Confidential Enquiry into Maternal and Child Health

CEMACH

Saving Mothers' Lives:

Reviewing maternal deaths to make motherhood safer - 2003-2005

Summary and Key Recommendations for Midwives

December 2007

CEMACH Mission statement

Our aim is to improve the health of mothers, babies and children by carrying out confidential enquiries on a nationwide basis and by widely disseminating our findings and recommendations.

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Key recommendations directly relevant to midwives

Please see the Saving Mothers' Lives (2003-2005) Report for a list of all key and midwifery recommendations.

Pre-conception care

Pre-conception counselling and support, both opportunistic and planned, should be provided for women of child-bearing age with pre-existing serious medical or mental health conditions that may be aggravated by pregnancy. This includes obesity. This recommendation especially applies to women prior to having assisted reproduction and other fertility treatments.

The commoner conditions that require pre-pregnancy counselling and advice include:

- Epilepsy
- Diabetes
- Congenital or known acquired cardiac disease
- Auto-immune disorders
- Obesity: a BMI of 30 or more; where possible obese women should be helped to lose weight prior to conception or any form of assisted reproduction technology (ART)
- Severe pre-existing or past mental illness.

Access to care

Maternity service providers should ensure that antenatal services are accessible and welcoming so that all women, including those who currently find it difficult to access maternity care, can reach them easily and earlier in their pregnancy. Women should also have had their first full booking visit and hand held record completed by 12 completed weeks of pregnancy.

Pregnant women who, on referral to maternity services, are already 12 or more weeks pregnant should be seen within two weeks of the referral.

Migrant women

All pregnant mothers from countries where women may experience poorer overall general health, and who have not previously had a full medical examination in the United Kingdom, should have a medical history taken and clinical assessment made of their overall health, including a cardio-vascular examination at booking, or as soon as possible thereafter. This should be performed by an appropriately trained doctor, who could be their usual GP. Women from countries where genital mutilation or cutting is prevalent should be sensitively asked about this during their pregnancy and management plans for delivery agreed during the antenatal period.

Systolic hypertension requires treatment

All pregnant women with a systolic blood pressure of 160 mm/Hg or more require anti-hypertensive treatment. Consideration should also be given to initiating treatment at lower pressures if the overall clinical picture suggests rapid deterioration and/or where the development of severe hypertension can be anticipated.

Clinical skills

Service providers and clinical directors must ensure that all clinical staff caring for pregnant women actually learn from any critical events and serious untoward incidents (SUIs) occurring in their Trust or practice. How this is planned to be achieved should be documented at the end of each incident report form.

> **Supervisors of midwives should contribute to every internal review and should share the key points through the Trust's supervisors of midwives' forum.**

All clinical staff must undertake regular, written, documented and audited training for:

- The identification and management of serious medical and mental health conditions which, although unrelated to pregnancy, may affect pregnant women or recently delivered mothers
- The early recognition and management of severely ill pregnant women and impending maternal collapse
- The improvement of basic, immediate and advanced life support skills. A number of courses provide additional training for staff caring for pregnant women and newborn babies.

There is also a need for staff to recognise their limitations and to know when, how and whom to call for assistance.

All midwives should read, and adopt, the Action checklist for midwifery practice which can be found at the end of this Summary. In particular:

- **They must ensure they are competent to practice, identify, and address gaps in their knowledge base and skills, including recognising deviations from normal and acting appropriately.**
- **Every midwife has a responsibility to ensure that s/he is familiar with all emergency procedures and attends regular updates appropriate to their needs and local recommendations.**
- **If a midwife is unhappy with a medical opinion s/he has a duty to take further action, seeking support from a supervisor of midwives or midwifery manager if necessary.**

Early warning scoring system

There is an urgent need for the routine use of a national obstetric early warning chart, similar to those in use in other areas of clinical practice, which can be used for all obstetric women which will help in the more timely recognition, treatment and referral of women who have, or are developing, a critical illness. In the meantime all Trusts should adopt one of the existing early warning scoring systems of the type described in the Chapter on Critical Care, which will help in the more timely recognition of women who have, or are developing, critical illness. It is important these charts are also used for pregnant women being cared for outside the obstetric setting for example in Gynaecology, Emergency Departments and in Critical Care Units.

