SAFE MOTHERHOOD: SOCIAL, ECONOMIC, AND MEDICAL DETERMINANTS OF MATERNAL MORTALITY

Women and Health Learning Package
Developed by The Network: TUFH Women and Health Taskforce

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SAFE MOTHERHOOD: SOCIAL, ECONOMIC, AND MEDICAL DETERMINANTS OF MATERNAL MORTALITY

Global Overview

Every minute of every day, a woman dies somewhere as a result of pregnancy or childbirth. This means 1400 women die every day, and for each woman who dies, 50-100 suffer from long-term illnesses or disabilities.

The term safe motherhood covers a broad range of direct and indirect efforts to reduce deaths and disabilities resulting from pregnancy and childbirth. Direct efforts include those to ensure that every woman has access to a full range of high-quality, affordable sexual and reproductive health services, especially maternal care and treatment of obstetric emergencies. Indirect efforts include addressing social and other conditions that may affect women’s health.

Globally, some 550,000 pregnancy-related deaths occur every year, 90% of which are in developing countries. Maternal mortality is the main factor that substantially lowers the life expectancy of women. Twenty-five per cent of maternal deaths occur during pregnancy; 50% within 24 hours of childbirth; 20% within seven days of delivery; and 5% from two to six weeks after childbirth.

The maternal mortality ratio (MMR: the number of deaths per 100,000 live births) is a measure of the risk of death once a woman becomes pregnant. While the global MMR is 400, in some Asian countries MMR is as high as 850. For instance, it is 830 in Nepal, 650 in Laos PDR, 600 in Bangladesh, 590 in Cambodia, 470 in Indonesia, and 440 in India. But it is as low as 95 in Vietnam, 60 in China and Sri Lanka, 44 in Thailand, 35 in North Korea, 20 in Fiji and South Korea, 15 in New Zealand, 12 in Japan, 9 in Singapore and 6 in Australia.

The lifetime risk of maternal death is 1 in 16 in Africa (1 in 12 in sub-Saharan Africa), 1 in 65 in Asia, and 1 in 130 in Latin America, compared to 1 in 4000 in northern Europe. It is also estimated that one in four women in the developing world suffers from acute or chronic conditions owing to pregnancy.

Every minute in the world 380 women become pregnant, 190 face an unplanned or unwanted pregnancy, 110 experience a pregnancy-related complication, 40 have an unsafe abortion, and one woman dies from a pregnancy-related cause. Social and cultural practices, which themselves are responsible for the poor health conditions of most women, are among the important causes of maternal mortality. Women are left vulnerable by early marriage and pregnancy (when the reproductive organs are not yet properly developed), high fertility rates leading to recurrent pregnancies; and unwanted pregnancies, when the foetus is aborted crudely, most often at home. Globally, only one out of six pregnant women between the ages of 17 and 35 receives prenatal care, and more than half of all pregnant women are anaemic (WHO 2001).

Women in developing countries have several primary health concerns:

- Malnutrition and anaemia
- Frequent infections (malaria and other parasitic diseases)
- Adolescent pregnancies linked frequently with prolonged obstructed
labour, haemorrhage and sepsis, and ruptured uterus
• Repeated induced abortions because of problems related to contraception
• Sexually transmitted diseases, including HIV/AIDS
• Mental and psychosocial trauma/stress

These concerns are affected by many additional factors that contribute to women’s health conditions:

• Traditional values and practices, including female circumcision in some societies
• Cultural factors and social change
• Women’s own perception of “health” and their rights
• Socioeconomic status (income, housing, sanitation)
• Lack of social support, leading to psychosocial stress
• Other people’s perception of women’s health needs
• Inequities in legal and social rights
• Conflict between traditional and modern living practices
• Cultural practices hindering access to existing services
• Inappropriate attitude of health workers

Terminology

Lifetime risk of maternal death: Probability of maternal death faced by a pregnant woman.

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. Medical causes of maternal deaths are sub-divided into two categories: direct and indirect obstetric deaths.

Direct obstetric deaths are those arising from obstetric complications of the pregnant state (pregnancy, labour and the postpartum period), from any interventions, omissions, or incorrect treatment, or from a chain of events resulting in any of the above. More than 80% of maternal deaths worldwide have direct causes, including haemorrhage (34%), infections (21%), unsafe abortion (18%), hypertensive disorders (16%), and obstructed labour (11%).

