Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer (2003-2005)
December 2007

ERRATA
April 2008

Chapter 1

Table 1.3 Numbers and rates per 100,000 maternities of maternal deaths reported to the Enquiry by cause; United Kingdom: 1985-2005.

Please see page 2 for an amended table 1.3. The amendment is to the 2003-2005 column for 'Early pregnancy deaths'. The total 'other deaths should be 1, not 3.

Table 1.4 Maternal deaths by type of antenatal care; United Kingdom: 2003-05.

The amendment has occurred in the *Coincidental* column. The previous version incorrectly had '55' deaths as 'Not stated'. This was a typographical error.

	Type of Death					
Type of antenatal care	***Direct***	***Indirect***	***Direct* and *Indirect***	***Coincidental***	***Late Direct***	**All deaths**
	n	n	n (%)	n	n	n (%)
Team-based or "shared" care	54	60	114 **(39)**	17	6	137 ***(33)***
Consultant led unit only	15	39	54 **(18)**	9	1	64 ***(15)***
Midwife only	11	16	27 **(9)**	8	0	35 ***(8)***
Midwife and GP	5	4	9 **(3)**	6	3	18 ***(4)***
Death before booking or after miscarriages or TOP	22	9	31 **(11)**	5	0	36 ***(9)***
Unaware of pregnancy	5	1	6 **(2)**	1	0	7 ***(2)***
Suboptimal antenatal care:						
Concealed pregnancy	3	2	5 **(2)**	0	0	5 ***(1)***
No antenatal care	4	6	10 **(3)**	4	0	14 ***(3)***
Late booker/poor attender*	11	24	35 **(12)**	5	1	41 ***(10)***
Not stated	2	2	4 ***(1)***		0	59 ***(14)***
All	**132**	**163**	**295** ***(100)***	**55**	**11**	**416** ***(100)*****

* Booked after 22 weeks gestation or had missed over four antenatal appointments

**Percentages have been rounded to the nearest whole percentage

Chapter 2

Table 2.4 Time between delivery and death from pulmonary embolism; United Kingdom: 2003-05.
The totals in this table are incorrect due to a typographical error.

Time after delivery, days	**Method of delivery**		**All**
	Vaginal	Caesarean section	
0-7	1	1	2
8-14	2	2	4
15-28	3	2	5
29-42	2	2	4
42-365	2	2	4
Total	**10**	**9**	**19**

Chapter 5

Table 5.1 *Direct* deaths attributed to amniotic fluid embolism and rates per 100,000 maternities; United Kingdom: 1985-2005.

The amendment has occurred in the 'Triennium' column. The previous version incorrectly repeated 1985-87 in the second row. The data in this row correlates to the 1988-90 triennium. This was a typographical error.

Triennium	Number	Rate	*95 per cent CI*	
1985-87	9	0.40	*0.21*	*0.75*
1988-90	11	0.47	*0.26*	*0.83*
1991-93	10	0.43	*0.23*	*0.80*
1994-96	17	0.77	*0.48*	*1.24*
1997-99	8	0.38	*0.19*	*0.74*
2000-02	5	0.25	*0.11*	*0.59*
2003-05	17	0.80	*0.50*	*1.29*

Chapter 14

Table 14.1 Coincidental deaths occurring during or up to, and inclusive of, 42 days after, the end of pregnancy; United Kingdom: 2003-05.

Cause of Death	Number
Unnatural Deaths	
Road traffic accident	23
Murder	10
Overdose of street drugs	4
House fire	1
Cancer (see Chapter 11)	16
Medical condition	1
All *Coincidental* deaths	**55**

Chapter 18

CEMACH wishes to apologise for any confusion that may have arisen in its statements on Perimortem Caesarean section in Chapter 18 "Emergency Medicine"**.** CEMACH fully endorses the recommendation in the Managing Obstetric Emergencies and Trauma (MOET) Course Manual to perform perimortem caesarean section within 5 minutes of a cardiac arrest in the interest of maternal resuscitation.

The relevant statements in CEMACH Saving Mothers' Lives. Dec 2007 Chapter 18 should be changed as follows:

New guidance Page 230:
Perimortem caesarean section is part of the resuscitation procedure in any women who arrests in the second half of pregnancy. It should be undertaken to facilitate maternal resuscitation within 5 minutes of the arrest if there is no initial response to advanced life support in the tilted position.

This replaces the following statement:
Perimortem caesarean section should only be carried out when a maternal cardiac arrest has been witnessed within the previous five minutes; the outcomes of any other circumstances are universally poor. In addition the baby must be delivered within five minutes of the procedure being started to facilitate resuscitation.

New guidance Page 233:
These findings underscore the guidelines from the Managing Obstetric Emergencies and Trauma course (MOET), which make it clear that perimortem caesarean section is part of the resuscitation procedure in any women who arrests in the second half of pregnancy. It should be undertaken to facilitate maternal resuscitation within 5 minutes of the arrest if there is no initial response to advanced life support in the tilted position.

This replaces the following statement:
These findings underscore the guidelines from the Managing Obstetric Emergencies and Trauma course (MOET), which make it clear that perimortem caesarean section should only be carried out when the mother's cardiac arrest has been witnessed within the previous five minutes. The outcome of any other circumstance is universally poor. In addition the baby must be delivered within five minutes to facilitate resuscitation.

This guidance is clearer and is intended to guide policy within Emergency Departments.

