Women's Recall of Delivery and Neonatal Care in Bangladesh and Malawi

A Study of Terms, Concepts, and Survey Questions

P. Stanley Yoder
Mikey Rosato
Riad Mahmud
Alfredo Fort
Fazlur Rahman
Avril Armstrong
Sayed Rubayet

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Report written for Save the Children US, Washington, DC

P. Stanley Yoder*
Mikey Rosato**
Riad Mahmud***
Alfredo Fort*
Fazlur Rahman****
Avril Armstrong*
Sayed Rubayet*****

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* ICF Macro, Calverton, Maryland, USA
** Centre for International Health and Development, University College, London
*** UNICEF Bangladesh
**** Centre for Injury Prevention and Research, Bangladesh
***** Save the Children, Bangladesh

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EXECUTIVE SUMMARY

This study was conducted for Save the Children US/Saving Newborn Lives (SNL) to provide information for use in the formulation of survey questions about giving birth, immediate newborn care practices, and postnatal care. The overall study objective was to provide guidance on what questions can be reasonably asked in a newborn care module prepared for use in large sample surveys. Of greatest interest were the events that followed delivery and that involved newborn care and postnatal care for the mother and the newborn. The research considered whether or not the events asked about were usually recalled by women, whether or not the terms used were clear to respondents, and whether the answers provided could be easily and unambiguously coded. We also reflected on how well respondents understood the questions about a 'health check' for themselves and the baby and on challenges in interpreting survey data collected on health checkups.

Methods

Staff at ICF Macro designed and directed this study in collaboration with SNL staff and with local colleagues in Malawi and in Bangladesh, both countries where SNL has large programmes to improve neonatal, child, and maternal health. Macro worked with personnel from the MaiMwana project in Malawi and with personnel from the SNL programme and the Centre for Injury Prevention and Research of Bangladesh (CIPRB) in Bangladesh. About 80 women were interviewed about their most recent birth in each country: 40 who gave birth in a health facility and 40 who gave birth at home. Fifty percent of the women had given birth one to three months earlier, and 50 percent had given birth one to two years ago. Individual interviews consisted of two parts: part 1 was a loosely structured conversation, and part 2 was a structured questionnaire. Part 1 was recorded and transcribed, while part 2 responses were entered into SPSS for analysis.

Key events

The narrative section provided evidence about the events that women recall consistently. Women easily spoke about labour pains, the delivery process, cord cutting and cord tying, and delivery of the placenta. They gave specific times for commencement and termination of labour. Women paid attention to how and when the placenta was delivered, as they recognized the dangers of a delayed placenta delivery. Women also talked about wiping, wrapping, and bathing the newborn.

The recordings and transcriptions of the narrative section show the terms and concepts that women used to describe all of these events in the two local languages: Chichewa in Malawi and Bangla in Bangladesh. Responses to the structured questionnaire provided additional evidence about the terms most easily understood, as it included questions about care of the cord; wiping, wrapping, and bathing the newborn; and postnatal care for the mother and newborn. The glossaries prepared for the two languages identify terms and concepts that can be used to formulate survey questions.

Some experts have suggested that the delivery of the placenta be used as a point of reference in survey questions. Women's descriptions certainly showed that they paid very close attention to the delivery of the placenta, for a delay in delivery was always of concern. However, the study teams in both countries found that the timing of the delivery of the placenta varies widely from woman to woman. Therefore, the delivery of the placenta is not a suitable point of reference for other events such as wiping or wrapping the newborn. We recommend that survey questions that use the delivery of the placenta as a reference point be dropped.

Questions about essential newborn care

The questions used in the structured questionnaire addressed care of the cord, the wiping or drying of the newborn, the wrapping of the infant, and bathing for the first time. Women were asked what was used to cut the cord, and that question caused no problems for respondents. In home births, women were then asked if the instrument had been boiled. In Bangladesh, most razor blades had been boiled, so the question sequence provided what was expected. In Malawi, where mothers are asked to bring new blades for cord cutting, most blades were new. Assuming that a new razor blade is sterile, this question does not provide the information that is being sought because a negative answer to 'Was it boiled?' does not imply a non-cleaned blade. We recommend asking 'Was this a new razor blade?' for all who reported a blade had been used, and then asking 'Was it boiled?' for those who say the blade was not new.

The indicators proposed to SNL by the Technical Working Group related to wiping, wrapping, and bathing of the newborn and focus on the length of time between birth and these three actions. Women were first asked if the baby had been dried/wiped, and then how soon after birth this was done. The verbs used in both Malawi and Bangladesh can best be translated to mean wiping rather than drying. We recommend that survey questions use the term wiping instead of drying.

Women had no problem in either country in understanding what was meant by the terms wiping, wrapping, and bathing. The challenge in the use of these questions comes in the coding of the responses to the question about the timing of the event. Respondents gave several kinds of answers: (a) numeric responses that are easy to code (2 to 3 minutes, half an hour), (b) responses that are general statements (adverbial) about how long it took (right after, soon after, a little while), and (c) responses that use another event as a reference point (after wiping, after delivery of the placenta).

The findings for both countries indicate that for a question about wiping or wrapping, the majority of women give non-numeric answers. In addition, the Malawi data show that what is meant by 'very soon', 'right away', or 'not long' varied widely in length of time. If such questions are used in a survey, more than half of the answers will be coded by interviewers in the field according to their own estimates of what is meant by respondents. Because this approach leaves much to the discretion of interviewers, and individual variation in coding could be wide, we do not recommend this approach to coding these questions.

It would be possible, on the other hand, to collect information about the length of time since delivery by asking respondents to choose among lengths of time read out to them, such as less than 5 minutes, 5 to 15 minutes, and so on. The division of time into appropriate categories

depends on what programmes recommend. Although slightly more cumbersome than asking the simple question, the approach does standardize the question and answer sequence so that all interviewers can be trained to code answers in the same manner. Asking about how soon the baby was bathed presents less of a challenge for coding because the coding categories include longer periods of time, and women are more likely to give numeric responses.

Questions about postnatal care for mother and baby

Respondents were asked if any health care provider checked on their health after the birth of the baby and were then asked, a bit later in the questionnaire, if any health care provider checked the health of the baby. In both Malawi and in Bangladesh, many women did not understand what was meant by a 'health checkup', or 'a check on your health'. Study teams in both countries needed to define the term so that women could answer the question. In Malawi, they gave a number of examples of what such a checkup would involve in their explanations, while in Bangladesh they described what was meant by health in general.

We recommend that the general question about a health checkup include examples of the kinds of things an appropriate health care worker would do in a checkup. We suggest that the main question be asked with two examples added: a check of temperature and a check for bleeding. Something similar can be devised for the check of the baby: a check on temperature and a check of the cord, for example. Otherwise interviewers will be asked to explain the question, and variability in asking questions is introduced. Using examples would provide some specific items to give meaning and content to the term checkup and may help a respondent remember that a nurse had checked on her.

