Going Beyond Mortality: The Maternal Morbidity Measurement Project

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Strategies toward ending preventable maternal mortality (EPMM)

✓ *Proposed global target:*
  
  - MMR of < 70 maternal deaths per 100,000 live births by 2030

✓ Includes strategic objective of addressing **all causes of maternal mortality**, reproductive and maternal morbidities, and related disabilities
Sustainable Development Goals

1. NO POVERTY
2. ZERO HUNGER
3. GOOD HEALTH AND WELL-BEING
4. QUALITY EDUCATION
5. GENDER EQUALITY
6. CLEAN WATER AND SANITATION
7. AFFORDABLE AND CLEAN ENERGY
8. DECENT WORK AND ECONOMIC GROWTH
9. INDUSTRY, INNOVATION AND INFRASTRUCTURE
10. REDUCED INEQUALITIES
11. SUSTAINABLE CITIES AND COMMUNITIES
12. RESPONSIBLE CONSUMPTION AND PRODUCTION
13. CLIMATE ACTION
14. LIFE BELOW WATER
15. LIFE ON LAND
16. PEACE, JUSTICE AND STRONG INSTITUTIONS
17. PARTNERSHIPS FOR THE GOALS
Given that more women are surviving: what about morbidity?

- How defined?
- How assessed?
- How measured?
What do we know about morbidity?

Å for each maternal death, 20? 30? women suffer from morbidity
Å calculations not based on standards, not well documented, not based on transparent methodologies
Å major reasons for limited understanding of extent of maternal morbidity
  ï lack of a common definition and identification criteria for maternal morbidity
  ï lack of standardized assessment tools
  ï lack of common indicators to measure morbidity
The WHO Maternal Morbidity Project

4-year project (2012-2015) which aims to:

1. construct and achieve scientific consensus on definition and criteria
2. develop an assessment tool
   - with regional specification
   - adaptable for community settings
3. to develop indicators for less-severe cases along the continuum of maternal ill health

led by the Maternal Morbidity Working Group (MMWG) Members from all WHO regions, with expertise in maternal and women's health, epidemiology, education science and public health
The Spectrum of Maternal Morbidity: From non-complicated pregnancies to maternal deaths

- Non-complicated pregnancies
- Complicated pregnancies
- Potentially life-threatening conditions
- Life-threatening conditions
- What we’re interested in measuring
- Maternal Near Miss
- Maternal Death

Say et al, 2009
Defining maternal morbidity

“Any health condition attributed to and/or complicating pregnancy and childbirth that has a negative impact on the woman’s wellbeing and/or functioning”

*Achieved consensus during stakeholder meeting, 3-4 October 2014, Istanbul, Turkey*

This new definition will be incorporated in the 11th revision of the International Statistical Classification of Diseases and related health problems (ICD)
Systematic reviews of existing literature

Conduct systematic reviews on range and types maternal morbidities

- Mental health: Perinatal Psychosis
- NCDs: Chronic hypertension/cardiac diseases
- Health functioning: Disabilities
- Maternal morbidities in humanitarian settings
- Qualitative studies: How women experience maternal morbidities
Comprehensive list of maternal morbidities

58 symptoms
29 signs
44 investigations and
35 management
strategies organized by
ICD-MM domains

