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Identification of a Short Quality of Care Index to Measure the Quality of Facility Routine Labor and Delivery Care in Sub-Saharan Africa

Background

Because maternal mortality is a rare event and many related indicators are difficult to measure at the population level, skilled birth attendance (SBA) is the most commonly used measure of progress towards maternal mortality reduction, including the Millennium Development Goals (MDGs). However, SBA rates do not provide information about the actual quality of care (QoC) provided during labor & delivery (L&D), including the immediate postpartum period and essential newborn care (ENC).

Midwife Elizabeth Mpunga talks to new mother with baby at a health center in Rtamba, Tanzania.
Photo courtesy Kate Holt/Jhpiego

There is an increasing recognition in the global community that QoC must improve in order to achieve further reductions in maternal and newborn mortality. Given the unpredictability of maternal and newborn complications, ensuring the quality of routine care processes, (e.g., the delivery of high-impact interventions) is particularly essential. Accurate measurement of the quality of facility labor and delivery care is challenging in low-resource settings where patient records and facility registers often contain limited data related to care processes. Observation of care is considered the gold standard for measuring the quality of clinical care, but existing observation-based measures of obstetric and neonatal QoC are lengthy, costly and difficult to administer.

Measurement of L&D QoC is increasingly a priority among many global, country and local stakeholders; however, there is a lack of consensus on a set of maternal and newborn QoC indicators for routine intrapartum and immediate postpartum care processes, including ENC.

There is a need for valid, reliable, and efficient tools that comprehensively measure the quality of L&D care processes. USAID's flagship Maternal and Child Health Integrated Program (MCHIP) program's QoC Assessments[1] provided a unique opportunity to apply the results of observations of L&D care in developing innovative measures of care process quality that capture important information while requiring fewer resources to implement.

Work supported by MCHIP and recently published in *PLOS ONE*[2] identified and validated a short observation-based index of the quality of L&D care. This simplified 20-item index is based on five quality dimensions prioritized by experts and demonstrated to correlate with overall quality based on comprehensive observation-based checklist. The index includes items related to routine facility best practices for mothers and newborns during the intrapartum and immediate postpartum period and does not address quality of complications care for mother or newborn.

Methodology

This study focused on facility intrapartum and immediate postpartum care, the period of time when most maternal deaths occur and when care quality may have the greatest impact on both maternal and neonatal mortality. Two data sources were used to inform the development of the quality of care index: feedback and ratings obtained from global maternal and newborn care (MNC) experts and secondary data obtained from the MCHIP QoC Assessments across three countries.

This study developed a short index of informative quality indicators beginning with a global literature review to identify indicators used for the assessment of the quality of L&D care. A group of global maternal and newborn care experts affiliated with MCHIP, USAID, and external organizations next participated in a modified Delphi[3] process to identify key dimensions of the quality of L&D care processes. The experts participated in both group surveys and discussions to reach consensus about these dimensions. Quality

[1] http://www.mchip.net/node/968. MCHIP conducted QoC Assessments in seven Africa countries—Zimbabwe, Kenya, Ethiopia, Mozambique, Tanzania, Rwanda, and Madagascar—to assess facility readiness through direct observation of L&D at selected facilities.

[2] Tripathi V, Stanton C, Strobino D, Bartlett L. 2015. Development and validation of an index to measure the quality of facility-based labor and delivery care processes in sub-Saharan Africa." *PLoS ONE* 10(6): e0129491.

[3] The Delphi method is a structured communication technique, originally developed as a systematic, interactive forecasting method which relies on a panel of experts. (Source: Wikipedia)

dimensions were defined as aspects of routine L&D care processes that are distinct from each other but related to the larger idea of good quality care, for example, technical quality (e.g. delayed cord cutting) and interpersonal care quality (e.g., explaining what will happen in labor).

Table 1: Consensus Model of the Quality of Routine L&D Processes and Sample Items

Dimension	Sample item
Technical quality	Ties or clamps cord when pulsations stop, or by 2–3 minutes after birth (not immediately after birth)
Interpersonal	At least once, explains what will happen in labor to the woman and/or her support person
Screening and monitoring	Takes mother's vital signs 15 minutes after birth
Infection prevention/control	Washes his/her hand before any examination
Avoidance of harmful/ non-indicated practices	Was there use of episiotomy without appropriate indication?