When asked about how long after delivery their checkup occurred, the answers ranged from responses in minutes to days. A woman who says she was checked 10 minutes after birth may well be reporting on the first contact she had after delivery with a nurse or doctor, while someone who says one or two days is less likely to be reporting on a first contact. We do not know if this first contact included checking on items considered essential to a medical checkup or not. This reasoning may not hold in some facilities if they have guidelines that suggest that a health checkup be done within the first 20 to 30 minutes. The question is, should we consider this first contact to be our 'health check' or not?

It is not possible to answer that question clearly without information on the type of contact and the checks actually conducted. It is also worth considering that, in both Malawi and Bangladesh, the study questionnaire included a question about how many times the newborn had been checked by a health care provider. In Malawi about one-third of those whose baby had been checked said that two or three checkups had been performed. In Bangladesh, where only 35 percent of newborns had been checked at all, 43 percent of those who were checked had been checked three or four times or more.

If we accept that some respondents have reported on their first medical contact in a facility, and others have reported on a medical checkup that involved a number of checks on health-related conditions, then we must say that we are not sure what these data tell us. That is, we are simply unable to say what percent of women were given a health check from the data provided.

Revision suggested

We propose a simpler and more restricted question for finding out if a woman has had a health checkup. We can provide a later reference point for both home and facility births, and thus place less emphasis on the moment of delivery. That is, we could ask the following questions:

> *After the birth of your baby, did anyone check on your health before you left the hospital? That is, did anyone check your temperature and blood pressure?*
>
> *After the birth of your baby, did the TBA or any other birth attendant check on the baby's health before she left the house? That is, did anyone check on the baby's temperature and umbilical cord?*

As suggested above, we should add two examples in order to clarify the meaning of a 'health checkup'. For those who said they had been checked, we could ask when that had happened, and we could have four answer categories: one in minutes, one in hours, one in days, and one 'Don't Know'. For those who said they had not been checked, we could then ask if anyone came to check on them during the next week.

In general, the same questions should be asked of women who give birth at home and in facilities unless data are available that show that the question makes no sense to the one group or that nearly all women in one group give the same answer. Women in Malawi and in Bangladesh recalled largely the same events whether they gave birth at home or in a facility. They were also able to respond to questions about what happened to their newborn. It is true that women who gave birth in facilities were less sure about what happened than were those who gave birth at home. However, it would be best to ask the same questions of all women until the data suggest otherwise.

Summary

The process of giving birth and caring for newborns in the study areas of Malawi and of Bangladesh were remarkably similar, but a certain number of contrasts were found as well. With regard to similarities, the events recalled by women were roughly the same: the time of the onset of contractions; the time of the birth; noticing who was present to assist with the delivery; noticing when the placenta was delivered; the cutting of the cord; the wiping and wrapping of the newborn; and the giving of the newborn to the mother for breastfeeding. The rapid wiping and wrapping of newborns was nearly universal. Even the order of the events was essentially the same.

A few contrasts were also found. In Bangladesh, all women had other women around them when they delivered, whether at home or in a facility. In Malawi, one-third of women at home and one-fourth of women in the peri-urban hospital were alone when they delivered. In Bangladesh the infants born at home were either massaged or bathed a few minutes after birth, but neither action was taken in facility births. In Malawi many women took traditional medicine to hasten delivery, while in Bangladesh, a saline drop was commonly used for the same purpose. In both Malawi and Bangladesh, about one-half of women who gave birth in facilities reported that someone had checked on their health after they had given birth. Only a few women who gave birth outside a facility received a health check.

Finally, the study found that the questions about the timing of events following delivery must be revised to allow for consistent coding of non-numeric answers, and the questions about a health check for mothers and for newborns must be revised to improve understanding by respondents.

1 INTRODUCTION

This study was conducted for the Save the Children US/Saving Newborn Lives (SNL) to provide information for use in the formulation of survey questions about giving birth and care of the newborn and mother after birth. Information is needed to monitor and evaluate newborn health care projects and to plan effective interventions to reduce maternal and neonatal mortality. More specifically, information is needed about the care given to newborns during the first hours and days after birth, and about the timing and content of checks on the health of the mother and newborn in the first hours and days after birth.

The collection of survey data about newborn care and health checkups has been a continuing challenge in the field of public health, for there is as yet no consensus about which topics to select and how to formulate survey questions. It is not clear how much mothers recall about newborn care and their contacts with health care providers, or if there are systematic differences in knowledge and recall between home and health care facility births. Some specialists have concluded that women who deliver in facilities may not know what care was provided to their newborn, for newborns are sometimes taken from the mother for a period of time. Survey data have shown that in home births, a health checkup of the mother, her newborn, or both is not common, but that in births at facilities, the majority of mothers and newborns have their health checked.

The SNL programme has been working for some time to build a consensus on key indicators to monitor and evaluate newborn health programmes. The topics of highest priority for this study were identified through discussions with SNL personnel and through the consideration of the indicators previously developed by the Technical Working Group on Newborn Indicators (TWG), directed by SNL. The newborn care topics of greatest importance relate to cord care and the dangers of hypothermia as well as prompt delivery of the placenta. Special attention is paid to the timing of wiping, wrapping, and bathing the newborn. Information about the timing and the nature of medical checkups for the mother and for the newborn is also critical. Therefore, this study examines what women are able to report about these events or actions. Researchers expected to find systematic contrasts in responses from respondents involved in home versus facility births and in more recent versus more distant births.

Given these concerns, this study sought to examine what women were able to recall about cord care, hypothermia, and placenta delivery by asking them to share their experiences of their last birth in their own terms. The study sought to identify which topics and specific questions, framed in public health terms, were familiar to women and what effect the amount of time that passed had on their recall. Their answers will be used to provide guidance to the survey researchers who write questions about newborn care after birth as well as questions about postpartum and postnatal care in developing countries. The data collected will also be used to examine the face validity of questions in English, the accuracy of the translation of certain questions into Bangla and into Chichewa, and the appropriateness of terms and concepts contained in questions.

The staff of Macro International, Inc., now known as ICF Macro, designed and directed this study with local colleagues in Malawi and in Bangladesh, both countries where the SNL programme has large projects under way to improve neonatal, child, and maternal health. ICF Macro staff worked with colleagues from the MaiMwana project in Mchinji district, Malawi, and also with colleagues from the SNL programme and the Centre for Injury Prevention and Research of Bangladesh (CIPRB) in Bangladesh.

This report summarizes what women recall most readily in Malawi and in Bangladesh, and presents the terms and concepts used by the women themselves to describe their delivery and neonatal care experiences. The report also discusses the responses of the women to specific survey questions and makes recommendations for language use so that the questions will be easily understood and coded without ambiguity. The report is framed in the light of the ongoing challenges of asking respondents about recent events and those longer ago, and of bringing together in survey questions the public health view of what is relevant with the experiences of respondents in delivery, neonatal care, and medical checkups.

