Ensuring safe motherhood

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Pregnancy is the natural event in the life of women of reproductive age group. Pregnancy is the fertilization and development of one or more offspring, known as an embryo or foetus, in a woman's uterus. In a pregnancy, there can be multiple gestations, as in the case of twins or triplets. Childbirth usually occurs about 38 weeks after conception and in women who have a menstrual cycle length of four weeks, this is approximately 40 weeks from the start of the last normal menstrual period (LNMP). Conception can be achieved through sexual intercourse or assisted reproductive technology. Pregnancy is the most important phase in women’s life. There is lot of concern to reduce maternal mortality and infant mortality.

Maternal Health situation in India

Each year in India, roughly 30 million women experience pregnancy and 26 million have a live birth. Maternal mortality is defined as the death of a woman during pregnancy, childbirth or within 6 weeks after birth. With an estimated 45,000 deaths per annum, India contributes to a majority of maternal mortality burden in the region.

Maternal mortality statistics generally covers the following

1. Maternal Mortality Ratio (MMR) - MMR refers to the number of women who die as a result of complications of pregnancy or childbearing in a given year per 100,000 live births in that year.
2. Maternal Mortality Rate - Maternal Mortality Rate is defined as the number of maternal deaths to women in the ages 15-49 per lakh of women in that age group.

3. Life time Risk - Life time risk is defined as the probability that, one women of reproductive age (15-49) will die due to child birth or puerperium assuming that chance of death is uniformly distributed across the entire reproductive span.

Maternal mortality ratio, an important indicator of maternal health in India during 2017-19 is estimated to be 103 per 100,000 live births (Registrar General of India, March 2022). In order to further improve maternal and newborn health by reducing mortality and morbidity related to pregnancy and child birth, it is essential to build *continuum of care* that increases access to and use of skilled care during pregnancy, birth and the post partum period.

Ensuring safe motherhood

Safe motherhood means ensuring that all women have access to the information and services they need to go safely through pregnancy and childbirth. It includes:

- Education on safe motherhood
- Prenatal care (care during pregnancy) and counseling with focus on high risk pregnancies
- Promotion of maternal nutrition
- Adequate delivery assistance in all cases
- Provisions for obstetric emergencies including referral services for pregnancy, childbirth and abortion complications
- Postnatal care (care after child birth)

Common Causes of Maternal death

The main causes of maternal mortality may be divided into 3 categories-social, medical and availability of health care facilities.

Social causes	Medical causes (pregnancy related complications)	Availability of health care facilities
• Early marriage and Pregnancy • Repeated child birth • Preference for sons • Anemia • Lack of information about danger signs and symptoms • Delay in referral	• Obstructed labour • Hemorrhage(antenatal during labour and postnatal) • Toxemia • Infection or sepsis	• Lack of essential supplies and trained health personnel at the centers • Non sympathetic attitude of health personnel. • Deficient medical treatment of complications • Inadequate action taken by medical personnel

Antenatal care

Antenatal care refers to health education and regular medical check - up given to a pregnant woman in order to make the outcome of pregnancy safer, reduce cases of maternal morbidity and mortality through early detection and treatment. ANC is also necessary to screen high risk pregnancy and high risk labor signs. The important components of antenatal care are discussed below:

Early registration:

The first visit of registration of a pregnant woman for Antenatal clinic (ANC) should take place as soon as the pregnancy is suspected. Every married woman in the reproductive age group should be encouraged to visit her health provider or inform if she believes herself to be pregnant. Ideally the first visit should take place in the first trimester (first three months of pregnancy), before or at the 12th week of pregnancy. However if a woman comes late in her pregnancy for registration, she should be registered and care given to her according to the gestational age (duration of pregnancy).

Some pregnant woman will come by themselves to the antenatal clinics that are organized. However many may not come. The health care provider with the help of various community based functionaries such as ASHA workers, Anganwadi worker (AWW), the Traditional Birth Attendant (TBA) /Dai, members of Mahila Mandals, self-help groups, the panchayat and the village health committees who are likely to be aware of pregnant woman in the village should update the list and provide services.

