

## Maternal Survival 5

# Maternal health in poor countries: the broader context and a call for action

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In this paper, we take a broad perspective on maternal health and place it in its wider context. We draw attention to the economic and social vulnerability of pregnant women, and stress the importance of concomitant broader strategies, including poverty reduction and women's empowerment. We also consider outcomes beyond mortality, in particular, near-misses and long-term sequelae, and the implications of the close association between the mother, the fetus, and the child. We make links to a range of global survival initiatives, particularly neonatal health, HIV, and malaria, and to reproductive health. Finally, after examining the political and financial context, we call for action. The need for strategic vision, financial resources, human resources, and information are discussed.

We believe that the Millennium Development Goal for maternal health (MDG-5) to reduce maternal mortality by two-thirds by 2015, will best be achieved by adoption of a core strategy of intrapartum care based in health centres. The clustering of mortality around delivery, and the dominance of haemorrhage, infections, and hypertensive disorders as causes of death, mean that all women should have access to skilled attendants at birth and immediately after, and to timely referral for emergency care.<sup>1</sup>

The regions with the highest mortality burden—sub-Saharan Africa and south Asia—face massive deprivation in access to such care and the sheer scarcity of staff and the excessive costs of care to mothers are substantial barriers to progress.<sup>2</sup> To achieve rapid coverage requires training, deployment, and retention of midwives, preferably in teams in small facilities.<sup>3</sup> Financial barriers to care, such as user fees, must also be removed. Overcoming health system constraints to provide such interventions at scale is possible, but donors will need to increase financial contributions for maternal health in low-income countries to help overcome the resource gap.<sup>4</sup>

### Pregnant women are economically and socially vulnerable

Women are intensely vulnerable to the effects of costs incurred during childbirth.<sup>4</sup> User fees can be especially high for emergency or technological procedures such as caesarean section, sometimes reaching catastrophic amounts, which push families into poverty.<sup>4,5</sup> For example, near-miss complications in Beninese women accounted for 26% of average yearly household expenditure, and many women often left the hospital before they were well enough for discharge because they could not pay for the care they received.<sup>6</sup> User charges add to the costs of transport and companion time, which can be substantial for those living far from facilities. The time spent looking for cash can also delay access to emergency life-saving care in facilities.<sup>7</sup> Women are encouraged to plan for their deliveries, but the unpredictability of the outcomes and

costs makes planning difficult. Indeed, the fear of anticipated cost can deter use of services.<sup>8</sup> The huge inequalities between poor and rich people in access to skilled delivery care are therefore not surprising, and are greater than those for uptake of child health services or family planning.<sup>3,9,10</sup> The socioeconomic differences in maternal mortality can also be large with, for example, a six-fold difference between the richest and poorest quintiles in Peru.<sup>2</sup>

Catastrophic costs and adverse maternal health outcomes, especially for the worst off, are not the only concerns. Good maternal health is crucial for the welfare of the whole household, especially children who are dependent on their mothers to provide food, care, and

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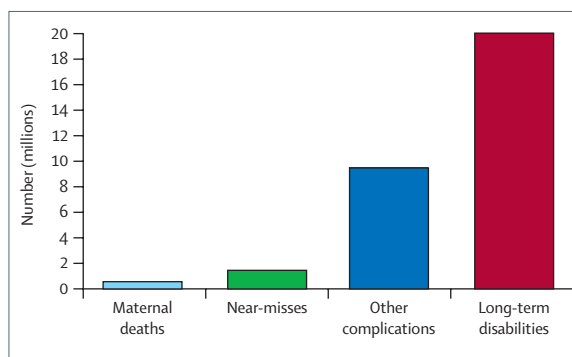
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#### Panel 1: Improving maternal survival: links to other Millennium Development Goals

- MDG-1: poverty reduction: improved maternal health services, which are available equitably can not only help to reduce the gap in numbers of maternal deaths between rich and poor people, but also reduce the economic effect on poor families, both of catastrophic payments owing to emergency care and of the death or disability of an important productive member of the household.
- MDG-3: women's empowerment: maternal mortality is high where women's status is low, especially with regard to educational level.
- MDG-4: child survival: intrapartum and early postpartum strategies will reduce the overwhelming burden of neonatal deaths, and improved maternal survival will also enhance the survival and well-being of young children.
- MDG-6: infectious diseases: good maternity care services provide opportunities to prevent and treat malaria in mothers and babies, and prevent mother-to-child transmission of HIV and other sexually-transmitted infections.

