first generation SAD)	June 2016
102	We are no longer teaching needle cricothyroidotomy	October 2018
103	Scalpel in bullet points needs to be with size 10 blade. Also add flexible bougie with angled tip.	October 2018
104	See DAS option D front of neck access DAS document	October 2018

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Chapter 9

Page	Change	Date
110	Amend wording "Turn the woman onto her back with manual uterine displacement (preferable to left tilt)."	June 2016

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Chapter 10

Page	Change	Date
121	AFE 1st para of Incidence: 1st and 2nd sentences ok then 3rd sentence:…The 2009-2012 Confidential enquiry into maternal deaths in the UK MBRRACE report showed a death rate of 0.33/100,000 maternities. Then omit the last sentence	June 2016

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Chapter 11

Page	Change	Date
129	PE chapter. Intro replace the 2nd para with the following Thrombosis and thromboembolism have been the leading cause of direct maternal deaths in the UK since 1985 except for the period 2006-08 when it was overtaken by genital tract sepsis. The 2009-2012 report has shown a rise	June 2016

	in deaths from thromboembolism and the rate is once again above 1 per 100,000 maternities. These deaths are being reported in detail in 2015 Start the 4th para with: … The period covered by the 2006-08 report where deaths fell, was the first triennium since…	

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Chapter 22

Page	Change	Date
240	Replace text in the Insulin therapy box in the algorithm with: Insulin therapy: Commence a fixed rate intravenous insulin infusion (IVII). (0.1unit/kg/hr based on estimate of weight) 50 units human soluble insulin (Actrapid® or Humulin S®) made up to 50ml with 0.9% sodium chloride solution If patient normally takes long acting insulin analogue (Lantus®, Levemir®) continue at usual dose and time	June 2016
241	Cardiac etc….Intro 1st para: The recent confidential enquiries report approximately 50 deaths due to cardiac disease each triennia, and cardiac disease remains the most common cause of maternal death. Substandard care has been highlighted in approximately half the deaths although details of the recent deaths since 2009 are to be reported late 2015. 2nd para: There were five deaths from diabetes in the 2009-2012 confidential enquiry: two were probable hypoglycaemia while three others were from diabetic ketoacidosis. While diabetes remains an uncommon cause of indirect maternal death the rising incidence of this condition will increase the volume of emergency complications which must be recognised and managed promptly. 3rd para: Considering the neurological deaths there were 26 deaths from stroke and 14 deaths from epilepsy reported in the 2009-2012 MBRRACE report. Stroke care should be the same irrespective of pregnancy, while epilepsy care should focus on pre-conceptual counselling and multidisciplinary case. Deaths from epilepsy are more common than deaths from pre-eclampsia, and the risk of SUDEP (sudden unexplained death in epilepsy) is increased by pregnancy.	June 2016

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Chapter 23

Page	Change	Date
269	Psychiatric .1st para, 3rd sentence delete 'most recent' , then add on at the end of the para:… The psychiatric deaths since 2009 are being reported in the 2015 MBRRACE report so the following is learning from the previous reports	June 2016

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Chapter 24

Page	Change	Date
278	PET: epidemiol: 2nd para: The latest MBRRACE report has shown the lowest number of deaths from pre-eclampsia/eclampsia since the reports began with a rate of approx. 0.4 per 100,000 maternities. These are going to be reported on in detail in 2016 but messages from previous enquiries highlighted areas for improvement in care as follows:…. And keep in the 2 bullet points	June 2016