2 BACKGROUND

Specialists in maternal and child health recognize that medical and traditional practices related to maternal and newborn care vary tremendously around the world and that the ways in which births are managed at home and in health facilities varies from one society to another. How births are managed has a direct impact on maternal and neonatal mortality. In particular, research has shown that the majority of neonatal mortality is caused by infection, asphyxia at birth, hypothermia, and low birth weight (Fort et al. 2009). More than 4 million newborns die each year around the world, and most of these deaths occur in poorer countries (Lawn et al. 2005; WHO 2006).

Given the scale of the problem, what type of data should be collected through surveys, and how should it be collected? Saving Newborn Lives has been asking these questions for some years now. This study is part of a continuing effort to advance our knowledge and provide the answers to these questions.

2.1 Survey data to inform indicators

Data on newborn care have been collected in some countries through survey questionnaires that typically question mothers about their most recent delivery. However, survey data have been found to be generally incomplete. For example, the Demographic and Health Surveys (DHS) currently ask mothers questions about breastfeeding, providing colostrum, and feeding with other than breast milk. DHS surveys also ask if a traditional birth attendant (TBA) or health care provider (HCP) checked on the health of the respondent and on that of her infant after birth, and if so, who performed the check, and how long after birth the check was performed (#449-452, DHS core questionnaire). Acknowledging that this information is limited, some countries (Nepal and Bangladesh) have added to their own DHS surveys more detailed questions for mothers to answer about delivery practices and newborn care practices. The Multiple Indicator Cluster Surveys (MICS) directed by UNICEF also ask some of these same questions.

Although we recognize that data collected on newborn care has been incomplete, there is no consensus on how to formulate new survey questions. Many neonatal care specialists assume that deliveries at home are quite different from those in health care facilities. If that expectation were to be confirmed, we would need to consider those differences in formulating survey questions for home and facility births. In addition, we have very little evidence which events related to neonatal care are ones that mothers can observe and recall. Because of the dangers posed by birth asphyxia and hypothermia, the events of the first 20 to 30 minutes after birth are of critical importance. Therefore, survey researchers have asked questions about the timing of events and how soon after birth an action such as wiping, wrapping, or bathing was taken.

Additionally, some projects have conducted surveys that have included detailed questions for mothers about postnatal care. For example, Save the Children US used a few such questions in a survey conducted in Malawi in 2007. The SNL projects have asked questions about hypothermia since the first round of SNL (2000-2005). The SNL survey conducted in Ethiopia in 2008 used a questionnaire that includes 24 detailed questions about what happened to the

newborn in the first hours after birth, but these questions have not yet been validated. The analysis of data from this survey and others might provide insights on how well the questions were understood.

Other surveys conducted in a number of countries by Save the Children US or SNL, and in India by Care-India, are ongoing, and results have not yet been published. These studies have used a variety of survey questions for interviewing women about their experiences with newborn care.

2.2 Other studies

Many studies have collected data on neonatal care with a more narrow purpose. For example, a study by ICF Macro in Bangladesh examined the accuracy of maternal reporting by comparing data from external observations of deliveries with mothers' reports. The results were mixed (Macro 2005). Maternal survey responses and observations matched closely for the presence of a trained care provider and for the cutting of the umbilical cord with a clean instrument. However, there were discrepancies between survey responses and observations in relation to warming and drying of the baby after birth, as well as pre-lacteal feeding. Mothers tended to underreport these activities.

The MaiMwana project in Mchinji district, Malawi, examined mothers' perceptions of maternal health issues by discussing with mothers their own experiences with childbirth (Rosato et al. 2006). The researchers drew on information from a series of cyclical discussions of maternal health problems and possible solutions set up by the MaiMwana project, and from focus group discussions on the same issues. Among the most important issues related to maternal health were several related to delivery: mal-presentation, retained placenta, obstructed labour, and postpartum haemorrhage.

One way to assess the understanding of survey questions is to hold group discussions with interviewers immediately after completion of a survey to identify sensitive or problematic questions, and to document ways questions were revised for improved comprehension. In a study conducted in Nepal following a survey on adolescent sexuality, researchers were able to identify questions that respondents were reluctant to answer or that used a confusing format (Thapa et al. 2002). In rural areas in Nepal, female respondents did not readily answer questions about boyfriends. Respondents also found questions with an Agree/Disagree format difficult to answer. Similarly, a one-week workshop with interviewers was used following an AIDS Indicator Survey in Swahili in Tanzania to identify questions that were difficult to understand and to discover how interviewers rephrased problematic questions so respondents could understand and respond (Yoder and Nyblade 2004). The study suggested ways that the Swahili and English versions of the questionnaire could be revised for better comprehension.

2.3 Current situation: indicators and questions

A group of specialists on neonatal care, including SNL personnel, are seeking consensus on a set of key indicators related to neonatal mortality and also seeking agreement on a series of questions that would provide valid data for those indicators. Among the questions considered in working toward these goals are the following:

- What do mothers notice about the care of their newborn in the first hours after birth?

- What do women remember about the care of their newborn some months or years after birth?

- What are the main differences in neonatal and postnatal care given to newborns in home births versus facility births?

- What events or elements are common to both home and facility births?

- How do we formulate questions about those common elements so that the same questions can be asked of women regardless of the place of delivery?

The informal group of specialists, known as the Technical Working Group (TWG) on Newborn Indicators, met several times in 2008 and 2009 to discuss indicators suitable for monitoring and evaluation and to consider specific questions for a newborn care module. The group consisted of persons representing SNL, Save the Children US, USAID, BASICS, Johns Hopkins School of Public Health, the LSHTM, UNICEF, and Macro International. This group is seeking consensus on which key indicators should be used to guide further research.

The following indicators were proposed by the TWG on May 15, 2009.

Postnatal care check

- Percent of newborns receiving a postnatal care check within two days of birth.
  - *Numerator:* number of newborns who received a postnatal care check within two days after delivery.
  - *Denominator:* number of live births in the (two to five) years prior to the survey.

Thermal care

- Percent of newborns dried immediately after delivery.
  - *Numerator:* number of newborns dried with cloth immediately after delivery.
  - *Denominator:* number of last live births in the (two or five) years prior to the survey.

- Percent of newborns wrapped immediately after delivery.
  - *Numerator:* number of newborns wrapped with a dry cloth immediately after delivery.
  - *Denominator:* number of last live births in the (two or five) years prior to the survey.

- Percent of newborns with delayed bath.
  - *Numerator:* number of newborns with first bath delayed at least six hours after birth.
  - *Denominator:* number of last live births in the (two or five) years prior to the survey.

Cord care

- Percent of newborns with cord cut with clean instrument.
  - *Numerator:* number of newborns with cord cut using new blade or boiled instrument.
  - *Denominator:* number of last live births in the (two or five) years prior to the survey.

- Percent of newborns with nothing applied to cord.
  - *Numerator:* number of newborns with nothing applied to cord.
  - *Denominator:* number of last live births in the (two or five) years prior to the survey.