Importance of early registration

- Assesses the health of the mother and to obtain baseline information on blood pressure (BP), weight etc
- Screen for complications early and manage them appropriately by referral and where required help the woman recall the date of her menstrual period
- The woman is to receive the first dose of tetanus toxoid injection (TT), well within time
- Help the woman access facilities for an early and safe abortion if she does not want to continue with her pregnancy
- Build a rapport between the pregnant woman and the heath worker.

Physical Examination

Weight

A pregnant woman’s weight should be checked at each visit. Normally a woman should gain 9 -11 kg during her pregnancy. After the first trimester, a pregnant woman gains around 2 kg every month or 0.5 kg per week. If the diet is not enough, with less than the required amount of calories, the woman might gain only 5 - 6 kg during her pregnancy. An inadequate dietary intake can be suspected if the woman has gained less than 2 kg per month. She needs to be put on food supplementation. A low weight gain usually points towards intrauterine growth retardation and results in a low birth-weight baby. Excess weight gain (>3 kg in a month) should arouse the suspicion of pre-eclampsia / twins. She should be referred to a medical officer.

Height

There is an association between maternal height and delivery outcome, at least in part, due to increased risk due to small pelvis in a very short woman. Nulliparous women below 145 cms of height have an increased risk of disproportion at delivery and therefore considered high-risk mothers for whom hospital delivery is recommended.

Blood pressure

Measuring BP of pregnant woman is important to rule out hypertensive disorders of pregnancy. If the BP is high (more than 140/90 mmHg;or diastolic more than 90 mmHg) and albumin (protein) is present in the urine, then the woman can be categorized as having pre-eclampsia. If the diastolic BP is above 110 mmHg, it is a danger sign pointing towards imminent eclampsia. Such woman requires immediate medical attention. A woman with pregnancy –induced hypertension (PIH) /pre-eclampsia requires hospitalization.

Pallor

If the lower palpebral conjuctiva (inner part of lower eyelid), palms and nails, the oral mucosa and tongue of the woman are pale, it is an indication that the woman is anemic.

Respiratory Rate (RR)

It is important to check RR, especially if the woman complains of breathlessness. If the RR is more than 30 breaths/minute and pallor is present, it indicates that the woman has severe anemia and needs immediate referral to the doctor.

Generalized Oedema

The presence of generalized oedema (swelling) as indicated by the puffiness of face should arouse the suspicion of pre-eclampsia.

Abdominal examination

Abdominal examination should be done to monitor the progress of pregnancy and foetal growth, and to check the foetal lie (foetal position)and foetal presentation (whether head or bottom first).

Iron-folic acid (IFA) supplementation

Stress the need for increased requirements of iron during pregnancy and the dangers of anemia to pregnant women. All pregnant women need to be given one tablet of IFA (100mg of elemental iron and 0.5mg of folic acid) every day for at least 100 days, starting after the first trimester at 14-16 weeks of gestation. This is the dose of IFA given to prevent anemia (prophylactic dose). If a woman is anemic (Hb<10g/dl) or she has pallor, two IFA tablets are to be given per day for 3 months. This means a woman with anemia in pregnancy needs to take at least 200 tablets of IFA during whole of pregnancy period. This is the dose of IFA required to correct anemia (therapeutic dose). Women with severe anemia (Hb<7g/dl) or those who have breathlessness and tachycardia (increased heart rate) due to anemia, should be started on the therapeutic dose of IFA and also referred to the doctor for further management.

Injection tetanus toxoid administration

Administration of 2 doses of inj.TT to a pregnant woman is an important step on the prevention of neonatal tetanus (tetanus of the newborn). The first dose of TT should be given just after the first trimester, or as soon as the woman registers for ANC whichever is later.TT injection is not to be given in the first trimester of pregnancy. the second dose is to be given one month after the first dose, but at least one month before the EDD.

Nutrition in pregnancy

The pregnant woman’s diet should provide for the needs of the growing foetus maintenance of the mother’s health, physical strength required during labour and successful lactation.