Obstetric haemorrhage is an acute event that can occur at any time during pregnancy, and it is also one of the leading causes of maternal deaths during the postpartum period. Haemorrhage can be divided into that which occurs during pregnancy (antepartum) and that occurs after delivery (postpartum). After the 28th week of pregnancy, bleeding is generally caused by premature separation of the placenta from the wall of the uterus on the normal site (abruptio placentae) or by placenta praevia, the placenta attached lower. Both these conditions need immediate attention and a properly-planned delivery in a well-equipped hospital with facilities for operative delivery and blood transfusion. The common causes of postpartum haemorrhage are retention of the placenta after delivery (normally the placenta is expelled within 30 minutes of the infant’s birth), failure of the uterus to contract after expulsion of the placenta, and trauma to the genital tract. Reducing deaths from haemorrhage requires preventive strategies, quick transfer, and ready access to emergency services. Tubal
rupture, often resulting from ectopic pregnancies, is the most common cause of haemorrhage in the first trimester of pregnancy.

*Puerperal sepsis* is the second most important cause of maternal deaths in developing countries. A major cause of infection is the entry of microorganisms into the genital tract through the use of unwashed hands or unsterilised instruments during delivery in an unclean area.

*Unsafe abortion* is also a major cause of maternal mortality. Abortion is the termination of a pregnancy (expulsion or extraction of the embryo/fetus) before 22 weeks of gestation or below 500 g of fetus weight. Abortion may be spontaneous (due to natural causes, such as a miscarriage) or induced (WHO 1993). Neither lack of access to safe procedures, nor their illegal status in some countries, seem to defer women from having the abortions they want. Legality and safety are highly correlated, and unsafe abortions account for some 13% of maternal deaths (Khanna, 2003).

*Hypertensive disorders* are characterized by hypertension, oedema and/or proteinuria after 20 weeks of pregnancy, and intrapartum or postpartum preeclampsia. When the condition is associated with convulsions and/or coma, it is eclampsia, which needs prompt treatment. Hypertensive disorders can kill women by causing high blood pressure, cerebral haemorrhage, cardiac problems, or other complications like renal disorders, abruptio placentae (separation of placenta) or postpartum haemorrhage. The condition may also leave the hepatic and coagulation system damaged. This is called HELLP (hemolysis, elevated liver enzymes low platelets) syndrome.

*Obstructed labour* is commonly caused by a disproportion between the size of the baby and the space in the bony birth canal (cephalopelvic disproportion), or by an abnormal presentation of the fetus. Women with obstructed labor will eventually die of rupture of the uterus, haemorrhage, or sheer exhaustion and infection. A ruptured uterus is a fatal condition, but it can be prevented by appropriate antenatal and intranatal care.

*Anaemia* is also widespread in developing countries, affecting an estimated two-thirds of pregnant women (excluding China), compared to 14% of pregnant women in developed countries. Almost a fifth of all maternal deaths have been reported to be related to anaemia in India (WHO, 2000).

*Indirect obstetric deaths* are those arising from previously-existing diseases or diseases developed during pregnancy that are not due to direct obstetric causes, but are aggravated by the physiological effects of the pregnancy. Indirect deaths are caused by conditions that, in association with pregnancy, precipitate a fatal outcome, such as malaria, hepatitis, and increasingly, HIV/AIDS. Most life-threatening complications occur around the time of childbirth and require recognition and prompt treatment.
Regional Overview: India

In India, over two-thirds of women give birth at home, a figure that rises to 85% in rural areas, and 95% in remote areas. Every five minutes a woman in India dies from complications related to pregnancy and childbirth, adding up to around 136,000 fatalities a year, one of the highest numbers of maternal mortality cases in the world. For every three deaths of women in their reproductive years, one is the result of complications from pregnancy and childbirth. The annual toll of 100,000 maternal deaths constitutes 20% of the global burden. Complications related to pregnancy, childbirth and unsafe abortion are leading causes of death in adolescent girls. Seven million abortions take place in India annually. For every legal abortion, there are ten illegal abortions, and 50% of maternal deaths in mothers aged 15-19 are due to unsafe abortions. An estimated 15% of all pregnant women in India develop life-threatening complications, and a woman’s lifetime risk of dying from pregnancy-related complications or during childbirth is 1 in 65 (Population Reference Bureau, 1998).

