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June 2015

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# Piloting a Streamlined Index for Assessment of Quality of Labor and Delivery Care in Tanzania— Findings and Recommendations

## Background

Many commonly used indicators in maternal health programs, such as the skilled birth attendance rate, do not provide information about quality of care (QoC). This is a particular challenge with labor and delivery (L&D) care, including essential newborn care (ENC). Because obstetric complications can be unpredictable, clinical outcomes do not provide enough information about care during L&D. Measures of “readiness” such as provider knowledge or availability of supplies also do not predict whether essential interventions were actually provided. Better tools to gather information about care processes during L&D are needed. L&D service records, including the partograph, are not designed to measure QoC and records can be incomplete [1-3]. Recent research suggests that women cannot accurately recall whether they and their babies received many essential interventions during or after delivery [4]. Studies suggest that observation is the best way to assess the quality of care processes during L&D and ENC [5]. Excellent, comprehensive tools (e.g., checklists and standards) to document maternal and newborn care (MNC) and improve quality through supportive supervision have been developed by Ministries of Health (MoH) and programs such as MAISHA in Tanzania. However, many such tools are long, costly, and difficult to use for rapid or ongoing quality assessment, especially when aiming at institutionalization and sustainability. Additionally, the tools’ length may contribute to measurement error and missing data.



**There is a need for streamlined observation-based tools to measure L&D care quality.** Using data from the MCHIP Maternal and Newborn Quality of Care Surveys (QoC Surveys) [6], a research study [3] recently developed a short but comprehensive index of 20 informative indicators that can be used to measure the quality of routine L&D care by facility-based or external supervision teams (see Table 1). This index includes many important evidence-based actions during L&D care and covers most dimensions of QoC identified by a Delphi process [3]. Statistical analysis using data from the MCHIP QoC Surveys shows that as a delivery’s score on this index increases, the proportion of the full range of important actions during L&D that were completed also rises. **In other words, this comprehensive index appears to be a good proxy for overall QoC.**

A briefer version of the L&D QoC index was also created, as shown in Table 1. This “delivery-only index” contains just the 13 items that can be assessed at the time of delivery and in the first hour after birth. The comprehensive index is preferred, as it provides a more complete picture of the dimensions of L&D QoC and was a stronger proxy for overall QoC in statistical analysis. However, **the delivery-only index may be a robust alternative** in settings of more limited resources.

Before these new tools can be recommended for broader use, information is required about their feasibility and acceptability to potential users, such as facility, district, and regional supervisors. **A pilot study was conducted in early 2014 to generate this information.**

## Methodology

The primary aim of this pilot was to evaluate the feasibility of health supervisors using the comprehensive index of 20 items to assess care quality in the program context.<sup>1</sup> Specific objectives were to assess:

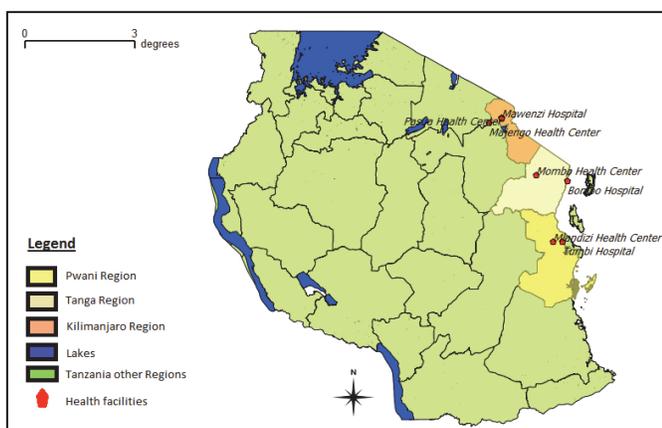
Usability:

- Whether health supervisors can use the index to evaluate quality through observation
- Whether users found any items difficult to observe
- The burden of using this index compared to the full QoC Survey L&D observation checklist and other customary supervision and quality assessment tools
- Reliability and validity:
  - Whether new and veteran clinical observers document similar performance using the tool
- Usefulness and face validity:

**Table 1: Items in the comprehensive QoC Index**

- 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
- 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 and size 1) are laid out and ready for use for neonatal resuscitation
- Correctly administers uterotonic (timing, dose, route)
- Immediately dries baby with towel
- Places newborn on mother's abdomen skin-to-skin
- Ties or clamps cord when pulsations stop, or by 2 - 3 minutes after birth (not immediately after birth)
- Assesses completeness of placenta and membranes
- Assesses for perineal and vaginal lacerations
- Takes mother's vital signs 15 minutes after birth
- Palpates uterus 15 minutes after birth
- Assists mother to initiate breastfeeding within one hour

**Figure 1: Map of Pilot Regions and Facilities in Tanzania**



<sup>1</sup> The “delivery-only” index was not separately tested during this pilot. However, all items in the delivery-only index are included in the comprehensive index, enabling calculation of reliability statistics for both indices.