A number of other indicators were discussed by the TWG and eventually dropped from the list. The reason the first three below were dropped related to the lack of a consensus on what constitutes international guidelines. These dropped indicators include:

- Percent of newborns with postnatal care exam according to international guidelines

- Percent of newborns with recommended number of postnatal care visits in the first week

- Percent of women counselled on newborn care practices according to international guidelines

- Percent of women knowledgeable about newborn danger signs requiring care seeking

As suggested earlier, this study relied on these indicators as well as on questions used in SNL surveys to identify the issues of highest priority, namely: cord care, hypothermia in newborns, and medical checkups for mothers and infants. These issues were used to organize both parts of the data collection instrument: the narrative section and the structured questionnaire.

The TWG has also suggested a series of questions that would be included in a neonatal care module for a survey. Numbered as they might appear in a DHS questionnaire, these questions are:

448a.When (NAME) was born, what instrument was used to cut the umbilical cord?
New/Boiled blade Used blade Knife Scissors Other Don't Know

448b. Was anything applied to the cord immediately after cutting?
Yes No Don't Know

448c. What was applied to the cord?
Antibiotics Antiseptic Spirits/alcohol Other

448d. Was (NAME) wiped (dried) before the placenta was delivered?
Yes No Don't Know

448e. Was (NAME) wrapped in a cloth before the placenta was delivered?
Yes No Don't Know

448f. How long after delivery was (NAME) bathed for the first time?
_/_ hrs after birth _/_ days after birth _/_ weeks after birth Don't Know

As readily apparent, these questions address cord care and hypothermia. The attention paid to cord care comes from the risk of infection that arises from cutting the cord with a nonsterile instrument and/or putting any substance other than an approved antiseptic on the cord after cutting.

Some surveys have asked paired questions about wiping, wrapping, and bathing of the newborn. That is, they ask: Was the baby wiped…wrapped…bathed? Then they ask: How long after birth was the infant wiped…wrapped…bathed? The 2007 Bangladesh DHS included three questions about hypothermia: How long after (NAME) was born was the body (sic) wiped…wrapped…bathed? Still other surveys have asked: Was the baby wiped…wrapped immediately after birth?

The structured questionnaire (Appendix B) included questions about cord care, about the timing of wiping and wrapping vis-à-vis the delivery of the placenta, and about how long after birth the baby was wiped and wrapped. By asking these questions as they have often been used in surveys, we were able to identify the coding challenges presented by women's responses as well as assess their understanding of the questions.

3 METHODS

3.1 Research questions and assumptions

As already indicated, this study was conducted mainly to guide the formulation of survey questions about newborn care and postnatal care. However, the study first needed to collect data on what women remember about their experiences in delivery and newborn care. That is, information was needed on the issues and events that women remembered long after delivery as well as their memory of data on specific questions. Therefore, the research

- explored what mothers pay attention to and readily recall in delivery and neonatal care
- examined the terms and concepts used in describing delivery and neonatal care practices and events
- explored the reliability and face value of survey questions related to neonatal care and postnatal checkups (nature and content)

The overall research question was: What events and experiences related to delivery and neonatal care do mothers readily remember soon after giving birth as well as one or two years later?

The specific questions were:

- What do mothers know and recall of their most recent experience of delivery and any postnatal care provided to them, whether at home or at a health care facility?
- What do mothers know and recall of any postnatal care provided to their newborns, whether at a health care facility or at home?
- What are the terms and concepts that mothers use in talking about postnatal care in their own language?
- How reliable are a series of questions commonly used in public health surveys exploring neonatal and postnatal care?

The study team also acknowledged a series of hypotheses and assumptions made about what we were likely to discover. These included the following:

- There are systematic differences in the experiences of women who gave birth at home versus those who gave birth in a health care facility.
- A woman giving birth in a facility would recall less of what happened to her and her newborn than a woman who gave birth at home.
- Births at facilities would include more medical checkups than home births.
- Births at facilities would be assisted by individuals with higher levels of medical training than births outside a facility.
- Women who gave birth two to three years ago would remember less of their most recent delivery than those who delivered only one to three months ago.

3.2 Data collection methods

The methods of data collection included a guided conversation with respondents who talked about their recall of their most recent delivery and newborn care, a short structured questionnaire with pre-coded answer categories used with the same respondents, and a three-day workshop to discuss what had been learned in the fieldwork process. More specifically, the methods consisted of the following:

- An open-ended, loosely structured conversation with mothers about delivery and neonatal care
- A questionnaire for mothers about the delivery process and newborn care as well as the content of health checkups for the mother and her baby
- A workshop for interviewers after they had completed their fieldwork interviews

The research methods were selected in consideration of the study objectives and the research questions formulated. Women were first interviewed individually to obtain accounts of their experience in childbirth during their most recent delivery. The first part of the interview was devoted to general questions about delivery and newborn care to allow women to tell their stories in their own terms. This narrative section was followed by a short questionnaire that allowed women to respond with largely pre-coded answers to survey-type questions about the same topics.

3.3 Sample and site selection: Malawi

This study was conducted in the Mchinji district of central western Malawi, located on the border with Zambia approximately 110 km from Lilongwe, the capital of Malawi. The data collection, data processing, and parts of the analysis were directed by Mikey Rosato, technical advisor for the MaiMwana Project. The MaiMwana project has been working for some years in partnership with the District Health Office of Mchinji district to implement community-based health promotion interventions that are intended to reduce maternal and neonatal mortality.

The MaiMwana Project in Mchinji has registers of more than 50,000 women of child-bearing age across the district. These registers are updated monthly and include information on pregnancy status, date of delivery, place of delivery, and location of residence. A list of 84 respondents, stratified for relevant characteristics, was randomly generated from this register. We selected only women whose records showed births had occurred without complications.

The target number for the sample of respondents was 80 mothers. The sample was stratified so that it would represent diversity in relation to place of delivery as well as time elapsed since delivery. The final selection consisted of:

- 17 mothers who gave birth at home, in the last 1-3 months
- 24 mothers who gave birth at a health facility, in the last 1-3 months
- 18 mothers who gave birth at home, in the last 1-2 years
- 25 mothers who gave birth at a health facility, in the last 1-2 years

We also endeavoured to ensure balance between women from urban areas and women from rural areas. We assumed that the experiences of mothers who live in semi-urban areas and who give birth at the district hospital would differ from experiences of those who give birth in rural areas at smaller health facilities. We also expected mothers who delivered one to two years ago to give general, more normative answers than those who gave birth in the past one to three months.

Four interviewers and two supervisors were chosen from the group of experienced interviewers who have been working with the MaiMwana project for some time in Mchinji district. These individuals were purposefully selected to ensure that some came from rural areas and some from semi-urban areas. These criteria are thought to have an important influence on their experiences of interviewing women about delivery and postnatal care experiences.

3.4 Sample and site selection: Bangladesh

This research was conducted in a poor neighbourhood of Dhaka city and in a rural area outside Dhaka by the Centre for Injury Prevention and Research of Bangladesh (CIPRB) in collaboration with the SNL office of Bangladesh. The CIPRB, directed by Dr. Fazlur Rahman, was founded in 2005 to conduct research on child safety and injuries and to implement projects to reduce injuries and mortality among children in Bangladesh.