According to Bhatia (1993) more than three-fourths (77.8%) of the maternal deaths in the Anantapur district could have been prevented if there had been early antenatal care, treatment of existing health conditions, and timely availability of medical care and hospitalization. The importance of transport facilities is evident from the fact that of the 140 women who were taken to hospital in a serious condition, 96 (68.5%) were transported by bus, 27 (19.2%) by bullock cart, five (3.5%) by rickshaw, and only 12 (8.6%) by a private vehicle or ambulance. Consequently, 24 women died en route and 54 when they reached hospital.

**Fig. 1: Maternal Mortality estimates by United Nations MDG region (2000)**

<table>
<thead>
<tr>
<th>Region</th>
<th>Maternal mortality ratio (maternal deaths per 100,000 live births)</th>
<th>Number of maternal deaths</th>
<th>Lifetime risk of maternal death, 1 in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>World total Developed regions</td>
<td>400</td>
<td>529,000</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>2500</td>
<td>2800</td>
</tr>
<tr>
<td>Europe</td>
<td>24</td>
<td>1,700</td>
<td>2,400</td>
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<tr>
<td>Developing regions</td>
<td>440</td>
<td>5,270,000</td>
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<tr>
<td>Africa</td>
<td>830</td>
<td>251,000</td>
<td>20</td>
</tr>
<tr>
<td>Northern Africa</td>
<td>130</td>
<td>4,600</td>
<td>210</td>
</tr>
<tr>
<td>Sub – Saharan Africa</td>
<td>920</td>
<td>247,000</td>
<td>16</td>
</tr>
<tr>
<td>Asia</td>
<td>330</td>
<td>253,000</td>
<td>94</td>
</tr>
<tr>
<td>Eastern Asia</td>
<td>55</td>
<td>11,000</td>
<td>840</td>
</tr>
<tr>
<td>South-Central Asia</td>
<td>520</td>
<td>207,000</td>
<td>46</td>
</tr>
<tr>
<td>South-Eastern Asia</td>
<td>210</td>
<td>25,000</td>
<td>140</td>
</tr>
<tr>
<td>Western Asia</td>
<td>190</td>
<td>9,800</td>
<td>120</td>
</tr>
<tr>
<td>Latin America &amp; the Caribbean</td>
<td>190</td>
<td>2,200</td>
<td>160</td>
</tr>
<tr>
<td>Oceania</td>
<td>240</td>
<td>530</td>
<td>83</td>
</tr>
</tbody>
</table>

Source: Rodek, 2003
Why Is Safe Motherhood a Serious Issue?

The loss of a woman in pregnancy or childbirth has devastating effects on the family she leaves behind. When a woman dies in childbirth, the death sentence of the infant she carries is almost certainly written. Often the other children she leaves behind suffer the same fate, and the family stands a good chance of disintegration. Studies in developing countries indicate that the risk of death for children under five years doubles or triples if their mother dies. Other studies estimate that children whose mothers have died are 3-10 times more likely to die within two years than those whose parents are both alive. Motherless children are likely to get less healthcare and education as they grow up. Girls, in particular, suffer because they are forced to drop out of school to look after younger siblings. Maternal death is thus, almost inevitably, a double tragedy.

There are other costs of maternal mortality as well. The mother’s family loses her contribution to household management and the care she provides for children and other family members. The economy loses her productive contributions to the workforce.

Women in developing countries lose more disability-adjusted life years (28 million) to maternal causes than to any other. The cost in human, social and economic terms is enormous. Pregnancy is not a disease but a means by which the human race is propagated. The hazards of childbirth cannot be avoided by simply preventing pregnancy. Society depends on future generations, and women should not be required to give their lives or health in undertaking this social and physiological duty. Safe motherhood is not only a health issue—it is also a moral issue.

Investment in safe motherhood reduces household poverty, saves families and governments the costs of treatment and other services, and strengthens the health system. An investment in safe motherhood is an investment in the emotional, social, and economic well-being of millions of women, children, families and communities. This has important consequences for all nations of the world.

Safe motherhood is an important social and economic investment. It is a matter of social justice and human rights.

Throughout the world women face poverty, discrimination, and gender inequalities. These factors contribute to poor reproductive health and unsafe motherhood even before a pregnancy occurs, and they make it worse once pregnancy and childbearing have begun. High levels of maternal mortality are a symptom of neglect of women’s most fundamental human rights. Such neglect affects the poor, the disadvantaged and the powerless most acutely. Protecting and promoting women’s rights, empowering women to make informed choices, and reducing social and economic inequalities are all key to safe motherhood.