National guidelines

Guidelines are urgently required for the management of:

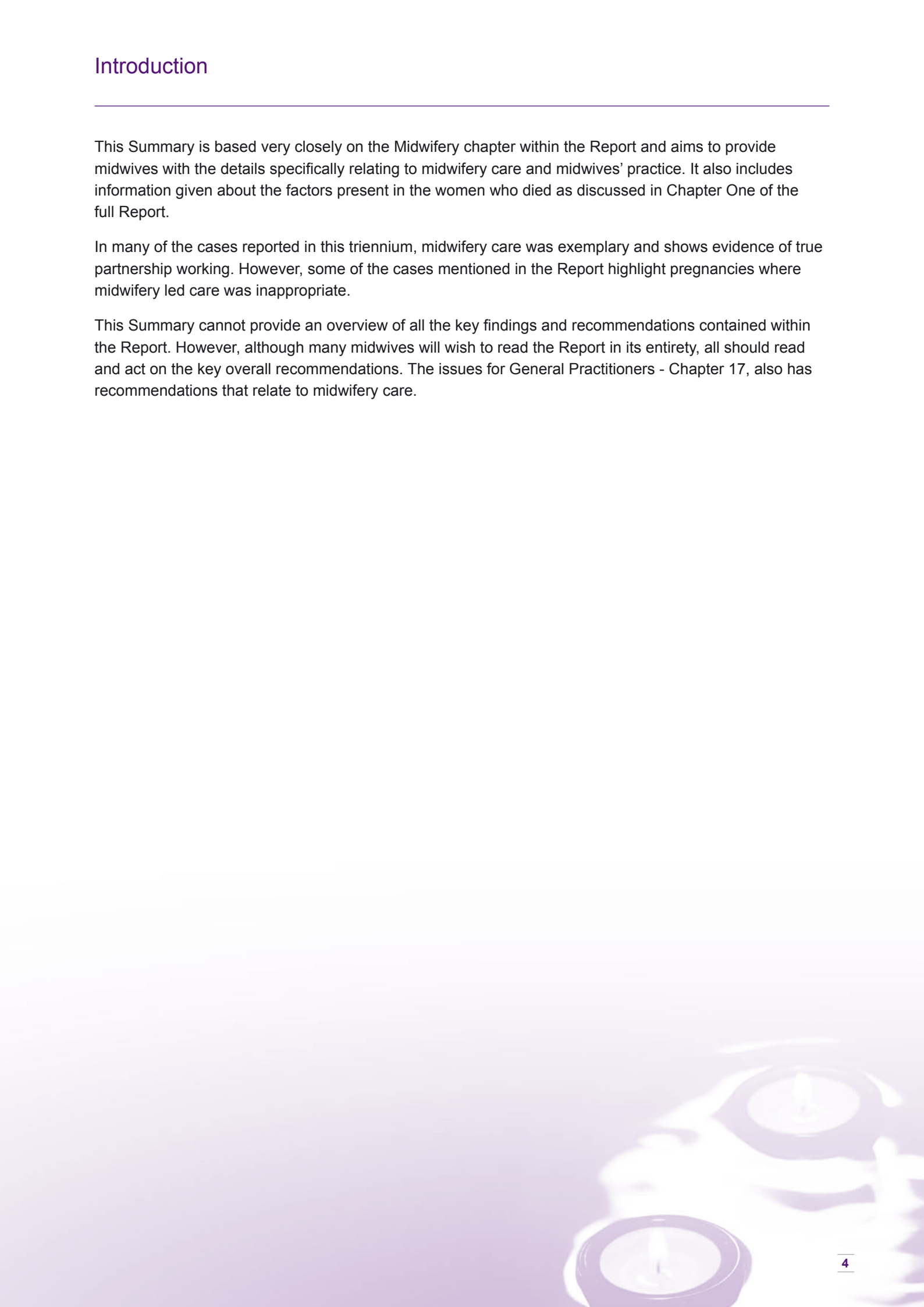
- The obese pregnant woman
- Sepsis in pregnancy
- Pain and bleeding in early pregnancy.

Introduction

This Summary is based very closely on the Midwifery chapter within the Report and aims to provide midwives with the details specifically relating to midwifery care and midwives' practice. It also includes information given about the factors present in the women who died as discussed in Chapter One of the full Report.

In many of the cases reported in this triennium, midwifery care was exemplary and shows evidence of true partnership working. However, some of the cases mentioned in the Report highlight pregnancies where midwifery led care was inappropriate.

This Summary cannot provide an overview of all the key findings and recommendations contained within the Report. However, although many midwives will wish to read the Report in its entirety, all should read and act on the key overall recommendations. The issues for General Practitioners - Chapter 17, also has recommendations that relate to midwifery care.



The role of the midwife

"The role of the midwife is to ensure that women and their babies receive the care they need throughout pregnancy, childbirth and the postnatal period. Much of this care will be provided directly by the midwife, whose expertise lies in the care of normal pregnancy, birth and the postnatal period, and the diagnostic skills to identify deviations from the normal and refer appropriately[1]".

In order to explore the issues surrounding midwifery practice it is useful to revisit the definition of a midwife and boundaries of practice. According to the International Confederation of Midwives[2], midwives are experts in normal childbirth, but also work in collaboration with other health professionals to ensure an effective service for women who may need to be referred for more specialist care.

