Challenges to women’s reproductive health: maternal mortality

Report prepared at the request of the Social Development Department, Department for Overseas Development (DFID), UK

by Zoë Oxaal with Sally Baden

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## ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
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<tr>
<td>AZT</td>
<td>3’-azido-2’,3’-dideoxythymidine</td>
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<tr>
<td>COWAN</td>
<td>Country Women’s Association of Nigeria</td>
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<tr>
<td>DAC</td>
<td>Development Assistance Committee (of the Organisation of Economic Co-operation and Development)</td>
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<td>FGM</td>
<td>Female Genital Mutilation</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>IV</td>
<td>Intravenous</td>
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<td>MCH</td>
<td>Maternal and Child Health</td>
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<td>MWH</td>
<td>Maternity Waiting Home</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<tr>
<td>TBA</td>
<td>Traditional Birth Attendant</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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</table>
EXECUTIVE SUMMARY

Policy context

The issue of maternal mortality can be approached from a number of perspectives, notably a ‘health/welfare’ rationale or a rights-based rationale. Recent international conferences such as Cairo and Beijing have emphasised the importance of women’s reproductive and sexual rights, as well as the complex economic, social, political and cultural factors underlying women’s health. Focusing on maternal mortality in isolation overlooks the major problems associated with maternal morbidity, which affect the quality of life of a far larger number of women; it also runs the risk of only addressing women as mothers and not acknowledging their non-reproductive health needs.

Whilst the nature of medical complications which lead to maternal death are understood, the underlying determinants of maternal mortality are complex and their relationship with medical and proximate factors, are not. An influential model of the causes of maternal mortality has acknowledged the importance of socioeconomic factors without elucidating them. A greater focus is needed on processes of decision making about reproductive behaviour and access to health care and how constraints on women’s physical, sexual, economic, social and political autonomy affect these processes. It is important to recognise that household and community power relations affect women’s autonomy and therefore their influence over decisions, leading to delays in seeking treatment, or denial of care, if these constraints are to be loosened.

Policies to address maternal mortality

There is no ‘silver bullet’ policy to address the issue of maternal mortality. Preventative measures are important but there are no reliable predictors of maternal death. Therefore, making access to emergency obstetric services available to all women is central to reducing maternal mortality. Here, attention is required both to ‘supply’ (coverage and quality of service provision) as well as ‘demand’ issues, which have thus far received limited attention. The dichotomy between supply and demand is often not helpful. Supply-side issues, particularly quality of care, feedback into decisions to seek health care in emergencies. In order to ensure access, health service managers need to be aware of ‘patient factors’ e.g. distance to facilities, which restrict access. Gender analysis can assist in identifying limitations on women’s capacity to seek health care when complications arise, as well as locating biases in the structure and culture of health service provision.

A range of underlying factors affecting maternal outcomes are identified: violence against women; ethnicity; education; workload; and political and legal issues. The latter include legal provisions relating to abortion, family planning and medical consent, political commitment to reducing maternal mortality and the existence of women’s organisations to lobby on the issue. ‘Risk’ factors are not limited simply to demographic variables (age, parity etc.) but also relate, for example, to issues of social stigma surrounding sexual behaviour and seasonal peaks in women’s workload. In addition, gender biases in the structure and culture of health services provision are highlighted.
The analysis, as well as experience of implementing strategies to combat maternal mortality, suggests that multi-pronged and layered interventions are required, some of which are short and others longer term in scope.

At the level of **macro-policy**, legal changes (relating to abortion, medical consent etc.), review of public expenditure priorities and linkages of women’s and health ministries, to develop capacity for gender analysis and planning in health ministries, are possible measures. Dialogue should also be encouraged at national level between organisations working on reproductive health and government ministries.

At the level of **institutional change and sector reform**, there is a need to reform the culture of delivery of health services to women, including maternal health services, and to greatly improve the quality of care. This requires participatory research into perceptions of services and their cultural appropriateness, linked to training initiatives, dialogue between service providers and users and improved accountability of service providers. Financing mechanisms for maternity care also require investigation, particularly whether insurance schemes or credit can be designed which are affordable and which women want to take up.

At the **community level**, education of men and community leaders as well as women, the setting up of maternity waiting homes, credit schemes to fund health care and initiatives to address violence against women, are all possible interventions.

**Further research**

Areas requiring further research, some linked to interventions suggested above, include:

- The relevance of sexual behaviour and cultural beliefs relating to sexuality to practices associated with birth which may endanger women’s lives;

- Sexual and physical violence against women in pregnancy and as a cause of unwanted and risky pregnancy. Specifically, violence and abuse of women by medical personnel requires investigation;

- Ethnicity and other forms of social differentiation as factors underlying differences in access to maternal health services and the cultural appropriateness of those services;

- Users’ and non-users’ perceptions of the appropriateness and effectiveness of existing maternal health services;

- The impact of the introduction of user fees/cost recovery on access to maternal health services in different settings and the viability of different forms of insurance schemes or other financing covering maternal health care.
1. INTRODUCTION

1.1 Policy context

Maternal mortality is currently an issue of much concern on the international health agenda. The Development Assistance Committee document ‘Shaping the 21st Century: The Contribution of Development Cooperation’ has set in place ambitious targets, to reduce maternal mortality by at least 50 percent of the 1990 levels by the year 2000 and by a further one half by the year 2015. The Platform for Action of the United Nations Fourth World Conference on Women, Beijing, also calls for a strengthening of efforts to achieve these goals (UN, 1995 (i), C106 i). Furthermore, in April 1996, the World Health Organisation (WHO) issued new estimates for levels of maternal mortality worldwide which suggest that the numbers of maternal deaths are even greater than was previously thought: an estimated 600,000 women die each year in pregnancy and childbirth. Calls have been made for the issue to be forced into public consciousness and further onto the political agenda (Adamson, 1996). The recognition of reproductive and sexual rights at the recent Cairo and Beijing conferences has also heightened awareness of this issue and created a political imperative to act.

Feminists have drawn attention to the fact that the bulk of reproductive work is carried out by women, in child-bearing, child-rearing and the care of adults (Sen, 1994). Maternal mortality is perhaps the ultimate reminder that it is women who shoulder the costs of this reproductive work, in this case through their premature death. Levels of maternal mortality are indicative of how states have chosen to intervene or not in reducing the costs of reproduction to women’s lives. Health policy may exhibit strong gender bias in terms of where resources are allocated and whether providing effective services which are accessible to women is seen as a priority (Freedman and Maine, 1993).

Health policies and programmes often perpetuate gender stereotypes and fail to consider socioeconomic disparities and other differences among women, and may not fully take account of the lack of autonomy of women regarding their health. Women’s health is also affected by gender bias in the health system and by the provision of inadequate and inappropriate medical services to women (UN, 1995 (i), C ‘Women and Health’).

For decades, in the field of women’s health, there has been a focus on fertility regulation, creating a narrow conceptualisation of women’s health as bounded by the ages 15 to 45 and the reproductive system (Koblinsky, Campbell and Harlow, 1993). The current interest in maternal health and maternal mortality marks a widening of this understanding of women’s health and a recognition that, in the context of Maternal and Child Health programmes, mothers have in the past been neglected in favour of measures to improve infant and child

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1 This report was prepared at the request of the Social Development Department, Overseas Development Administration, UK, as a background paper to review current knowledge of the socioeconomic factors affecting maternal mortality, and to initiate discussion about the issue. Zoë Oxaal drafted the report, with technical advice from Veronique Filippi, Research Fellow in Medical Demography, Maternal and Child Epidemiology Unit, London School of Hygiene and Tropical Medicine. Sally Baden also gave advice on content and structure and edited the draft report. The report was revised following a meeting with advisers on Social Development and Health and Population, at ODA.
health. However, the current focus on reproductive health still means that many other aspects of women’s health and well-being, particularly the health problems of adolescents and ageing women, as well as the non-maternal, non-reproductive health needs of women during their reproductive years, tend to be neglected (Ibid.). It is useful to consider the entire life cycle when addressing the causes and consequences of women’s poor health. This allows for a focus on the particular problems which affect females at different stages of the life cycle, and recognises cumulative effects and lifetime problems, in the context of a holistic view of women’s health (World Bank, 1994).

The Beijing Platform for Action recognised that ‘women’s health involves their emotional, social and physical well being and is determined by the social, political and economic context of their lives, as well as by biology’ (UN, 1995(i), C). A narrow focus on maternal mortality runs the danger of falling into an old-fashioned welfarist approach, seeing women primarily as mothers. Whilst it is important to be aware of the consequences of high maternal mortality on households and communities (and perhaps particularly on older daughters who may have to shoulder an increased reproductive burden), this should not be seen as the sole motivation for attention to the issue. Instead, the issue needs to be viewed through the lens of women’s rights and empowerment and a concern for women’s health in its own right. Only then can the interconnection of broader socioeconomic, cultural and political factors, proximate factors and medical causes affecting maternal mortality, be understood and addressed.

To date, most work on maternal mortality has concentrated on medical causes and proximate factors as well as on service provision. Whilst the importance of socioeconomic factors underlying maternal mortality has been recognised in the health literature (e.g. Maine, 1992), there has been limited analytical work in this area. Gender analysis suggests that maternal mortality is linked to a wide range of factors in women’s lives, including the value women and their families and communities place on women’s health, women’s economic position, their access to education and information and their capacity to make autonomous decisions. The Beijing Platform for Action states that ‘...relatively little is known about how social and economic factors affect the health of women and girls of all ages...’(UN, 1995 (i), C 104) and proposes action to ‘support and fund social, economic, political and cultural research on how gender-based inequalities affect women’s health’ (UN, 1995 (i), 109 f).

This paper suggests where some of these gaps in knowledge might be in relation to maternal mortality.

1.2 Approaches to reducing maternal mortality

Addressing maternal deaths involves a two stage process: firstly, strengthening women’s choice over reproductive decision-making, and secondly, ensuring that once a woman is pregnant, she has access to appropriate care, including emergency intervention where necessary. Approaches linked to this first stage are family planning interventions, which attempt to reduce the number of maternal deaths by reducing the number of pregnancies. However family planning should not be seen as the sole answer to the problem of maternal

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2 This paper will focus mainly on the latter since a huge literature already exists on fertility, reproductive decision-making and family planning services.
mortality because it cannot help reduce the risk of death once a woman has become pregnant. It is therefore useful to consider maternal mortality in the context of the second stage, with particular focus on women’s health in pregnancy. The framework of ‘women’s health in pregnancy’ can in turn be seen in the broader context of women’s health throughout the life cycle. Furthermore a focus of pregnant women’s health encompasses the psychosocial status on women in pregnancy and the problems of maternal morbidity.

It is now accepted that preventative measures (maternal education, pre-natal care etc.) are not enough to reduce maternal mortality. Attempts to identify those women who are most at risk and refer them to hospital for delivery cannot eliminate maternal deaths because many apparently ‘high risk’ women will have no problems, whilst women who are not seen as being at risk can still rapidly develop unforeseen complications. Therefore effective treatment of obstetric complications, by means of essential and emergency obstetric care, are vital.

...the improvement of women’s status along the parameters such as equality in education, employment, or legal rights is [vitaly] important for many reasons, not least of which is women’s overall health. But we can not delude ourselves into assuming that such advances will automatically cause maternal mortality to disappear. A dramatic reduction in maternal deaths will happen only when there has been the explicit decision to make emergency obstetric care accessible to all women. Yet whether or not a society makes that decision is itself a measure of women's status (Freedman and Maine, 1993, p.163 emphasis added).

