Every minute, one woman dies from complications of pregnancy and delivery. Every year, over 99% of the estimated 585,000 maternal deaths occur in developing countries. This extent of disparity between developing and developed countries is not seen with any other human development indicator. The life-time risk of maternal death in the more developed regions of the world of 1 in 1800 is in stark contrast to the corresponding risk of 1 in 48 for less developed regions. In India, maternal deaths contribute to 23% of all deaths in women of the reproductive age group; the life-time risk of maternal death is 1 in 37.

Maternal mortality is only the tip of the iceberg of maternal ill health. For each maternal death, there are 15–20 cases of severe maternal morbidity. At least 60 million women worldwide have obstetric disorders that are not immediately lethal but are still distressing, e.g. obstetric fistulas, chronic anaemia and sterility.

Complications that cause deaths and disabilities of mothers often damage the infants they are carrying. While infant mortality rates have declined in recent times largely as a result of immunization against childhood diseases and better control of diarrhoeal diseases, there has been little change in perinatal and neonatal mortality rates. Approximately two-thirds of the nearly 8 million infant deaths each year occur during the neonatal period; over 3 million of these occur in the first week of life and are largely a consequence of inadequate or inappropriate care during pregnancy, delivery, or the first critical hours after birth. For every newborn infant that dies, at least one other infant is stillborn. Lastly, the death of an infant’s mother greatly increases the risk of that infant dying.

The Nairobi Conference on Safe Motherhood in 1987 focused world attention on maternal mortality and set the goal to decrease the number of maternal deaths by at least half within a decade. In the years that followed, the World Summit on Children (New York, 1990), the International Conference on Population and Development (Cairo, 1994), the World Conference on Women (Beijing, 1995) and the World Summit on Social Development (Copenhagen, 1995) reaffirmed the world’s commitment to reduce maternal mortality by half by the year 2000. Clearly, this objective is far from being achieved.

Many factors are implicated in maternal deaths; for example, prior health status and health-seeking behaviour of the woman and her family; access to quality health services; and social, economic and cultural factors. Poverty, illiteracy and low status of women in society are commonly associated with high maternal mortality. Vietnam, with a per capita income of less than US$ 200 has a much lower maternal mortality ratio (150) than Bolivia (650) and Cote d’Ivoire (810) which have per capita incomes of US$ 750. Kerala has a relatively low per capita income; yet it has the lowest maternal mortality ratio in India. This fact may be attributed to the high female literacy and health-seeking behaviour in Kerala. In contrast, maternal mortality rates in certain well-nourished, well-educated, financially secure, but extremist religious communities in the USA which refuse medical treatment are close to those recorded in the least developed countries.

Among medical interventions, family planning was presented as one of the best ways of reducing maternal mortality in less developed countries. However, while
family planning reduces the chances of a woman becoming pregnant, it does not modify a woman's risk of dying once she is pregnant. Most maternal deaths occur during or after wanted pregnancies. Similarly, routine antenatal care which focuses on risk identification and referral has little value in reducing maternal mortality unless those who provide antenatal care have the necessary equipment and supplies, and most importantly, access to essential care in case of complications. Providing antenatal care alone may be the least cost-effective of the various interventions that have been used to reduce maternal deaths.

These conclusions are not surprising if the common causes for maternal deaths are reviewed. Eighty per cent of deaths are due to direct causes—haemorrhage, sepsis, eclampsia and obstructed labour. Bleeding during pregnancy and childbirth alone accounts for 25% of maternal deaths. The most vulnerable time is the postpartum period, during which 60% of deaths occur. Unfortunately, the postpartum period is when there is least coverage by maternal health services. While 65% of all women in developing countries have some form of antenatal care and 53% receive intranatal care, only 30% receive postpartum care. Postpartum haemorrhage can kill a healthy woman within 2 hours; other complications may take longer to cause death. Unless help is at hand, any woman with an atonic uterus, irrespective of whether she is rich or poor, literate or illiterate, could bleed to death after childbirth. Mumtaz Mahal, the wife of Shah Jahan reportedly died of postpartum haemorrhage. The Taj Mahal is indeed a monument to unsafe motherhood.

