

NCT Document Summary:

Confidential Enquiry into Maternal and Child Health (CEMACH): Saving Mothers' Lives 2003-2005

The Confidential Enquiry into Maternal and Child Health (CEMACH) launched its latest Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom on 4 December 2007, *Saving Mothers' Lives: Reviewing maternal deaths to make motherhood safer 2003-2005*.¹ The enquiry found a slight, non-statistically significant, increase in the maternal mortality rate since the last report of 2000-2002. This may be attributable to demographic and public health factors as there has been no increase in substandard care. While the maternal death rate due to suicide, the leading cause of death in the previous report has decreased, the inquiry shows that obesity is now a major and growing maternal death risk factor. The report also reveals that vast inequalities persist in the pregnancy outcomes between the most advantaged and most vulnerable and excluded mothers and babies in society.

Background

CEMACH aims to improve the health of mothers, babies and children by carrying out confidential enquiries on a nationwide basis and by widely disseminating its findings and recommendations. *Saving Mothers' Lives* is the seventh report of its kind, following the previous *Why Mothers Die* reports. It contains the results of case reviews of all maternal deaths occurring in the UK between 2003-2005, providing detailed analyses of causal trends and making recommendations for improving clinical practice and for national policy on maternity.

Definitions used in the report

Maternal deaths

'Deaths of women while pregnant or within 42 days of the end of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.'

Direct deaths

'Deaths resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above.'

Indirect deaths

'Deaths resulting from previous existing disease, or disease that developed during pregnancy and which was not due to direct obstetric causes, but which was aggravated by the physiologic effects of pregnancy.'

Late deaths*

'Deaths occurring between 42 days and one year after abortion, miscarriage or delivery that are due to *Direct* or *Indirect* maternal causes.'

Coincidental (Fortuitous) deaths*

'Deaths from unrelated causes which happen to occur in pregnancy or the puerperium (up to 42 days of the end of pregnancy).'

The number of women who died

Between 2003 and 2005 a total of 295 women died in the UK whose deaths CEMACH classified as *maternal deaths*, out of more than two million births. 132 of these women died from *direct* causes, such as haemorrhage or eclampsia. 163 died from *indirect* causes; from pre-existing or new physical or mental conditions aggravated by pregnancy, such as heart disease or puerperal psychosis.

The maternal mortality rate for 2003-2005 was 14 per 100,000 maternities. This is a slight increase since from the last report of 2003-2005 but is not statistically significant and maternal death in the UK remains extremely rare. Compared to the last report there was a slight but non-statistically significant increase in *direct* deaths but the maternal mortality rate for *indirect* deaths has not increased. The overall *indirect* maternal death rate remains higher than the *direct* death rate although the gap between the rates has narrowed.

For international comparison, most countries calculate maternal death rates using causes stated on death statistics. Using this method the enquiry found a maternal death rate of 7 per 100,000 maternities. However, the enquiry was able to conduct a full assessment of all women who died during pregnancy or within 42 days of giving birth, therefore including maternal deaths which were not picked up on death certificates. This method will always calculate a rate that is significantly higher than that reported by official statistics alone.

*CEMACH also examined *coincidental deaths* and *late deaths* (including *coincidental late deaths*). However, these *coincidental deaths* (55 in total) and *late deaths* (273 in total) are not defined as *maternal deaths* (see definition above) and are therefore not included in the calculation of the *maternal death rate* but occurred in addition to the 295 maternal deaths.

Why has the maternal death rate not declined?

There are many possible reasons for the lack of decline in the maternal mortality rate. In general, the women who died were in poorer overall health and were more likely to smoke and be obese. Rising numbers of older and obese mothers and women with medically complex pregnancies are thought to have contributed to a lack of decline.

The rate was also likely to have been influenced by the rising numbers of migrant women in the UK. Births by women born outside of the UK have increased, as has the number of maternal deaths of migrant women. More than 20% of women having babies in the UK are themselves born elsewhere. These women have poorer medical histories, more complicated pregnancies and may be in poorer overall health.