The CIPRB directs development projects in both Dhaka city and rural areas. Because the CIPRB maintains records of all births in the project areas, they were able to identify respondents for the sample that corresponded to the selected criteria. A list of 80 respondents, stratified for the relevant characteristics, was randomly generated from the CIPRB records. Only records of women who had births that occurred without complications were chosen. Someone from the local CIPRB team contacted each potential participant before the interviewer from the study team arrived.

A total of 80 mothers were selected to participate in the open-ended, unstructured interviews and to take the short questionnaire. These mothers came from four different neighbourhoods: two in the city and two outside the city. The sample was stratified so that it would represent diversity in relation to place of delivery as well as time elapsed since delivery. We also endeavoured to ensure that there was a balance in the sample between women from urban and rural areas.

The final selection consisted of:

- 20 mothers who gave birth at home in the last 1-3 months
- 20 mothers who gave birth at a health facility in the last 1-3 months
- 20 mothers who gave birth at home in the last 1-2 years
- 20 mothers who gave birth at a health facility in the last 1-2 years

We assumed that the experiences of mothers who lived in urban areas and who give birth in a large hospital would differ from those who gave birth in rural areas. We expected those who gave birth in health facilities to know more about events of interest to public health than those who gave birth at home. Similarly, we assumed that we would find systematic differences in the

recall of mothers who had just given birth (the last 1-3 months) versus those who delivered one to two years ago. That is, we would expect mothers who delivered one to two years ago to give general and more normative answers than those who gave birth in the preceding few weeks.

Four female interviewers were chosen from the applicants who had completed a university degree in the social or natural sciences. One of the permanent staff members of the CIPRB attended the training and was designated as the supervisor for data collection.

3.5 Data collection process

Open-ended, unstructured interviews

The interviews were conducted with women who had previously given birth at least once. The women were asked only about their most recent experience of delivery, neonatal care, and postnatal care. In response to questions, mothers described in their own terms their experiences of giving birth and caring for the newborn. Interviewers asked about delivery and everything that happened to the mother and the newborn during the first few hours after birth. Their responses helped interviewers to identify key terms and concepts that the mothers used to describe the events that they noticed and recalled (Appendix A).

This technique of eliciting information from women accomplishes several tasks: it identifies the terms and concepts that the women use to discuss their personal experiences, and it identifies the events that are most familiar to women. The terms and concepts can be used in the survey questions in local languages; the events familiar to women can be used to guide researchers in their interviews. Topics that refer to events familiar to women offer promising avenues for questioning, while those topics that are unfamiliar to women would be of very limited value.

Structured questionnaire

Once the narrative section was completed, the interviewers administered a short questionnaire to the same respondents by reading the questions and marking the answers on the questionnaire. The questionnaire focused on specific events related to newborn care practices and a health checkup for the mother and for her baby. There were questions about delivery, neonatal care, and postnatal care, including checks performed and advice offered (Appendix B). The open-ended, unstructured interviews and the administered questionnaires were both conducted as part of the same data collection event.

Group discussions

Because interviewers who have just completed a survey constitute a rich and valuable resource for assessing how well survey questions are understood, we invited the interviewers and their supervisors who worked on this study to a three-day workshop. They were asked to discuss their experiences of asking mothers to describe having a baby and caring for a newborn. The purpose of this approach was to explore their insights into the mothers' understanding of key questions about delivery and neonatal care, identify the appropriate terms in the local language to use in referring to such events, and identify problems in asking questions in the domain of

delivery and postnatal care. It also allowed the study team to reflect their perspectives on the kinds of questions about these events that can be productively asked of mothers in a survey context.

3.6 Data processing and analysis

The conversations in the open-ended, unstructured interviews were recorded after gaining informed consent. The tapes were transcribed by hand into Chichewa in Malawi and into Bangla in Bangladesh. These transcriptions were then translated into English and typed in English in Malawi. In Bangladesh, only the sections directly relevant to the study were translated and typed in English. After verification to ensure grammatical and syntactical equivalence among the Chichewa, Bangla, and English versions, the translations were typed into Microsoft Word. The persons involved in the collection, translation, and transcription of the data all shared in the verification of the accuracy of the final texts in English.

The study teams prepared one- to two-page profiles, or summaries, of the narrative section for each respondent. Each profile included (a) a glossary of key terms, (b) a list of the events mentioned, (c) the order given to the events by the women, (d) topics of local significance, and (e) overall assessment of the narrative. Having these profiles greatly facilitated the comparisons made among the categories of respondents. In addition, the study team prepared a time line on which all the events of interest were placed for each respondent.

Once the data processing was completed, each of the narratives, as well as the summaries, was read several times to identify patterns within the narratives and the series of events mentioned. The descriptions of main events for each respondent were typed out in Microsoft Word to facilitate manipulation and comparison with events remembered by other respondents.

In Malawi, the narrative texts were entered into ATLAS.ti 5.0 analysis software for coding of key terms related to newborn care, a software programme used for textual analysis. The texts were coded for citing of the following: labour pain, placenta, cord care, wiping/cleaning, wrapping, and bathing. This coding made it possible to read all the examples together of women who mentioned the placenta, or wrapping, or another coded term. The texts were coded separately by site of delivery: either home or facility.

Responses to the survey questions were recorded on the questionnaires. Notes taken when mothers gave extended answers were written out. After checking and correction, these data were entered into a Microsoft Access database and analyzed using SPSS version 16. This analysis involved exploring the data through descriptive analyses that looked at distributions of variables and trends in means, with standard deviations. Having all the responses in SPSS made frequencies easily available and made it possible to do bivariate analyses rapidly and efficiently.

The answers given to the five questions about the length of time following delivery that an event occurred (wiping, wrapping, bathing, postpartum check, postnatal check) received special attention, given the importance of determining the timing of these events. The internal relationship between the three types of answers given to each of these questions was examined in some detail to better understand the options available for coding answers rapidly in the field.

The three days the interviewers and supervisors spent in group discussions after the completion of data collection in each country were used effectively. Each group

- produced an extensive glossary of key terms along with recommendations about which terms to use in questions
- commented in writing about difficulties experienced in asking certain questions
- commented on the contrasts discovered between home and facility births as well as on recall based on the time of delivery (recent vs. long ago)
- recommended how to revise certain questions for better comprehension

3.7 Ethical clearances and informed consent

Potential respondents in Malawi and in Bangladesh were asked for consent to take part in the study using three different consent forms, first written in English and then translated into Chichewa and Bangla. All the forms made it clear that the participants were not obliged to participate in the study, that participation was totally voluntary, that they could stop at any time for any reason, and that all comments and answers would remain confidential. The respondents were also given the opportunity to consent separately regarding whether they wanted their responses to be recorded. Each of the respondents received one copy of the consent form, and the second copy was kept by the study interviewer.

