

'MATERNAL NEAR MISS' Protocol to be defined.

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INTRODUCTION

- Maternal mortality is an important indicator of the efficiency of the health care system.
- As the mortality rates are consistently decreasing, the focus is shifted on maternal near miss which describes severe maternal morbidity.

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

- *Maternal mortality ratio* : refers to number of maternal deaths per 1,00,000 live births.

Introduction contd...

- The **Fifth Millennium Development Goal** is to improve the maternal health :
 - By reducing maternal mortality by three quarters between 1990 and 2015,
 - By achieving universal access to reproductive health by 2015.

- India has also reported a decline in the maternal mortality from ;

560 in 1990 to

167 in 2013

- The target according to MDG is 109 per 1 lac livebirths.

- Maternal mortality is the tip of the iceberg, there is a large base of the **severe acute maternal morbidity** ,which remains undescribed.

An iceberg floating in the ocean. The tip of the iceberg, which is above the water line, is labeled 'maternal mortality'. The much larger part of the iceberg, which is submerged below the water line, is labeled 'maternal morbidity'. This visualizes the concept that while maternal mortality is a visible and often discussed issue, maternal morbidity is a much larger and more prevalent problem that is often hidden from public view.

maternal mortality

maternal morbidity

Morbidity >>> Mortality

The Continuum



Introduction contd...

- The survivors of the severe event probably suffering life long disabilities are more in number than the actual death rate.
- **Severe Acute Maternal Morbidity (SAMM)** has now been accepted as a measure of efficiency of the health care system.

DEFINITION OF
MATERNAL NEAR MISS

- **Maternal Near Miss(MNM)** refers to a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy.

MATERNAL NEAR MISS AND HEALTH SEEKING BEHAVIOUR

Delays in maternal health care

- To understand the gaps in access to adequate management of obstetric emergencies leading to severe maternal complications and death three delays have been identified.

- *First delay* is in deciding to seek care by the woman and / or her family, as they are unaware of the need for care.
- This occurs as the danger signs are not recognized or there is lack of support of the family.

- The *second delay* is in reaching the adequate health care facility as the services may not exist , or may be inaccessible for reasons such as distance, lack of transport, cost or socio-economic barriers.

The *third delay* occurs in receiving adequate care at that facility resulting from errors in:

- ✓ diagnosis and clinical decision making
- ✓ lack of medical supplies and of staff proficiency in the management of obstetric emergencies.

- In developing countries, about 75% of the woman with severe obstetric morbidity are in a critical condition up on arrival, underscoring the significance of first two delays.
- Availability, accessibility, cost of health care and behavioural factors play an important role in the utilization of maternal health services

METHODS OF IDENTIFYING SEVERE MATERNAL MORBIDITY

- WHO recommended three different approaches of selection criteria for identification of severe morbidity:
 - Based on *disease specific*, eg: pre-eclampsia
 - *Management* based, (admission to ICU, massive blood transfusion).
 - Based on *organ dysfunction*.

Inclusion criteria

- The first step in implementing the near miss approach is to systemically identify women with severe complications of pregnancy.

- Women who are pregnant , or in labor or who delivered or aborted with in 42days arriving at the facility with any of the listed conditions or those who develop any of the conditions during their stay at the hospital would be eligible.

- Women who develop those conditions unrelated to pregnancy are not eligible.
- Women who are already dead when they are brought to health care facility or those who die on arrival at the facility should be included because they are likely to represent cases involving major delay in accessing care.

- The eligibility is not restricted by the gestational age at which the complications occurred(i.e., women having abortions, ectopic pregnancies or any of the inclusion criteria are eligible).

Inclusion criteria for baseline
assessment of quality of care

□ *severe maternal complications (disease specific)*

- Severe postpartum haemorrhage
- Severe pre-eclampsia
- Eclampsia
- Sepsis or severe systemic infection
- Ruptured uterus
- Severe complications of abortion

Criteria contd..

❑ *Critical interventions or intensive care unit use (management based)*

- Admission to intensive care unit
- Interventional radiology
- Laparotomy
(includes hysterectomy, excludes caesarean section)
- Use of blood products(massive transfusion)

❑ Life-threatening conditions (organ dysfunction)

Cardiovascular dysfunction

- ✓ Shock
- ✓ cardiac arrest (absence of pulse/ heart beat and loss of consciousness)
- ✓ use of continuous vasoactive drugs
- ✓ cardiopulmonary resuscitation
- ✓ severe hypoperfusion (lactate >5 mmol/l or >45 mg/dl)
- ✓ severe acidosis (pH <7.1)

- *Respiratory dysfunction:*

- ✓ Acute cyanosis

- ✓ gasping

- ✓ severe tachypnea (respiratory rate >40 breaths per minute)