The Delphi experts, as well as MNC experts based in sub-Saharan Africa and at global health institutions, also rated the >130 items used in the QoC Assessments' structured L&D observation checklist for their importance and representation of key dimensions of QoC.[4]

Combinations of indicators rated by the experts were then used to create potential indices of L&D care quality that were evaluated for their validity, using country data from QoC Assessments in Kenya, Madagascar, Tanzania, and Zanzibar. Each observed, eligible delivery was assigned a score based on performance of items in each possible index. Each delivery observation was also assigned a total QoC performance score by summing performance of all routine care items in the full QoC Assessment delivery checklist. Examples of criteria used to evaluate the possible indices are: 1) inclusion of items that represent the different dimensions of quality identified in Table 1, and 2) the ability to differentiate between poorly and well-performed deliveries. To enable these analyses, good overall QoC performance was defined in relative terms as being in the top 25% of total QoC performance scores in any given country, and absolute good overall QoC performance was defined as performing ≥80% of the actions in the full QoC Assessment structured L& observation checklist.

[4] The QoC Assessment L&D observation checklist was based on WHO guidelines and the work of clinical and research experts, and therefore is presumed to provide a comprehensive list of tasks, interventions and procedures that indicate quality of L&D care processes.

Results

Based on expert group ratings, a consensus model of the quality of L&D processes was defined. This model retained five dimensions, including technical, interpersonal care, screening and monitoring, infection prevention/control, and avoidance of harmful/non-indicated interventions (refer to Table 1).

The final validated facility labor and delivery quality index is a set of 20 indicators of intrapartum/immediate postpartum care, including ENC (refer to Table 2). The recommended index includes items from 4 of the 5 consensus dimensions of L&D care (Table 1) and demonstrated excellent ability to discriminate between poorly and well-performed deliveries based on observations of care the MCHIP QoC Assessments.[5] [6]

Table 2: Recommended Quality Index for Facility L&D Care

Initial evaluation

- Checks woman's HIV status (checks chart or asks woman) and/or offers woman HIV test
- Asks whether woman has experienced headaches or blurred vision
- Asks whether woman has experienced vaginal bleeding
- Takes blood pressure
- Takes pulse
- Washes his/her hand before any examination
- Wears high-level disinfected or sterile gloves for vaginal examination

First stage of labor

- At least once, explains what will happen in labor to the woman and/or her support person
- Prepares uterotonic drug to use for AMTSL
- Uses partograph (during labor)
- Self-inflating ventilation bag (500mL) and face masks (size 0

Conclusions

Given the challenges associated with observation-based assessment of QoC, MCHIP supported development of a short validated facility labor and delivery QoC index based on country survey results and expert opinion. This index can be used for more efficient and potentially cost-effective measurement of the quality of L&D care processes at health facilities.[7] This study is unique in that it used data derived from actual observations of L&D care, which are relatively rare in low-resource settings. As facility deliveries

[5] In a related study, this new index was piloted at seven health facilities in Tanzania to evaluate reliability and user experience.

[6] In another related study, a shorter set of indicators, consisting only of actions performed at or immediately after delivery, was also evaluated for its validity.

[7] Because observation of labor can take a long time, a shorter index that focuses just on delivery and the immediate postpartum period has also been developed and validated. Results from this process will be reported soon.

increase and the global community pays greater attention to the role of care quality in achieving further maternal and newborn mortality reduction, this new quality index may be used in tandem with other measurement approaches
(e.g., retrospective record review; comprehensive emergency and obstetric newborn care (CEmONC) signal functions, death audits) to support more routine and reliable measurement of quality to inform program efforts to improve quality of facility care for mothers and newborns.

The Maternal and Child Survival Program (MCSP), with assistance from USAID, will continue to support further evaluation of the usability and reliability of this short index as well as its potential application in combination with other routine measurement approaches to measure quality of care for the purposes of supporting continuous quality improvement in facilities in low-resource settings. It is important to note that this short quality index of observation-based indicators is not a job aid or tool to ensure that providers implement all essential or appropriate interventions. Rather, it is a selection of highly informative items that streamline observation-based measurement and serve as a proxy for overall quality of routine facility L&D care. This and three other related manuscripts will also contribute significantly to the current global focus on QoC and to program learning about which MNC indicators best measure QoC.

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