- Whether observers feel the index provides important information for quality assessment
- Required guidance:
  - What information should be included with the index or in training on its use

The pilot was conducted in four health centers and three hospitals in three regions in Tanzania: Kilimanjaro, Pwani, and Tanga. Sites were selected because they were part of the MAISHA program implemented by Jhpiego and had participated in two rounds of the full MCHIP/MAISHA QoC surveys. Deliveries were observed by seven pairs of observers, one at each facility. Each pair included: 1) a “veteran” observer who was trained to observe L&D cases and collected data as part of the previous MCHIP/MAISHA QoC Surveys in Tanzania; and 2) a “new” observer who is responsible for MOH MNC service supervision but had not participated in the previous QoC Surveys. Observers received a 2-day training on using the index as a paper-based tool, including practice through demonstration scenarios and role-play. Observers also spent a half-day practicing clinical observation at a health facility. Data collection was conducted between March 20-24 and May 8-12, 2014 and overseen by MAISHA/MCHIP supervisors. The target sample size was 70 deliveries, or at least 10 per observer pair. After data collection, each observer was separately debriefed. Debriefs included quantitative rating of the usability and usefulness of the tool, as well as one-on-one interviews. Reliability was assessed through kappa coefficients (Fleiss and prevalence-and-bias-adjusted (PABAK)) for individual items and intraclass correlation coefficients (ICCs) for the total index score. The pilot protocol was reviewed by the National Institute of Medical Research Institutional Review Board (IRB) in Tanzania and the Johns Hopkins Bloomberg School of Public Health (JHSPH) IRB.

## Results

Observers used the QoC index to document 101 deliveries. The pilot findings are summarized here and reported in-depth in manuscripts currently in development.

### Quantitative Findings:

Ease of use/usefulness: **Observers described the tool as easy to use and useful** in response to 14 questions adapted from standard assessments (Table 3). Veteran and new observers generally had similar responses to most questions, although veterans were less likely to describe the tools as complex. Veteran observers were slightly more likely to describe the tools as useful.

Reliability and validity: Agreement between observers about whether indicators in the tool were performed was considered a sign of reliability. Because veteran observers have extensive experience observing L&D care, they are considered a “gold standard.” Therefore, agreement between observers was also considered a sign of validity. **There was substantial (>0.6) or near-perfect (>0.8) agreement between new and veteran observers on almost all items in the index, and near-perfect agreement on the total index scores.** There were only two items with moderate agreement as measured through Fleiss kappas: explaining at least once what will happen in labor and assessment for lacerations after delivery. These actions may be more difficult to assess through observation and better training on these may be needed. While the pilot used the comprehensive index tool, reliability statistics were also calculated for items in the delivery-only index, which performed equally well. **These findings suggest that both QoC indices have good validity and reliability, even with brief training in use.**

**Table 2: Observer ratings of tool usability/usefulness**

Question	Average (CI)	Interpretation
<b>EASE OF USE</b>		
1. I think that I would like to use this tool frequently	1.86 (1.67-2.05)	Strongly agree/ <b>agree</b>
2. I found this tool unnecessarily complex	3.71 (3.33-4.09)	Neutral/ <b>disagree</b>
3. I thought this tool was easy to use	1.71 (1.47-1.96)	Strongly agree/ <b>agree</b>
4. I think that I would need the support of a technical person to be able to use this tool	3.93 (3.68-4.17)	<b>Disagree</b>
5. I would imagine that most people could learn to use this tool very quickly	2.36 (1.83-2.89)	<b>Agree</b> /neutral
6. I found the tool awkward or cumbersome to use.	4.14 (3.74-4.55)	<b>Disagree</b> /strongly disagree
7. I felt very confident using the tool.	1.79 (1.32-2.25)	Strongly agree/ <b>agree</b>
8. I needed to learn a lot of things before I could get going with the tool.	2.86 (2.21-3.5)	Agree/ <b>neutral</b>
<b>USEFULNESS</b>		
1. This tool includes the essential indicators to assess quality of L&D care	2.21 (1.75-2.68)	<b>Agree</b> /neutral
2. This tool provides useful information about quality of L&D care	2.21 (1.79-2.63)	<b>Agree</b> /neutral
3. This tool is a fair way to assess quality of L&D care	2.14 (1.69-2.60)	<b>Agree</b> /neutral
4. Using this tool can help improve the quality of L&D care	2.29 (1.73-2.85)	<b>Agree</b> /neutral
5. I think this tool will be useful to district level supervisors	1.86 (1.67-2.05)	Strongly agree/ <b>agree</b>
6. I think the tool is redundant when looking at other existing supervisory tools	3.64 (3.11-4.17)	Neutral/ <b>disagree</b>

**Table 3: Quotes from Observers**

“This tool is good; I would suggest sending to every facility to be used by internal supervisors to know how staff provides services. Because it is short and does not consume much time....”