### Panel 2: Human rights, women's empowerment, and community mobilisation approaches

The key to reduction of maternal mortality is sometimes suggested to be use of broader-based action, such as improvement of women's education, income, or status. There is no uncertainty, and little controversy, about the need for such initiatives within a development agenda. Actions to improve these determinants of maternal health are medium-term to long-term, but they also provide enabling conditions for more proximate interventions (such as creation of demand for skilled delivery care) to succeed in terms of population coverage and sustainability. Improvement of women's education, for example, is a big picture intervention, which produces multiple valued end-points, and not just health-related ones. Distal-level interventions also exist, which are in fact vehicles for change rather than interventions per se—namely, human rights, women's empowerment, or community mobilisation. For example, a human-rights-based approach to reduction of maternal mortality provides a legal or development-centred framework or both for strengthening policy and programme interventions, such as the targeting of resources for the poorest and socially-excluded people. Another example is community-based action on the demand side of health care, which shows promise as a means of both improving home care and increasing uptake of services.<sup>20</sup>



**Figure 1: Extent of maternal mortality, morbidity, and disabilities**  
Calculations assume 136 millions births, 1% near-miss, 7% serious complications, and 20 million disabilities a year.<sup>11,22,23</sup>

emotional support. The death or chronic ill-health of a mother increases the probability of death and poor growth and development of her children.<sup>11</sup> Improvement in financial and geographical access to good quality intrapartum care based in health centres is therefore important in any poverty eradication strategy, as well as a means of reaching MDG-5 (panel 1).<sup>12</sup>

The days before or after childbirth can be a period of ambiguity for women. Some moments are joyful, and childbearing is highly valued: if everything goes well, the emotional, personal, and social benefits are great, but women might become more vulnerable.<sup>13,14</sup> Stressors include lack of education, money, and decision-making power (particularly in relation to care during pregnancy) as well as the pressure to reproduce, the fear of complications, and a perceived inability to control the danger. This increased, repeated vulnerability linked to gender makes maternal health a unique issue.

In countries with similar amounts of economic development, maternal mortality is inversely proportional

to women's status.<sup>15</sup> Female ownership of assets<sup>16</sup> and secondary education increases use of maternal services, even in adverse family or socioeconomic situations.<sup>17</sup> Women in many developing countries have less freedom to act, less personal autonomy, and less access to information than their male partners or husbands. In Benin, for example, men pay for maternity services as an indication that they acknowledge paternity. The willingness and ability of husbands to pay for care varies considerably.<sup>18</sup> Husbands are characteristically warned not to abandon their wives when looking for money to cover the cost of maternity care. Pregnant women can be subjected to stigma and violence associated with their position in society, in particular if they are single.<sup>19</sup> The long-term effect on maternal mortality of promotion of MDG 3 (gender equality and women's empowerment) is likely to be substantial (panel 2<sup>20</sup>).

### Maternal health is more than survival

#### Near-misses, ill health, and long-term sequelae

In sub-Saharan Africa, one in 16 women dies in pregnancy or childbirth. This risk is 175 times higher than that in developed countries (one in 2800).<sup>21</sup> The 529 000 maternal deaths are the tip of the iceberg, and many more women are estimated to suffer pregnancy-related illnesses (9.5 million), near-miss events (1.4 million), and other potentially devastating consequences after birth (figure 1).<sup>11,22,23</sup>

The consequences of near-miss events (severe, life threatening complications that women survive) and maternal deaths on women and their families can be substantial, and recovery can be slow, with lasting sequelae. An estimated 10–20 million women develop physical or mental disabilities every year as a result of complications or poor management.<sup>23,24</sup> The incidence of childbirth-related damage to pelvic structure can be high; for example, the prevalence is 46% in Gambia, or can be infrequent, but debilitating, for example with vesicovaginal fistula.<sup>25</sup> The long-term consequences are not only physical, but are also psychological, social, and economic (figure 2). Infertility after hysterectomy for uterine rupture, for example, can lead to depression, social isolation, and marital disharmony,<sup>26</sup> as well as debt because of the high cost of surgery.