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Chapter 25

Page	Change	Date
297	Haemorrhage:under maternal mortality heading: The MBRRACE confidential enquiry 2009-2012 showed a slight (but not statistically significant) rise in deaths due to haemorrhage, but all cases could have had improvements in care. Then carry on with 'In particular…. Two new references: Knight M, Kenyon S, Brocklehurst P, Neilson J, Shakespeare J, Kurinczuk JJ (Eds.) on behalf of MBRRACE UK. Saving Lives, Improving Mothers' Care - Lessons learned to inform future maternity care from the UKand Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–12. Oxford: National Perinatal Epidemiology Unit, University of Oxford 2014. Paterson-Brown S, Bamber J on behalf of the MBRRACE-UK haemorrhage chapter writing group. Prevention and treatment of haemorrhage. In Knight M, Kenyon S, Brocklehurst P, Neilson J, Shakespeare J, Kurinczuk JJ (Eds.) on behalf of MBRRACE-UK. Saving Lives, Improving Mothers' Care - Lessons learned to inform future maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–12. Oxford: National Perinatal Epidemiology Unit, University of Oxford 2014: p45-55.	June 2016

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Chapter 27

Page	Change	Date
326	PI accrete: second para at the top… The 2009-2012 confidential enquiry reported one death from placenta accrete	June 2016

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Chapter 28

Page	Change	Date
335	Magnesium sulphate Change dose to 4g	June 2016
335	Uterine inversion, Hydrostatic repositioning, end of first paragraph: The process takes about 10-12 minutes and 5-6 litres of warm saline may be required to deliver up to 2 litres internally.	Sept 2018

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Chapter 29

Page	Change	Date
341	Ruptured uterus under confidential enquiry add to the end of the para: Sadly in 2009-2012 there were four uterine ruptures: none of these women had a previous CS and one was nulliparous. All, however, had excessive uterotonics to induce or augment their labours and were considered iatrogenic.	June 2016

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Chapter 36

Page	Change	Date
421	Sutures box: The sutures list of 36.3 the Perineal Muscles bullet needs to be corrected to 35 mm tapercut needle	June 2016
421	Fig 36.3 Instruments: The retractor in the list should be changed to a Weislander retractor There is also a square bullet missing on *Deep vaginal side wall retractors*	June 2016