Chapter 19

Annex A - Early Obstetric Warning System

Since publication in December 2007 it has been brought to CEMACH's notice that the Obstetric EWS chart used by Aberdeen Maternity Hospital was originally developed by Stirling Royal Infirmary. This had been presented at the Obstetric Anaesthetists' Association meeting in Glasgow in May 2006.

CEMACH apologises to Drs Fiona McIlveney, Chris Cairns and their colleagues at Stirling Royal Infirmary for not acknowledging their important role in its development. Requests for copies of the original chart in MS Excel format may be made to Dr Fiona McIlveney at:
Fiona.Mcilveney@fvah.scot.nhs.uk

Reference

International Journal of Obstetric Anesthesia (2006) 15, S1-S43 Abstracts of free papers presented at the annual meeting of the Obstetric Anaesthetists? Association, Glasgow 11-12 May, 2006.

"Early-warning scoring in obstetrics". P Harrison, C Hawe, F McIlveney.
Department of Anaesthesia, Stirling Royal Infirmary, Stirling, UK.

Table 1.3 Numbers and rates per 100,000 maternities of maternal deaths reported to the Enquiry by cause; United Kingdom: 1985-2005.

	Triennia							Triennia						
Cause of death	**1985-87**	**1988-90**	**1991-93**	**1994-96**	**1997-99**	**2000-02**	**2003-05**	**1985-87**	**1988-90**	**1991-93**	**1994-96**	**1997-99**	**2000-02**	**2003-05**
	Numbers							*Rates per 100,000 maternities*						
***Direct* deaths**														
Thrombosis and thromboembolism	32	33	35	48	35	30	**41**	*1.41*	*1.40*	*1.51*	*2.18*	*1.65*	*1.50*	*1.94*
Pre-eclampsia/eclampsia*	27	27	20	20	16	14	**18**	*1.19*	*1.14*	*0.86*	*0.91*	*0.75*	*0.70*	*0.85*
Haemorrhage*	10	22	15	12	7	17	**14**	*0.44*	*0.93*	*0.65*	*0.55*	*0.33*	*0.85*	*0.66*
Amniotic fluid embolism	9	11	10	17	8	5	**17**	*0.40*	*0.47*	*0.43*	*0.77*	*0.38*	*0.25*	*0.80*
Early pregnancy deaths	16	24	17	15	17	15	**14**	*0.71*	*1.02*	*0.73*	*0.68*	*0.80*	*0.75*	*0.66*
Ectopic	11	15	9	12	13	11	**10**	*0.48*	*0.64*	*0.39*	*0.55*	*0.61*	*0.55*	*0.47*
Spontaneous miscarriage	4	6	3	2	2	1	**1**	*0.18*	*0.25*	*0.13*	*0.09*	*0.09*	*0.05*	*0.05*
Legal termination	1	3	5	1	2	3	**2**	*0.04*	*0.13*	*0.22*	*0.05*	*0.09*	*0.15*	*0.09*
Other	0	0	2	0	0	0	**1**	*0.00*	*0.00*	*0.09*	*0.00*	*0.00*	*0.00*	*0.14*
Genital tract sepsis**	9	17	15	16	18	13	**18**	*0.40*	*0.72*	*0.65*	*0.73*	*0.85*	*0.65*	*0.85*
Other *Direct*	27	17	14	7	7	8	**4**	*1.19*	*0.72*	*0.60*	*0.32*	*0.33*	*0.40*	*0.19*
Genital tract trauma	6	3	4	5	2	1	**3***	*0.26*	*0.13*	*0.17*	*0.23*	*0.09*	*0.05*	*0.14*
Fatty Liver	6	5	2	2	4	3	**1***	*0.26*	*0.21*	*0.09*	*0.09*	*0.19*	*0.15*	*0.05*
Other causes	15	9	8	0	1	4	**0**	*0.66*	*0.38*	*0.35*	*0.00*	*0.05*	*0.20*	*0.00*
Anaesthetic	6	4	8	1	3	6	**6**	*0.26*	*0.17*	*0.35*	*0.05*	*0.14*	*0.30*	*0.28*
All *Direct*	**139**	**145**	**128**	**134**	**106**	**106**	**132**	***6.13***	***6.14***	***5.53***	***6.10***	***4.99***	***5.31***	***6.24***
Indirect														
Cardiac	23	18	37	39	35	44	**48**	*1.01*	*0.76*	*1.60*	*1.77*	*1.65*	*2.20*	*2.27*
Psychiatric *Indirect*	-	-	-	9	15	16	**18**	-	-	-	*0.41*	*0.71*	*0.80*	*0.85*
Other *Indirect*	62	75	63	86	75	90	**87**	*2.73*	*3.18*	*2.72*	*3.91*	*3.53*	*4.51*	*4.12*
Indirect malignancies	-	-	-	-	11	5	**10*** **	-	-	-	-	*0.52*	*0.25*	*0.47*
All *Indirect*	**84**	**93**	**100**	**134**	**136**	**155**	**163**	***3.70***	***3.94***	***4.32***	***6.10***	***6.40***	***7.76***	***7.71***
Coincidental	**26**	**39**	46	36	29	36	**55**	*1.15*	*1.65*	*1.99*	*1.64*	*1.37*	*1.80*	*2.60*
Late														
Direct	-	13	10	4	7	4	**11**							
Indirect	-	10	23	32	39	45	**71********							

* Three cases of uterine rupture are discussed in Chapter 4, and one of fatty liver in Chapter 2
** Including early pregnancy deaths due to sepsis.
*** Includes one death from choriocarninoma which ideally should be regarded as a *Direct* death
**** Rise due to improved case ascertainment
- Data not previously collected separately