A midwife's skill and expertise lies not only in providing expert care for healthy women but also in identifying when a medical opinion is appropriate. Since the last Report[3] was published, in 2004, there have been many examples of midwives embracing its key recommendations by providing targeted and effective care for different groups of vulnerable women and their families. These include providing accessible, holistic, midwifery care for women through children's centres or other local facilities, which currently provide services in the 30% most disadvantaged areas of the country. In addition, there has been an increase in the number of midwives providing specialist care for particularly vulnerable women e.g. teenage girls, women experiencing domestic abuse, seeking asylum, who misuse substances and those who have suffered female genital mutilation/cutting (FGM/FGC). Examples of these responses can be found at the end of this Summary.

The women who died

In this triennium 295 women died from causes *Directly* (n=132) or *Indirectly* (n=163) associated with pregnancy. The maternal mortality rate (MMRa) for 2003-2005 was 14 per 100,000 maternities meaning that maternal death in the UK is extremely rare (Table 1). However, maternal death is the severest end of a continuum of morbidity and the lessons which can be learnt from these deaths will reduce both mortality and morbidity during pregnancy, birth and in the postnatal period.

Table 1
Direct and *Indirect* maternal deaths and mortality rates per 100,000 maternities* as reported to the Enquiry; United Kingdom: 1985-2005.

Triennium	***Direct* deaths known to the Enquiry**				***Indirect* deaths known to the Enquiry**				**Total *Direct* and *Indirect* deaths known to the Enquiry**			
	Number	Rate	*95 per cent CI*		Number	Rate	*95 per cent CI*		Number	Rate	*95 per cent CI*	
1985-1987	139	6.13	*5.19*	*7.23*	84	3.70	*2.99*	*4.58*	223	9.83	*8.62*	*11.21*
1988-1990	145	6.14	*5.22*	*7.23*	93	3.94	*3.22*	*4.83*	238	10.08	*8.88*	*11.45*
1991-1993	128	5.53	*4.65*	*6.57*	100	4.32	*3.55*	*5.25*	228	9.85	*8.65*	*11.21*
1994-1996	134	6.10	*5.15*	*7.22*	134	6.10	*5.15*	*7.22*	268	12.19	*10.82*	*13.74*
1997-1999	106	4.99	*4.13*	*6.04*	136	6.40	*5.41*	*7.57*	242	11.40	*10.05*	*12.92*
2000-2002	106	5.31	*4.39*	*6.42*	155	7.76	*6.63*	*9.08*	261	13.07	*11.57*	*14.75*
2003-2005	132	6.24	*5.27*	*7.40*	163	7.71	*6.61*	*8.99*	295	13.95	*12.45*	*15.64*
Change in rate 2000-02 to 2003-05		0.94	*-0.54*	*2.42*		0.05	*-1.66*	*1.77*		0.89	*-1.37*	*3.14*

* Numbers of maternities are given in Table 1.2 in the main *Saving Mothers' Lives* Report.

Many possible factors lie behind the lack of decline in the maternal mortality rate. They include rising numbers of older or obese mothers, women whose lifestyles put them at risk of poorer health and a growing proportion of women with medically complex pregnancies. Because of the rising numbers of births to women born outside the UK, the rate may also be influenced by the increasing number of deaths of migrant women. These mothers often have more complicated pregnancies, more serious underlying medical conditions or may be in poorer general health. They can also experience difficulties in accessing maternity care.

The commonest cause of *Direct* deaths was again thromboembolism (see Table 2) and as seen there has been a rise in amniotic fluid embolism, a rare and largely unavoidable condition. This may be due to better pathological identification leading to a defined and confirmed cause of death.

Table 2
Numbers and rates per 100,000 maternities of maternal deaths reported to the Enquiry by cause; United Kingdom: 1985-2005.

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 and 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	**3**	*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******							

