Maternal and Newborn Indicator Validation Study in Mozambique

A collaboration between
Maternal Child Health Integrated Program (MCHIP),
Child Health Epidemiology Reference Group (CHERG),
and Mozambique Ministry of Health

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Rationale for the study

“Skilled birth attendant” is the core indicator for global monitoring of maternal health care around the time of birth

- Describes contact with the health system but not content of care
- Additional information on the content of women’s health care is needed for country level planning
- Study Objective: To test the validity of women’s recall of new content of care indicators for interventions delivered around the time of birth
Selection of Indicators to Test

- Document review
  
  DHS/MICS questionnaires, evidence-based maternal health care manuals and guidelines

- Discussions with colleagues

RESULT: 34 indicators identified for assessment

- 17 identified as “High Demand” evidence-based indicators; appropriate for possible inclusion in DHS/MICS

- 17 identified as appropriate for in-depth maternal health surveys
Assessment of two aspects of indicator validity

1. **Accuracy at the *individual level***
   How accurately do women self-report on care received?
   Depends on indicator sensitivity and specificity

2. **Accuracy at the *population level***
   How accurately does the indicator estimate true prevalence in the population?
   Depends on sensitivity, specificity and prevalence
Criteria for recommending incorporation of new indicators into surveys

<table>
<thead>
<tr>
<th></th>
<th>Individual-level Accuracy</th>
<th>Population-level Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Demand Indicators</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Other indicators</td>
<td>Either Individual or Population level Accuracy</td>
<td></td>
</tr>
</tbody>
</table>
Study Design

**Step 1: Observe Labor & Delivery Care**  
(525 labors/births observed in 46 facilities across MZ in Quality of Care Study)

**Step 2: Wait**  
for 8-10 months

**Step 3: Conduct household interviews**
1) Standard DHS/MICS questions, where appropriate  
2) Additional questions for new indicators  
3) N = 304 interviews; Response Rate = 65%

**Step 4: Compare,** determining validity of respondents’ reports
### Sample Characteristics

**Socio-demographic Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Maternal Recall Survey</th>
<th>MICS 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDUCATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>12.8</td>
<td>23.8</td>
</tr>
<tr>
<td>Primary</td>
<td>55.6</td>
<td>62.2</td>
</tr>
<tr>
<td>Secondary or higher</td>
<td>31.6</td>
<td>13.4</td>
</tr>
<tr>
<td>Don’t know/missing</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>RESIDENCE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>54.0</td>
<td>39.9</td>
</tr>
<tr>
<td>Rural</td>
<td>43.1</td>
<td>60.1</td>
</tr>
<tr>
<td>Missing</td>
<td>3.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
## RESULTS: Indicators meeting both Individual/Population Accuracy Criteria

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Individual Accuracy</th>
<th>Population Accuracy</th>
<th>High Demand Indicator?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman delivered in a hospital versus a health center <em>(Contact; on DHS/MICS)</em></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Woman had a companion present during the labor or delivery <em>(Content)</em></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Woman was encouraged to have a companion during labor or delivery <em>(Content)</em></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Newborn is placed skin to skin on mother's chest <em>(Content)</em></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Indicators meeting *either* Individual or Population Accuracy Criterion**

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Individual Accuracy</th>
<th>Population Accuracy</th>
<th>High Demand Indicator?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman had her blood pressure taken</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Woman received fundal massage after delivery of the placenta</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Newborn dried &amp; wrapped in towel/cloth (among those not placed skin-to-skin)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Newborn immediately dried</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Woman encouraged to ambulate during labor</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Key Maternal Indicators Not Recommended for Household Surveys

**HIV/PMTCT:**
- Woman asked about her HIV status

**Active Management of Third Stage of Labor:**
- Woman received a uterotonic within 3 (a few) minutes after birth of baby
- Woman received controlled cord traction
- Active management of third stage of labor (composite indicator)
Early Initiation of Breastfeeding:
• Breastfeeding initiated within one hour of birth
  • (Question formulation differed from the DHS)

Newborn Thermal Care:
• Newborn is placed skin to skin on mother covered with a cloth
• Newborn is wrapped in a towel/cloth
• Newborn immediately dried, placed skin to skin and covered with a towel/cloth (composite indicator)
Study Strengths

- Reference standard was direct observation, rather than chart review
- Follow up period comparable to MICS (study average = 9 months vs. MICS average = 12 months)
- Closely mimicked conditions of DHS/MICS data collection.
Study Limitations

- 65% Response Rate: 1/3 of women could not be located for follow-up interview
- Some bias of sample toward more educated, urban, young women –may overestimate accuracy of recall
- Could not validate 7 indicators due to small sample size in the observed births
Conclusions

- **Women are able to report on some aspects of intrapartum care**
  - Some intrapartum interventions will always require health facility-based data collection

- Further studies needed, especially in other contexts.

- Hypothesis: if women know they should expect certain routine interventions and awareness is increased, their recall will be more accurate

- Qualitative research may assist in improving the formulation of some questions.