The major decrease in maternal mortality ratios in Sweden from around 1500 to just above 100 occurred during the nineteenth century. This occurred before penicillin, sulphonamides and blood transfusions became available, and indeed well before Sweden achieved 90% institutional delivery rates and 90% antenatal care. In England and Wales, there was a slower decline in maternal mortality ratios, stabilizing at about 400–450 at the turn of this century. In the USA, maternal mortality ratios remained at 600–800 until the mid-1930s.

One of the main factors for these differences was the greatly expanded role of professional midwives in providing care during delivery, and their use of techniques such as asepsis and forceps. This was the case in Sweden as well as in the Netherlands, Denmark and Norway. Between 1851 and 1890, assistance by Swedish midwives at deliveries increased from 20% to 70%. The corresponding decrease in maternal mortality was striking. In England, competition from physicians and lack of support from the government inhibited the growth of midwifery. In the USA, trained midwives were actively discouraged due to lobbying by gynaecologists. India with its current ratio of 40 midwives to every 100,000 births should increase the number of trained midwives that are available to attend births, particularly in rural areas. Medically trained personnel are often not available in the areas of highest maternal mortality. Delegation of emergency operative delivery (for example, vacuum extraction, manual removal of placenta and caesarean section) to specially trained non-medical personnel has been shown to be successful in some settings. However, any such move in India is highly likely to encounter strong opposition.

The Inter-Agency Group which started the Safe Motherhood Initiative met in Colombo in 1997, to review the lessons learned in the 10 years after the Nairobi Conference. This meeting highlighted the fact that every pregnancy faces risk and that skilled attendance at delivery is crucial for safe motherhood. Other recommended medical interventions included improvement of access to quality maternal health services, prevention of unwanted pregnancies and unsafe abortions.

Safe motherhood is a community responsibility. It can happen only if governments (politicians and bureaucrats), international development organizations, community-based grassroot groups, businesses and private citizens work together. Social and economic development should go hand-in-hand with improvements in health status, quality health care and above all, access to emergency care.

The first two causes of delay in receiving emergency care are delay in decision to seek care and delay in reaching a treatment facility. Increasing community awareness and participation in safe motherhood issues (e.g. recognition of danger signs during
pregnancy and childbirth, mobilizing emergency transport and availability of safe blood) are interventions as important as construction and staffing of more and easily accessible first referral units in or adjacent to rural areas.

The third delay occurs in receiving adequate treatment after the woman reaches the health facility. This delay should be actively reduced through sensitizing and training all staff at the health facility in the recognition and immediate management of suspected life-threatening emergencies. Training in life-saving skills in pregnancy and childbirth should be an essential part of pre-service and in-service training. Minimum standards of care in pregnancy and labour that are evidence-based and appropriate to the region should be established. The World Health Organization is currently developing guidelines for dealing with emergencies in pregnancy and childbirth. These guidelines could be adapted for developing local standards, if required.

Professional bodies also have a responsibility to advise policy-makers correctly—highlighting issues, prioritizing interventions and influencing change. The Royal College of Obstetricians and Gynaecologists in the United Kingdom initiated the practice of confidential enquiries into maternal deaths, a practice that has significantly influenced maternal mortality in that country. In India, paediatricians have been successful in creating awareness and initiating action in issues such as oral rehydration, immunization and promotion of breast-feeding. The Federation of Obstetric and Gynaecological Societies of India with more than 14 000 members should do the same for safe motherhood in India.

REFERENCES

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Sentinel Node and Breast Cancer:
A New Paradigm?

Breast cancer is the commonest cancer among women in the West. In India, it is the commonest cancer among women in the Delhi and Bombay Cancer Registries.1 The reported age-adjusted incidence of breast cancer in the Delhi Cancer Registry in 1995 was 29.3 per 100 000 population (unpublished data). Unlike in the West, most