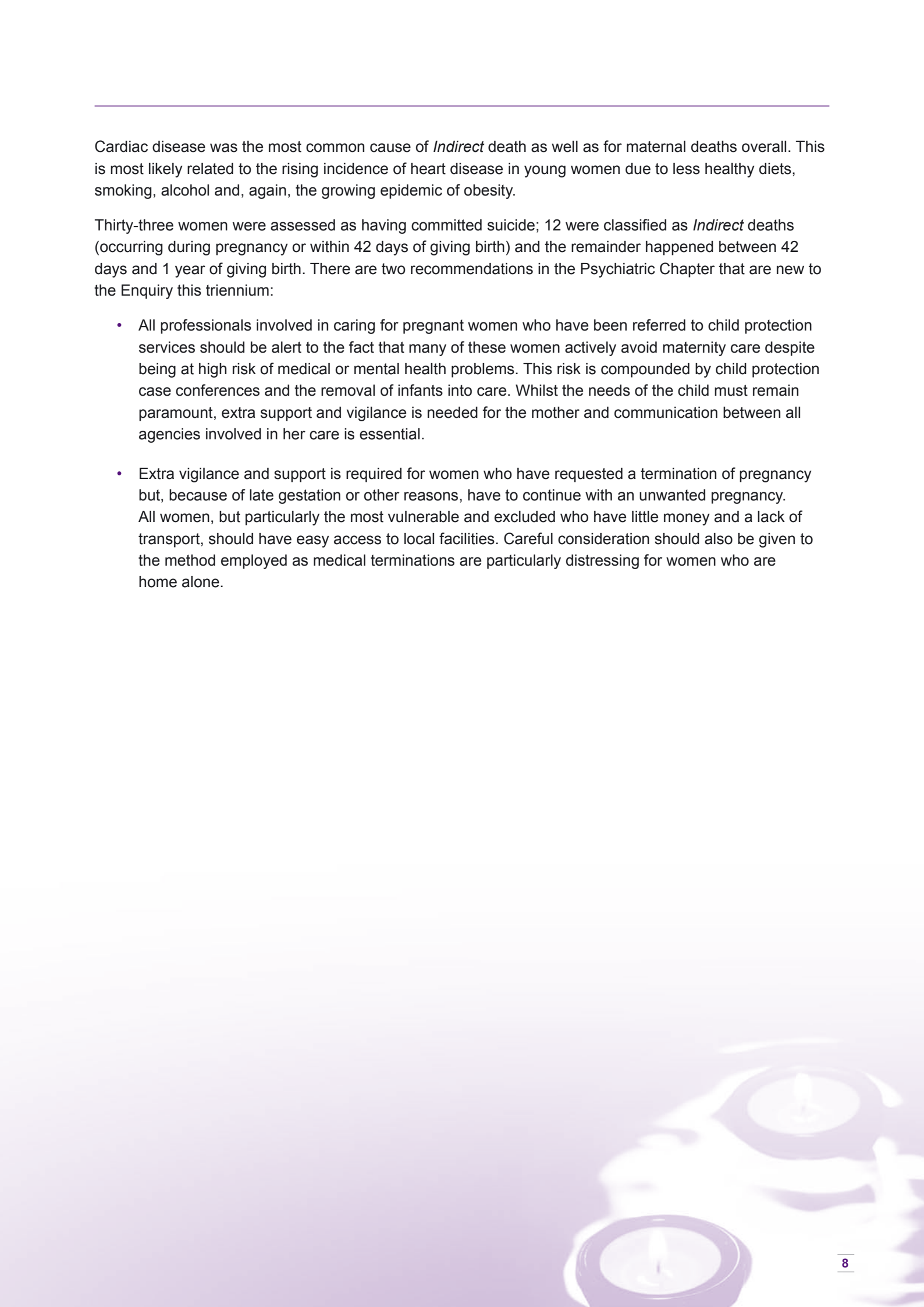
* Three cases of uterine rupture are counted in Chapter 4, haemorrhage and one of fatty liver in Chapter 3, pre-eclampsia and eclampsia.
** Including early pregnancy deaths due to sepsis.
*** Includes one death from choriocarninoma which ideally should be regarded as a *Direct* death.
**** Rise due to improved case ascertainment.
- Data not previously collected separately.

Cardiac disease was the most common cause of *Indirect* death as well as for maternal deaths overall. This is most likely related to the rising incidence of heart disease in young women due to less healthy diets, smoking, alcohol and, again, the growing epidemic of obesity.

Thirty-three women were assessed as having committed suicide; 12 were classified as *Indirect* deaths (occurring during pregnancy or within 42 days of giving birth) and the remainder happened between 42 days and 1 year of giving birth. There are two recommendations in the Psychiatric Chapter that are new to the Enquiry this triennium:

- All professionals involved in caring for pregnant women who have been referred to child protection services should be alert to the fact that many of these women actively avoid maternity care despite being at high risk of medical or mental health problems. This risk is compounded by child protection case conferences and the removal of infants into care. Whilst the needs of the child must remain paramount, extra support and vigilance is needed for the mother and communication between all agencies involved in her care is essential.

- Extra vigilance and support is required for women who have requested a termination of pregnancy but, because of late gestation or other reasons, have to continue with an unwanted pregnancy. All women, but particularly the most vulnerable and excluded who have little money and a lack of transport, should have easy access to local facilities. Careful consideration should also be given to the method employed as medical terminations are particularly distressing for women who are home alone.



Maternity Matters, the recent implementation plan for the National Service Framework[4] in England, describes two clear pathways of care that women may choose:

- Midwifery care in the antenatal, birth and postnatal periods for healthy women with straightforward pregnancies,
- Maternity team care for women with more complex needs.

In both pathways the midwife plays a key role either leading care or working in partnership in maternity teams with obstetric and other colleagues. Similar initiatives exist in other countries of the UK. In Scotland the Scottish NHS Boards have embraced the principles outlined in A Framework for Maternity Services in Scotland and Report of the Expert Group on Maternity Services (2003)[5]. These reports endorse the promotion of pregnancy and childbirth as normal life events and advocate woman centred care, with service and care provider packages tailored to need. They recommend community focussed, midwife managed care for healthy women, with multidisciplinary maternity team care for complex cases. The All Wales Normal Birth Pathway[6] is mentioned later in this Summary as evidence of good practice.