The causes of mothers' deaths

Direct Causes

The most common cause of *direct* death was thromboembolism, as with the previous enquiry. There was a slight increase in deaths from sepsis and pre-eclampsia, as well as a rise in deaths from amniotic fluid embolism. There were fewer deaths from haemorrhage, anaesthesia and uterine trauma.

Indirect Causes

The most common cause of *indirect* death was cardiac disease, and for maternal deaths overall. This finding reflects the growing incidence of heart disease in younger women due to poor diets, smoking, alcohol consumption and increasing obesity epidemic.

Obesity

The reports findings clearly show the links between obesity and poor maternal outcomes and it is expressed in the report that 'obesity represents one of the greatest and growing overall threats to the childbearing population of the UK'. Overall more than half of all the women who died, for whom information was available, were overweight or obese. More than 15% of all the women who died were classified as morbidly or super morbidly obese; with a Body Mass Index of 35 or above.

In addition to cardiac disease, thrombosis and infection are particularly high risks associated with obesity. Obese women are more likely to experience first trimester miscarriage, prematurity, fetal congenital anomaly, still birth and neonatal death, and to develop gestational diabetes and pre-eclampsia. Obesity is also associated with higher rates of induction, caesarean section and postpartum haemorrhage.

The report recommends that obese women should receive help to lose weight prior to conception.. It is also recommended that national guidelines should be developed on the management of obesity in pregnancy as a matter of urgency. As a result of the findings and concerns about the impact of obesity on outcomes for both mother and baby CEMACH is planning to undertake a national enquiry into obesity in pregnancy.

Suicide

Thirty-three women died due to suicide; a significant reduction in the rate from the previous report for which suicide was the leading cause of death. This may indicate that recommendations of previous reports about antenatal identification and management of women at risk have been implemented, with positive results.

Avoidable factors and substandard care^a

While cases of substandard care are extremely difficult to evaluate, 64% of *direct* deaths and 40% of *indirect* deaths were assessed as having some degree of substandard care. Since the last report of 2000-2002 there has been no increase in substandard care.

Although there was no increase in the overall percentage of deaths considered to be avoidable, there was a particularly surprisingly high number of incidents where health professionals had failed to identify and manage common medical conditions or potential emergencies outside of their expertise, or where resuscitation skills were poor.

A lack of cross disciplinary working and poor communication was identified as common in many cases, including poor team working, inappropriate delegation to junior staff and poor interpersonal skills. A failure to share important information between professionals, including GPs, the maternity team and social services contributed to some cases. These failings resulted in a number of cases of poor management of higher risk, often socially vulnerable, women with pregnancies complicated by new or previously existing medical or psychiatric problems.

Some cases involved the wrong emergency responses, or errors during emergency responses that caused delays. In some instances this was a result of the wrong, or lacking emergency equipment. Other incidents involved agency staff who were unaware of emergency drills.

Key recommendations seven to nine listed at the end of this briefing have been made by CEMACH in relation to the findings about substandard care.

Midwife-led care

There were relatively few deaths of women who had midwife only or midwife / GP only antenatal care, and in the majority of cases this care was appropriate. In only five of 36 deaths of women who had midwife-led antenatal care was the midwifery care considered substandard. But it was

^a For further information about the CEMACH findings related to substandard care please refer to NCT Briefing MS1: *Substandard Care and Maternal Mortality* (December 2007).

concluded that these few cases do highlight the problem of midwifery-led care being provided inappropriately for higher risk women. Some cases also involved failures by midwives to recognise deviations from the normal, thereby failing to refer for medical opinion. Although in the majority of cases appropriate referrals were made, the report emphasises that even when midwives have made referrals they still have a duty of care and responsibility for the woman involved.