This view emphasises the importance of both long-term strategies towards gender equality and political will to make appropriate medical services available to all women, in reducing maternal mortality.

1.3  Structure of the paper

This paper will explain how socioeconomic, cultural and political factors affect women’s vulnerability to maternal death, their capacity to access to maternal health services, particularly emergency obstetric care. In addition, gender biases in the structure and culture of health service provision are discussed in terms of their effect not just on the availability of maternal health services, but also on the effectiveness, appropriateness and accountability of these services to women.

Section 2 provides basic statistical definitions and an overview of the nature and extent of the maternal mortality problem in different regions. Section 3 looks briefly at medical causes of maternal death and the proximate factors associated with these. Section 4 looks in detail at socioeconomic, cultural and political factors underlying maternal mortality. Finally, section 5 reviews some of the main strategies adopted so far to address maternal mortality and suggest ways forward. An appendix explains problems associated with the measurement of maternal deaths and a bibliography is also attached.
2. STATISTICAL OVERVIEW

2.1 Definitions and measurement of maternal mortality

Maternal death

According to the Ninth and Tenth Revisions of the International Classification of Diseases (ICD-9 and 10) a maternal death is defined as:

the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Maternal deaths should be subdivided into two groups:

(1) Direct obstetric deaths: those 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.

(2) Indirect obstetric deaths: those 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 physiologic effects of pregnancy.

ICD 10 has introduced a new category of pregnancy related death defined as:

the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death (and) is intended for countries that wish to identify deaths occurring in pregnancy, childbirth and up to 6 weeks after the end of pregnancy but where the cause of death cannot be identified precisely.

(WHO cited in Royston, 1989, Mauldin, 1994)

Maternal mortality ratio

The maternal mortality ratio is the most commonly used indicator of maternal death. It measures a woman’s risk of dying from a given pregnancy. It is expressed as the number of
maternal deaths per 100,000 live births, in a period (usually a year). The maternal mortality ratio is sometimes wrongly called the maternal mortality rate.

**Maternal Mortality Rate**

The *maternal mortality rate* correctly refers to the number of maternal deaths in a period (usually a year) per 100,000 women of reproductive age (usually defined as aged 15-44 or 15-49). This indicator takes into account both the risk of becoming pregnant and the risk of dying for reasons related to maternal complications during pregnancy.

There is a range of other definitions and measures of maternal mortality which aim to overcome some of the problems associated with these common measures. These are discussed at greater length in Appendix I (Campbell and Graham, 1990; Royston, 1989).

### 2.2 Overview of statistics on maternal mortality

New estimates released by WHO in 1996 indicate that globally the number of women who die each year in pregnancy and childbirth is around 585,000, almost 20 percent higher than previous estimates (WHO and UNICEF, 1996). An estimated 300 million women suffer lasting damage to their health due to pregnancy or childbirth (UNICEF, 1996). The gap between developed and developing countries is wider in terms of maternal mortality than for any other health indicator. Maternal mortality ratios show a greater disparity between countries than even infant mortality rates, the most commonly used measure of comparative disadvantage (WHO, 1991).

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3 In theory, the numerator should be the total number of maternal deaths in a given time period and the denominator should include all pregnancies in that period regardless of their outcome. In practice, the latter cannot be accurately measured because even in countries with the most effective registration systems, those pregnancies which result in spontaneous abortion in the first 28 weeks are not registered and therefore are excluded from the population at risk of dying from maternal death. Therefore the number of live births is used as an estimate of the number of pregnancies and thus the population at risk of maternal death (Royston, 1989).

4 The reliability of these figures can be questioned as for many countries they are based on the predictions of models whose underlying assumptions are debatable, rather than actual data on maternal mortality (Veronique Filippi, personal communication).

5 Clearly the scale of the maternal morbidity problem is enormous, in some respects dwarfing the problem of maternal mortality. Furthermore, successful measures to reduce maternal mortality may lead to more women surviving with the debilitating effects of pregnancy related complications. Any interventions to reduce maternal mortality need to take this into account.
Box 1. A woman’s lifetime risk of death related to maternity

<table>
<thead>
<tr>
<th>Region</th>
<th>Risk (1 in X)</th>
</tr>
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<tbody>
<tr>
<td>More developed regions</td>
<td>1 in 1800</td>
</tr>
<tr>
<td>Less developed regions</td>
<td>1 in 48</td>
</tr>
<tr>
<td>Africa</td>
<td>1 in 16</td>
</tr>
<tr>
<td>Asia</td>
<td>1 in 65</td>
</tr>
<tr>
<td>Europe</td>
<td>1 in 1400</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>1 in 130</td>
</tr>
<tr>
<td>Northern America</td>
<td>1 in 3700</td>
</tr>
<tr>
<td>Oceania*</td>
<td>1 in 26</td>
</tr>
</tbody>
</table>

*not including Australia, New Zealand and Japan
(Source: WHO and UNICEF, 1996)

Each time a woman is pregnant she risks death. For example, with a maternal mortality ratio of 700 per 100,000, a woman has a one in 140 chance of dying with each pregnancy, and so if, given high fertility, she gets pregnant eight or more times in her life, she has lifetime risk of dying from pregnancy of one in 15. However, figures can vary greatly between countries in a region and between areas within a country. The largest number of maternal deaths each year occurs in Asia but the highest risks of pregnancy are in sub-Saharan Africa. Maternal mortality is often much higher in rural than in urban areas with easier access to medical services.

**Africa**

Maternal mortality ratios are highest in Africa with figures of up to 1000 per 100,000 reported in rural areas of several countries, and ratios of over 500 in some cities (WHO, 1991 (i)). In Western, Central and Eastern Africa, the risks of pregnancy are generally higher than in Northern and Southern Africa (WHO, 1991). High maternal mortality in Africa is compounded by high fertility.

**Asia**

Maternal mortality in Southern Asia is very high, though not quite as high as in Africa. The dense population of South Asia accounts for nearly half the world’s maternal deaths as compared to 29 percent of its births (WHO, 1991 (i)). Asia is the region with the greatest disparity in maternal mortality ratios between countries. Ratios in East Asia are quite low. Hong Kong, Singapore and Japan have maternal mortality ratios of seven, ten and 18 per 100,000 live births respectively, which compare favourably with the lowest ratios in Europe (WHO and UNICEF, 1996). China, by contrast, has a maternal mortality ratio of 95 deaths per 100,000 (WHO and UNICEF, 1996).

**Latin America**

Excluding parts of the Caribbean, risks of pregnancy in Latin America are lower than in Africa and most of Asia. However, data on Latin America is largely based on civil
registration and tends to underestimate the problem perhaps by as much as 60 percent.
(WHO, 1991 (i)). The average for the region is estimated to be 200 per 100,000 live births, a
high proportion of which are abortion-related deaths (WHO, 1991(i)). According to WHO
estimates, in South America, 41 women per 1000 aged 15-49 undergo unsafe abortions, and
there is one maternal death per 1000 abortions, representing almost a quarter of the region’s
maternal mortality (UN, 1995 (ii) p.79).

Europe, North America, Australia

In Western and Northern Europe, maternal mortality ratios are in most cases around 10 per
100 000 live births. Scandinavia, however, has ratios of around five per 100,000 (WHO,
1991). Low maternal mortality ratios and low fertility in Europe means that the region has
relatively few maternal deaths. Ratios in Southern and Eastern Europe are slightly higher at
around 30 per 100,000. Romania is an exceptional case as maternal mortality peaked in 1989
with 169 deaths per 100,000 live births, a figure which fell to 83 per 100,000 after the
prohibitions on abortion were revoked in 1989 (UN 1995 (ii) p.78). Russia and Poland have
worsening maternal mortality, reflecting growing reproductive health problems in these
countries (UN 1995 (ii)). Australia, Canada, Japan, New Zealand and the United States all
have ratios similar to those in Europe.

Trends and comparisons

The measurement of maternal mortality is beset with problems of data collection and
accuracy. Most figures probably underestimate the magnitude of the problem. Because of
these problems, it is difficult to accurately discern trends in maternal mortality rates. These
measurement and statistical problems are discussed in more depth in Appendix I. Although
poverty is linked with high maternal mortality, Figure 1 shows that there exists great variation
in the maternal mortality ratio even between countries with low GDP. For example, a
woman’s lifetime risk of a maternal death is 1 in 230 in Sri Lanka, as compared with 1 in 13
in the Gambia and 1 in 10 in Nepal even though these countries have similar levels of GDP
(WHO and UNICEF, 1996).6 Indonesia is considered to have achieved much in economic
development, and yet the maternal mortality ratio is high at 650 per 100,000 (Smyth; 1994,
WHO, 1996). This shows that there are substantial differences between countries in their
ability to translate economic development into improved maternal health.

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6 The lower lifetime risk of maternal death in Sri Lanka may partly be due to the relatively high prevalence rate
of contraception, 57 percent as compared with 7 percent in Nepal (WHO, 1991 (ii))
Further investigation of the possible reasons for differences in maternal mortality ratios between low income countries, by analysis of correlations with a range of other indicators (e.g. indicators of income inequality, expenditure on maternal health, female enrolment ratios etc.), would be instructive in deepening understanding of underlying socioeconomic causes. A detailed comparative study of this kind, between two ‘similar’ countries with very different maternal mortality ratios, may be particularly helpful. In making such comparisons, however, problems of data comparability should be borne in mind. Another approach would be to examine ‘models’ of transition between high and low maternal mortality, although again this would be limited by availability and reliability of trend data.
3. IMMEDIATE AND PROXIMATE CAUSES OF MATERNAL MORTALITY

3.1. Medical causes of maternal death

The immediate causes of maternal deaths are a range of medical problems or complications which can be divided into:

- **direct causes:**
  - *early causes:* abortion, ectopic pregnancy
  - *late causes:* haemorrhage, sepsis, hypertensive disorders (eclampsia) and obstructed labour
- **indirect causes:** malaria, hepatitis, anaemia

These complications account for direct obstetric deaths in developing countries in the following proportions:

**Figure 2: Direct obstetric deaths in developing countries**

![Pie chart showing proportions of direct obstetric deaths.]

- Haemorrhage: 27%
- Induced abortion: 19%
- Hypertension: 17%
- Infection (sepsis): 11%
- Obstructed labour: 11%
- Other: 15%

Source: Maine, 1992

Table 1 sets out the medical causes of maternal death and identifies for each, which women may be more at risk (if any), the causes of the condition, the symptoms and complications that may follow, the appropriate medical treatment, and any possibilities for prevention.