Several key issues discussed here and elsewhere in this Report have implications for midwifery practice in either pathway. These can be divided into two main overarching themes:

- Knowledge and skills
- Communication issues.

Knowledge and skills

Midwifery led care

During this triennium there were relatively few deaths of women who had midwife only or midwife/General Practitioners (GP) only antenatal care, and for many this care was entirely appropriate. However, in a few cases it was not.

In only five of the 36 cases of women who had midwifery led antenatal care and who died of *Direct*, *Indirect*, *Coincidental* or *Late Direct* causes was midwifery care judged to be substandard. There appear to be no cases of poor midwifery care amongst the 16 women who died and who had received joint midwifery/GP led care.

However, these few cases do highlight the problem of inappropriate midwifery led care being provided for known or potentially higher risk pregnant women. The last Report[3] highlighted the need for a national guideline to help identify those women for whom midwifery led care would be suitable. It is understood that, for England and Wales, the National Institute for Health and Clinical Excellence (NICE) are in the process of preparing this as part of their forthcoming update of the clinical guideline for the routine management of healthy pregnant women[7].

Substandard care

The main issues identified within this Enquiry associated with substandard care, or avoidable factors, were failure by health care professionals, in all specialities, to recognise and manage common medical conditions or potential emergencies outside their immediate area of expertise. In addition, resuscitation skills were considered to be unacceptably poor in some cases.

This concern was reflected in midwifery care where there were cases showing failure by the midwife to recognise deviations from normal, thus failing to refer the woman for medical opinion. In these cases a number of risk factors were identified which highlighted the need for joint medical and midwifery care and, although there were clear indications requiring referral to an obstetrician or other specialist, inappropriate midwifery led care continued. For example:

> *An underweight, young non English-speaking refugee who also had a low haemoglobin (Hb) was booked for midwifery led care. Her husband, who had very poor English himself, was used as her interpreter. She was admitted later in pregnancy with bleeding and abdominal pain. Constipation was diagnosed, despite abnormal liver function tests, and she was sent home under midwifery led care. She was readmitted some weeks later, late in pregnancy with abdominal pain and, despite a further abnormal blood assay, no senior medical opinion was sought and she was again discharged. Some days following this she was admitted, in extremis, in liver and multi-organ failure, her unborn baby having died in the meantime. Despite the severity of her condition, her care was still uncoordinated and, although she was visited by a critical care senior house officer (SHO) she remained on delivery suite. The woman died two days later of disseminated intravascular coagulation related to fatty liver of pregnancy.*

Professional accountability and competence

> *"You are personally accountable for your practice. This means that you are answerable for your actions and omissions, regardless of advice or directions from another professional[8]".*

In the majority of cases where the woman had new or underlying medical or psychological problems, appropriate referrals for medical opinion were made. However, in many of these cases the midwives involved then appeared to consider that they had done enough and believed the woman was no longer their responsibility. On the other hand, some midwives were worried that their concerns were being ignored by medical staff. For example:

> *An older parous woman who was obese, smoked, had a long gap since her last pregnancy and a blood pressure (BP) of 150/89 mm/Hg was booked for midwifery led care. She presented with severe headaches and vomiting near term which required opiates for relief. On admission, her midwife was unhappy with the junior doctor's lack of concern, but "resigned herself to the fact that he knew best". A subarachnoid haemorrhage was eventually diagnosed but she deteriorated and died a few days later.*

This case illustrates an important point raised in many other cases as well. It is important that midwives should always seek a consultant opinion, and if necessary a second consultant opinion, if they have continuing concerns about a woman in their care. If a midwife is still concerned following discussion with a medical consultant, support can be sought from a supervisor of midwives and the midwifery manager. Midwives have a duty of care for women, even when the pregnancy deviates from normal.

In some cases there were issues around midwives failing to recognise common, non-pregnancy related medical conditions and/or failing to appreciate the severity of others. There were a worrying number of cases where, despite obvious symptoms, basic observations such as temperature, pulse and blood pressure were not taken, or ignored. In some cases, these simple measures would have alerted the midwife to more sinister pathology. For example:

A woman with a family history of hypertension, also had a BP of 140/90 mm/Hg at term. She had a straight-forward birth but complained of severe headache a few days after birth. Despite the continuation and severity of the headache, the midwife did not check her BP or refer her for medical opinion. The woman collapsed and died of a subarachnoid haemorrhage a few days later.

Another woman was transferred home a few hours after a straight-forward birth with a transient pyrexia, tachycardia and low BP which were recorded in the hospital notes, but not recorded on the discharge summary. The first community midwifery visit was two days later when the midwife did not take the woman's temperature or record her pulse rate. The midwife also failed to realise the significance of a sore throat and red area on the woman's abdomen, despite the woman saying she felt "feverish". The midwife did not plan to visit for a further four days; the woman died from septic shock in the meantime.

