Improving maternal safety in future: learning from the Confidential Enquiries

The lessons from reviewing maternal deaths reinforce the need for multidisciplinary working and continuing education of all practitioners who are in contact with pregnant women. Identification of the highest risk group of women should allow targeted care.

The Confidential Enquiry into Maternal Death (CEMD) is commissioned by the National Institute for Clinical Excellence (NICE) through the Confidential Enquiry into Maternal and Child Health (CEMACH). The latest report covers maternal deaths in the UK in the period 2000–2. These triennial CEMD reports aim to improve maternal and child health and have played a vital role in the reduction in deaths attributable to pregnancy over the last 50 years (Lewis, 2000, 2004). The approach of detailed review of serious adverse outcome is an important tool in improving future patient safety. The report contributes to setting standards for clinical practice through assessing elements of substandard care. This process is an integral part of risk management and patient safety and the findings of the report need to be implemented at a local and national level.

Nationally, the CEMD findings are used to inform government policy and determine the need for NICE guidelines. They set standards for practice through the Clinical Negligence Scheme for Trusts (CNST) risk management standards and informed the National Service Framework for maternity services. They contribute to training for relevant health professionals as well as identifying areas of research (Clinical Negligence Scheme for Trusts, 2002). Trusts should use the findings to develop clinical guidelines and pathways, enhance existing services and provide audit standards, hence offering a 'first class service' (Department of Health, 1998). This should be considered within trusts' clinical governance framework.

Findings and recommendations

Maternal deaths are defined as direct, indirect, late and coincidental (*Table 1*). The overall maternal mortality rate (direct and indirect) derived from the CEMD is 13.1 deaths per 100 000 maternities (*Table 2*) (maternities = numbers of mothers delivered of registrable live births at any gestation or stillbirths of 24 weeks gestation or later).

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The most common cause of direct deaths is thromboembolism and the rate has remained unchanged since the last report. A small increase in mortality rates from haemorrhage and anaesthesia is seen while there is no change noted in deaths from other causes. It is evident from *Table 2* that the mortality from direct causes is more or less unchanged (Lewis, 2000, 2004). The most common cause of indirect deaths (as well as the leading cause overall) is suicide, although deaths from cardiac causes are also important (Lewis, 2004).

Vulnerable groups

The CE highlights the 'at risk' groups, i.e. the socially disadvantaged and those from deprived areas, minority ethnic groups, late bookers, obese women, women subjected to domestic violence and substance misusers. This is most stark when looking at 'social class'. The National Statistics Socio-Economic Classification has replaced social class in all official statistics in the UK. Women from the 'not classified' group have a 20 times greater risk of maternal death compared to women in the 'managerial and professional' occupations group. The 'not classified' group included retired, students, permanently sick, no previous job and unemployed (Lewis, 2004).

Table 1. Definitions

Maternal deaths	Deaths of women in pregnancy or within 42 days of the end of pregnancy from any cause related to or aggravated by pregnancy or its management
Direct	Deaths resulting from obstetric complications of pregnancy from interventions, omissions or incorrect treatment
Indirect	Deaths from pre-existing disease/disease developed in pregnancy (not of obstetric cause) which was aggravated by pregnancy
Late	Direct or indirect deaths occurring between 42 days and 1 year after abortion, miscarriage or delivery
Coincidental	Deaths from unrelated causes occurring in pregnancy and puerperium

Adapted from Lewis (2000)

Substandard care

Most importantly, the CEMD points out that there was some degree of substandard care in 67% of all women who died during the 2000–2 period. In many cases this was the result of a lack of communications between health-care providers (Lewis, 2004).

Improving our care

The National Service Framework for children, young people and maternity services (Department of Health, 2004) has set out standards directing the provision of maternity services. All women should have access to supportive, high quality maternity services, designed around their individual needs and those of their babies. The CEMD findings should be used to optimize care at a local as well as national level by targeting the at-risk women, auditing clinical practice and providing training to health-care providers. The need for 'vertical equity' is apparent from the findings. This means more care should be directed at those most in need rather than simply aiming to provide the same level of care for all.

Specific safety implications

Direct causes

Thromboembolism

Thromboembolism remains the leading cause of direct deaths. Clinicians should be aware of this and each woman should undergo risk assessment and be considered for thromboprophylaxis. The Royal College of Obstetricians and Gynaecologists has updated guidelines on thromboprophylaxis (Royal College of Obstetricians and Gynaecologists, 2004). To improve safety, units will need to audit their practice and aim to be compliant with guidelines. The process of risk assessment needs to be dynamic as risk may change in pregnancy.

Obstetric haemorrhage

There was a small increase in the rate of obstetric haemorrhage in the 2002–2 triennium. Of these women 80% had received substandard care. Adequate risk assessment is essential at booking and women at high risk should be offered delivery at centres with intensive care facilities. Staff need training in early recognition and prompt treatment. Units need to assess systems in place in 'fire drills' as recommended by the CEMD and the CNST (Clinical Negligence Scheme for Trusts, 2002; Lewis, 2004). Consultant haematologists must be involved in the care of women with coagulopathy. Management plans for women who decline blood products must be made in the antenatal period.