Medical Determinants

The medical causes of maternal deaths are similar throughout the world. Underlying the medical causes are a range of socio-cultural factors that interact and exacerbate each other. These include women’s poor health before pregnancy; inadequate, inaccessible or unaffordable health care; and poor hygiene and care during childbirth. Socioeconomic and
cultural realities also contribute, including illiteracy, poverty, women’s unequal access to resources, and their lack of decision-making power in families and societies.

Childbirth can be particularly dangerous when the births are too soon, too close together, or too many.

1. **Too soon:** Adolescent and teenage pregnancies can cause nutritional deficiencies, contracted pelvis, abnormal presentation, operative deliveries, low birth weight babies, and problems of lactation.

2. **Too close:** Births occurring too close together can cause nutritional deficiencies, miscarriages, low birth weight, and long-term health consequences for the mother.

3. **Too many:** Having too many pregnancies can lead to nutritional deficiencies, abortions, placenta praevia, acquired flat pelvis, abnormal presentation, operative deliveries, ruptured uterus, and postpartum haemorrhage.

Women can die because they do not realize they have a medical problem, because they postpone decisions to seek care, or because it takes them too long to reach appropriate care, affecting their chances of surviving an obstetric emergency.

These factors reflect at least in part underlying social issues, including women’s low status, family decision-making about childbirth, lack of resources, poor infrastructure, and lack of appropriate facilities, that sometimes result in emergencies that are beyond medical help. This may be deeply frustrating for the health professionals, because such social problems are difficult to change at the individual level.

Women may also receive substandard or slow care at health facilities. Delays that occur once a woman reaches the facility are often under the control of health professionals. Although many health systems in developing countries cannot support adequate staff, there are still opportunities to do better with what resources are on hand.

According to a WHO study, a safe motherhood programme using existing resources would cost developing countries less than US $3 per person per year. Basic antenatal, delivery, and postpartum care alone costs as little as $2 per person. The study concludes: “Ultimately, the critical need may be one of generating sufficient political and social will at international and national levels to overcome this avoidable tragedy.”

**Socioeconomic Determinants**

Socioeconomic factors undoubtedly play a large role in maternal deaths, but although many of the exact mechanisms are still obscure. Poverty is clearly a high risk factor. It is also known that poor women are less likely to have formal education than wealthy women, and are less likely to be in good health and to seek or receive medical care. Which of these factors are causes and which are effects, and how can this vicious circle be broken? The socioeconomic status of women has a special importance in maternal deaths. In almost all societies in the past, and many societies in the present, women are a socially disadvantaged group.
Maternal mortality is a particularly sensitive indicator of inequality. The WHO and UNICEF have called it a litmus test of the status of women, their access to health care, and the adequacy of the health care system in responding to their needs. The ramifications of the status of women are so far-reaching that it may be that “Nothing will really change insofar as maternal mortality is concerned until attitude towards women change and people are sufficiently motivated to improve their living conditions.” Information about the levels and trends of maternal mortality is needed not only for what it tells us about the risks of pregnancy and childbirth, but also for what it implies about women’s health in general, and their social and economic status. Thus maternal mortality is not merely a “health disadvantage”—it is also a “social disadvantage” (WHO1986).

Fig. 2: A Framework for analyzing the determinants of maternal mortality and morbidity (McCarthy & Maine 1992)

Distant determinants

- Socioeconomic and Cultural factors
- Reproductive status
- Access to health services
- Health care behavior/use of health services

Intermediate determinants

- Health Status
- Complication
- Death / disability

Outcomes

- Pregnancy
- Unknown or unpredicted factors
Fig. 3: A Detailed framework for analyzing the determinants of maternal mortality and morbidity (McCarthy & Maine 1992)

Distant determinants

- Women’s status in family and community
  - Education
  - Occupation
  - Income
  - Social and legal autonomy

- Family’s status in community
  - Family income
  - Land
  - Education of others
  - Occupation of others

- Community’s status
  - Aggregate wealth
  - Community resources (e.g., doctors, clinics, ambulances)

Intermediate determinants

- Health status
  - Nutritional status (anaemia, height, weight)
  - Infections and parasitic diseases (malaria, hepatitis, tuberculosis)
  - Other chronic conditions (diabetes, hypertension)