Disadvantaged groups and social vulnerability

The strong link between adverse pregnancy outcomes and social exclusion is even more clearly demonstrated by this report than the previous enquiries. A disproportionate number of the women who died came from the most excluded and vulnerable social groups, including teenagers, non-English speaking women, asylum seekers and refugees and women with mental health or substance abuse problems. Women from vulnerable groups experience a higher risk of death, morbidity, pre-term labour, intrauterine growth restriction, low birth rate and neonatal complications and have lower breastfeeding rates. Overall, women who live in the poorest circumstances are up to seven times more likely to die than women from other demographic groups.

Of all the women who died 11% had problems with substance abuse, of whom 60% were registered addicts and 14% self-declared they were subjected to domestic abuse. Nineteen of the women who died were murdered, the vast majority by partners or ex-partners. Yet there was little evidence from their notes that they had been offered any support relating to domestic abuse.

A third of all the women who died were either single and unemployed or in a relationship where both partners were unemployed. In England, women living in the most deprived areas were five times more likely to die than women living in the least deprived areas.

The mortality rate for black African women, including asylum seekers and newly arrived refugees, was found to be almost six times higher than for white women. The maternal mortality rate was also significantly higher for black Caribbean and Middle Eastern women.

Strong links were found between the women who died and social services and child protection issues. 10% of all the women lived in families known to social services and a third of their pre-existing children were in the care of social services. Some of the women therefore tried to conceal their pregnancies from social services and avoided maternity care despite being aware they were at higher risk of physical or mental problems. Even when social services were aware of a client's pregnancy it was assumed, often wrongly, that they were accessing maternity care.

The report's findings reiterate that it is the women who are in most need of maternity care who are least likely to receive it. Vulnerable women were far less likely to access maternity care in early pregnancy or to remain in regular contact with maternity services. 17% of all the women who died of *indirect* and *direct causes* booked for maternity care after 22 weeks or had missed over four antenatal visits.

Recommendations

Each chapter of the report contains specific learning points and recommendations. The following are identified by CEMACH as the report's 'top ten' key recommendations:

Pre-conception care

1. Pre-conception counselling and support should be provided for women of childbearing age with pre-existing serious medical or mental health conditions that may be aggravated by pregnancy. This includes obese women and women with epilepsy, diabetes, cardiac disease and severe pre existing or past mental illness.

Access to care

2. 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.
3. 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

4. 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 UK, 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.
Women from female genital mutilation practicing countries should be sensitively asked about this during their pregnancy and management plans for delivery agreed during the antenatal period.

Systolic hypertension requires treatment

5. All pregnant women with a systolic blood pressure of 160 mm/Hg or more require antihypertensive treatment. Consideration should also be given to initiating treatment at lower pressures in certain circumstances.

Caesarean section

6. Whilst recognising that for some mothers and/or their babies caesarean section may be the safest mode of delivery, mothers must be advised that caesarean section is not a risk-free procedure and can cause problems in current and future pregnancies.
Women who have had a previous caesarean section must have placental localisation in their current pregnancy to exclude placenta praevia, but, if present, to enable further investigation to try to identify praevia accreta and enable the development of safe management strategies.

Clinical skills

7. 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 occurring in their Trust or practice.
8. All clinical staff must undertake regular, written, documented and audited training for:
 - the identification and management of serious medical and mental health conditions which 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.There is also a need for staff to recognise their limitations and to know when, how and whom to call for assistance.

Early warning scoring system

9. There is an urgent need for the routine use of a national obstetric early warning chart which can be used for all obstetric women to help 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.
10. Guidelines are urgently required for the management of:
 - obesity in pregnancy
 - sepsis in pregnancy
 - pain and bleeding in early pregnancy.

References and further information:

1. Lewis G. *The Confidential Enquiry into Maternal and Child Health (CEMACH). Saving mothers' lives: reviewing maternal deaths to make motherhood safer - 2003-2005. The seventh report of the Confidential Enquiries into Maternal Deaths in the United Kingdom.* London: CEMACH; 2007.
Available from: <http://www.cemach.org.uk/Publications/CEMACH-Publications/Maternal-and-Perinatal-Health.aspx>

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The NCT wants all parents to have an experience of pregnancy, birth and early parenthood that enriches their lives and gives them confidence in being a parent.

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