The study in Malawi was submitted for ethical clearance to the National Health Science Research Council (NHSRC) of Malawi; the study was approved after revisions were made. The study was also submitted to the ICF Macro International Institutional Review Board (IRB), which also gave its approval.

The study in Bangladesh was submitted for ethical clearance to the Bangladesh Medical Research Council. The study was approved after revisions were made. The study was also submitted to the ICF Macro International Institutional Review Board (IRB), which also gave its approval.

4 RESULTS: ESSENTIAL NEWBORN CARE IN MALAWI

This chapter presents the findings from the portion of the study conducted in Mchinji district, Malawi. The text summarizes the findings obtained from the interviews with women, discusses the implications of the findings for survey research, and recommends ways to formulate certain survey questions. The interviews were divided into two parts: part I consisted of an open-ended conversation with minimal structure to discuss the process of delivery and newborn care in narrative form; and part II was a structured questionnaire with survey-type questions about newborn care, postpartum care for the mother, and postnatal care for the baby. The structured questionnaire followed directly after the conversation. The interviewers were able to obtain consent to be interviewed from each of the women selected from the register. No one refused to be interviewed.

4.1 Generating a narrative

In the narrative part of each interview, interviewers asked general questions about labour, the delivery, and newborn care followed by probing questions that asked for more detail. The main purpose of this process was to allow women to talk about their experiences in their own terms and using their own concepts. In situations where events are explored only through survey questions, the researcher determines what is relevant, and the respondent cannot easily add elements relevant to her if they are not included. In this more open-ended exercise, we sought to identify events that were important to women and to discover the order in which these events occurred. These data can then serve as background material for use in survey questions.

The transcripts from the conversations in narrative form revealed that a number of topics were very familiar to the women interviewed: labour pain, the delivery of the baby, care of the cord, delivery of the placenta, care of the newborn (wiping and wrapping), and bathing the newborn. The events that follow the delivery of the baby are the ones of most importance for newborn care from a public health point of view: care of the cord, delivery of the placenta, care of the newborn (wiping and wrapping), and bathing the baby.

In initiating this research, we expected that women would talk about a few events or aspects of delivery and newborn care that are of particular local significance but that are not well known in international health. Two topics fitting this description were consistently mentioned: giving medicine to hasten delivery and explaining reasons for delayed delivery of the baby or placenta. First, women often talked about the use of medicine, traditional or modern, given to them to hasten delivery of the infant or delivery of the placenta. The modern medicine was usually given in the form of an injection, and traditional medicine was given in the form of an herbal infusion or pounded leaves that were chewed, swallowed, or both. Both forms of the medicine were used for the same purpose. Second, respondents described how they were questioned about someone they may have wronged in their life when delivery of the baby or the placenta was delayed. After the woman admitted to some wrongdoing, or the action was uncovered, the woman and her family could take the steps necessary to neutralize the curse/spell/threat and ensure that delivery would follow promptly.

The respondents found that the opening question, the one that asked about their experiences during delivery, was somewhat general and perhaps ambiguous, so interviewers needed to ask more detailed follow-up questions to clarify the question and get the women to talk. The question about who was present during the delivery caused some confusion, for some women listed everyone who was present in the house or hospital. One woman seemed very worried that she had given birth at the home of a traditional birth attendant (TBA) rather than at a facility. We can safely assume that some others shared this concern, for the government had just declared it to be illegal for a TBA to assist in a birth.

In the following sections, we briefly identify the events most often mentioned by the respondents at home and in facilities and the order of those events. We make two comparisons: respondents with recent versus longer ago births and those who delivered at home compared with those who delivered in a health care facility.

4.2 Typical events for home births

The example below shows the various events that one woman mentioned in her account of giving birth at home, beginning with her labour pains. The sequence was common in the home births of many of the other respondents, although the exact events described differed to some extent:

- Woman notices labour pains.
- Woman tells husband she is not feeling well.
- Husband or relative calls TBA.
- TBA or another delivery assistant arrives at the woman's home.
- Assistant examines woman or checks her with her hands.
- Mother or other relative of woman in labour goes off to find herbs.
- Woman drinks herbs to assist in delivery.
- TBA assists in delivery.
- TBA cuts the cord.
- TBA ties the cord.
- TBA wipes the baby.
- TBA wraps the baby.
- TBA massages woman's stomach to assist in placenta delivery.
- TBA warms water for baby's and mother's bath.
- TBA bathes the baby.
- Mother washes herself.
- Someone prepares mat for sleeping.
- Someone throws placenta and cord away.
- Woman breastfeeds the baby.
- Woman checks the baby.
- Woman fed by TBA or relative.

The events of most importance to this study, which were commonly mentioned by respondents who gave birth at home (their own or that of a TBA), are presented below in sequence:

- labour pains
- delivery of newborn
- cutting the cord
- delivery of placenta
- tying the cord
- wiping the newborn
- wrapping the newborn
- bathing of baby

Although the events and sequence presented here were common to many of the respondents, there were some differences. First, although each of these events appeared in the majority of cases of home births, tying the cord, wiping the newborn, and bathing the baby were not always mentioned. This does not mean that these actions were not taken, for they may have occurred but were not recalled at the time of the interview. Second, some newborns in our sample were bathed and then wrapped rather than vice versa. In these cases the wiping stage was omitted. Third, the delivery of the placenta occurred sometimes at the same time as the baby, sometimes within the first few minutes following the birth, and sometimes after delay for half an hour or more. As a result, the position of the placenta delivery in this sequence was quite variable. Finally, in some cases, the newborn was bathed in the first half hour after birth but in other cases bathing took place much later. The bathing was often carried out by a female relative who assisted with the birth rather than by the mother herself. Some women mentioned that water had been heated for bathing the baby.

A number of key factors of particular importance in understanding health risks were identified in these accounts of delivery and newborn care. First, two-thirds of the women who delivered at home did so in the presence of either a TBA or female relative who gave assistance. Thus, in one third of the cases, the women delivered by themselves before the arrival of a TBA or a relative. For example, in one case the mother performed all the tasks by herself before anyone else arrived: delivery, cord cutting and tying, and wrapping the newborn. She had had a number of children before this one, and explained that the elders taught everyone to cut the cord in a certain way: for a boy to tie the cord with three knots, and for a girl, to tie with two knots. She lost a lot of blood during the birth. She explained that she drank cola and took herbs to provide iron for one week, and then her strength returned.

A second key issue was that none of the women who delivered at home mentioned receiving any form of health checkups for themselves or for their babies. A small number did mention actions that the birth attendants carried out before birth to prepare for delivery. Third, almost none of the women who delivered at home reported that the baby had been put on their chest immediately after birth. This recommended action following delivery is critical, for it can help to prevent newborn hypothermia and promote immediate breastfeeding. What is of concern is that women who delivered at home stated that putting the baby to the chest was done in health facilities but that they chose not to follow this example at home.

4.3 Typical events for facility births

The example below shows the various events that one woman mentioned in her account of giving birth in a health facility. The sequence was common in the health facility births of many of the other respondents, although the exact events described differed to some extent:

- Woman notices labour pains.
- Woman asks husband to accompany her to the hospital.
- They arrive at the hospital.
- Nurse examines woman on arrival at hospital.
- They wait for delivery.