Protein foods are essential for the growth of the foetus. If possible, the pregnant woman should take plenty of milk, eggs, fish, poultry and meat. If she is vegetarian, she will need to have different cereals, a lot of pulses and nuts.

Iron is very important for making the baby’s blood and to avoid or reduce incidence of anemia. She should have jaggery instead of sugar; eat ragi or bajra preparations, sesame seeds and plenty of dark green leafy vegetables. Liver and kidney are also rich in iron.

Calcium is necessary for making the baby’s bones and teeth. The best source of calcium is milk. Calcium is also present in ragi and bajra. She should be encouraged to eat small dried fish.

Vitamins are important for pregnant women. She should have plenty of vegetables (especially dark green leafy vegetables) and fruits including citrus kinds.

Modified diets

In the presence of pregnancy induced hypertension or preeclampsia low salt diet is advised to prevent or reduce oedema. The woman may have a normal diet but avoid salted foods, and use little or no salt in cooking. High protein diet for preeclampsia, especially if there is albumin in the urine. The mother should be advised to increase her intake of protein foods.

Workload, Rest and Sleep

Too much physically demanding work during pregnancy can contribute to problems with the pregnancy such as miscarriage, premature labour or underweight infants, especially if a woman is not eating enough.

Women should therefore be encouraged to avoid heavy physical labour during pregnancy. If they cannot be given up completely, women should make sure they rest as much as possible between tasks.

A pregnant woman should also get as much rest as possible. She should lie down for an hour or so during the day, and sleep between six and ten hours every night.

Symptoms during pregnancy

The following symptoms cause some discomfort and indications of complications.

Symptoms indicating discomfort	Symptoms indicating that complications may be arising
• Nausea and vomiting • Heart burn • Constipation • Increased frequency of urination	• Fever • Vaginal discharge • Palpitations, easy fatigability and breathlessness at rest • Generalized swelling of the body puffiness of the face • Passing smaller amounts of urine • Vaginal bleeding • Decreased or absent foetal movements • Leaking of watery fluid per vagina(P/V)

Illness

Getting sick during pregnancy is especially uncomfortable and unpleasant, partly because of the pregnancy itself and partly because some medicines need to be avoided during pregnancy. In addition some diseases such as malaria can cause serious problems during pregnancy. For, these reasons women need to be especially careful to avoid diseases and infections when they are pregnant. For example, they should use mosquito nets when they sleep and avoid drinking contaminated water

Personal hygiene

Bathing every day is refreshing and also reduces the chance of getting an infection or illness. It is especially important to take care of the breasts and the genital area by washing often with clean water; harsh chemicals or detergents are not necessary and even can be harmful. Loose clothes made of light cotton are ideal. Well-fitting brassieres can help support the breasts as they get bigger and tender.

Sex during pregnancy

It is safe to have sex throughout the pregnancy, as long as the pregnancy is normal. Sex should be avoided during pregnancy if there is risk of abortion (history of previous recurrent spontaneous abortions), or a risk of preterm delivery (history of previous preterm labour). Some women experience a decreased desire for sex during their pregnancy. The husband should be informed that this is normal and the woman‘s consent should be sought before engaging in sex. Some couples find engaging in sex uncomfortable during pregnancy. The comfort of the woman should be ensured by her husband during sexual relations.

Birth preparedness and complication readiness

Four out of ten pregnant or postpartum women will experience some complication related to their pregnancy; for about 15% of these women, the complication can be potentially life threatening and will require immediate obstetric care. Since most of these complications cannot be predicted, every pregnancy necessitates preparation for a possible emergency.

Birth preparedness

All pregnant women must be encouraged to opt for an institutional delivery. Any complication can develop during delivery, complications are not always predictable, they can cost the life of the mother and/or the baby.

A health facility has staff, equipment, supplies and drugs available to provide the best care if needed. It even has a referral system should the need to refer arise.

Identify support people: these people are needed to help the woman care for her children and/or household, arrange for transportation, and/or accompany the woman to the health facility in an emergency. Seek help from either close relatives or community –based health functionaries such as AWW(anganwadi worker) and the TBA(trained birth attendant).