Midwives should highlight any perceived training needs during their supervisory reviews and these should be recorded for future reference.

However, it is important to reiterate that there were also examples of sensitive, holistic, care for women who were seriously or terminally ill, as evidenced below:

A young woman was diagnosed with a brain tumour in the second trimester following a short history of severe headaches. An inter-uterine death was diagnosed shortly after and the woman died a few weeks later. Her midwifery care was excellent and the midwife was with the woman when she died. The hospice staff commented about the excellent partnership working and communication from the midwifery team.

There were a number of cases where midwives showed a lack of experience and insight into the seriousness of the mother's condition. This lack of experience and knowledge was also evident in several cases of women with complex pregnancies. There were examples of lack of provision of adequate pain relief, lack of joined up care and a lack of engagement with other professionals e.g. oncologists, the palliative care team, surgeons and physicians. In some cases it seemed that both midwives and obstetricians had not ascertained the complete picture and so had not appreciated the severity of the woman's illness. For example:

A young healthy primigravida was admitted at term with reduced fetal movements. Hypertension was noted on admission but labour was not induced for some days. During this time severe anaemia was discovered and treated by transfusion but no senior medical advice was sought. During labour the woman became pyrexial and required a caesarean section for failure to progress. Following birth she was obviously ill, but her care was given to an agency midwife. Despite involvement of the specialist registrars (SPRs) in obstetrics and anaesthesia there was no immediate action for her labile BP, tachycardia and rapidly falling Hb. It does not appear her temperature was recorded in the postnatal period despite being markedly febrile antenatally. The obstetric consultant was contacted, but did not attend until she suffered a cardiac arrest from which she could not be resuscitated. A hysterectomy was attempted but she died of heart failure following prolonged haemorrhage.

This case highlights factors seen in a number of other cases i.e. a lack of baseline observations, poor midwifery care, poor communications between professionals and a failure to appreciate the seriousness of the woman's condition.

Box 1
Key physical signs that may suggest serious illness, and that warrant immediate medical referral.

The following signs should alert all health professionals including midwives, GPs, junior doctors and obstetric and other consultants that serious illness is a possibility:

- A heart rate over 100 beats per minutes (bpm)
- A systolic blood pressure over 160 mm/Hg or under 90 mm/Hg and/or a diastolic blood pressure over 80 mm/Hg
- A temperature over 38 degrees Centigrade and/or
- A respiratory rate over 21 breaths per minute. The respiratory rate is often overlooked but rates over 30 per minute are indicative of a serious problem.

There have been questions raised as to whether contemporary midwifery education adequately prepares midwives for adverse pregnancy outcomes or serious unrelated problems in pregnancy. It is impossible to comment on this issue, but a recommendation has been made that the NMC should audit the content of pre and post graduate training (see Chapter 16 – Issues for Midwives, in the full Report).

Adopting a care pathway approach

Care pathways, within a managed and functioning maternity and neonatal care network, are good examples of how care may be co-ordinated, woman centred and clinically driven. They may provide the best evidence based approach for the management of pregnant women, particularly those which are medically and/or socially complex. They are also useful for ensuring effective communication links across disciplines and may be used to underpin many key local and national agendas simultaneously. They are not rigid documents and clinicians are free to use their own professional judgement as appropriate.

A good example of a care pathway is the all Wales Normal Birth Pathway[6] which includes telephone advice, a patient information sheet, an active labour pathway and partograms. Initial findings have shown a marked increase in normal birth, with a corresponding reduction in caesarean section with no difference in mortality or morbidity[9].

Emergency responses

The wrong emergency response was evident in several cases. This was of particular concern when the midwife did not know the emergency telephone number to summon help, calling the paediatric emergency team to a maternal collapse, resulting in a crucial delay in resuscitation. In one case the cardiac arrest team was unable to get into the labour ward for a significant length of time because it did not know the security code for access. On several occasions the wrong emergency trolley, trolleys missing, vital equipment or trolleys in the wrong place led to a delay in resuscitation. For example:

> *A morbidly obese woman with a BMI over 40 suffered from severe asthma. Her Hb fell to less than 7 d/l in pregnancy and although she was transfused, the cause for this was not investigated and it remained very low. She was delivered by elective caesarean section with no clear indication. After birth, despite severe breathlessness and evidence of oxygen desaturation, she was transferred from the theatre to the postnatal ward where she collapsed four hours later. There was a delay in resuscitation as the emergency trolley was not kept on the postnatal ward and time was lost in locating and fetching the relevant equipment. Resuscitation, once started, was unsuccessful.*

Several important issues arise from this case. There seemed to be no medical indication for the caesarean section; indeed, given her morbid obesity, a risk assessment should have been undertaken. Following the operation, although it was evident that she had complex postnatal needs, she was transferred from the recovery area too quickly. There was lack of an identified care plan and there appeared to be an inappropriate skill mix and lack of experience in caring for women with medical complications.