### Table 1: MATERNAL MORBIDITY AND FUNCTIONAL DISABILITY MATRIX

<table>
<thead>
<tr>
<th>Domain</th>
<th>Symptom</th>
<th>Sign</th>
<th>Investigations</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT MATERNAL MORBIDITY</td>
<td></td>
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<tr>
<td>Ectopic Pregnancy</td>
<td>abdominal/pelvic pain</td>
<td>changes in heart rate</td>
<td>beta hcg ultrasound</td>
<td>methotrexate surgery</td>
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<tr>
<td>Unsafe Induced Sepsis abortion</td>
<td>vaginal bleeding</td>
<td>changes in blood pressure</td>
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<td>antibiotics chemotherapy</td>
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<tr>
<td>Retained Products of Conception</td>
<td>fever</td>
<td>fever</td>
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<tr>
<td>Gestational Trophoblastic</td>
<td>labour &gt; 12 hours</td>
<td>changes in blood pressure</td>
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<tr>
<td>Disease</td>
<td></td>
<td>abdominal/pelvic exam products of conception on pelvic exam</td>
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<tr>
<td>Obstructed Labour</td>
<td></td>
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<tr>
<td>HYPERTENSIVE DISORDERS OF PREGNANCY</td>
<td>headache</td>
<td>changes in blood pressure</td>
<td>utic acid creatines analyse</td>
<td>antihypertensives magnesium sulphate</td>
</tr>
<tr>
<td>Pre-eclampsia, HELLP, Eclampsia</td>
<td>visual disturbance</td>
<td>hypertension</td>
<td>complete blood count studies</td>
<td>diuretics</td>
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<tr>
<td>Placenta Abruption</td>
<td>chest pain</td>
<td></td>
<td>complete blood count</td>
<td>renin angiotensin anti-shock garments</td>
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<tr>
<td>Postpartum Haemorrhage</td>
<td>nausea and vomiting</td>
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<td>blood transfusion fluids</td>
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<tr>
<td>OBSTETRIC HAEMORRHAGE</td>
<td>abdominal pain</td>
<td>changes in heart rate</td>
<td>blood transfusion fluids</td>
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<tr>
<td>Accrete (Intrauterine Placenta)</td>
<td>back pain</td>
<td>changes in blood pressure</td>
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<tr>
<td>Pre-eclampsia Placenta</td>
<td>vaginal bleeding</td>
<td>abdominal pain</td>
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<tr>
<td>Postpartum Haemorrhage</td>
<td>uterine contractions</td>
<td>pressure</td>
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<tr>
<td>PREGNANCY RELATED INFECTION</td>
<td>fever</td>
<td>abdominal pain</td>
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<tr>
<td>Methit/Breast Abscess Chorioamnion</td>
<td>diaphoresis</td>
<td>changes in heart rate</td>
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<tr>
<td>Puerperal Septis</td>
<td>breast</td>
<td>changes in blood pressure</td>
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<tr>
<td>LIP/Putrefaction</td>
<td>redness/tenderness/mass</td>
<td>abdominal albumin</td>
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<tr>
<td>Tetanus</td>
<td>vaginal discharge</td>
<td>look jw</td>
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<tr>
<td>Other Obstetric Complications</td>
<td>fever</td>
<td>stiff neck</td>
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<td>Thrombotic</td>
<td>diaphragm</td>
<td>rigidity</td>
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<tr>
<td>Deep Vein Thrombosis</td>
<td>fever</td>
<td>muscle spasies</td>
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<td>Thrombophilia</td>
<td>abdominal pain</td>
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<tr>
<td>Septic Ovarian/Pelvic Van Thrombophlebitis</td>
<td>nausea and vomiting</td>
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<td>Gastrointestinal</td>
<td>decreased exercise tolerance/jaundice</td>
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<tr>
<td>Nausea and Vomiting of Pregnancy</td>
<td>headache</td>
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<tr>
<td>Cholestasis of Pregnancy</td>
<td>decreased exercise tolerance/jaundice</td>
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<tr>
<td>Cardiovacular</td>
<td>decreased oxygen saturation</td>
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<tr>
<td>Postpartum Cardiomyopathy</td>
<td>changes in breathing oxygen/saturation</td>
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<td>Mitral Syndrome</td>
<td>visceral distorsion</td>
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<tr>
<td>Endocrine</td>
<td>chest pain</td>
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<tr>
<td>Diabetes Mellitus (Gestational Diabetes)</td>
<td>pulmonary hypertension</td>
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<tr>
<td>Postpartum Thyroiditis</td>
<td>abdominal pain</td>
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Develop a measurement tool

- Woman’s History
- Experiences of signs/symptoms of morbidity
  - Use standardized scales where possible:
    - WHO Disability Assessment Schedule 2.0 – 12 item version
    - Standardized scale for depression (GAD-7) and anxiety (PHQ-9)
    - Violence
    - Drug use/abuse
- Physical Exam
- Laboratory tests
Pilot the measurement tool

- Pilot testing in three country settings (500 women per site)
  - Jamaica: 9 facilities in 3 other parishes
  - Kenya: 3 facilities in Kisumu county
  - Malawi: 1 facility in Blantyre
- 250 women seeking ANC care (~28 weeks)
- 250 women seeking post-partum care (~6 weeks post delivery)
Next Steps

• Compare most common morbidities across ANC and PPC questionnaires, as well as sites
• Compare standardized scale results to other data collection efforts
• Streamline tool for further testing, scale up, other settings
• Feedback to facilities, governments
• Monitoring of morbidities (prevalence)
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