- Reproductive status
  - Age
  - Parity
  - Marital status

- Access to health services
  - Location of services for
    - Family planning
    - Prenatal care
    - Other primary care
    - Emergency obstetric care
  - Range of services available
  - Quality of care
  - Access to information about services
  - Use of modern care for labor and delivery
  - Use of harmful traditional practices
  - Use of illicit induced abortion

Outcomes

- Pregnancy
- Complication
  - Haemorrhage
  - Infection
  - Pregnancy-induced hypertension
  - Obstructed labor
  - Ruptured uterus

unknown or unpredicted factors
Strategies for Prevention of Maternal Mortality

Four pillars of safe motherhood

1. **Antenatal Care:** Effective antenatal care is essential to detect preexisting conditions, prevent complications where possible, and ensure that complications of pregnancy are detected early and treated appropriately.

2. **Clean and Safe Delivery:** All birth attendants must have the knowledge, skills, and equipment to perform a clean and safe delivery and provide postpartum care to mother and baby.

3. **Essential Obstetric Care:** Pregnancy is a period of potential risk, and any pregnant woman can develop complications. Accurately predicting which women will develop complications is not possible. Making motherhood safer requires the establishment of a chain of care linking women, families, and communities with the health system. Therefore, interventions are needed at a community level and also within health services.

4. **Family Planning:** Individuals and couples must have the information and services to plan the timing, number, and spacing of pregnancies, and to prevent unwanted pregnancies.

There is a strong association between skilled care at delivery and lower levels of maternal mortality. Of course, this care is complete only if the skilled attendant is supported by adequate supplies, equipment, and infrastructure, as well as an effective system of communication, transportation, and referral.

Advocacy materials for maternal health and safe motherhood at different levels of care can include simple posters, folklore and plays at the community level, radio and television messages, and so forth. In addition, educational activities to update health professionals, recommendations and prepared research protocols, and audits of maternal deaths with defined clinical management are essential.

**Ten Action Messages for Safe Motherhood**

The Safe Motherhood Initiative (SMI) has defined 10 key action messages for safe motherhood:

1. Advance safe motherhood through human rights.
2. Empower women: ensure choices.
3. Make a vital economic and social investment in safe motherhood.
4. Delay marriage and first pregnancy.
5. Recognize that every pregnancy faces risks.
6. Ensure skilled attendance at delivery.
7. Improve access to quality reproductive health services.
8. Prevent unwanted pregnancy and address unsafe abortion.
9. Measure progress.
10. Utilize the power of partnerships.
REFERENCES


**RECOMMENDED WEBSITES**

Partnership for Safe Motherhood and Newborn Health  
[www.safemotherhood.org](http://www.safemotherhood.org)

UNICEF – Facts for Life: Safe Motherhood  
[http://www.unicef.org/ffl/02/](http://www.unicef.org/ffl/02/)

White Ribbon Alliance for Safe Motherhood (India)  
[www.whiteribbonalliance-india.org](http://www.whiteribbonalliance-india.org)

White Ribbon Alliance for Safe Motherhood (International)  
[www.whiteribbonalliance.org](http://www.whiteribbonalliance.org)

World Health Organization – Maternal Health  
Case Study: Suman

Suman lived in a remote village with her day-labourer husband, her two children, and her in-laws. Because of her husband’s poor income, the family was forced to subsist on a woefully inadequate ration of one meal per day. Suman’s life had always been hard. Her low-caste Hindu parents were too poor to send her to school and had considered her a burden. A local religious leader suggested that they marry her off. A grown daughter living at home was considered not only a financial liability but also a black mark against the family honour.

By the age of 20, Suman had already given birth two times. Both of her children were girls. Her husband and her in-laws were not happy with her. Her husband threatened to divorce her if she did not bear him a male child the next time. She was 22 when she realized she was pregnant again. When she had reached five months of gestation, her friends suggested that her abdomen was not appearing bigger, and they feared the baby must be another girl. Suman felt ashamed and embarrassed, and she decided to risk an abortion. With the assistance of a village woman, she inserted an herbal root into her uterus in the hope that it would trigger a miscarriage. Soon after, the bleeding began, but only pieces of products of conception were partially expelled. On the next day, she woke up with abdominal pain below the navel accompanied by fever. Bleeding was minimal, but the discharge smelled foul. She gradually developed a very high fever with breathing difficulty. She also could not pass urine. Her husband decided to take her to the medical college after five days had elapsed. On reaching the hospital, she was unconscious. The doctors tried their best, but she could not be revived. It was too late to save her life.