Some cases involved agency staff who seemed to be unaware of emergency drills. Midwives have a responsibility to ensure that they are familiar with emergency procedures, but it is acknowledged that this is often difficult to ensure.

Communication issues

Whilst most midwives are autonomous practitioners of normal birth, they do need to recognise professional boundaries and refer appropriately for advice to ensure true woman centred care.

In several of the cases reviewed there were communications issues across the primary/ acute care interface. In some instances, this was because GPs failed to give midwives information about relevant medical or social histories, e.g. serious medical conditions or substance misuse. For the first time, this Enquiry has included GP assessment and perspective. There are three recommendations made in the GP Chapter which relate closely and specifically to communications between GPs and midwives:

- Whenever possible, the GP should give a named community midwife confidential access to the woman's full written and electronic records
- GPs should ensure that any significant letters are copied into the woman's hand-held record
- Midwives should ensure that all investigations that they initiate are copied to the GP.

Additionally, as the midwife is increasingly the first point of contact, it is essential that the GP is informed of the woman's pregnancy and booking and additional information sought from the GP at this stage.

There were several comments from midwives who had gleaned most of their information from the women themselves. This often meant that the midwives were not completely aware of the prognosis, particularly for very rare conditions. For example:

> *A woman presented with a rare pre existing blood disorder in early pregnancy. She was cared for by a consultant haematologist with substantial input from the community midwives. However, the midwives gained all their knowledge about this condition from the woman herself and she painted a positive picture of her prognosis. The midwives were shocked to learn from another source that the woman had died some weeks after birth and they had never been included in any of the communications concerning this woman's care.*

Although there were some very good examples of partnership agency working, particularly with substance abuse and teenage pregnancy teams, there were equally as many examples of poor communications between such agencies and midwives resulting in uncoordinated care for women. True woman centred care involves working collaboratively with other professionals and not working in isolation.

Internal reviews

Although in many cases there were excellent examples of internal reviews following a maternal death, this was not always the case. It was also not always evident who was involved in such reviews. In some cases it was clear the review only involved those directly associated with the woman's care and lessons may not have been widely disseminated to others in the maternity service. If lessons are to be learnt it is important that all clinical staff are aware of the findings of such reviews, particularly those who may not readily access them e.g. GPs and community midwives. The supervisor of midwives' network is an opportunity to disseminate findings to midwives.

Midwives' responsibility for vulnerable or higher risk women

The number of deaths among women who are vulnerable and/or socially excluded remains unacceptably high. These include teenagers, women who are socially excluded, non English speaking women, women seeking asylum and refugees, women with mental health problems and women who misuse drugs and/or alcohol. In addition there is evidence of uncoordinated care for women with complex pregnancies, women who are seriously ill or have a terminal illness and women who are obese.

As mentioned earlier, the use of any national guidelines or local protocols, and care pathways will help focus care on the woman and her family, promote continuity of care and reduce fragmentation.

Chapter 13 of the full Report discusses the issues raised by women who were subject to domestic abuse. Although often recorded in the notes there was little evidence to show that any support had been offered. Nineteen of these women were killed by their partners. Midwives should now be routinely asking women about domestic violence during pregnancy, but should be appropriately trained to undertake this. As a result of the recommendations in the last Report[3], The Department of Health has produced an excellent handbook, *'Responding to domestic abuse: a handbook for health professionals'*[10], which every midwife should familiarise herself with.

Obesity

More than half of all the women who died from *Direct* or *Indirect* causes, for whom information was available, were either overweight or obese. More than 15% of all women who died from *Direct* or *Indirect* causes were morbidly (Body Mass Index (BMI) 35 or above[11]) or super morbidly obese.

Deaths from thromboembolism, sepsis and cardiac disease particularly had high percentages of women who were obese.

For many women with obesity or, particularly, morbid obesity there was no explicit care plan for birth, neither had a risk assessment been carried out. Such severe obesity not only compromises a woman's underlying general health, but it also causes logistical problems. Resuscitation was delayed in one case because the ambulance services were unable to remove the woman from her house and for other women a lack of suitably sized blood pressure cuffs led to delayed diagnosis of pre-eclampsia. In other cases the physical size of the mother masked clinical symptoms or caused problems with access at operation.

Accessing care

This Enquiry has identified that late booking and poor or non attendance for antenatal care are absolute risk factors for maternal death.

Recorded Delivery[12] reinforces these findings and indeed those of previous Reports where it was demonstrated that women from ethnic groups, a deprived background or who are single parents were more likely to recognise their pregnancy later, access care later and consequently book later for antenatal care.

There is a real need for midwives to identify the needs of these women and target and provide care appropriately. Sadly, and despite previous recommendations, only a handful of women in this Report, who were known to be at higher risk and who had defaulted from care were actively followed up.