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7 This chart is based on 11 population-based studies. The proportions of deaths attributed to each of the medical causes varies in different regions. For example, deaths due to abortion are thought to make up a higher proportion of maternal deaths in Latin America.
Table 1: Medical causes of maternal death  (source: Royston, 1989)

<table>
<thead>
<tr>
<th>complication</th>
<th>groups at risk</th>
<th>causes</th>
<th>time</th>
<th>symptoms/ complications</th>
<th>treatment</th>
<th>prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>hypertensive</td>
<td>first pregnancies early teenage</td>
<td>unknown</td>
<td>can develop from earliest signs</td>
<td>pre-eclampsia: high blood</td>
<td>pre-eclampsia: relieve symptoms and end</td>
<td>detect pre-eclampsia early through urine tests in pre-natal care and refer women to hospital for delivery</td>
</tr>
<tr>
<td>disorders/</td>
<td>pregnancies over 35s</td>
<td></td>
<td>of pre-eclampsia to severe stage</td>
<td>pressure, protein in urine, swelling of tissues (oedema), headaches, vomiting, impairment of vision, pain in abdomen stopping production of urine untreated leads to</td>
<td>pregnancy as soon as baby able to survive; bed rest; sedative drugs to lower blood pressure; if mother does not go into labour spontaneously then induced labour at 37th or 38th week; if progress slow or unfavourable then C-section</td>
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<tr>
<td>pre-eclampsia</td>
<td></td>
<td></td>
<td></td>
<td>eclampsia: convulsions, rapid unconsciousness, heart failure, or kidney or liver failure, or brain haemorrhage</td>
<td>eclampsia: prompt treatment necessary for mother’s survival; need to control convulsions, lower blood pressure, deliver baby rapidly; induce labour, if still no delivery after 6 hours then C-section; after delivery, injections, sedatives and IV glucose drip</td>
<td></td>
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<tr>
<td>eclampsia</td>
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<tr>
<td>sepsis</td>
<td>infection of genital tract following</td>
<td>fatal within about six days of onset if no treatment is given</td>
<td>infection starts in uterus, then spreads to other sites; in severe cases it spreads into the bloodstream (septicaemia) giving rise to abscesses in the brain, muscles and kidneys, liver failure and anaemia</td>
<td>improve general health to enable the body to fight germs, balanced diet, rest, pain relieving drugs, if spread of germs checked mother often recovers within two weeks. Antibiotics important (though puerperal sepsis germs are becoming increasingly resistant to antibiotics)</td>
<td>improvements in personal and environmental hygiene important; cleanliness during labour; avoid vaginal examinations when conditions are suspect; affordability and availability of soap and water</td>
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<td></td>
<td>delivery and abortion; germs enter the genital tract in a variety of ways e.g. birth attendant has unclean hands or uses dirty instruments, dust from atmosphere, insertion of foreign objects such as herbs, leaves, cow dung, mud or various oils by TBAs</td>
<td></td>
<td></td>
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<tr>
<td>complication</td>
<td>groups at risk</td>
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<tr>
<td>antepartum haemorrhage</td>
<td>women over 35 or those with four or more previous births</td>
<td>premature separation of the placenta; injury; disease affecting the lower genital tract (rare)</td>
<td>with kidney failure, fatal within a few days as most developing countries cannot treat kidney failure</td>
<td>vaginal bleeding occurring before a child is born, in severe form produces acute abdominal pain which produces severe shock of the mother and death of the baby; circulating blood may lose ability to clot normally, may be kidney failure especially where treatment delayed</td>
<td>severe accidental haemorrhage: primary object of treatment is to terminate pregnancy after measures taken to improve the general health of the woman; powerful pain-relieving drugs; replacement of blood loss by blood transfusion</td>
<td>placenta previa: prolong pregnancy until a mature baby can be born, in the meantime improve health of mother, blood transfusion may be necessary, deliver baby in 38th week by induction or caesarean</td>
</tr>
<tr>
<td>postpartum haemorrhage</td>
<td>women with multiple pregnancies or four or more previous births</td>
<td>excessive bleeding through the birth canal after the birth of the baby, caused by retained placenta, prolonged labour, operative vaginal deliveries or fibroids</td>
<td></td>
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<tr>
<td>obstructed labour</td>
<td>women with small pelvises, small pelvises linked with height</td>
<td>space in bony birth canal of mother is too small or too distorted by disease to permit easy passage of the head of the baby during labour</td>
<td>if condition not dealt with in early stages can last days and may result in death of mother through infection and exhaustion and death of foetus through lack of oxygen</td>
<td>C-section</td>
<td>reduce percent of women with pelvic contraction in childbearing population by delaying marriage until women reach full physical maturity, e.g. through compulsory universal formal education, better nutrition improvements in living conditions to prevent stunted growth.</td>
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<td>C-section</td>
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<td></td>
</tr>
<tr>
<td>ectopic pregnancy</td>
<td>implantation of fertilised ovum and its subsequent development outside the uterus, commonly in the fallopian tube</td>
<td>fallopian tube ruptures then bleeds, blood accumulates in the abdomen causing intense local and generalised pain, fainting and shock</td>
<td></td>
<td>surgery; fallopian tube removed and blood vessels tied off, replacement of blood loss almost always required</td>
<td></td>
<td>recognize expectant mothers at risk of obstructed labour (women less than 1.5m tall, girls in early teens, expectant mothers with previous abdominal or instrumental vaginal delivery), and ensure they deliver where skilled help is available</td>
</tr>
</tbody>
</table>
Indirect obstetric deaths account for 25 percent of all deaths in developing countries, i.e. deaths due to pre-existing medical conditions such as malaria, hepatitis and anaemia which are made worse by pregnancy (Freedman and Maine, 1993). Pregnant women may be particularly susceptible to viral hepatitis and more likely to die from the condition (Royston, 1989).

The immediate medical causes of maternal mortality are affected by a range of non-medical factors some of which are referred to in Table 1. The model outlined below shows how these factors operate.

3.2 An analytical model of maternal mortality

This model devised by Maine and McCarthy (see Figure 3) attempts to give a framework to encompass all the major factors that affect maternal mortality. It separates these factors into distant factors (socioeconomic status) which act through intermediate (or proximate) factors (health and reproductive behaviour, health status, access to health status, unknown factors) in turn influencing outcomes (pregnancy, complications, maternal mortality). One proposed benefit of the model is that it compels us to specify the chain of events by which any safe motherhood programme might reduce maternal mortality. The framework follows other models which are based on the premise that the social and economic determinants of mortality (here maternal mortality) necessarily operate through a common set of biological mechanisms and proximate determinants to exert an impact on mortality.

Using the model, there are three basic questions to ask when thinking about a particular activity to prevent maternal death:

- Will it reduce the incidence of pregnancy?
- Will it reduce the incidence of complications amongst pregnant women?
- Will it affect the outcome of obstetric complications?

The answer to one of these questions needs to be yes in order for the proposed activity to reduce maternal deaths. For example, an activity aimed at reducing maternal deaths by improving socioeconomic status (distant factor), must be shown to have an affect on one of the intermediate factors, which in turn will affect outcomes.

The advantages of this model are that it provides a way of understanding how the different factors affecting maternal mortality are linked and therefore the importance of recognising the distant factors. The model draws attention to how important it is to identify how the distant factors act through the intermediate. Its weakness is in a lack of elucidation of these distant factors, and lack of detail of their relation to the intermediate factors.

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8 The model provides a starting point for considering the broader determinants of maternal mortality and is a very popular and widely accepted framework. Adaptations of this framework include that of Tinker and Koblinsky (Tinker and Koblinsky 1993).

9 For example, Mosely and Chen, 1984.
Outcomes

Pregnancy is a prerequisite of maternal death. Therefore, factors that influence the incidence of pregnancy will also influence levels of maternal mortality. Once a woman is pregnant, complications may develop which need to be prevented or effectively treated in order to reduce maternal mortality. If complications are not successfully treated, then maternal death may be the final outcome.

Intermediate factors

The intermediate factors identified by the model are:

*Health and reproductive behaviour*

**Health behaviour:** This is taken to mean actions that people do or do not take for the sake of their health, such as attending pre-natal care, or seeking help when complications ensue.

**Reproductive behaviour:** These are the relationships which are the best documented in the literature. They include age, pregnancy order and birth spacing as well as wantedness of pregnancy.

- **Age:** The age of a pregnant woman affects her chances of dying a maternal death. This is due to a range of biological and social factors. For instance, young women may be at increased risk of obstructed labour, if their pelves are not mature. Older women may have accumulated health problems like hypertension and diabetes which cause obstetric problems. Young unmarried pregnant women may be likely to resort to illegal abortion due to social factors10.

- **Pregnancy order (parity):** Women having their first pregnancy are more likely to die a maternal death than women having their second or third. With the fourth child the risk rises again.

- **Birthspacing:** No studies exist to show that the spacing of a woman’s births affects her chances of dying a maternal death. Evidence does show that birth spacing may affect infant survival and it is often assumed that this must include maternal survival too. But this must be recognised as just that, an assumption.

- **Wantedness of pregnancy:** Women with unwanted pregnancies may be more likely to seek illicit abortion, or less likely to seek health care, thereby increasing their risk of a maternal death.

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10 However, the importance of age can be overestimated as a risk factor. The majority of women who die maternal deaths are not in the very young or very old age groups (Veronique Fillipi, personal communication).
**Health status**

The health status of a woman may affect the likelihood that she will develop complications during pregnancy and also her ability to survive these complications. Health status is itself affected by a range of factors, both distant and intermediate. Anaemia is a health status factor which is influenced by other factors, for example it may be the result of a lack of money to buy food, or its persistence may be the result of a lack of access to health services which can correct anaemia.

Viewing women’s health across the life cycle, it is clear that the health status of pregnant women is affected by their experience earlier in life. Particularly significant is the nutrition of girl children. For example, where girl children are undernourished, sometimes due to gender bias in food allocation, their growth may be stunted leading to the likelihood of complications in pregnancy (Royston, 1989).

HIV/AIDS is another health status factor which may be increasingly important in influencing the incidence of maternal mortality. Pregnant women with HIV are more prone to the complications of pregnancy (WHO, 1995, Safe Motherhood 16). Women whose immune systems are already under attack through full blown AIDS may be less likely to survive the complications of pregnancy. Some drugs for the treatment of AIDS may be inappropriate for pregnant women. Others may be even more important, for example AZT which reduces the chance of the baby becoming infected, although it is very expensive and probably not available to most women in developing countries (personal communication, Dr Gilly Arthur and Dr. Nicola Smith). HIV infected blood is a major problem for women receiving blood transfusions as treatment for pregnancy complications. Women with known HIV/AIDS may be more inclined to seek illicit abortions.

**Access to health services**

Access to health services is a complicated concept covering many different issues, including both whether adequate facilities exist (e.g. adequate supplies and personnel, good quality of care), and also if people can reach the services given (e.g. cost, distance, information). The subject of access will be discussed in more detail in section IV.

**Unknown Factors**

‘Unknown factors’ is included as a category in the model to cover the fact that a proportion of obstetric complications cannot be accounted for by any of the known risk factors. Also it is not always clear why one patient may live and another die following complications even when their condition and treatment were similar.
Distant factors

Socioeconomic status

In this model, socioeconomic status affects a woman’s chances of dying a maternal death by working through the intermediate factors. Mortality is almost always higher among the poor and disadvantaged than among the wealthy, and this is also true of maternal mortality. While these issues are highlighted in the model, they are not elaborated.

3.3 Limitations of the model

Maine and McCarthy use this model to examine a range of safe motherhood programme options, illustrating with a hypothesised chain of effects for each strategy, what works to reduce maternal deaths. However they leave the distant factor of ‘socioeconomic status’ quite vague in the model. The model maps out the relationships between factors as linear and suggests that socioeconomic factors act through intermediate factors. However, distant and intermediate factors can operate together, rather than the purely uni-directional causality of distant to intermediate that the model suggests. ‘Distant’ factors may not be so distant, and labelling socioeconomic status as such may mean that its importance is ignored. A further problem is that by looking at the effects of different strategies, Maine and McCarthy use the model with a starting point of the supply side factors in health service provision, leaving the demand side factors secondary or unexplored. Women are thus positioned by this framework as passive objects, who are either the recipients of services or victims of external factors.