Finances

The woman and her family should be given an estimate of the expenses for the delivery and related aspects (such as transport etc...) They should also be advised to keep some emergency fund, or have a source for emergency funding, should a complication arise and more money is required than initially anticipated. They should also be made aware of the existing schemes that provide funds for maternal health, and any other schemes that may be launched from time to time.

Signs of labour: advise the woman to go to the health facility or contact the TBA if she has any one of the following signs which indicate the start of labour.

- A bloody sticky discharge per vaginum (her private part)
- Painful abdominal contractions every 20 minutes or less
- The bag of waters has broken, and she feels clear fluid coming out of vagina.

Complications readiness

Danger signs: The woman and her family/caretakers should be informed about potential danger signs during pregnancy, delivery and the postpartum period. She must be told that if she has any of the following during pregnancy, delivery or postpartum/post-abortion, she should immediately visit a hospital or health centre, without waiting, be it day or night.

The woman should visit an FRU if she has any of the following conditions:

- Any bleeding P/V during pregnancy, and heavy(>500 ml) vaginal bleeding during and following delivery
- Severe headache with blurred vision
- Convulsions or loss of consciousness
- Labour lasting longer than 12 hours.
- Failure of the placenta to come out within 30 minutes of delivery
- Preterm labour (labour starting before 8 gestational months)
- Premature or prelabour rupture of membranes
- Continuous severe abdominal pain

The woman should visit a 24 –hour PHC if she has any of the following conditions

- High fever with or without abdominal pain, and feels too weak to get out of bed
- Fast or difficult breathing
- Decreased or absent foetal movements
- Excessive vomiting, wherein the woman is unable to take anything orally, leading to a decreased urinary output.

Location of the nearest PHC/FRU:

The woman and her family members should be aware of the nearest health facility both the PHC where 24 hour functioning emergency obstetric care services are available and the FRU, where facilities for a blood transfusion and surgery are available.

Identification of transportation facilities

Delay in reaching a healthcare facility is one of the major delays responsible for maternal mortality. If the woman has decided to deliver at a health facility, a vehicle should be identified which should be available whenever the woman needs it, to take her to the health facility. Even if the woman decides to deliver at home, a vehicle should be identified and ideally be kept ready to transport her to the nearest health facility or referral center in case she develops some complications that need immediate referral and care. The help of the Panchayat Village Health Committee, Mahila Mandals ., Youth groups, or any other such groups can be taken to decide on how to obtain a vehicle in case of an emergency , if a vehicle is not available in the village. The various schemes which are presently available for assisting the woman with transportation facilities should be kept in mind.

Preparedness for blood donation

Hemorrhage, both antepartum and postpartum, is an important cause maternal mortality. Blood transfusion can be lifesaving in such, cases. As blood cannot be bought one needs a voluntary donor to replace the blood before it is issued for transfusion. Such donors (2-3in number) must be ready, should the need for transfusion arise.

Post natal care:

Research has shown that more than 50% of maternal deaths take place during the postpartum period. Conventionally, the first 42 days (6 weeks) after delivery are taken as the postpartum period. Of this, it is the first 48 hours, followed by the first one week, which is the most crucial period for the health and survival of both the mother and her new born, as most of the fatal and near-fatal maternal and neonatal complications during this period.

Of all the components of maternal and child health care delivery post natal care and early new born care are most neglected components. Only one in six women receives care during the postpartum period in India. The National Family Health Survey (NFHS) data indicate that only 17%of the women delivering at home were followed by a check-up within two months of delivery. Again of those delivering at home, only 2% received postpartum care within two days of delivery and a meager 5% within the first 7 days. Even out of this minor fraction of women most of them were not provided the entire range of information and services that should have been provided to a woman during a postpartum visit.

After delivery a woman has to make both physical and emotional adjustments and she needs support and understanding. Some of the medical disorders during this period are, puerperal sepsis or infection of the uterus and surrounding tissues, urinary infection, acute prolapse of the cervix and puerperal psychiatric illness. It is important to diagnose and treat these conditions as early as possible. Some of these may lead to more serious /life threatening complications.