Questions for students

1. What are the safe motherhood issues in this case?
2. What are the social and economic determinants in this case?
3. How can these issues be managed?
Case Study: Suman – Tutor’s Notes

The tutor should be able to explain the role of the following contributors for the maternal death:

- Poverty, illiteracy, low social status
- Son preference
- No antenatal check up; antenatal clinic registration not done by the health worker.
- Lack of contraceptive use and family planning services
- Lack of access to safe abortion
- Delay in seeking medical care

Also explain clearly the role of delays, and how the death could have been prevented by taking action at various levels of health care delivery.

Contrary to popular stereotypes, the vast majority of women seeking abortions are married and caring for a number of children already. They may seek out abortion services to limit their family, space births, and address contraceptive failure. Most often they undergo abortion because they are unable to access dependable family planning services. In regions of the world where access to affordable and effective contraception remains limited or nonexistent, women often undergo self-induced or unsafe abortions.

It is the very women traditionally deprived of effective preventive family planning methods that are most likely to risk an abortion in the absence of any other alternative. Theirs is a multiple bind: they can neither prevent their pregnancies nor terminate them safely – but neither can they be confident of surviving childbirth, delivering healthy babies, accommodating a bias towards sons, or supporting their children once they are born.

In this case, contraceptives with counseling were required to limit Suman’s frequent pregnancies. Had she attended the antenatal clinic during pregnancy, the health worker would have identified her problem and provided her with proper advice. The strong cultural bias towards having sons forced her into an illegal abortion.
Case Study: Madhuri

Madhuri was the eldest of three children and the only girl. After she completed her schooling, her father decided to have her marry a boy from a distant village. She was nineteen years old when she got married. Her mother had died two years earlier, so the whole responsibility of caring for his children fell on her father. He also had to support his aging mother and two sons who were pursuing their studies in college. He felt that getting his daughter married early would lift half of his burden. Madhuri’s husband worked as a day labourer and lived with his parents and relatives. Madhuri was twenty when she became pregnant. As it was customary for a daughter to return to her parent’s home during pregnancy so that adequate care could be provided to her, she sought permission to return to her father. But her in-laws refused to send her home. So her old grandmother made a trip to the far-off village to be with her. To her grandmother, it seemed that Madhuri was doing too much hard work and was being ill-treated. She did not receive any antenatal care, and the health worker of the village did not register her pregnancy.

When Madhuri was eight months pregnant, one morning she complained of a sudden pain in the abdomen. On the same day she had normal delivery at home, which was conducted by an untrained Dai (traditional birth attendant). The baby was stillborn. After the delivery she complained of severe headaches and cloudy vision. She developed swelling all over her body. She was passing very little urine. Then she started to have generalized convulsions, which occurred repeatedly for the next two days. She continued to bloat and appeared weaker than ever. Her grandmother pleaded with the in-laws to call a doctor or take her to the hospital. Even after many entreaties and tears, the in-laws did not agree to take their delirious daughter-in-law to the hospital. As night fell, Madhuri slipped into a troubled coma. She never woke up.

Questions for students

1. What are the safe motherhood issues in this case?
2. What are the social and economic determinants in this case?
3. How did the family fail to prevent the death of Madhuri? Identify the delays.
4. How can these issues be managed?
Case Study: Madhuri – Tutor’s Notes

The tutor should be able to explain the role of the following contributors for the maternal death:

- Young primigravida
- Poverty
- No antenatal checkup
- Risk factor not detected in the absence of antenatal care
- Insensitive attitude of in-laws
- Not recognizing severity of the problem
- No health care

Also explain clearly the role of delays and how the death could have been prevented by taking action at various levels of health care delivery.

