

# ANALYSIS

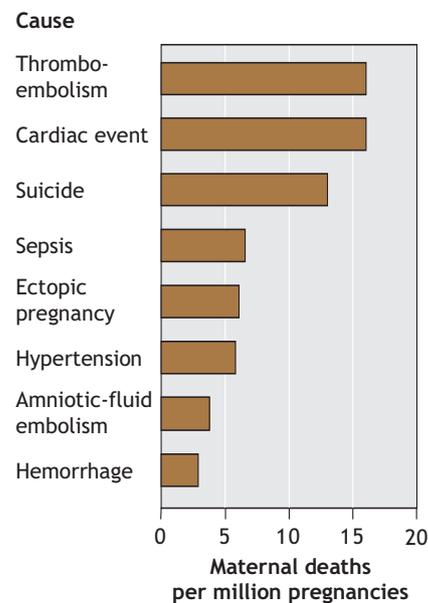
## A broader context for maternal mortality

In developed countries, rates of maternal death from infection, pre-eclampsia, cardiovascular disease, intracranial hemorrhage and embolism have fallen to low and stable rates.<sup>1</sup> A recent report from the Public Health Agency of Canada notes that the 1997–2000 rate for Canada (excluding Quebec) was 6.1 maternal deaths for every 100 000 live births. In contrast, the world rate is 400; in Africa, over 900 (Table 1).<sup>1</sup> Solutions to lowering these rates in underdeveloped countries are no mystery; they include improving access to care, reducing poverty and improving other sociodemographic factors. But is there room for improvement in reducing maternal mortality in Canada and other developed countries?

Perhaps we should look at other countries with low maternal mortality for ideas. In the United Kingdom, the Confidential Enquiries into Maternal Deaths (CEMD) has reported on these rates since 1952. Their most recent edi-

tion used data from linked national databases, which allowed for improved case identification and evaluation of the factors playing a role in maternal deaths (Fig. 1). The report revealed that women from the most disadvantaged groups of society were more than 20 times more likely to die than women in the highest 2 socioeconomic classes. Moreover, women from non-white ethnic groups were twice as likely to die as white women. The CEMD also showed that 12% of women who died had previously declared that they were subject to violence in the home and that 20% had booked for maternity care after 24 weeks of gestation or missed over 4 routine antenatal visits. Other factors associated with an increased risk of death were age less than 18 years, a higher maternal age, increasing parity, obesity, and multiple pregnancies (largely due to in vitro fertilization). Most importantly, for the first time the report revealed that more deaths were caused by pre-existing medical conditions that were exacerbated by pregnancy (indirect deaths) than were caused by conditions specific to pregnancy (direct deaths).

The causes of the deaths were striking. Over 40 deaths resulted from suicide or other violent causes and 11, accidental drug overdoses. When all maternal deaths within 1 year after delivery were considered, suicide was one of the 3 leading causes of maternal deaths overall. Given that high rates of depression exist among non-pregnant women aged 18–44 years, it is not surprising that it is frequently seen among pregnant and recently pregnant women.<sup>2</sup> Depression and suicide are underdiagnosed and difficult to ascertain, but rates of depression during and after pregnancy range from 10% to 20%.<sup>2</sup> The CEMD reports that maternal mental illness is more common than nearly all the conditions that we routinely ask obstetric and postpartum patients about and report.



**Fig. 1:** Main causes of maternal death per million pregnancies in the United Kingdom, 1997–1999. Source: *Why Mothers Die 1997–1999: The Fifth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom*. London: Royal College of Obstetrics and Gynaecologists Press; 2001.

Depression during pregnancy is distinguished by its context and consequences. The depressed pregnant woman is less likely than others to eat and sleep well, seek prenatal care or adhere to medical recommendations. In addition to personal suffering, disability, self-harm and suicide, depressed women can undergo perturbed hypothalamic pituitary axes and  $\beta$ -endorphin levels, which may result in harmful fetal effects such as prematurity, low birth weight, and slower fetal activity and development.<sup>2</sup> Infants of depressed women may receive suboptimal physical and psychological care; their older children and the marital partner may also experience secondary effects of maternal depression.<sup>2</sup>

In Canada, maternal death rates are based on causes of death directly attributable to classic obstetric indicators. If we want to lower rates in this

**Table 1:** Maternal death rates in 2000

Region or country	Deaths per 100 000*
World (total)	400
Sub-Saharan Africa	920
Asia	330
Latin America, Caribbean	190
United States	17
United Kingdom	13
Canada	6
Denmark, Ireland, Portugal, Italy, Kuwait	5
Spain, Austria, Slovakia	4
Sweden	2
Iceland	0

Source: World Health Organization. *Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF, UNFPA*. Geneva: WHO Department of Reproductive Health and Research; 2004.  
\*Adjusted maternal deaths per 100 000 population.

country, the first step would be to take a broader conceptualization of maternal morbidity and mortality and include deaths attributable to mental health conditions and violence. To better understand the effects of poverty, nutrition, education and mental health indicators on pregnancy outcomes, the Public Health Agency of Canada should link national databases that record social indicators as well as maternal health outcomes. Furthermore, by extending the period of maternal surveillance beyond 42 days, as the United Kingdom has done and others have advocated, we will be better able to study the effects of these “nonobstetric” indicators.

At the practice level, we need to ask about and intervene in maternal depression, substance abuse and violence in the home and to consider the special needs of women with low income, poor social support, communication problems and irregular attendance at prenatal care classes.<sup>3</sup> The routine use of national guidelines for diagnosis and treatment also improves outcomes.

Six deaths per 100 000 live births are still too many, and likely to be an undercount. A broader conceptualization of health in future Canadian maternal and child health reports will enable us to further reduce our maternal death rate.

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