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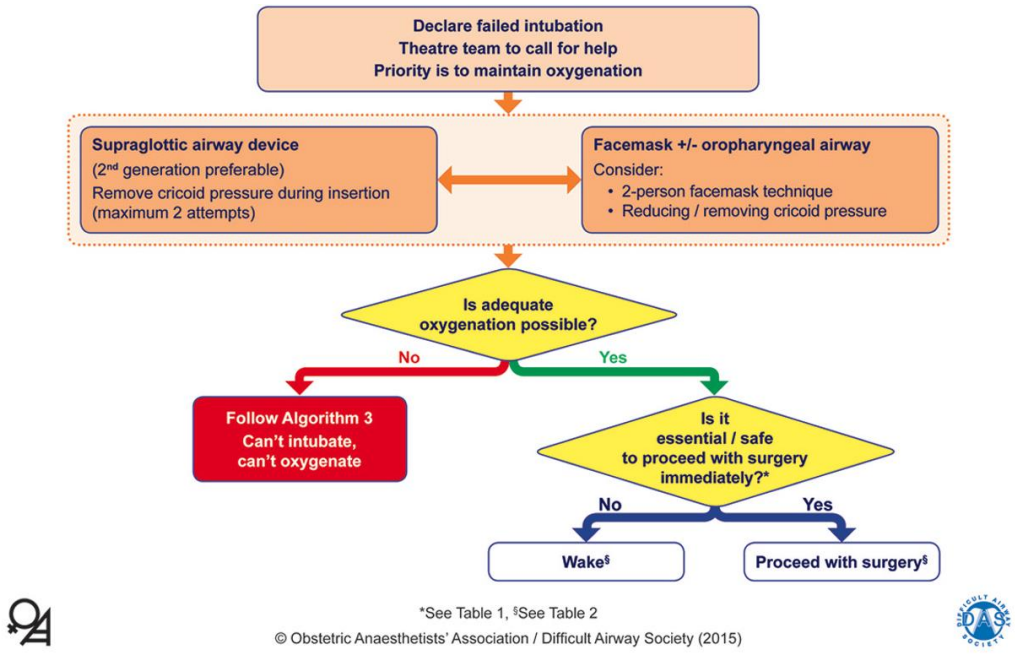
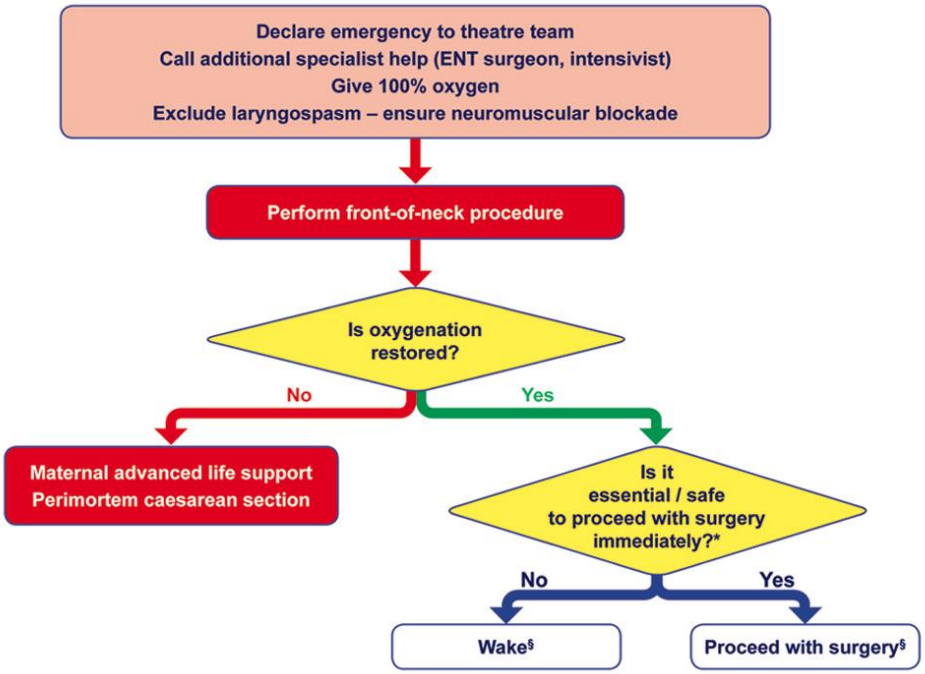
Chapter 38

Page	Change	Date
436	Replacement algorithms **Obstetric failed tracheal intubation**  **Can't intubate, can't oxygenate**	June 2016



Management after failed tracheal intubation

Wake

- Maintain oxygenation
- Maintain cricoid pressure if not impeding ventilation
- Either maintain head-up position or turn left lateral recumbent
- If rocuronium used, reverse with sugammadex
- Assess neuromuscular blockade and manage awareness if paralysis is prolonged
- Anticipate laryngospasm / can't intubate, can't oxygenate

After waking

- Review urgency of surgery with obstetric team
- Intrauterine fetal resuscitation as appropriate
- For repeat anaesthesia, manage with two anaesthetists
- Anaesthetic options:
  - Regional anaesthesia preferably inserted in lateral position
  - Secure airway awake before repeat general anaesthesia

Proceed with surgery

- Maintain anaesthesia
- Maintain ventilation - consider merits of:
  - controlled or spontaneous ventilation
  - paralysis with rocuronium if sugammadex available
- Anticipate laryngospasm / can't intubate, can't oxygenate
- Minimise aspiration risk:
  - maintain cricoid pressure until delivery (if not impeding ventilation)
  - after delivery maintain vigilance and reapply cricoid pressure if signs of regurgitation
  - empty stomach with gastric drain tube if using second-generation supraglottic airway device
  - minimise fundal pressure
  - administer H_2 receptor blocker i.v. if not already given
- Senior obstetrician to operate
- Inform neonatal team about failed intubation
- Consider total intravenous anaesthesia

444	change dose • intralipid 20% 15 ml/kg/hr	

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