Gender analysis suggests that it is equally important to consider the demand-side factors relating to the utilisation of health services. The links between socioeconomic status, health behaviour and access to health services need to be better understood. How do women’s positions in households and communities relate to their abilities to seek adequate health care for themselves, thereby preventing maternal death? This question will be addressed further in the next section, drawing on the broader gender and development literature.
4. SOCIOECONOMIC, CULTURAL AND POLITICAL FACTORS AFFECTING MATERNAL OUTCOME OF PREGNANCY

4.1 Introduction

The model examined in section 3 identified ‘socioeconomic status’ as the set of distant factors underlying maternal mortality, acting on the proximate factors discussed above. However, the international debate on population and reproductive rights has shifted from an emphasis on women’s ‘status,’ and on advocating female education and employment as a strategy to reduce fertility, to an approach stressing the promotion of gender equality and women’s empowerment. The new framework also is shaped by principles of women’s rights, specifically reproductive and sexual rights (Correa, 1994)\(^\text{11}\). This framework of debate is very relevant to the issue of maternal mortality, in which female education and employment have been espoused as long-term strategies to reduce maternal deaths. Women’s empowerment must also be recognised as of key importance especially as it relates to women’s decision making capacity over access to health care services.

Analysis of gender relations in a given context is crucial to understanding the processes by which such decisions are made and specifically the limitations on women’s capacity to control reproductive decision making and to seek health care for themselves. This, in turn, has implications for strategy. Where, for example, it is recognised that women’s decision making capacity is limited by household and community power relations, maternal education to increase women’s awareness of the need to seek intervention will clearly be insufficient to increase their use of services.

It may be useful to view women’s vulnerability to maternal death and capacity to access services as mediated by their degree of physical and sexual, economic, social and political autonomy. For example, women’s vulnerability to maternal death may be increased by poor health or physical violence and abuse, which are manifestations of their lack of physical and economic autonomy. Their capacity to seek care may be limited by restrictions on mobility for both economic e.g. lack of independent resources to access transport) and social (norms which limit women’s freedom of movement) reasons.

Further work is needed to modify or revise the model introduced in section 3, to incorporate central issues of decision making and autonomy, drawing on the new discourse on rights and empowerment. This section looks at decision making in relation to both pregnancy and access to healthcare, linking these to a range of underlying factors. It also examines how underlying factors increase women’s vulnerability to maternal death. Finally it examines gender biases in the provision of health services to address maternal mortality.

\(^\text{11}\) The development of a women's rights framework has considerable potential to encourage greater advocacy for safe motherhood. It also supports a more holistic view of women's health and well-being rather than providing for women only in terms of motherhood, or, in the context of children's rights, granting safe motherhood importance on the grounds of the effects on child health (see section on political and legal factors).
4.2 Reproductive decision making

The degree to which women have control over their own sexuality and reproductive decision making is affected by a range of factors, including: pressures to bear many children (high fertility), related to economic and social security as well as gender identity; son preference (often related to property and inheritance rights biased against women); and age at marriage. The personal and power relationships which exist within the family between husbands and wives are clearly important too, as are the cultural beliefs and practices surrounding sexuality which underpin these relationships, often limiting women’s sexual autonomy (Royston, 1989).

*High fertility* is associated with high levels of maternal mortality, both because more pregnancies mean more chances of pregnancy related deaths, and because the risks of pregnancy and childbirth increase after the third child. And yet in many developing countries there is still a strong pressure on women to bear many children despite the risks. There are a number of reasons for this. Gender identities, that is, what it means to be a man or a woman in a particular society, are shaped and defined by patterns and expectations of reproductive behaviour. For women in many parts of the world, the surest route to social and economic security is to bear many children, preferably sons (Family Care International, 1991). Fear of infertility, of divorce or of polygamous marriage also act as pressures on women to bear more children.

Where male children are accorded more importance than females, women may go on bearing more children in order to have a boy, or more boys. Property and inheritance laws which limit the rights of females can reinforce son preference. In India, the equal rights of sons and daughters to inherit are enshrined in the Constitution but in practice this is often ignored. Interpretations of religious teaching may also contribute to son preference. In Orthodox Hinduism, only a son can perform the funeral rites for his father, so a Hindu with no sons risks being reborn as a lower form of life (Royston, 1989). The practice of dowry, where a family must hand over wealth with the marriage of their daughter to her new family, makes having daughters an economic burden, whilst sons are an asset because it is known that their work will benefit the family. New technology for determining the sex of foetuses can reinforce son preference and have an impact on female mortality, both in terms of the male/female ratio of births, and an increase in maternal mortality, as the following example shows12.

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12 The links between sex selection, increased abortion and maternal death require further investigation.
Box 2. Sex selection, abortion and maternal mortality in India

‘While visiting a women’s reproductive health program in Gjurut, I was in a village with an NGO representative, who had worked in the region for several years. I asked my colleague the extent of abortions that occurred in this village, and whether, and how, the NGO hospital handled abortions. She explained that the hospital had decided against providing abortion services because of the increasing number of women who came for sex-selective abortions. (Though the hospital itself did not provide the technology for sex determination, there was a ‘shop’ not far away that claimed to provide the test.) Consequently, in the last few years there had been an increase in the number of women and girls going to a traditional birth attendant for abortions. This factor contributed to an increase in female mortality in the village.’

Source: Balakrishnan, 1994

The age at which girls or women are first married is a significant distant factor influencing maternal outcomes and varies greatly between countries. For example, in Botswana and Namibia, the average ages at first marriage are around 24 and 25 respectively, whereas in Mali, Niger and Yemen half of all women are married before their 16th birthday (WHO, 1995, Safe Motherhood 17).

The younger women are married, the more likely it is that they will not have fully developed pelves and therefore will be at risk of obstructed labour. Discouraging early marriage through changes in the minimum legal age of marriage, or encouraging later marriage (e.g. through compulsory education) are therefore possible strategies to reduce maternal mortality by influencing the distant factor of early marriage. However, even with legal sanction, changing a tradition of early marriage can prove very difficult. Where daughters are seen as a financial burden for their parents, early marriage makes economic sense. Early marriage also helps maintain male control over female sexuality and supports higher fertility.

Recent research in Nigeria suggests that it is often men rather than women who make the decision to have more children. 88 percent of men and 78 percent of women in the study stated that men’s views were more influential than women’s views in making family decisions. Among married female students, one in five gave husband’s objections as the reason for not using contraceptives (WHO, 1996, Safe Motherhood 19). In Northern Nigeria, policy forbids women from obtaining family planning services without their husband’s consent.

The lack of communication between couples on matters of sexuality and a desire to maintain male dominance within the household, are primary contributors to unwanted pregnancy, according to one family practitioner in Botswana. ‘[Where] men migrate. . .for work, they keep the wife in a continuous state of pregnancy and lactation as a way to keep her [possible] infidelity to a minimum’ (cited in Family Care International, 1991).

Accusations of marital infidelity may crop up at the time of delivery, for in many African societies, prolonged labour is ascribed to marital infidelity during pregnancy or at some other time. The woman may be given no assistance with the delivery until she confesses to the
infidelity and the name of the man involved. The result of this may be stillbirth and sepsis leading to death. If she survives, the long term risks include ectopic pregnancy, infertility, chronic pelvic inflammatory disease, and vesico-vaginal festiculae (Ascadi, 1991).

4.3 Decisions to seek medical services

‘Decisions to seek health care take place in a complex web of relationships’ (Timyan et al, 1993). Delays in seeking care for maternal health problems can be fatal. They can occur at the level of the individual and household, in the community, or because of referral and transport problems (see below), as well as in medical facilities themselves. Gender analysis can offer insights into the process by which the decision is made whether or not to seek health care services for pregnancy and childbirth. More attention needs to be paid to the factors that influence the value that women place on their personal well-being and those that influence their ability to seek healthcare for themselves. The amounts of time, money, information and authority for decision making women have at their disposal are key (Sundari, 1992).

The value women place on their own health can be influenced by a number of factors such as informational barriers and low self esteem. Lack of information or knowledge can mean that women are unaware of the gravity of their own condition. Some health conditions may be so common in a community, and women may have suffered the symptoms for so long, that they are not even recognised as problems that need medical care, such as chronic reproductive tract infections. Some conditions, such as sexually transmitted diseases, may be hidden because they are thought to be shameful. Pregnancy can be another condition which is not perceived as requiring care, or which women do not want to admit to in early stages. Low self esteem reinforces fatalism about health conditions including maternal illness. Women may not regard their own pain and discomfort as worthy of complaint until it is so debilitating that it may be too late. Hesitancy to seek care after domestic violence may also be attributable to women’s lack of self esteem or embarrassment (Timyan et al, 1993).

Decisions to seek medical care are often made not by a woman on her own, but by her husband, or other family (e.g. mothers-in law) and community members. Health education campaigns need to recognise this and ensure that decision makers are educated about women’s health needs and when care should be sought. Examples of efforts to educate the wider decision making community include a project in Papua New Guinea which provides community health classes in female reproductive anatomy and health to all married men, and a project educating mothers-in-law in Nepal on proper care during pregnancy and childbirth. However, it is equally important to develop women’s own decision making authority over access to healthcare. Women’s access to information about health and available services can be improved in a variety of ways. Embarrassment and lack of self-esteem as reasons for not seeking care can partly be addressed by creating a more sensitive and sympathetic culture of health services. However, many women and families may already be aware of the danger signs of obstetric complications, and still not seek help automatically. Reasons for this can be to do with community perceptions of poor quality of care as well as costs (see section below on health services).

Women’s autonomy in deciding to seek care can be hampered by their economic dependence and the prohibitive costs of emergency intervention. Some women may have no or limited cash available in times of emergency unless they are given it by their husbands. This can
cause delays in seeking care. If the husband lacks funds, he may ask for contributions from other relatives or the community. If the community is asked for help, community leaders may make a decision which overrides the husband’s wishes. Women’s autonomy can differ according to their age and seniority within the family. For example, pregnant teenagers may be dependent on the decisions of older members of the extended family for economic reasons (Prevention of Maternal Mortality Network, 1992).

4.4 Factors affecting women’s vulnerability to maternal death and capacity to seek care

Violence against women

Safe motherhood initiatives should not overlook the vulnerability of pregnant women to physical violence. More research is needed to examine how violence may be responsible for a sizeable portion of maternal deaths. A study of 1200 women over three years in the United States indicated that one out of every six pregnant women were battered during their pregnancy. Twenty percent of women who were beaten in a randomly sampled survey of 342 in Mexico City, reported blows to the stomach during pregnancy. Studies show that women who are battered during pregnancy are twice as likely to miscarry and four times more likely to have a low birth weight baby than those who are not beaten. In developing countries battering during pregnancy may have a particularly grave impact on women who are malnourished and overworked. Young unmarried mothers may be particularly vulnerable to violence during pregnancy even leading to death. In Matlab, Bangladesh, homicides and suicides which were motivated by stigma over unwed pregnancy, beatings or dowry accounted for six percent of all maternal deaths between 1976 and 1986, or 22 percent if deaths due to botched abortions, many related to shame over unwed pregnancies, are included. These figures suggest that violence is a significant and overlooked cause of maternal death (Heise, 1993).

The threat of violence may also be a dimension of women’s sexual and reproductive decision-making, linking to maternal deaths through increasing the likelihood of unwanted pregnancies. Rape, including marital rape, is also an issue often overlooked and yet relevant. Very little is known about girls and young women who become pregnant as a result of sexual violence and incest, though they would clearly be at risk of maternal death.

The issue of violence needs to be firmly placed on the international health agenda. Safe motherhood initiatives which remain limited to the notion of reproductive health, are in danger of ignoring the importance of women’s emotional and physical well-being, which are connected to issues beyond that of their reproductive anatomy (Heise, 1993). Gender violence may be amongst the most significant causes of morbidity and mental distress among women.