Self-reported ill health in pregnancy is common.<sup>27,28</sup> Rural Nepalese women report ill-health for 3–4 days a week during the 9 months of pregnancy (symptoms include fever, swollen feet, and vaginal bleeding).<sup>29</sup> Although maternal mortality has been chosen as the valued outcome for MDG-5, health-care systems cannot ignore the suffering that takes place and is indicative of a potential need for health care, especially since the frequency and duration of suffering can be debilitating. Antenatal and postnatal care provide opportunities to deal with recurrent problems, and can also represent an opportunity for other actions, such as birth planning. An overly restricted focus on emergency care might mean

opportunities to prevent complications are missed and might be detrimental to maternal health in the broadest sense, for example if women are saved too late but develop chronic health problems. Moreover, women need health services that respond to the health problems they perceive. A pregnant woman who is not treated for a minor ailment because it is not life threatening is unlikely to seek other services.

### Mother and child outcomes are closely linked

Of the 136 million babies born every year, 3·2 million are stillborn and 4 million die in the first month of life,<sup>30,31</sup> 98% of whom live in low-income and middle-income countries. Neonatal deaths contribute 38% of deaths in those younger than 5 years, and are the main barrier to attaining the MDG for child health (MDG-4). Although mother and child outcomes are associated across the whole life-cycle and into the next generation, the most radical effects of maternal mortality on child survival are in the pregnancy and neonatal period. Obstetric complications, particularly in labour, are a major source of stillbirths and early neonatal deaths,<sup>32</sup> perhaps responsible for as much as 58% of such outcomes.<sup>33</sup> Intrapartum risk factors increase the risk of perinatal or neonatal death more than pre-pregnancy or antenatal factors.<sup>30</sup> Likewise, the repercussions for children who survive the death of their mothers can be staggering. In Nepal, for example, infants of mothers who died during childbirth were six times more likely to die in the first week of life, 12 times more likely between 8 and 28 days, and 52 times more likely to die between 4 and 24 weeks.<sup>34</sup> Whereas many early deaths were attributable to obstetric complications, later deaths were explained by an absence of appropriate childcare and nutrition.

### Mutual benefits for global survival initiatives

#### Health-centre-based intrapartum care and neonatal survival

Stillbirths, neonatal deaths, and maternal morbidity and mortality fit together as public health priorities. Neonatal deaths are more common than maternal deaths and can be reduced through a range of approaches: institutional or community-based, antepartum, peripartum, and postpartum.<sup>35</sup> Within this spectrum, skilled birth attendance is particularly advantageous for both maternal and neonatal survival.<sup>36,37</sup> Associations between place of birth (or the presence of a skilled attendant) and neonatal deaths are similar to those for maternal deaths; 90% coverage of facility-based clinical care alone could reduce neonatal mortality by 23–50%.<sup>38</sup> If outreach and family-community care were added and achieved similar coverage, the reduction would be 31–61%. The three biggest causes of neonatal death are preterm delivery, complications of presumptive birth asphyxia, and infection. The first two of these are manifest at the time of birth and about three-quarters of neonatal deaths occur in the first week, most of them