- Baby is delivered, assisted by nurse and/or clinical officer.
- Cord is cut by nurse/doctor.
- Cord is clamped or tied.
- Newborn is wiped/cleaned.
- Baby is weighed.
- Baby is wrapped and covered.
- Baby is put on mother's chest.

- Placenta delivery is assisted by doctor.
- Woman receives injection to reduce blood loss.

One woman described a sequence of events that appears to occur often in hospitals, judging from the narratives received from other similar respondents:

> *RES: Alright, when the baby was born, they put the baby on my chest right away, then they delivered the placenta; then they cut the cord; then they tied it, then after tying they wiped the baby. Then they took the baby to the weighing scale to be measured to see how much the baby weighs. After that they wrapped the baby in the cloths. They had asked me if I have brought some cloths to wrap the baby, and I gave the cloths to them, and they wrapped the baby. Then the baby was put on the bed to sleep.*

A second example of a hospital birth:

> *RES: Okay, the first was the baby to come out. Soon after coming out they wiped the baby thoroughly. Then they cut the cord. Then after that they were helping me deliver the placenta. After the placenta was delivered, they took the baby to the weighing scale. After weighing the baby, they put the baby on my chest.*

Other actions sometimes taken by medical staff included giving an injection to facilitate delivery or to reduce pain or performing an episiotomy to facilitate delivery. Babies delivered in a facility are not bathed there, so all facility births are bathed for the first time after discharge, usually a day or two after birth.

The events of importance to this study, which were commonly mentioned by respondents who gave birth in a facility, and their sequence, are presented here:

- labour pains
- journey to hospital
- delivery of baby
- cutting of cord
- delivery of placenta
- wiping/cleaning of baby by nurse
- weighing of baby by nurse
- wrapping of baby by nurse
- putting of baby on mother's chest

Women talked about four or five key actions that took place, usually in the same sequence, and two actions, or events, in which the timing varied. The events in sequence were cutting and tying or clamping the cord, wiping the baby, weighing the baby, and wrapping the baby. These actions were performed by a nurse or clinical officer. The timing of the delivery of the placenta, and the placing of the baby on the mother's chest, varied somewhat from one case to another. Just as with home births, delivery of the placenta most often happened soon—2 to 10 minutes after birth—but could be delayed for half an hour or more. Newborns were put on the mother's chest most often just before or just after wrapping.

A number of women who gave birth in a facility did so without the assistance of any medical staff as there was no one around when the women delivered. The study interviewed 27 women who had given birth at Mchinji District Hospital. Seven of these women reported they delivered alone without assistance from any medical staff even though some of them had seen a member of the medical staff prior to the delivery.

The order of events that occurred most often in home and in facility births can also be seen graphically in Appendix C, which shows what occurs most often at home in one graph and what occurs most often in facility births in the other. The main events in facility births are slightly shaded to indicate some uncertainty in recall of those events. The two figures were constructed from the lists of events compiled for each of the 84 respondents in the study.

4.4 Comparisons of time and place of births

Several comparisons of respondents were made during analysis of the narrative responses (a) rural versus urban respondents, (b) respondents who last gave birth recently (1 to 3 months ago) versus those who last gave birth longer ago (1 to 2 years ago), and (c) respondents who gave birth at home versus those who gave birth in a health facility.

Detailed comparison of data collected from respondents who gave birth in peri-urban areas close to the main district town and those who gave birth in more rural areas revealed few differences. The study did find that those who gave birth at Mchinji District Hospital (peri-urban area) were more likely to give birth without assistance than those who gave birth in a rural hospital. In addition, at the health facility in the peri-urban area, the cord was cut exclusively

with a pair of scissors, while at the rural health facility, a razor blade was used, usually one brought by the mother.

A comparison between respondents who had given birth in the last one to three months and those who had given birth one to two years ago also revealed few differences in the events recalled and mentioned, although there were slight differences in recall of the timing of these events. Women who gave birth longer ago were less likely to give precise times for when the placenta was delivered, the cord was cut, and the baby was wrapped than those who gave birth more recently. They were also more likely to provide exaggerated time frames in which events took place. Judging by how women spoke of the length of time after delivery till these events occurred, women's recall of the length of time becomes less precise with the passage of time.

The descriptions of all of the births—whether at home or in a facility, or recent or longer ago—consisted of the same basic events, though not always in the same order:

- A woman feels labour pains or contractions and heads for the hospital or sends word to a TBA that she needs assistance for her delivery and care of the newborn.
- The cord is always cut and tied, or pinned.
- The newborn is usually wiped and is always wrapped in cloths soon after birth.
- The placenta is delivered soon after birth or later.

These events were common to all births. However, home and facility births differed with regard to who provided assistance, how it was provided, and what was done specifically. Nurses or clinical officers assisted in facility deliveries, and TBAs or female relatives were involved in home deliveries. The nurses and clinical officers usually examined a woman in labour and advised her on the likely timing of delivery. These same individuals received the baby when it was delivered, cut the cord, wiped the newborn, weighed the baby, wrapped the newborn, and gave injections to reduce blood loss. In most cases, one person was responsible for all of these tasks. Family members were not present at deliveries in health facilities.

In home births, the TBA was usually present but there were also other female family members: a mother, a mother-in-law, a sister, or an aunt. These individuals shared the tasks of assisting with the birth among themselves. In home births, the various tasks that need to be done to prepare a newborn and a mother occur more rapidly than in a facility, in part because more people are present to assist. The data also suggest that because there are more people present at home deliveries, and because of the nature of the tasks to be carried out, the newborn is taken from the mother for a longer period of time than in a facility. This finding runs counter to a common assumption made about home and facility births.

Another major difference between home and facility births is that nearly half the babies born at home were bathed soon after birth: sometimes before wrapping, sometimes after wrapping. Bathing and feeding the mother were part of the tasks for those assisting in home births. Once the newborn was wrapped, he or she was usually given to the mother for breastfeeding. However, none of the respondents who gave birth in a facility mentioned bathing the baby during their hospital stay.

A few other differences are notable. First, in facility births, there is more checking on the physical health of the woman as she prepares to deliver. Second, in facility births, all the respondents stated that the baby was weighed and the weight recorded after birth. Weighing of a baby was mentioned only once by a respondent who had given birth at home. This occurred because that TBA had the necessary equipment. Third, the deliveries at health facilities were characterized by a more measured approach that took longer to do the same tasks compared with home deliveries. This may once again be attributable to having more people involved in home births. Fourth, the baby is placed on the woman's chest in facilities but not at home. Finally, women who gave birth at home were more likely to do so alone than women who gave birth in a facility. About one-third of home births and one-fourth of facility births were unassisted.

Another way to compare home and facility births is to summarize certain elements in tabular form. Table 1 makes this comparison.