Proper antenatal care to detect any risk factor is a must for every pregnancy. Had Madhuri been registered with the health worker she could have attended the antenatal clinic. The health worker would have identified her as a high-risk pregnancy and could have advised her to go for institutional delivery. The most serious problem appeared to be the insensitive attitude of the in-laws. Had they recognized the severity of her condition, they could have transported her to a health facility. So it is important not only that safe motherhood lessons be taught to the pregnant mothers, but that the husband and family be sensitized regarding the complications of pregnancy, and be taught in advance about birth preparedness.
Case Study: Jaishree

Jaishree was 25 years old, and had been married for one year. Her husband worked as a daily labourer and they lived in village Vhedshi. This was her first pregnancy. She received regular antenatal check-ups from the health worker at the sub center. She completed her pregnancy to term without any complaints. One morning, close to her due date, she developed labour pains. The auxiliary nurse midwife (ANM) was called, but she had gone to the primary health center to attend a meeting 25 km away from the village. So a private doctor from the village was called. He came to attend the delivery, but since he felt it would take too much time, he administered two injections (Pitocin) to speed up the delivery and left. She complained of severe pain. Around 5:30 PM, she gave birth to a healthy male baby. An untrained Dai (traditional birth attendant) conducted the delivery. The placenta was delivered completely. Immediately after the placenta was out, she developed profuse torrential bleeding. At that time no one was available to help. The ANM was still not available, nor was the private doctor to be found. Her husband did not have enough money to arrange for emergency transportation. Jaishree continued to bleed profusely. Her hands and feet had become cold and she had stiffening of all limbs. She stopped talking and died at 7:30 PM. When the ANM returned from her meeting, she immediately rushed to see her, but it was too late already. What she witnessed was a helpless woman, dead, lying in a pool of blood. Her baby also died after three months.

Questions for students

1. What are the safe motherhood issues in this case?
2. What are the social and economic determinants in this case?
3. How can these issues be managed?
Case Study: Jaishree – Tutor’s Notes

The tutor should be able to explain the role of the following contributors for the maternal death:

- No high-risk identification
- Unavailability of ANM during labour
- Injudicious use of drugs by private doctor
- Lack of emergency transportation at subcentre

Also explain clearly the role of delays and how the death could have been prevented by taking action at various levels of health care delivery.

Jaishree was getting antenatal care from a subcentre, but her risk status was not detected. Due to other job responsibilities, the ANM was not available when needed most. Had she been available, she could have made an early decision to evacuate the patient. The most important life-saving interventions were also not available, including emergency transportation and a blood transfusion facility.
Case Study: Unwed girl

An unwed girl in her teens was admitted to the maternity wards of a hospital late one evening with complaints of dyspnea, palpitations, and pain in her abdomen of some days’ duration. The complaints had increased in intensity in the last two days, but because of many socio-medical problems it was difficult to get detailed information. She was diagnosed as 18 weeks pregnant, with anaemia, rheumatic heart disease with arrhythmia, and heart failure. Echocardiography was planned for next morning. However, within hours of admission she suffered a miscarriage and immediately afterwards collapsed and could not be revived.

Questions for students

1. Discuss the importance of primary prevention of rheumatic heart disease and its timely diagnosis, as well as the importance of pre-pregnancy counseling and health care. How does pregnancy relate to heart disease?
2. What is the role of peripheral health workers in providing appropriate health education and counseling for prevention of unwanted pregnancies and ways of early safe abortion?
Case Study: Unwed girl – Tutor’s Notes

All attempts must be made to reduce the incidence of rheumatic heart disease by encouraging school health and community awareness to identify the bacterial infection in childhood and treat it promptly. Prenatal counseling to reduce morbidity and mortality is essential, as many heart diseases can be aggravated during pregnancy. Pregnancy needs to be properly planned and supervised. Safe abortion services must be made available. Proper counseling must be done. Women must be able to afford and use abortion facilities. During pregnancy, attempts must be made to prevent heart failure by timely diagnosis and appropriate therapy with teamwork. The problems are many-fold when it is an unwanted pregnancy in a young unwed mother.
Case Study: Eclampsia

A 28-year-old woman, the mother of two children and eight months pregnant with a third, had reported to a medical institute for the first time. She was diagnosed as having severe hypertension and was advised immediate admission. However, she did not get admitted. The very next day she was brought to the hospital in a coma by her neighbors. They said that she was alone at home cooking dinner when one of her children came running out for help. They found her continuously convulsing and brought her to the hospital. Immediate treatment was started but she died within hours. The cause of death was eclampsia with cerebral haemorrhage. Upon further enquiry, it was revealed that she was a widow of six months and was the sole money-earner of the family.