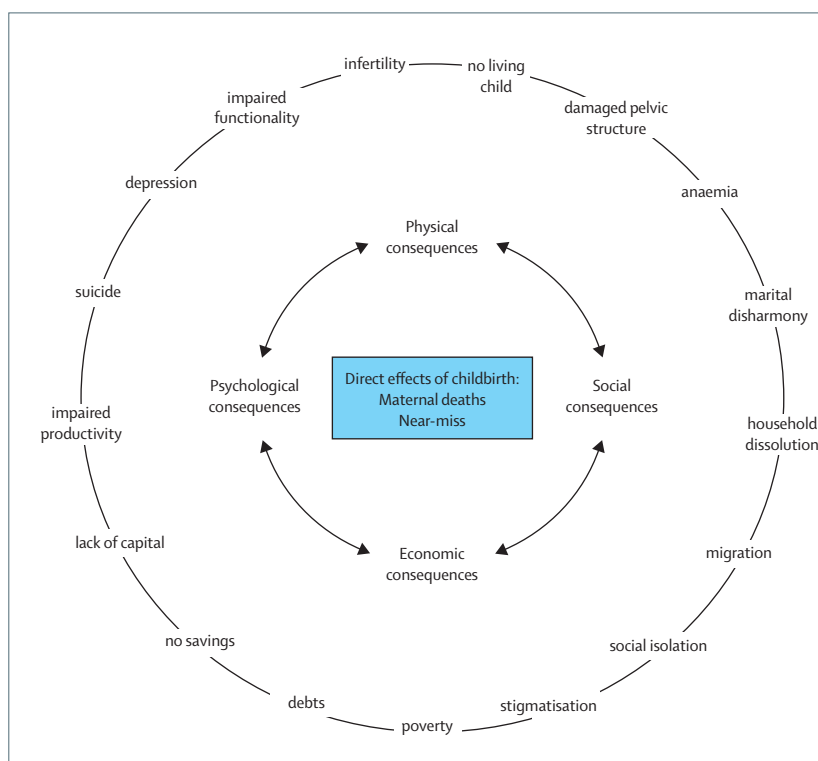


Figure 2: Pregnancy-related illnesses and their consequences

in the first 2 days. If we can achieve high coverage of intrapartum care based in health centres, a qualitative change in labour monitoring and in early care for preterm newborn babies is likely to translate into a fall in early neonatal mortality.

There is little doubt that neonatal mortality is also sensitive to other interventions.<sup>38</sup> Assessments of cause of death and trials in poorly-resourced settings suggest that survival can be reduced substantially through community-based initiatives.<sup>20,39–41</sup> Skilled attendance is uncommon in many places,<sup>37</sup> and advocates for neonatal care are pessimistic about the likelihood of achieving it: at the current rate, and without extra resources, average skilled attendant coverage in Africa will be less than 50% by 2015.<sup>37</sup> Advocates for neonatal care hold out greater hope for achievement of high coverage with community workers attending in the first few days postpartum. If a particular country already has community health workers present at delivery, pragmatism would suggest that they should help mothers as well as newborn babies; for example, by referring women for appropriate care in an emergency. However, no evidence exists that such interventions work at scale and investment in community health workers should not reduce funds for investment in skilled attendants. Moreover, to see the skilled birth attendance objective as utopian would be to imply that maternal mortality reduction is not possible and underestimate the core of pragmatism and system

**Panel 3: Action called for****Strategic vision**

Donors and governments need to formulate a clear strategic vision of what it takes to reduce maternal mortality:

- Intrapartum strategies are the priority. Complementary strategies, such as family planning and safe abortion, also play an important part for those who need them.
- To reduce maternal mortality, all women should be able to deliver in health centres with midwives working in teams (health-centre intrapartum care strategy).
- Deliberate efforts are needed to target the women in greatest need, particularly poor women in rural areas. At international level, sub-Saharan Africa and south Asia should continue to be priorities. These regions are where the maternal mortality ratio and lifetime risk of death are the highest and infrastructure and human resource constraints the greatest.

**Financial resources**

The international community must recognise that reduction of maternal mortality is a long-term effort with no single solution. With the complex challenges of working through health systems, an acceleration in progress requires long-term support (>10 years). We call for donors to channel funds through sector-wide support, with special investment in resource-tracking mechanisms to hold all countries, donors, and other actors to account.

The introduction of user fees has done great damage to the use and quality of maternity-care services, particularly for the poorest women. We call on countries to adopt policies to protect the poorest families from the catastrophic consequences of unaffordable delivery charges.

**Human resources**

We call on governments to:

- Start planning now for the training and deployment of the required human resources, especially midwives. Investment in community health workers should not be at the expense of funds for skilled attendants.
- Invest in efforts to retain existing staff, including discouragement of international brain drain, particularly by improving working conditions and offering appropriate incentives for good quality care.