Female genital mutilation (FGM) is the form of violence against women most commonly linked to maternal mortality and morbidity. An estimated 80 million women worldwide have been subject to female genital mutilation. According to WHO the rate of maternal death is doubled by FGM and the risk of stillbirth increased several times. FGM can have a profound affect on the outcome of a pregnancy, causing difficulties and intense distress during sexual intercourse, and obstruction at time of delivery. Health services can provide both information on the health consequences of female genital mutilation, but also a forum where this complex
and sensitive issue can be discussed (Royston, 1989). Support can be given to groups and organisations combating this form of violence.

Another form of violence against women which may need further research and is clearly related to maternal mortality is violence in hospitals, and incidents of midwives maltreating pregnant women (Veronique Fillipi, personal communication).

**Education**

Education is a distant factor which offers the possibility of affecting the magnitude of maternal mortality in a number of different ways. One is the well known effect of education in lowering fertility. If women get pregnant less and bear fewer children, they are less at risk of maternal death. Women’s social status, self image and decision making powers may all be increased through education, which may be key in reducing their risk of maternal death, resulting from early marriage and pregnancy or lack of information about health services.

There is a need to consider issues relating to teenage pregnancy of girls who are in education. The psychosocial pressures on young pregnant women can be great, endangering their health through the increased likelihood of illicit abortion, or inadequate access to health care. Family pressure often forces pregnant teenagers to drop out of school. Adolescents may seek unskilled abortions in order to avoid expulsion from school on the grounds of pregnancy (Correa, 1994). Some schools in Africa and Asia expel pregnant teenagers as a matter of policy. A study in Nigeria showed that 52 percent of pregnant adolescents were expelled from school (Isis International, 1992).

Educated women may have more understanding of the physiology of reproduction and be less disposed to accept the complications and risks of pregnancy as inevitable, than illiterate or uneducated women. Education has been described as a ‘medication against fatalism’ (Royston 1989). Fatalism can take the form of a belief, such as exists in many Southern African cultures, that health problems are a punishment for an individuals lack of adherence to a set of behavioural rules, related to spiritual well-being (Family Care International, 1991). Maternal death may be seen as an act of God. Educated women may also be less likely to accept dangerous practices aimed at alleviating complications in pregnancy. Amongst the Hausa people of Nigeria, for example, *girishi* cuts are a traditional surgical operation to treat obstructed labour by cutting the vagina with an unsterilised blade. Whilst it is commonly performed on uneducated women, educated women rarely accept the practice (Royston, 1989).

Uneducated women are less likely to seek the help of professional health services because they are probably less aware of what is available, and probably find the culture of health services more alienating and frightening. Areas with low female literacy rates are also often areas where the fewest births are attended by trained personnel (Royston, 1989).

Education is also significant in the way that it influences women’s patterns of paid employment outside the home.
Employment and women’s workload

Employment which provides status and fulfilment encourages women to limit family size. This kind of employment is mostly not available to uneducated women. In India, there are high birth rates among the 94 percent of working women who are in the lowly paid insecure informal sector (Royston, 1989). Thus it is not just the fact of being employed that limits fertility, but the type and status of employment.

In some cases, employment may be an important factor in women’s decision to have an illicit abortion. Women in urban areas may have no household space for more children, and have employment patterns incompatible with pregnancy and motherhood. Even women employed in the formal sector may have little job security and maternity leave and benefits schemes are very rare (Family Care International, 1991).

Women’s workload may affect the intermediate factor of health status increasing risk of maternal death. Many women have a workload that consists of hard manual labour in agriculture, responsibilities for housekeeping and childcare and cooking, collecting firewood and fetching water which may result in chronic fatigue and other health problems. The last three months of pregnancy should be a time when the mother rests and gains weight. However, many women in developing countries continue with their full workload right up until the time of labour, and resume work shortly after giving birth. This can have an extremely detrimental affect on health. For example, in the Gambia, where women are responsible for manual labour in the rice fields, they have been found to lose rather than gain weight during the last three months of pregnancy (Royston, 1989).

Heavy workloads may also have an impact on nutrition. A study from Burkina Faso showed that during the rainy season when the heaviest work in the fields is done, women are sometimes too tired at the end of the day to prepare a proper meal, and the whole family is reported to lose weight at that time of year (Royston, 1989). There is need for an awareness of how women’s employment and workload affects their overall health status, and can be particularly threatening to the health of women who are pregnant or breastfeeding.

Workloads are also linked to maternal outcomes through the time constraints they impose on women. Heavy workloads may mean that pregnant women do not have the time to attend pre-natal care or spend time in hospital for delivery. In rural area, the seasonality of work patterns may exert an influence on maternal and infant outcomes. For example, a study in Zaire showed that 13 out of 20 maternal deaths occurred during the first five months of planting and harvest, when women were reluctant to go to hospital because of the need for their work in the fields (Sundari, 1992). Health service providers must ensure that their services are available at times when women can have access to them, and that waiting times in clinics are kept to a minimum.

Physical and social mobility

Distance and transport issues in rural areas are a highly significant factor affecting women’s access to health services, especially emergency care. Even if women do attempt to get to hospital for treatment, they may arrive too late for their lives to be saved because of poor roads and a lack of adequate transportation. Delays may also occur in referral from one health facility to another. A woman in a remote rural area must leave her family behind, and
have a large amount of money to spend on transport if she is to reach a hospital which can deal with obstetric complications. If she is accompanied by a friend or relative, this person must also find the time and resources to stay near the hospital during the time of treatment. If she dies in hospital or on route, then transporting the body back home is both difficult and expensive. It may also be distressing to die far away from family and friends (Sundari, 1992).

<table>
<thead>
<tr>
<th>Box 3. Distance and transportation as factors in maternal deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Deaths relating to transfers between facilities:</td>
</tr>
<tr>
<td>In a hospital in Abidjan, Ivory Coast in 1986, the maternal mortality rate was 2000 per 100,000 deliveries for those women who had been transferred within the urban zone, 3000 per 100,000 for those who had been transferred from the suburban area, and 6000 per 100,000 for those transferred from the rural areas.</td>
</tr>
<tr>
<td>• Deaths relating to travel from rural areas:</td>
</tr>
<tr>
<td>The example of an Aden hospital, where 73 percent of maternal deaths were of women from rural areas who had a long way to travel, shows clearly how acute is this problem in rural areas. Ten percent of these women who died were dead on arrival and another 15 percent died within an hour of arrival.</td>
</tr>
<tr>
<td>• Mode of transport and deaths en route to hospital:</td>
</tr>
<tr>
<td>For example, in Anantapur in India (1984-85) nine percent of maternal deaths occurred en route to the hospital. Of 140 women taken to hospital in a serious condition, 69 percent were transported by public bus, 19 percent by bullock cart, three percent by manually drawn rickshaws, and only nine percent by motor-driven vehicle or ambulance.</td>
</tr>
<tr>
<td>• Weather conditions affect rapid transportation to hospital:</td>
</tr>
<tr>
<td>In Senegal between the months of July and October, rain paralyses transportation on mud roads and footpaths through which patients must travel. This probably explains why haemorrhage occurs 1.7 times as frequently and uterine rupture 3.5 times as often during these months compared to other periods.</td>
</tr>
</tbody>
</table>

Source Sundari, 1992

In addition to the problems of distance and transport, women’s mobility in times of obstetric emergency may be further limited by social restrictions on their movement. For example, in some parts of South Asia, the seclusion of females results in them having limited mobility to leave their homes. Their ability to access services even if they exist in the vicinity is thus severely curtailed. In northern Nigeria, and among the Malian population of Accra, Ghana, women live in purdah, in family compounds surrounded by high walls which they are not allowed to leave. A woman must ask her husband’s permission to seek treatment when an obstetric complication arises. One story tells how a woman with obstructed labour, who lived ten minutes walk from the hospital, could not leave the house because her husband was away on business. By the time he returned and gave permission for her to be taken to hospital, she had developed vesicovaginal fistula and the baby was dead in utero (Prevention of Maternal Mortality Network, 1992).
**Ethnicity**

Little research is available on how ethnicity may be related to different rates of maternal mortality between women. A report on differences in maternal mortality among black and white women in the USA showed that from 1940-1990 maternal mortality had been consistently higher for black women than for white women. Despite an overall improvement for both black and white women over the period, black women were three times more likely than white women to die of the complications of pregnancy, childbirth and the puerperium. Reasons for these differences are unclear, but possible explanations are differences in access to and use of health care services, and in the content and quality of care. Studies indicate that black and white women in prenatal care may be given different advice and differential access to technology (reported by: Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, cited on HICNet Medical News). In developing countries, ethnicity may also be a factor in access to health services and quality of care (see section 4.5). More research may be needed to evaluate this issue and identify appropriate strategies.

**Political and legal factors**

*Legal provisions relating to safe motherhood*

There are a number of legal issues which relate to factors affecting maternal mortality.

The legality of abortion is a particularly important issue given that a large portion of maternal deaths are the result of abortion complications. Abortion is illegal in most African and Latin American countries. The incidence of maternal death related to illicit abortion provides a powerful argument for legalising abortion. Costs to health services in treating the problems that occur through dangerous abortions form another. This forms the ‘health rationale’ for legalising abortion, which is alternative, or complementary to the human rights discourse (Correa, 1994). Keeping abortion illegal is expensive:

In the National hospital in Kenya, for example, women with abortion-related complications are said to occupy about 60 percent of acute gynaecological beds. . .In developing countries treatment of abortion-related complications may consume as much as 50 percent of hospital budgets. . .[which is] much more expensive than providing medically safe abortions (Sundstrom cited in Correa, 1994 p.71).

Legalisation of abortion is important in order to reduce those maternal deaths which result from unsafe abortion. However, legalisation in itself is not sufficient as the example of Zambia shows in Box 4:
Box 4. Legalisation and access to abortion in Zambia.

Zambia is one of the few African countries where abortion is legal. Abortions are legal through the 12th week of pregnancy on broad grounds, but must be performed in a hospital setting with permission from three physicians including an approved specialist. In practice, many Zambian women especially in rural areas are unaware of the abortion law. In any case the requirements are virtually impossible to fulfil as there only three approved specialists empowered to sign the forms in the country, and only one sanctioned hospital which is in Lusaka. If a woman reaches the hospital she is still subject to a complicated procedure of forms and appointments just to establish a date for the abortion.

. . .obstetricians and gynaecologists at the University Teaching Hospital (UTH) did not have enough operating time to perform all abortions requested. They were turning away half the requests each day, and these were returning to UTH as incomplete or septic abortions, which demanded their time to (save the woman’s life) setting up a vicious cycle. (Family Care International 1991, p.17)

Hence, even Zambian women who are aware of their legal rights may still resort to illegal abortionists. Women in Zambia continue to die from unsafe abortion, despite the country’s relatively liberal abortion law.

Source: Family Care International, 1991

In India, too, legal abortion has not meant the disappearance of unsafe illegal abortionists and associated maternal deaths. The development of the technology of amniocentesis for sex selection has created a new demand for abortion of foetuses identified as female (see Box 2, section 4.2). This poses some complicated problems for efforts to reduce maternal mortality. If sex selection is made illegal, the likely result is that it will be driven underground, along with the connected abortions. This increases women’s risk of death from the effects of unsafe abortion. Criminalising sex selection also forecloses any possibility to regulate and control these clinics. Balakrishnan (1994) argues that efforts towards legislative action should concentrate on changing inheritance laws which exclude women, and dowry practices, in order to reduce the financial burden of girl children, rather than sex selection itself.