Indirect causes

Psychiatric illness

Suicide was the leading cause of maternal death in 2000–2 for the second triennia. There were 60 deaths reported to the CEMD that had psychiatric aspects, 28 from suicide. Deaths from these causes have been underreported to the CEMD. A linkage study with the Office of National Statistics identified additional cases. Suicide in these cases is often violent and out of keeping with other female suicides (Lewis, 2004). About 10% of new mothers are likely to develop depressive illness, of which up to half will suffer from severe depressive illness (Cox et al, 1993; O'Hara and Swain, 1996).

In most of the women with previous histories of serious mental illness, the well-known risk of recurrence was not identified. Poor communication was noted between GPs, midwives, obstetricians and psychiatrists. These findings reflect the fact that most units do not have easy access to specialized psychiatric services. For safer maternal health, GPs and midwives have to be trained to identify those at risk. It is essential to have prompt availability of a specialized mental health team which is easily accessible to all obstetric health providers. The development of perinatal mental health teams will be integral to improving maternal safety in the future (Department of Health, 2004).

Cardiac and other medical disorders

The CEMD also points out deficiencies and issues surrounding obstetricians involved in the care of pregnant women with medical disorders. Women with medical disorders like cardiac problems or epilepsy need multidisciplinary specialist care. Combined clinics for epilepsy or endocrine disorders, i.e. diabetes, can make specialized care easily accessible to women. The CEMD has highlighted failures of obstetric and midwifery staff to recognize medical conditions and also the failure of accident and emergency staff to involve obstetric staff in the care of severely ill pregnant women. To enhance

Table 2. Main causes of death

Cause		1997–9	2000–2
Direct	Thromboembolism	35	30
	Hypertensive disease of pregnancy	15	14
	Haemorrhage	7	17
	Amniotic fluid embolism	8	5
	Deaths in early pregnancy	17	15
	Sepsis *	14	11
	Other direct	7	8
	Anaesthetic	3	6
Total		106 (5.0)†	106 (5.3)†
Indirect	Cardiac	35	44
	Psychiatric	15	16
	Others	86	95
Total		136 (6.4)†	155 (7.8)†
Coincidental		29	36
Late		107	94

* include early pregnancy deaths from sepsis; † mortality rate per 100 000 maternities. Adapted from Lewis (2000)

maternal safety, other professionals need to be aware of the different presentations of illness in pregnancy. They need training to identify these and promptly involve obstetric staff.

Targetting those 'at risk'

Trusts need to alter their services to make them more woman-centred and flexible to meet individual needs thus aiming to provide vertical equity. This will ensure care is delivered to those who need it. Women should be involved when planning new methods of service provision. This may involve altering timings of clinics to make them more accessible to the target population. Health education in terms of the benefits of antenatal care, management of labour, smoking, substance abuse and breast feeding should be readily available through outreach services and educational material. Women who do not have English as their first language, such as asylum seekers and those from minority ethnic groups, require professional interpreters.

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Obesity (35% of women who died) needs to be recognized as a risk factor for maternal mortality and morbidity. These high-risk women should be provided with information as well as advice and be considered for consultant-led care. Should operative intervention be considered, early involvement of anaesthetists is important. Multidisciplinary care should be offered to women with additional medical or social problems. All health-care providers across the community as well as in hospital should be trained to recognize high risk factors, i.e. domestic violence, substance abuse, psychiatric illness, and have the knowledge and skills to effect the appropriate and individualized care for a particular woman.

Integrated care pathways and guidelines set up at each trust may contribute towards provision of high quality standardized care. Women should ideally have easily available and accessible personnel for advice and support especially when psychiatric or social problems have been highlighted in the antenatal period. The National Service Framework also stresses the importance of providing improved preconception care in terms of local health care promotion and advice from GPs or midwives for both partners to ensure better pregnancy outcomes (Department of Health, 2004).

Conclusions

If health practitioners are to improve maternal safety through implementing the recommendations of the CEMD in their practice, they need multidisciplinary guidelines and pathways to promote multidisciplinary involvement, i.e. obstetricians, midwives, GPs, perinatal mental health teams, social support services and relevant other specialists. This has to be underpinned by training. This will lead to improved communication, which will improve the focus on vulnerable women who are at most risk. **BJHM**

Conflict of interest: none.

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KEY POINTS

- The maternal mortality rate was 13.1 per 100 000 maternities in 2000–2.
- The leading direct causes are thromboembolism and haemorrhage, and the leading indirect causes are suicide and cardiac diseases.
- Improving safety requires targeting vulnerable and at-risk groups.
- A multidisciplinary approach with guidelines and pathways to improve availability of specialist services, underpinned by training, is needed to target those women at most risk.
- Improved communication between services will occur with this approach.
- This approach to patient safety recognizes the importance of careful review of serious adverse outcome.