**Tracking progress**

We call for better monitoring of progress made in improving maternal health, with an expanded set of indicators (panel 4) and targeted research on intrapartum care based in health centres (panel 5). We also call for an improvement in data quality, the creation of a monitoring and evaluation of maternal outcomes group and a statement on data quality as it relates to maternal health (panel 4).

engagement, which has been achieved by maternal-health policy and programming. Maternal survival initiatives have a historical head start on neonatal initiatives, particularly in terms of engagement with health systems and of putting programmes into effect. Neonatal initiatives are at a stage at which the potential programme options are few, because of little experience of programme or health-system implementation.<sup>42</sup> The need for a continuum of care is evident—from pre-pregnancy into childhood and from community to hospital—but how such a continuum would manifest in real settings is not yet clear<sup>43</sup> and the results of initiatives to take community-based interventions to scale are

awaited. To put in place a cadre of new workers, whether skilled birth attendants or community workers, would need substantial investment. The resource requirements for logistics and supervision, and also sustainability of community workers are rarely considered.<sup>11</sup>

**Maternity and infectious diseases**

Pregnancy interacts with other disorders (for example, malaria, HIV, heart disease, and diabetes) to which women are both more susceptible and more vulnerable to severe manifestations.<sup>2</sup> Malaria and HIV have been global priorities and interventions target pregnancy and delivery. Most programmes recognise the importance of integrating with maternal health services for successful scaling up.<sup>44,45</sup> Both malaria and HIV programmes benefit from the relatively high coverage of antenatal care, for example through intermittent preventive treatment of malaria for pregnant women and distribution of insecticide-treated nets, and through improved access to intrapartum care for HIV-positive mothers (a key strategy for the prevention of mother-to-child transmission in low-income countries). Programmes can only benefit from strong investments for safer motherhood in this area. However, these strategies will work best with concerted action from maternal health specialists; the result would be disastrous if well funded HIV and malaria programmes swept the best maternity staff away from the delivery suites<sup>46</sup> or if counselling and testing was provided antenatally without ensuring that screening for hypertensive diseases of pregnancy was provided.

**Making political and financial commitments  
International commitment and tracking resources**

Despite the commitment expressed with the Millennium initiative, maternal, newborn, and child health have not been given financial priority internationally. Maternal mortality only affects women in a narrow age range; one dilemma is that the number of maternal deaths can seem small compared with deaths due to other disorders. Safe motherhood programmes compete for funding with other priorities such as tuberculosis (2.4 million yearly deaths), malaria (1 million), and HIV/AIDS (3 million).<sup>47</sup> Partitioning of maternal and child health between different vertical programmes, in particular malaria and HIV, was recognised as a problem in a previous *Lancet* series on child health.<sup>48</sup> Competition for funds is fierce, and advocates for well funded disease initiatives even feel the need to compete for the meagre resources of maternal health: one website states that "tuberculosis kills more women worldwide than all causes of maternal mortality".<sup>49</sup>

The MDG declaration after the 2005 G8 summit in Scotland referred mostly to infectious diseases and did not draw attention to maternal and child health as an important problem to which further resources would be channelled. The UK is the only major bilateral donor



to have a strategy on how it will address MDG-5 (McConville F, UK Department for International Development, personal communication). Furthermore, maternal health represents only a tiny proportion of the overall aid budget (1% of the aid budget of one of the main donor countries).<sup>48</sup> Global development assistance to maternal and neonatal health has been estimated at more than US\$663 million in 2003.<sup>50</sup> An estimated extra US\$1 billion in 2006, increasing to US\$6.1 billion in 2015, is needed to increase coverage to desired levels;<sup>11</sup> such estimates omit the cost of incentives to improve quality of care, ensure staff retention in rural areas, and deter the imposition of informal charges.<sup>4</sup> The extent to which such health system investment will affect maternal health is difficult to quantify and is a challenge to cost-calculating exercises.