Legal restrictions may inhibit women’s access to contraception, as is the case in Lesotho, where women’s husbands or their families have a ‘legal and cultural right’ to deny wives family planning services, which is often acted upon (Family Care International, 1991). Laws dealing with medical consent, whereby women may be required to obtain husbands, or fathers, approval for medical intervention, may cause delays in, or limit access to the treatment of pregnancy related complications.

Although a woman’s right to safe motherhood should be recognised as a legitimate human right in itself, international human rights instruments relating to children’s rights have implications for mothers and can be used to increase commitment to safe motherhood. Nurkse (1991) describes how a new legal framework for maternal mortality has been established by the United Nations Convention on the Rights of the Child of 1989 (Nurkse, 1991). Given that maternal and child survival are intimately linked, the right to survival of
the child must have a bearing on the mother’s rights. Reducing maternal mortality is an ‘appropriate measure ...to diminish infant and child mortality’ (article 24 UN Convention on the Rights of the Child cited in Nurske, 1991). Article 24 also calls for the state to ‘ensure appropriate pre- and post- natal care for expectant mothers’.

Posited as essential to the rights of the child, [article 24] is a conceptually-original recognition of the mutuality of the rights of child and mother - a direct response to the implications of maternal mortality and maternal morbidity (Nurske, 1991, p.113).

One of the most important passages of article 24 relating to maternal mortality is paragraph 3: ‘States Parties shall take all effective and appropriate measures with a view to abolishing traditional practices prejudicial to the health of children’. This could include female genital mutilation which can be a cause of obstetric complications as outlined above. The causes of maternal death may also have their roots in the mother’s own childhood for example, be it through malnourishment or from child marriage. Therefore legal commitment to ‘the right of every child to a standard of living adequate for the child’s physical, mental, spiritual, moral and social development’ can be important in tackling factors affecting maternal mortality (cited in Nurske, 1991).

Political commitment to safe motherhood

The nature of the problem of maternal mortality may make effective political support and commitment to the issue more difficult to sustain, because maternal deaths are the result of a complex range of factors and because ‘this is not a field which can be remedied with a silver bullet - there is no vaccine or pill that will make births safe’ (Conroy, 1995). Despite the recent international focus on the issue of maternal mortality, most governments have not made maternal health a priority, even where formal MCH programmes exist (Koblinsky et al, 1994).
Government and private sector policies affect the status of women’s health and their access to maternal and family planning services. Conroy (1995) points out that this is true both in the presence and the absence of policies that are designed to protect the rights and promote the health and nutrition of women. For example, policies which limit women’s access to family planning and maternal health services to certain groups, e.g. married women only, are likely to contribute to higher maternal mortality rates. Thus, the efficacy of safe motherhood initiatives will be partly determined by the policy environment in which they are implemented (Conroy, 1995). Strong country commitment is recognised as one of the main factors behind programme success, and a lack of commitment can undermine efforts to strengthen safe motherhood programmes, as a review of activities in Francophone Africa found (Tinker and Koblinsky, 1993).

When appraising the maternal health situation in a country, questions need to be posed about which policies impact on women’s reproductive health, whether or not there are regulations or legislation to support policy implementation, and whether there exists national level support for policies relating to safe motherhood. The level of political commitment to safe motherhood can be gauged by looking at whether key figures in the health ministry are involved in formulating policy in this area and, if there is a women’s ministry, whether it is involved. The creation of a safe motherhood position or committee within the health ministry may help build commitment and establish programme procedures and standards (Tinker and Koblinsky, 1993). As the Beijing Platform for Action proposes, ministerial and inter-ministerial mechanisms for monitoring the implementation of women’s health policy and programme reforms should be established, and women’s health concerns should be mainstreamed in all relevant government agencies and programmes (UN, 1995 (i) C, 5(e)). There may be scope for women’s ministries to establish links with women’s organisations concerned with safe motherhood and related issues such as violence against women (Byrne et al, 1996).

**Women’s organisations**

The involvement of women’s organisations is also potentially very important to safe motherhood. Women’s organisations can serve a number of purposes:

• they can educate women about health and risk signs, giving women the information needed to make decisions about when to seek care;
• they can form a dialogue with health service providers over quality of care issues, increasing the social accountability of health care systems;
• they can lobby for greater commitment, and resources to be given to safe motherhood, and for relevant legal changes;
• women’s involvement in women’s organisations themselves, to do with safe motherhood, and generally, may increase women’s decision making authority in their own lives (Dollimore, 1993).

Brazil provides an example of how women’s health activists can act to get their participation formally structured into the state administration of services (see Box 5).
Box 5. The women’s health movement and maternal mortality in Brazil

In Brazil, the highly organised women’s health movement has been successful in influencing the direction of health policy. Feminists inside the government have spearheaded the implementation of the Comprehensive Women’s Health Programme in São Paulo, a rare example of a government programme with a feminist perspective. This programme included: the setting up of committees to monitor maternal mortality with equal representation from the health department and civil society; the provision of access to legal abortion; and the training of health centre staff on issues of gender, sexuality, women’s needs and their relationships with health care providers, and maternal mortality (Sen, Germain, Chen, 1994).

The Comite de Estudo e Provenção de Mortalidade Materna (Committee for the Study and Prevention of Maternal Mortality) in São Paulo, created in 1991, is an example of what can be done to combat indifference in public health services. Medical professionals, women’s health movement representatives and other non-medical professionals worked together to investigate all deaths of women aged 10 to 49 years old in order to gain a better understanding of the maternal mortality problem. Maternal deaths were identified through examining hospital records, interviewing medical professionals, visiting the homes of women who had died, and through official statistics. They discovered that most of the deaths could have been avoided if the women had had access to appropriate care. The Committee set up a further ten decentralised committees in different parts of the city. Women’s health movement members then worked with the city council members to pass a law to recognise the existence of these committees, and thereby ensuring their continuity. A number of other cities in Brazil followed this example and set up their own committees on maternal mortality (WHO, 1993).

For the profile of safe motherhood to be raised among policy makers it is vital that a lobby exists on the issue.

4.5 Gender biases in the structure and culture of health service provision

Structure of provision

In terms of resource allocation, women’s health care is often channelled through maternal and child health services (MCH). These services are usually limited to aspects of reproductive health and do not cover women’s many other health needs. They may also be unavailable or irrelevant to vulnerable groups such as young unmarried women, women seeking abortion, women suffering reproductive tract infections and infertility, and women who are past childbearing age. In the past MCH services have been criticised for putting too much focus on the child, and efforts may have been made to ‘put the M back into MCH’. However motherhood represents only a part of women’s lives and health needs. A more holistic approach to women’s general and reproductive health needs may be necessary to create the kind of quality of care in health services necessary to increase women’s access.

One of the main issues in provision relating to maternal health has been the balance of resources between family planning, prenatal care and emergency and essential obstetric care. Essential obstetric care refers to all interventions needed to manage problem pregnancies and
complications, some but not all of which will be emergencies. To reduce maternal deaths, essential obstetric care including quality emergency obstetric care, is vital. Prenatal care, education and screening have their parts to play, but on their own are insufficient to stop maternal deaths because most life-threatening obstetric complications cannot be accurately predicted or prevented. However, a focus on emergency treatment must not overlook quality of care or the fact that for most women community-based services are what is most often needed.

**Expenditure and financing**

At present only a tiny proportion of health budgets is allocated to maternal and child health care, within which child health and family planning get the lion’s share of resources compared to maternal health. The large share of resources allocated to family planning programmes compared to other aspects of maternal health care may be disproportionate. Sundari (1992) calls for a drastic reallocation of national resources in developing countries with a large share for the health sector, and a substantial allocation within the health budget for the health care of women, of which maternal health care is one component.

In the context of economic crisis and structural adjustment, many developing country governments can no longer afford to provide health care for all free of charge. This has meant increased reliance on the private sector, cost sharing, and the introduction of user fees which are likely to hit the poor hardest in the absence of effective exemption schemes. Given women’s absolute and relative poverty and lack of control over household income in many developing countries, it seems likely that women’s demand for health care will be more affected by rising costs than men’s. For example in Senegal, where communities are involved in financing and managing primary health care, changes in utilisation in response to rising costs affected the very poor more than the moderately poor, and women more than men (Timyan et al, 1993). In Benin, women admitted to maternity wards are known to leave hospitals in the night to avoid paying fees which they cannot afford, exposing them to risk of complications (Veronique Filippi, personal communication). In Nigeria, research has found that the introduction of user fees has discouraged some women from seeking maternity care. A study in Zaria showed that between 1983, when charges were levied, and 1988, the number of hospital deliveries fell by 46 percent and maternal deaths increased by 56 percent (Tinker and Koblinsky, 1993). In China, women are known to have been turned away from hospitals where they needed treatment, for reasons of cost (Anne Tinker, personal communication).

Research is needed into how the introduction of user fees affects women’s decisions to seek prenatal care and other medical help during pregnancy, delivery and the puerperium. Insurance schemes or other funding methods such as credit systems may be considered (see section 5)(WHO, 1995, Safe Motherhood 17).

**Quality of care**

Widespread coverage of maternal and child health care services cannot combat maternal death unless quality of care is improved and maintained. When women and communities perceive that quality of care is low, they may well decide not to use services even if they are

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13 Although there is already a sizeable general literature on user fees, the particular nature of maternal health problems and obstetric emergencies suggests the need for specific research on this area.
at risk. Inadequate health care systems in developing countries with poor quality of care can contribute to maternal mortality rather than help reduce it (Sundari, 1992). Failures in the health service delivery system include: the lack of minimal life-saving equipment at the first level of referral; lack of equipment, personnel and know-how even in referral hospitals; and inappropriate patient management.

Sundari (1992) describes how studies of health care systems may classify some failures of services as ‘patient factors’ for which the health care system is not responsible. Examples of such factors would be delays before patients present themselves at hospital, or patients’ refusal of treatment. However, in order to effectively reduce maternal mortality, it would seem important for health care system managers and implementors to understand these ‘patient factors’ and recognise that they may well be in fact a function of the inappropriateness of care that is on offer. Health managers must help create initiatives to overcome these factors, for example through the opening of antenatal waiting shelters for ‘high risk’ women (see Section 5). Even where abortion is legally available, women may still use a traditional abortionist by preference for reasons of the extra privacy they afford, indicating a need to increase the sensitivity of legal abortion services to women’s needs.

Poor quality of antenatal care and screening may discourage women from attending these facilities. Failure to successfully screen and detect anaemia, blood pressure, proteinuria have very serious consequences. These deficiencies added to women’s experience of health personnel with indifferent attitudes, and time and money constraints, can destroy women’s faith in the usefulness of antenatal care (Sundari, 1992). Developing country maternal health services are also prone to shortages of trained personnel and lack of equipment, drugs and supplies including blood banks. Just as serious is the problem of inappropriate action taken by health staff when treating patients. Evidence from hospital-based studies shows that delays in diagnosis and treatment, with decisions to operate taken too late, are relatively common in developing country facilities often with fatal consequences. The incidence of poor quality care feeds back into women’s and household’s decision making about whether to seek medical help when pregnancy complications set in. If a woman knows of someone who spent time, money and effort to reach health facilities and still died, while another woman had complications at home but survived, she may decide, or it may be decided for her, that the risks of not seeking help are worth the savings.

An essential aspect of quality of care is that health services should be more socially accountable. To assess the degree of accountability attention may be paid to whether women or their families or friends complain if they receive poor care, and to what channels exist for complaints and review of treatment received. There is need for action to equip those most affected by maternal mortality, poor women (and men), to actively participate in demanding changes (Sundari, 1992).