Conclusions

Although there are lessons to be learnt for midwifery practice, particularly around failure to recognise serious illness, a failure to act appropriately and lack of communication, there is also evidence of positive and innovative responses to the recommendations made in the last triennium Report.

Some organisations have developed partnerships with local councils and children centres to develop targeted services aimed at supporting vulnerable families as shown in Box 2 and Box 3.

Box 2
Working in partnership.

In Liverpool, close partnership working with statutory agencies has led to the development of locally based comprehensive services for women including:

- Four midwifery led centres in deprived parts of the city, offering holistic care including ultrasound scans, blood tests, parenting support and specialised midwifery support
- The National Society for the Prevention of Cruelty to Children (NSPCC) has financially supported the development of two midwifery posts to offer additional support for women who suffer from domestic abuse and women who misuse substances
- The local authority has supported the development of a specialist team of midwives to offer targeted support through local children's centres for vulnerable women and their families.

For further information contact *Grace Edwards* (Consultant Midwife)
Liverpool Women's NHS Foundation Trust
Telephone: 0151 708 9988

This response to the recommendations of the last triennium Report is evident across the UK.

Box 3
Partnership working: Sure Start.

The midwifery team in Southampton worked in conjunction with the Sure Start programme to enable women from vulnerable groups and their families to access Sure Start services with the aim of providing easier access to midwifery services in the community. The social model provided by midwives ensures that women have continuity of care throughout pregnancy, birth and afterwards for up to six weeks. One of the primary aims was to reduce the incidence of babies born with a low birth weight.

For women cared for by these teams there was a reduction in the incidence of babies with low birth weight from 12.6% in 2003 to 7.9% in 2006. Caesarean section rates decreased from 22% to 18% in the same period; smoking rates reduced from 34% to 29% and breastfeeding rates increased from 51% to 68%.

For further information contact *Jane Rogers* or *Suzanne Cunningham* (Consultant Midwives)
Southampton University Hospitals Trust
Telephone: (023) 8079 4209

Other examples of good practice may be found in *'Modernising Maternity Care - a commissioning Toolkit for England"*[13].

In Blackburn a dedicated caseloading team of midwives is successfully targeting vulnerable women as shown in Box 4.

Box 4
Caseload midwifery for vulnerable women.

Blackburn Midwifery Group Practice are a team of caseload midwives who provide one to one care for the most vulnerable families in a deprived area of East Lancashire. The referral criteria include women who are abused or who have had severe perinatal mental health problems. The midwives aim to maximise health outcomes by providing intensive support to women in the antenatal and postnatal period.

The team promote normal, positive birth outcomes and frequently work with women who have had previous traumatic births. The statistics demonstrate higher than average normal birth rates and lower use of epidural and instrumental deliveries.

For further information contact *Sheena Byrom* (Consultant Midwife)
East Lancashire Hospitals NHS Trust
Telephone: 01254 263555

There has never been a more optimal time for midwives to re-establish the profession as the experts in normal birth. But it is essential that practice is evidenced based, woman centred and embedded in partnership with other health professionals. Practice parameters must be clear and communication pathways effective to ensure that care for each woman is appropriate, timely and effective.

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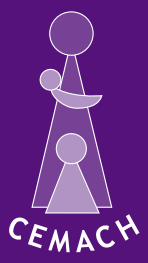
Action checklist for midwifery practice

1. Every midwife should revisit and be familiar with, the Nursing and Midwifery Council (NMC) Code of Professional Conduct and the Midwives Rules and Standards.
2. There should be a comprehensive, accessible directory relevant to local needs, available in different mediums of key professional contacts for the care of vulnerable and high risk women.
3. All women should receive care that is embedded in the local maternity network, ensuring that they have an individualised care pathway.
4. Mandatory and regular training should emphasise the importance of baseline observations and include the recognition of differential diagnoses in pregnancy and the appropriate action to be taken.
5. All clinicians have a responsibility to ensure they know how to contact appropriate help in an emergency and are competent to administer emergency treatment.
6. There should be explicit emergency systems in place which should include routine checking of emergency equipment, clear siting of equipment and knowledge of appropriate emergency responses.
7. Body Mass Index (BMI) should be recorded for all women and an explicit plan of care developed for women with morbid obesity, i.e. a BMI of 35 or more 11. These women are unsuitable for midwifery only care.
8. Key personnel e.g. General Practitioners (GP), supervisors of midwives and other relevant agencies should be included on local review panels. Recommendations and lessons learnt from local reviews into maternal deaths and serious untoward incidents should be widely disseminated to all staff including community staff and GPs.
9. Letters and communications involving a woman's care should be copied to all clinicians, including midwives and GPs.
10. All Trusts should ensure that the emergency telephone number 2222 is universally implemented.
11. The Strategic Health Authority (SHA) should develop a clear standardised process for sharing good practice and investigating serious untoward incidents.



A more detailed explanation of the Report findings and supporting evidence can be found in the full Report, which is available to download from the CEMACH website.

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