- ✓ Intubation and ventilation not related to anaesthesia

- ✓ severe hypoxemia (O₂ saturation <90% for ≥60 minutes or PAO₂/FiO₂ <200)

Hepatic dysfunction :

- ✓ Jaundice in the presence of pre-eclampsia
- ✓ severe acute hyperbilirubinemia (bilirubin >6.0 mg/dl)

Uterine dysfunction

Uterine haemorrhage or infection leading

- to hysterectomy

❑ *Neurological dysfunction*

- ✓ Prolonged unconsciousness (lasting ≥ 12 hours)
- ✓ coma (including metabolic coma)
- ✓ stroke
- ✓ uncontrollable fits/status epilepticus
- ✓ total paralysis

❑ *Renal dysfunction:–*

- ✓ Oliguria non-responsive to fluids or diuretics
- ✓ dialysis for acute renal failure
- ✓ severe acute azotemia (creatinine ≥ 3.5 mg/dl).

❑ *Coagulation/haematological dysfunction:*

- ✓ coagulation failure
- ✓ massive transfusion of blood or red cells (≥ 5 units)
- ✓ severe acute thrombocytopenia ($< 50\,000$ platelets/ml)

Operational definitions of severe maternal complications.

- *Severe postpartum haemorrhage*
- Genital bleeding after delivery, with at least one of the following: perceived abnormal bleeding (1000 ml or more) or any bleeding with hypotension or blood transfusion.
- *Severe pre-eclampsia*
- Persistent systolic blood pressure of 160 mmHg or more or a diastolic blood pressure of 110 mmHg; proteinuria of 5 g or more in 24 hours; oliguria of <400 ml in 24 hours; and HELLP syndrome or pulmonary oedema. Excludes eclampsia.

- *Eclampsia*
- Generalized fits in a patient without previous history of epilepsy. Includes coma in pre-eclampsia.
- *Uterine rupture*
- Rupture of uterus during labour confirmed by laparotomy.

- *Severe systemic infection or sepsis*
- Presence of fever (body temperature $>38^{\circ}\text{C}$), a confirmed or suspected infection (e.g. chorioamnionitis, septic abortion, endometritis, pneumonia), and at least one of the following:
 - ✓ heart rate >90 ,
 - ✓ respiratory rate >20 ,
 - ✓ leukopenia (white blood cells <4000),
 - ✓ leukocytosis (white blood cells $>12\ 000$).

*MATERNAL NEAR MISS
INDICATORS*

- *Maternal Near Miss Ratio(MNMR)*: refers to the number of maternal near –miss cases per 1000 live births.
- $MNMR = MNM / LB$

- *Maternal near miss mortality ratio* : refers to the ratio between maternal near miss cases and maternal deaths.
- MNM:MD
- Higher ratios indicate better care.

- ***Women with life-threatening conditions (WLTC)*** refers to all women who either qualified as maternal near-miss cases or those who died (i.e. women presenting a severe maternal outcome).
- It is the sum of maternal near-miss and maternal deaths.
- $(WLTC = MNM + MD)$.

- ***Mortality index*** refers to the number of maternal deaths divided by the number of women with life-threatening conditions expressed as a percentage.
- $[MI = MD / (MNM + MD)]$.

- The higher the index the more women with life-threatening conditions die (low quality of care), whereas the lower the index the fewer women with life-threatening conditions die (better quality of care).

Benefit of setting the criteria for diagnosis of maternal near miss

- Common ground for implementation of near miss assessments across countries
- Allows international comparisons to be carried out.

The **WHO near-miss approach** is a standardized method which is implemented in three steps in a cyclical manner:

- (1) baseline assessment (or reassessment);
- (2) situation analysis; and
- (3) interventions for improving health care.

Baseline assessment

Implementation
of multifaceted
intervention for
improving
healthcare

Situation
analysis



- The *baseline assessment* can be performed in individual health-care centres , district and then scaled up to the entire health system.

- *Situation analysis* includes identification of opportunities and obstacles for improving the care of the patient.

- Recording all life-threatening conditions present in both maternal deaths and near-miss cases helps to identify the pattern of intensive support needed by women with severe complications arriving at the health-care facility.

CONCLUSION

- Maternal near miss has emerged as an adjunct to investigation of maternal deaths, as the two represent similar pathological and circumstantial factors leading to severe maternal outcome.

- As the number of maternal near miss cases are more than maternal deaths and the cases are alive to directly inform on problems and obstacles that had to be overcome during the process of healthcare.
- They provide useful information on quality of healthcare at all levels.

- Thus there is need for application of *maternal near miss* concept for assessment of maternal health and quality of maternal care.

THANK YOU