**Culture of health service delivery**

Seeking maternal healthcare should not be a dehumanising experience, and patients should be treated with respect and compassion by health personnel. Unfortunately, this is often far from the case in developing country health care systems (Sundari, 1992). Cultural beliefs and preferences relating to childbirth and pregnancy can be particularly strong and resistant to change (Timyan *et al*, 1993). Cultural practices and beliefs should be evaluated to determine if they are medically significant and, if they have beneficial or benign effects, then efforts
should be made to incorporate them into health care delivery systems. Although physical convenience and financial accessibility are of great importance, cultural appropriateness and perceived quality of care may be even more so (Timyan et al, 1993).

The Prevention of Maternal Mortality Network, based at Columbia University, identified ‘social distance’ as a barrier to access to services for many of the groups interviewed in projects amongst rural communities in West Africa. ‘Social distance’ is described by the study as consisting of differences in language, behaviour and expectations between the consumers of health care and its providers. Ethnic and linguistic diversity also can be the cause of social distance, impeding access to services. Even when providers and users/consumers are of the same ethnic group, there can be social distance barriers caused by differences in education, experience and socioeconomic status. Hospital staff may ridicule the traditions and practices of a community and impose unfamiliar food, supine position for delivery, and culturally inappropriate hospital dress, all of which may influence women in deciding to give birth in more sympathetic environments outside of health services (Prevention of Maternal Mortality Network, 1992).

The Columbia research found that these problems were particularly acute for minority ethnic groups. For example, Malian women, who are required by their culture to wear long black gowns, complained about being told these were dirty and that they must wear short white hospital gowns for delivery. Unfamiliar hospital food can intensify the strangeness of the hospital environment for some women. However if, as in Ilorin, a woman is required to bring her own food to hospital this can create a further setback in getting to a hospital when complications set in. For reasons such as these, women in Accra said that they preferred to go to facilities in areas where their own ethnic group is in the majority, even if they are not the nearest (Prevention of Maternal Mortality Network, 1992).

Cultural misunderstandings or lack of sensitivity among health professionals can lead to a breakdown in communications between women and health workers which is not conducive to high quality of care, as illustrated in Box 5.

### Box 5. Midwives in Niger

Research in Niger shows that midwives and pregnant women may end up in confrontation through not understanding each other’s viewpoints (Jaffre, 1994). The main problem is that many midwives looked upon delivery from the point of view of medical intervention, while the women giving birth saw it as a social and cultural event. The Zarma ethnic group, 62 percent of the population of Niger, have a tradition of a woman giving birth to her first child in her parent’s home. Women who live in the city may therefore return to villages for delivery even though this means access to health facilities will be more difficult. Other Zarma traditions include delivering in a squatting position, not pushing for fear of after pains, not crying out during delivery, and burying the placenta to ward off evil spirits. Midwives have little tolerance for these beliefs. The research cites incidents of women who insisted on delivering squatting at the health centre, being made to clean the floor of the health centre themselves immediately after delivery.

Source WHO, 1996, Safe Motherhood 19
It is important for midwives to be trained more appropriately to deal with pregnancy and delivery in traditional settings. User groups of maternal health services should also be set up to promote dialogue between women and midwives.

The availability of female health professionals may have a big influence over whether women use services. In Egypt, for example, the widely held view that women should not be seen by males except for close relatives after puberty means that some women will not accept treatment from male physicians (Timyan et al, 1993). Women may need permission from their male guardian to seek care even in emergencies. Even when they do seek care, the doctor-patient relationship may be less effective through discomfort at talking to a man. In Islamic northern Cameroon, men are not allowed to touch other men’s wives without authorisation, even for medical purposes. Women say that they would rather die than seek unauthorised care in their husbands absence (ibid). In northern Nigeria too, both men and women are opposed to female patients being treated by male physicians (Prevention of Maternal Mortality Network, 1992). Increasing the supply of female health professionals can help address this problem. However, an access problem may persist because female physicians may prefer to remain in urban areas, or not be assigned to rural areas where they will be isolated from family protection (Timyan et al, 1993). In Ghana, however, older males are perceived as being more competent than younger or female doctors, and for Ghanaian women, male doctors do not represent a barrier to care (Prevention of Maternal Mortality Network, 1992).

Traditional healthcare and birth attendance

Women may choose traditional patterns of delivery for a variety of reasons. They may prefer to give birth at home assisted by traditional attendants or relatives, rather than in the unfamiliar setting of the health facility, attended by strangers and with no family of friends around to give support. The home environment is considered normal, natural and ‘safe’ in many developing countries, and any planning for action in the event of obstetric complications, or for a birth location other than home, may be viewed as planning for and perhaps even evoking a negative birth experience. Women may also prefer to give birth at home, and/or with traditional birth attendants in order that religious rituals can be carried out at the birth, as hospitals and modern practitioners do not perform these rites.

Research by the Prevention of Maternal Mortality Network found that women in cities in West Africa who have difficulty delivering vaginally at home are reluctant to go to the hospital for fear of being operated on and thereby stigmatised in their community. Societal expectations may be such that a woman who does not deliver vaginally may be thought to have failed in her essential role, and women may be expected to be stoic during labour. In Sokoto and Zaria in Nigeria, and among Malians living in Accra, even the traditional birth attendant is only called in to cut the umbilical cord (Prevention of Maternal Mortality Network, 1992).

There are a number of problems relating to traditional practices during pregnancy and at birth which may endanger a woman’s life (see Box 6).
**Box 6. Traditional practices endangering women’s lives**

*food taboos:* pregnant women may be expected to make dietary changes that reduce their intake of foods high in substances they need like calcium and protein. Milk and green vegetables are forbidden during pregnancy in some African societies for reasons including a belief that the foetus is located in the stomach. Women receive fewer than the additional calories required during pregnancy and such practices contribute to mothers’ poor health and to the vulnerability of infants to disease and death.

*rituals during labour:* in Africa it is common for religious rituals to be performed in order to assist the woman in labour. Traditional birth attendants who carry out these rituals may have no conception of aseptic techniques and fail to wash their hands or sterilise their instruments. Amongst these dangerous practices are vaginal examinations during labour, use of unclean objects for cord-cutting, and the application of cow dung. The ill effects of these practices include postpartum urinary infection, tetanus, genitalic infection and sepsis, thereby putting women at risk of maternal death. Treatment for obstructed labour by untrained attendants is frequently dangerous. Herbal medicines for relief are given according to tradition in many parts of Africa particularly in the East. This practice is widely reported to cause uterine rupture. Nineteen percent of deaths in hospitals and maternity centres in Uganda were the result of uterine rupture due to the oxytopic properties of these remedies.

*traditional practices after labour:* include more dietary restrictions, massive sodium intake, daily scalding hot baths, insertion of unclean caustic substances into the vagina to restore it to ‘virginal’ condition and other harmful ‘purification’ techniques, all of which may contribute to maternal death.

Source Ascadi, 1991

Some traditional values and practices may be beneficial to reproductive health, even if that is not their aim. In some societies, social norms prescribe that only physiologically mature girls can marry, so early marriage is discouraged, and traditions such as the ‘fattening house’ are part of customs for brides to be in good physical condition on marriage. Norms against a woman having a baby after she becomes a grandmother, diminish the amount of pregnancies to older women who are more at risk of maternal death. Breastfeeding suppresses ovulation and therefore helps increase birth spacing, ultimately reducing the number of children a woman has. Traditions of post-partum sexual abstinence would have a similar effect. There is much regional variation among these kinds of customs, but their erosion may have particular importance for maternal and child health as well as family planning (Ascadi, 1991).
5. EFFECTIVE STRATEGIES TO LOWER MATERNAL MORTALITY

5.1 Introduction

Since the Safe Motherhood Conference in Nairobi in 1987, a whole range of different research programmes and strategies to tackle the problem of maternal mortality have been explored. Because maternal mortality has a complex range of causes, safe motherhood initiatives need to adopt a variety of strategies aimed at influencing factors in the chain of events leading to a maternal death. While there is not space in this paper to explore in detail the successes and failures of different safe motherhood programmes, this exploration of socioeconomic, political and cultural factors underlying maternal mortality suggests that certain types of strategy may be particularly important and need further research. These are:

- development of health insurance schemes for women to cover obstetric emergencies;
- investigating and addressing violence against women in pregnancy;
- setting up of maternal waiting homes;
- development and support for women’s organisations relating to safe motherhood;
- improving quality of care particularly in relation to the ‘culture’ of health service provision;
- improving the accountability of service providers to women;
- need to develop long-term strategies as current safe motherhood packages are too focused on the short term.

Whilst in the international debate on maternal mortality, certain strategies are favoured for more research, it is necessary to keep in mind where the focus of strategies is in the field. For example, pre-natal care is now less emphasised in international circles because it does not help to save a woman’s life when complications set in, and there is more interest in emergency obstetric care services. However, in the field, there is still much focus on pre-natal care.

5.2 Short-term strategies

The strategies briefly reviewed here all relate to the accessibility of maternal health services for women.

Health insurance

Affordability is major problem hampering take up of maternal health services, and yet amongst the broader determinants of maternal mortality may be the one of the easiest to act upon. More research is needed into the feasibility of health insurance for maternal health

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14 In order for these strategies to prove effective it is necessary that high quality services exist for women to access. The strategies highlighted in this section should be considered as part of a package of interventions, including ensuring that health facilities have adequate equipment, supplies and well-trained staff. Strategies need to be tailored to different situations, as not all strategies will be relevant to all contexts.
services and to cover obstetric emergencies. An example of efforts to establish a system of pre-paid insurance for MCH services is in Xunyi county in Shaanxi, China (Baogang, 1996). The plan was to charge a fee of 20 yuan (Y) to each newly married woman for pre-marriage examinations, MCH health cards, five pre-natal check-ups, delivery and four post-natal visits. Any fees received were to be divided up between the county MCH station, township health centres and village doctors or birth attendants, with five percent retained to pay for insurance compensation. However, very low take up rates meant that this MCH insurance system could not be implemented. Fees for pre- and post-natal examinations were set instead at Y5 with a fixed charge of Y20 for deliveries. Pre- and post-natal examinations by midwives were often paid for through means other than cash, such as meals. This example suggests that more careful research is required to devise maternal health insurance schemes which women would want and be able to take up.

Financing options such as insurance should be explored as a means of allowing rural households to make direct financial contributions to the cost of their health care without placing financial barriers to obtaining care at the time of illness. Health insurance schemes for rural populations in Africa may be feasible where there is a willingness/ability in the community to pay, and where schemes can rely on the community for local management rather than requiring a management structure similar to that of a western insurance system. Perceptions of poor quality of care may be what most hampers the efficiency and financial viability of rural health schemes (Arhin, 1995).

Other financing methods for obstetric emergencies such as the credit scheme described below (Box 7) also need further research.

**Box 7. Credit for women to access health care in Nigeria**

In Nigeria, the Country Women’s Association of Nigeria (COWAN) has developed a traditional credit system as a means of ensuring that its members receive adequate health care regardless of their ability to pay. Members can borrow for health emergencies including obstetric emergencies. Upon presentation of a COWAN membership card, members are entitled to immediate medical attention at the referral hospital or clinic, and cards are recognised as a guarantee that all service and drug fees will be paid. The fact of immediate attention is of critical importance, because doctors may otherwise delay treatment being reluctant to treat rural patients who have little money to pay. The COWAN programme has been successful in ensuring the survival of women from obstetric emergencies who would otherwise probably have died.