“[The full QoC Survey observation checklist] was long and had a lot of things I cannot remember. It was looking like a pamphlet, it had a lot of little things.... this one looks at very important items which will help you to provide service to a mother and newborn.”

“[The piloted QoC index] is adequate only if the person using this tool has enough knowledge. But someone with limited knowledge and who needs help, it will be problematic because it does not provide assistance. [The Standards-based Management and Recognition] tool provides reference material.... one using it... can easily check in the reference material provided and determine the best way out.”

“...if I want to observe many people in a short period of time I would choose this, but if among those observed women there come one with complication I will fail to explain if the services received was correct or incorrect.”

“Supervisors going to use this should be informed very clearly that this is a short tool designed to show as fast as possible the quality of maternity services at their healthcare centers... They should be briefed that it is short but good for the occasion as it gives results quickly.”

“This tool is not for training; this tool is for supervising selected areas like indicators only, i.e. indicative verification as to how the work is done.”

## Qualitative Findings:

Observers described a wide range of current sources of information on MNC quality and discussed challenges with some existing approaches. Nearly all observers found the items in the QoC index tool easy to observe. They did not consider any items unimportant. Many observers felt that most important aspects of routine L&D care were covered. Several observers preferred the QoC index to the full QoC Survey checklist or other quality assessment tools, describing it as being more informative, rapid, or efficient.

However, many observers noted that observing complete L&D cases is exhausting and time consuming, even if a small number of indicators is documented. Numerous observers identified interventions they thought were “missing” in the new tool (such as uterine massage) or topics they thought should be included (such as care up to 24 hours postpartum, care for complications, or family planning (FP)). Some observers expressed concern about absence of “how-to” information, such as reference descriptions of interventions, such as might be found in tools they use currently (e.g., BEmOC performance standards with verification criteria). Some observers had concerns that the tool could not be used as a checklist or job aid because of these omissions. Many observers felt that the index should not be used by those without training in MNC, supervision, or L&D performance standards. Some observers expressed concern that, if this tool is used for quality assessment, providers will only do what is included in the index.

## Implications

**These findings suggest that the new indices can be used to rapidly assess the quality of L&D care. However, they also suggest that these tools require clear, straightforward and easy-to-use guidance.** Such guidance should:

- Explain why the comprehensive index is the preferred tool.
  - Explain why observation of complete episodes of L&D care is important for the comprehensive index.
- Acknowledge that these are tools for rapid quality assessment/measurement, not job aids.
  - The QoC indices may provide information help target supervision, but they cannot stand alone as a supervision guide.
- Explain that “missing” items are not unimportant; rather, statistical analysis has found that the included items are sensitive proxies for provision of all actions that should happen during L&D.
- Explain that the QoC indices are designed to assess quality of processes/provider performance during routine L&D care, not facility/provider readiness or clinical outcomes
  - Feedback and discussion of findings may, nonetheless, reveal information about readiness (e.g., oxytocin was not prepared because none was available in the facility).
- Explain that the indices focus on routine L&D and ENC and are not intended to assess management of complications or the quality of antenatal care, postnatal care, or non L&D services (e.g., FP)
- Explain that multiple cases must be observed to provide a representative picture of care at a facility.
- Note that there is not yet evidence to support the use of these tools by those who are not MNC providers or do not have experience in supervision.

## Conclusions

These results suggest that the QoC indices are streamlined, reliable, validated tools that may be used:

- To conduct research on determinants of good quality care and effects of quality improvement interventions
- As part of a toolkit for ongoing supervision by managers, including identification of problem areas
- To complement quality assessment based on record review
- To conduct verification in performance-based incentives program

There is increasing global recognition that the quality of L&D care processes must improve to enable further reductions in maternal and newborn mortality. Tools are needed that bring observation out of the research setting and into health systems and programs. The indices developed through this study and piloted in Tanzania may enable improved assessment of care for mothers and newborns, essential in settings where facility deliveries are increasing but information about care quality is limited and there is a scarcity of resources to conduct comprehensive QoC assessments.

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This brief was made possible by the generous support of the American people through the United States Agency for International Development (USAID), under the terms of the Leader with Associates Cooperative Agreement GHS-A-00-08-00002-00 and Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of The Maternal and Child Health Integrated Program (MCHIP) and The Maternal and Child Survival Program (MCSP), and do not necessarily reflect the views of USAID or the United States Government.

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