During six weeks after delivery, the mother experiences a number of physical and emotional changes

- She may feel sad or tearful after the stress of pregnancy and labour
- Her internal organs especially the womb, return to normal size.
- The blood and other fluids from the womb gradually change from red to pale cream in colour, and stop altogether about four weeks after delivery. This discharge is called lochia.
- Menstruation returns after 4 -6weeks if she is not breastfeeding , or several more months if she is breastfeeding

Possible complications:

There are three serious complications that can develop in the period after delivery: eclampsia(within the first two days or 48 hours after delivery),infection and hemorrhage(heavy bleeding).

Infection is most often caused by prolonged labour or early rupture of the membranes. It can also be due to poor hygiene during a delivery (for example, if the birth attendant’s hands or instruments were not clean), or it can happen after a Caesarian section. The signs of a severe infection are fever, headaches, pain in the lower abdomen, bad- smelling vaginal discharge and vomiting or diarrhea. These are dangerous signs and a woman should go to a clinic or hospital

immediately if she has them.

Heamorrhage can happen as late as ten days or more after delivery. If placenta did not come out completely after delivery, bleeding may continue and become heavy.

Other complications that can develop after delivery are anemia and fistulae. Fistulae are holes that can develop between the vagina and the urinary tract or rectum.

Serious complications

Postpartum danger signs:

If a woman has any of the following danger signs after she has delivered her baby, she should seek care immediately:

- Fainting, fits, or convulsions
- Bleeding that increases rather than decreases or has many large clots or pieces of tissue.
- Fever
- Severe pain in the abdomen, or pain that keeps increasing
- Vomiting and diarrhea
- Bleeding or fluid from the vagina that has a bad smell
- Severe pain in the chest, or shortness of breath.
- Pain, swelling, and /or redness in the leg or breast
- Pain, swelling, redness, and/or discharge at the site of an incision (if a woman had an episiotomy or a caesarean section)
- Urine or faeces (stool from a bowel movement) leaking out of the vagina
- Pain when urinating
- Paleness in the gums, eyelids, tongue, or palms.

Postpartum clinic visit

Ideally a new mother should visit a health facility for her first postpartum visit, or be visited by a health worker at home, within 7 -10 days of delivery. This is especially true if she delivered at home. This first visit is important to make sure that the woman and the infant are recovering from the labour and delivery. If all is well, the next visit should be about six weeks after the birth of the baby. Both the mother and infant should have thorough physical examination and the infant should be immunized. In addition this is an excellent opportunity to answer any questions the woman may have about breastfeeding, sexual relations, family planning, and immunization for the baby or other topics.

Diet and rest

After child birth, women need to eat well in order to regain their strength and recover from the labour and delivery. They should continue to take iron tablets to prevent anemia, especially since they lost blood during delivery. If a woman is breastfeeding, her diet should include extra food and drink. Breastfeeding mothers need to eat even more than they did while pregnant, as breastfeeding places great demands on nutritional reserves. Foods rich in calories, proteins, iron, vitamins and other micronutrients should be taken. For example, cereals, milk and milk products, green leafy vegetables and other vegetables, fruits, poultry, meat, egg, and fish. Food taboos immediately after delivery and during lactation are usually stronger and more in number than during pregnancy. These should be discouraged. They should also be certain to drink plenty of liquids. The woman needs sufficient rest during postpartum period to be able to regain her strength. She and her husband and other family members should be advised that she should not be allowed to do any heavy work except looking after herself and her baby.

Hygiene

Advise and explain to the woman not to insert anything into the vagina and to wash the perineum daily and after passing faeces. Perineal pads should be changed more frequently if there is heavy lochia or for every 4 -6hours if cloth pads are used. The pads should be washed with plenty of soap and water and dried in the sun. She should be advised to take bath regularly and to wash her hands before handling the baby.

Related Resources

1. Facts for Life
2. Maternal mortality - WHO Fact Sheet
3. Sisu Samrakshak – Child Protector (multimedia presentation)
4. The Expected Date of Delivery (EDD)

Last Modified : 23/09/2022