Source: Timyan et al, 1993

**Tackling violence against women**

Strategies are needed for health services to integrate training, information and research about violence. This is important in services related to safe motherhood, as it is in the field of HIV/AIDS. Health workers in family planning and services related to pregnancy, e.g. prenatal and obstetrics, should have training on how to respond to violence, rape and abuse. International NGOs and development agencies have a role to play in actively supporting local
grassroots groups fighting violence against women, and in sponsoring research on violence against women in pregnancy (Heise, 1993).

There is an increasing recognition of the significance of violence to women’s health with, for example, a new WHO programme on the prevention and management of the health consequences of violence against women\textsuperscript{15}. In order to decrease morbidity and mortality among women victims of abuse, this programme will: evaluate the effectiveness of existing interventions to prevent and deal with violence against women; work to improve the capacity of health workers at all levels to identify and respond appropriately to victims of physical and sexual abuse; and support the formulation by national governments of policies and protocols to address the issue.

**Maternity waiting homes**

Maternity waiting homes (MWH) are lodgings close to hospitals where women can stay prior to giving birth. Research suggests that maternity waiting homes may provide a very effective strategy to overcome problems of poor access to hospitals in rural areas where distance is a major obstacle to reducing maternal mortality. A study in rural Zimbabwe found that for women with antenatal risk factors, there was a significant 50 percent reduction in the risk of perinatal death for the women who stayed at the MWH compared to women who came from home during labour (Chandramohan et al., 1995). It may be that women who use MWHs are of a higher socioeconomic status than those who stay at home because poorer women find it more difficult to take time away from work at home. Despite this, the study suggests that women of lower socioeconomic status are also at less risk of a perinatal death (though not as much) if they stay in a MWH. MWHs are most effective if distance is the only factor preventing access to health services. For their effectiveness, it is also necessary that a high proportion of women attend ante-natal clinics so that those women with antenatal risk factors can be identified for referral to the MWH. The effectiveness of MWHs in reducing maternal deaths must also be impeded by the fact that a proportion of women not identifiable as ‘high-risk’ will nevertheless develop obstetric complications.

Part of the attraction of MWHs as a safe motherhood strategy is that they require no high technology and rely mostly on human resources already present in many communities (Figa-Talamanca, 1996). But MWHs rely on their connections to effective hospital care and treatment for those women developing complications, and also on being connected to the community so that women are prepared to use them. Several examples of MWHs in Latin America show how the accessibility of MWHs is at its best when they are culturally sensitive and viewed as a community service. In Cuba, community groups such as the Women’s Federation, local political organisations and agricultural unions participate in the management of MWHs and in making these facilities comfortable and acceptable to pregnant women (Figa-Talamanca, 1996). The construction, maintenance, funding and food supplies, and care-work for the MWHs are contributed to by the community.

The idea of an MWH must have credibility in the community it is intended to serve, because women and their families may not be easily convinced to move away from home before their delivery due date (Figa-Talamanca, 1996). In societies where women are in purdah, or

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\textsuperscript{15} Supported by the Overseas Development Administration, UK
seclusion, MWHs may be considered unacceptable, so cultural compatibility needs to be taken into account when planning such facilities.

**Women’s organisations and safe motherhood**

The participation of women themselves, as well as families and communities, is essential for the success of safe motherhood initiatives. Women’s groups and NGOs can lobby for changes to improve the provision for women’s health, as well as for women’s rights and legal changes to improve women’s status. Community-based research can be carried out by groups and NGOs in order to determine women’s own perceptions of problems relating to safe motherhood. Women’s groups can also play an important role in educating women about how their bodies work and reproductive health issues, as well as providing information to the community about what services are available and where. Another aspect of this education and communication work may be raising the awareness of men and the rest of the community of maternal death risks. (WHO, 1993) However, the need for maternal education may well have been overestimated in the past, as many women are well aware of the danger signs of the onset of obstetric complications. It can be for other reasons than not recognising risks that they do not seek medical help. Women’s organisations can tackle these issues by exploring community strategies to overcome cost and transport difficulties, and by initiating dialogue with health service providers over quality of care improvements.

Although the immediate effects of women’s groups and organisations may not always be obvious, or measurable in the way that medical interventions are, their potential importance in addressing maternal mortality, particularly in relation to the social, cultural, political and legal factors outlined above, should not be overlooked (WHO, 1993).

**Social accountability and cultural appropriateness of health services**

More research is needed into how to increase the social accountability of health services and community confidence in facilities. Efforts are needed to break down barriers between health workers’ conceptions of childbirth as a medical event, and women’s and communities’ beliefs about the cultural significance of birth.

### 5.3 Long-term strategies

Current safe motherhood programmes are too narrowly focused on short-term strategies. Examination of the broader determinants of maternal mortality suggests that long-term aims relating to women’s empowerment particularly through education, addressing poverty, and effecting and enforcing legal change are necessary to reduce maternal mortality. Efforts are needed to link between long-term and short-term strategies. The areas of long-term strategy or policy which might have most impact on maternal mortality are:

- increasing female education;
- implementing legal change relating to women’s status and health, including ratification and implementation of international instruments relating to women’s rights and health;
• development of policy framework for women’s health which has a more holistic perspective rather than an over-focus on women as mothers in family planning and maternal health;

• infrastructure development of roads/transport to increase accessibility of health services;

• developing commitment to safe motherhood as an important area for health expenditure.

5.4 Cost effectiveness of safe motherhood strategies

Planning for safe motherhood needs to analyse the relative costs of different interventions in order to assess the affordability of ongoing and proposed programmes, to help set priorities, to choose service delivery strategies, and to allocate resources effectively\(^\text{16}\). Cost estimating methodologies for safe motherhood programmes have been developed by Tinker and Koblinsky (1993) and Maine (1992). Tinker and Koblinsky stress that the structure and level of public sector costs vary from one setting to another. How cost effective any one strategy is will vary according the range of other interventions and services available and the wider context.

A calculation of the benefits of improved maternal health for families and communities can be used to rationalise the allocation of resources to safe motherhood initiatives. When a mother dies, the probability of her infant children also dying is greatly increased. Cost effectiveness calculations need to take into account that improving women’s health has significant benefits not only for women but also for their children and the national economy. The prevention of a maternal death can mean much more than one life saved (World Bank 1994).

\(^{16}\) There is a considerable body of literature on the relative effectiveness of safe motherhood interventions. For example, research by Marion Hall shows that resources are better concentrated on a small number of well-timed, high quality ante-natal visits for each woman, rather than a greater number of visits.
APPENDIX I: STATISTICAL PROBLEMS ASSOCIATED WITH THE MEASUREMENT OF MATERNAL MORTALITY

Measurement of maternal mortality

Data on maternal mortality is collected in a variety of ways, including through registration systems, community and household surveys, and hospital data. With the exception of hospital data, most of the collected data on maternal mortality is likely to underestimate the problem. There are a number of reasons for this. Cause of death is only routinely reported in 78 countries, covering only 35 percent of the world's population. Even where cause of death is reported deaths may be inaccurately classified (WHO, 1991). Abortion-related deaths are included in some sources of data and not in others. The exact cause of a woman’s death may be difficult to define and it may not be known that a woman was pregnant at death. Often the cause of death is classified wrongly in order to avoid social embarrassment for the families of unmarried women, or to cover up an illegal abortion. Hospitals may under-report maternal deaths in order to avoid blame for patient mismanagement or inappropriate treatment (Royston, 1989).

The WHO 1996 estimates for maternal mortality are comprised of a combination of different types of collected data adjusted for the incidence of underestimation. In countries with no accurate information, models are used which predict what proportion of adult female deaths (taken from 1990 UN projections) are maternal deaths.

Apart from official registration systems to record all deaths and their causes, the different methods of collecting data on maternal mortality include:

Hospital data

Estimates based on hospital data tend to be high, because maternal mortality in hospitals is generally greater than the community level. This is because many women go to hospital as emergency cases once complications set in, who would otherwise have given birth at home. Also the referral systems for women who attend pre-natal care should mean that higher risk women are disproportionately represented among the women giving birth in hospital as booked patients (WHO, 1991). Alternatively, hospital evidence may show a lower level of maternal mortality than in the community, if the hospital requires fees or insurance and therefore caters to an economically advantaged group. Despite these inadequacies hospital data can give much information on the causes of maternal death, and can be combined with other data.

‘Near misses’ and the Sisterhood Method

The difficulties associated with measuring maternal mortality mean that it also can be difficult to assess the impact of safe motherhood programmes. ‘Near miss’ morbidity and the sisterhood method are new research tools which aim to address this problem. They are potentially particularly useful where other sources of information on maternal mortality are lacking. A study in parts of Benin is carrying out research to develop these tools.
‘Near misses’ looks at maternal morbidity as an indicator rather than exclusively focusing maternal mortality. It involves examining particularly those cases which are life-threatening for the mother. Health problems associated with near misses are often the same problems that result in maternal deaths. The sisterhood method is a method of data collection which collects information from siblings about maternal deaths among older sisters. It is based on the premise that maternal mortality and morbidity are events easily remembered by siblings. Respondents can report over several years on the experiences of their sisters. Data collected this way can be compared with data collected from medical sources (ODA, 1996).

Household surveys/ community studies

Questions about maternal deaths can be added to large on-going household surveys in order to get a picture of maternal mortality, particularly in places with inadequate registration. Another useful method is for communities can carry out small-scale but in depth studies of maternal death, for example by interviews, which can reveal much about the specific local factors associated with the problem.

The need for a broader perspective on maternal death

The current official definition of maternal mortality may be inappropriate for considering the effects of maternal deaths on children, because dependent children will be affected by their mother’s death whether or not it is pregnancy related or within 42 days. Defense for Children International-USA (DCI-USA, 1991) argues that the usual statistical measures of maternal mortality are inadequate for this purpose. They choose to define maternal mortality as the deaths of mothers of children, regardless of whether the death was associated with a particular pregnancy, and specifying the age of the surviving children by, for example, differentiating the maternal deaths of women with infants under age five from other deaths of mothers. They suggest that demographers need to develop an appropriate measure for this definition of maternal mortality. Such a measure could be a numerator of all deaths of women with dependent children (in practice difficult to find data), and a denominator of the at-risk population of women with dependent children (DCI-USA, 1991).

A range of other indicators related to women’s health may also be useful to situate the maternal mortality problem in a broader perspective on women’s health. For example:

•The reproductive mortality rate offers a more holistic view of women’s reproductive health by including women’s deaths which are the result of attempts not to become pregnant, that is, deaths due to the side effects of contraceptive methods. Countries where contraceptive use is low, will have a reproductive mortality rate mostly made up of pregnancy related deaths, whereas countries with higher contraceptive use will have more reproductive mortality linked to contraceptive side effects. For example, in the United States, in 1975, 45 percent of reproductive deaths were related to oral contraceptive use, whilst in Bali, Indonesia in 1980-82 98 percent of reproductive mortality was pregnancy related (Royston, 1989).

•The reproductive risk index, a worldwide assessment of women’s sexual and maternal health produced by Population Action International, includes maternal mortality along with a range of other indicators on women’s health such as level of HIV/AIDS, infertility, abortion policies, prenatal care, contraception, trained birth attendance and creates a composite indicator to rank countries in terms of reproductive risk.
**Better Data needed?**

The WHO states that ‘the difficulty of measuring maternal mortality has long proved an impediment to progress in alerting health planners and others to the magnitude and causes of this problem and hence to effective interventions on an appropriate scale.’ (WHO, 1991). Improved data may be one means of drawing attention to the magnitude of the problem of maternal mortality. However, the increased costs which would be incurred in collecting more accurate data need to be weighed up against other resource needs.


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