Questions for students

1. Discuss the effects of hypertension during pregnancy and the importance of prevention of eclampsia.
2. What were the social, economic, and medical factors that led to this death?
Case Study: Eclampsia – Tutor’s Notes

Lack of awareness about problems with pregnancy, mainly because of illiteracy, keep women away from antenatal clinics. Noncompliance with antenatal advice leads to further complications, especially in disadvantaged pregnant women who are poor or widowed, and who may suffer from a lack of support and be refused admission.

This was a preventable maternal mortality. It is essential that women be aware and seek treatment and support in such situations.

A medical social worker is very useful in such situations, especially in a busy outdoor setting, because doctors do not often have time to address the socioeconomic problems of patients. This is very important in developing countries, because the doctor-to-patient ratio is very low and a social worker can be of great help. Cerebral haemorrhage is a known complication of severe hypertension and can be prevented by timely antihypertensive therapy.
Case Study: Home delivery

A young woman, after having delivered at home, came to a rural health care institute with massive vaginal bleeding. The resident on duty took a history and examined her, and made the diagnosis of fifth para with atonic postpartum haemorrhage (PPH). The woman was declared dead within minutes of reporting to the hospital.

When a detailed history was elicited from her relatives, it was found that the woman was 31 years old and educated up to fourth class. She belonged to lower socioeconomic class and lived in a village 70 km away from the rural institute. She had four live children, all girls, the youngest of which was born 15 months ago. She had only one prenatal check-up by the auxiliary nurse midwife from a nearby medical center, who recommended a hospital delivery. But due to social and financial constraints, she had decided to deliver at home, and she had been delivered by an untrained birth attendant four hours prior to the admission. She started bleeding after the placenta was expelled. When the bleeding did not stop an hour after the delivery, the relatives called the auxiliary nurse midwife, who could not be reached for an hour. The midwife referred her to the tertiary centre, which took two hours more to reach.

Questions for students

1. What should have happened to prevent the death?
2. Discuss the problems, including multiple childbirths without spacing, social and financial burdens, home delivery by an untrained attendant, and delays in seeking medical help.
Case Study: Home delivery – Tutor’s Guide

It is essential to promote family planning, birth spacing, a change in attitude towards son preference, and prevention and treatment of anaemia. Timely transfer is essential for emergency obstetric care.

Family planning advice and proper spacing would have helped the woman, but because all of her children were girls and she lived in a society with a preference for sons, she continued to have children. Antenatal care is essential for proper guidance. Delivery at a proper health facility by a trained medical attendant could have saved her life. Finally, emergency obstetric care by timely identification of the problem, timely transfer, and appropriate health care could have saved her life. Treating atonic postpartum haemorrhage, exploring for traumatic postpartum haemorrhage, and administering a blood transfusion were essential.
Case Study: First pregnancy

An 18-year-old woman having her first pregnancy visited an antenatal outdoor clinic two days before her due date. She was educated till the fifth standard and had been married for two years. In the outpatient department her blood pressure was found to be 130/90. She had bilateral pitting pedal edema and a borderline pelvic disproportion, and was advised admission in view of the distance to her home and the possibility of hypertensive disorders and fetopelvic disproportion. However, she did not get admitted. Seven days later she came back in a toxic state, dehydrated and restless with the head of the fetus on perineum. She delivered a dead fetus and bled profusely thereafter. She took off the only intravenous access line which could be secured in that state, had cardiorespiratory arrest and died of postpartum haemorrhage. The relatives later said that she had labour pains the previous day and was taken to a nearby primary health center, from which she was referred early in the morning on the day of admission. However, she did not have any referral slip.

Questions for students

Discuss the roles of the following:
1. primary prevention, which includes age of marriage and illiteracy
2. secondary and tertiary prevention, which include awareness of pregnancy problems
3. antenatal care, misconceptions, accessibility of appropriate health facility, and duties on the part of the referring doctor
Case Study 7: First Pregnancy – Tutor’s Notes

What needs to be done at the community level to reduce the incidence of this type of situation? This woman got married when she was 16 years old and had no proper education. Educating women is necessary to make them self-reliant. Teenage pregnancy increases risk of anaemia and hypertensive disorders. Antenatal care is essential with timely appropriate diagnosis of problems, but it is not effective if patients are noncompliant. Essential emergency obstetric care was not available because of the delay in diagnosis and in the decision to transfer, and delay in reaching the health facility killed her.

When it is possible that the case may need secondary or tertiary institutional care, no time should be wasted, and the woman should be immediately referred, with proper referral information, to the place where facilities for surgery, anesthesia and blood are available.