#### Political commitment at country level

Effective health interventions exist for mothers and babies, and several proven means of distribution are available that can be used to put these in place and take them to scale. However, none of them will work if political will is absent where it matters most: at national and district levels.<sup>51</sup> Shiffman and colleagues<sup>52</sup> noted substantial progress in getting maternal health onto the national political agenda in Nigeria and India, two countries that contribute up to a third of all maternal deaths worldwide. Several factors helped this progress in Nigeria, including interest from the federal government, the emergence of local political champions in the national assembly, an increased health budget, and an active civil society. Crucial barriers to successful implementation remain, however, such as absence of adherence to the cause at district level and of commitment of domestic revenues, with maternal health seen as funded mostly by donors. Further political sensitisation is needed at local level, particularly with local policy makers. Improvements towards safe motherhood are not as visible to the public as a successfully constructed road.<sup>52</sup>

#### Call for action

In September, 2000, 189 countries pledged to support the MDGs. The fifth goal demands a reduction in the maternal mortality ratio by three-quarters between 1990 and 2015. Malaysia, Thailand, Sri Lanka, Honduras, Bangladesh, and Egypt have all shown that to reduce maternal mortality by 75% in 25 years is possible.<sup>2</sup> However, in the present demographic, economic, and political context, most African and some Asian countries are unlikely to achieve this by 2015.

This Maternal Survival series promotes childbirth in health facilities as the most likely strategy to prevent maternal deaths. Prevention of the death of a mother is the single most important intervention for the health of a child. We acknowledge that there are trade offs, particularly in relation to resources for health rather

#### Panel 4: Tracking progress in maternal health

The challenge of reliably measuring trends in maternal mortality is substantial, and thus no simple solutions for monitoring progress towards MDG-5 are available. Rather, all opportunities should be seized to gather data, such as decennial censuses, indirect approaches embedded in large surveys, innovations in sampling, population surveillance sites, and adjusted routine facility-based data. Countries should report the maternal mortality ratio and the total number of maternal deaths. At a minimum, mortality estimates should separate abortion from other direct obstetric causes, and so-called coincidental causes should be identified within maternal mortality statistics.

##### Indicators

- Total number of maternal deaths, by cause
- Maternal mortality ratio, by cause
- Midwife to population ratio
- Availability of basic and comprehensive obstetric care facilities per 500 000 population<sup>54</sup>
- Proportion of births attended by skilled health personnel by place of delivery
- Proportion of births with caesarean section<sup>55,56</sup>
- Proportion of births with life saving surgery<sup>56,57</sup>
- Proportion of women who stayed in a health facility for 24 h or more after delivery
- Mortality rate among women of reproductive age

Progress cannot be assessed with maternal mortality alone, since policy decisions need to build on a good understanding of the mechanisms that underlie the changes in mortality. We have suggested indicators to track progress with the health-centre intrapartum care strategy. Monitoring of service use by equity parameters is essential to measure progress in care for those who need it most.

To raise awareness that data quality matters and to strengthen country capacity to interpret, gather, and use reliable data, we propose setting-up an international reference group to monitor and evaluate maternal-health outcomes. Such a group would have similar roles and responsibilities to the Child Health Epidemiology Reference Group<sup>58</sup> and would link with specialist groups in monitoring of perinatal outcomes. One of the first tasks of such a group could be to launch a statement to draw attention to the importance of data quality. This statement would consist of a checklist of considerations in reporting, such as definitions and an algorithm for deciding appropriateness of data for specific purposes.

#### Panel 5: Generating evidence

New evidence is crucial if progress towards safer motherhood, and in particular MDG-5, is to be sustained. Research is especially needed on how to train, deploy, and retain large numbers of skilled birth attendants, finance maternal health services, and ensure equitable access. A great deal has been written about maternal and neonatal deaths and near-misses being difficult or impossible to record. Whenever possible, evaluation schemes should be encouraged to use maternal mortality, near-miss events, and perinatal or neonatal mortality as endpoints, as well as process indicators and costs. This would help meta-analyses of the cost-effectiveness of innovative interventions on mortality.

than those for mortality. But to remain focused on the MDG target, while “keeping an eye on the broad picture” is important.<sup>53</sup> Concerted action is needed at all levels, from governments to the international community, health professionals to academics, individuals to civil society, and between global initiatives. The new

For further information on the Partnership in Maternal, Newborn and Child Survival see <http://www.pmnch.org/>

international Partnership in Maternal, Newborn and Child Survival is well-positioned to spearhead a revival of such energies and efforts. The action we call for is shown in panels 3–5.<sup>54–58</sup>

Too many women die in their prime in pregnancy. What needs to be done is clear. Governments have committed to reduction of maternal mortality; we should not falter in our efforts: the future depends on what we do in the present.

#### Conflict of interest statement

We declare we have no conflict of interest.

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