Table 1 Facility and home births in Mchinji district, Malawi

	Home births	Facility births
Assistance at delivery	TBA and a female relative	Nurse
Present in delivery room	TBA and a relative	Usually a nurse
Medicine to speed delivery	Sometimes traditional herbs	Occasional injections
Bathing newborn	Soon after birth	No bathing
Placing baby on mother's chest	After wiping, wrapping, and bath	After weighing
Other activities	Women help with mother and baby	Nurse weighs baby

Overall, the responses of women to general questions and follow-up comments in the narrative section make it clear that we could reasonably expect women in Malawi to reliably answer questions about:

- delivery of the placenta
- cutting and tying of the cord
- wiping and wrapping the newborn
- bathing the baby

These events were described in both home and facility births. The responses of women who gave birth one to two years ago were sometimes less precise about the timing of events than those who gave birth one to three months ago, but the difference was small.

Although women from all groups interviewed placed these events in a certain order, they were all less clear about the duration of time. Women gave specific times for the beginning of their labour and the time of their delivery, but they were uncertain about how long after the birth these events occurred. We return to this question in the discussion of the structured questionnaire that addressed questions of timing directly.

4.5 Talking about the placenta

The narrative texts were entered into ATLAS.ti 5.0, a software programme for the coding and sorting of text for easy reading and summarizing. The texts were then coded for the topics considered as essential to newborn care, namely cord care, wiping/cleaning, wrapping, bathing the newborn, and the delivery of the placenta. Once coded by topic, the programme can display all cases when a certain topic is mentioned. An example of how ATLAS.ti displays a topic can be seen below in this series of quotes from the narrative section. These quotes demonstrate the range of comments made about the placenta.

> *RES: Mothers have different delivery experiences. Some may take an hour after delivery for the placenta to come out. You would hear that a mother has delivered, but the placenta has remained. As for me, the moment the discharge has been released, the baby is then delivered at the very same time and the placenta comes out.*
>
> *RES: (Laughs) Babies come differently. Some take long for the placenta to come out; for example, a baby may be delivered at noon, (and) the placenta could be delivered later in the evening, maybe at 6 o'clock. While others, soon after delivery, the placenta also comes out instantly. As for this baby of mine, as soon as I delivered, the placenta came out.*
>
> *RES: There wasn't any problem with the placenta. As soon as I delivered, the nurse cleaned me and the placenta was delivered.*
>
> *RES: The doctors used their own ways by using pairs of forceps and squeezed and pressed inside until the placenta was delivered.*
>
> *RES: I told this baby's father to call my aunt. When she came, she found that I had already delivered and that the placenta had also been delivered. This happens always when a baby is delivered—the placenta also comes out.*
>
> *RES: I was given a piece of wood, an herb, to chew and swallow (the saliva and not the piece of wood). After some chewing and swallowing, that's when a hand was inserted to help pull out the placenta.*
>
> *RES: During the delivery of this baby I had no problems at all, but the only thing that happened was that after delivery, the placenta remained, it was not delivered. Then we realised that for this placenta to be delivered, we should use traditional herbs. I should drink them, then it will be delivered. And we did that, and it helped. That was the only problem that I can say that I had during that delivery.*

The same procedure was followed to code the narrative texts for care of the cord, for wiping/cleaning, for wrapping, and for bathing. The term 'drying' was not used in the translation into English from Chichewa; for the verbs that refer to the action of cleaning the newborn's skin of mucus and other traces of the birth, the actions are closer to 'wiping'. Thus, the preferred term in English is 'wiping'.

4.6 Events of local significance

Women who gave birth both at home and in a facility perceived the placenta to be harmful if not delivered promptly. The respondents were very aware the time of placenta delivery and talked of feeling relieved both physically and psychologically once this had happened.

Only women who had given birth in a facility mentioned having an episiotomy or being given an injection. Women were given injections to reduce pain, to speed delivery of the baby or the placenta, or to reduce blood loss. A few women were given pills to reduce pain.

Only women who gave birth at home mentioned taking herbal (traditional) medicine for various purposes: to reduce pain, to speed up delivery of the newborn or hasten delivery of the placenta, or to decrease blood loss—the equivalent to the injection or pills provided at health facilities. The narratives often state that someone, usually a female relative of the TBA, was sent outside to collect herbs for a specific reason. These herbs (seeds, flowers, leaves, bark, twigs) are usually pounded and then added to water, cold or boiling, to provide an herbal mixture to drink. It is worth noting that in both home and facility births, some women were given medicines, injections, or herbal mixtures, for the same reasons: to reduce pain, to speed delivery of the baby and the placenta, or to limit blood loss.

4.7 Asking survey questions

While part 1 of the interviews with women addressed issues related to delivery and newborn care in an open-ended manner, part 2 consisted of survey questions about newborn care and postnatal checkups with predominantly pre-coded answers. The questionnaire included questions that have been part of several DHS national surveys as well as questions used in SNL surveys. The topics covered were: cord care, newborn care (wiping, wrapping, bathing), a health checkup from a health care provider for the mother and for the baby, and what was done for each health check.

The survey questions were asked not only for the content of the answers but also to verify that the questions were easily understood. Interviewers made notes of problems in obtaining answers and ways they revised questions for improved comprehension.

The questionnaire also included two types of questions with answers that were not fully pre-coded: questions about length of time and about knowledge of newborn care. Five questions were asked about the length of time since birth that an action occurred. ‘How long after birth was… the baby wiped…wrapped…bathed?’ And ‘How long after delivery was the checkup done?’ (for mother and for baby). The answers to these questions had three parts:

(1) a blank to write whatever the woman said

(2) a blank to write whatever the woman said if she is asked: ‘What do you mean?’

(3) choices of pre-coded time periods

This format allowed the recording of exactly what the respondents stated when answering the question and how they would explain any non-numeric answers. Respondents who gave non-numeric answers (e.g., soon, very soon, not long) were then asked: 'What do you mean?' These answers were then coded using a set of pre-coded time periods. Questions on duration of time were asked because four of the six SNL indicators for newborn and neonatal care involve time (ex. Percent of newborns dried immediately after birth).

Other open-ended questions followed up the respondents' answers about several specific events related to newborn care (for example, 'Was the baby wrapped in a dry cloth?'). These questions were all phrased as: 'How do you know?/What did you see?' The answer—whatever the woman said—was then recorded in the blank space provided on the survey. It was deemed important to learn the basis for the women's answers about what happened in newborn care because in some instances the women may be lying down, sedated, or otherwise unable to follow the actions around them.

The following sections summarize responses to questions about care of the cord and about wiping, wrapping, and bathing the newborn for births in Malawi. Given the importance of data on timing of wiping, wrapping, and bathing, a separate section is devoted to how women responded to questions about the timing of these events.

4.8 Care of the cord

Women responded readily to being asked what was used to cut the cord. Only three women who gave birth at home did not know what had been used to cut the cord. Nearly all in this group (31 of 36) said a razor blade had been used to cut the cord, suggesting that women in Mchinji district have learned to prepare a new razor blade for cord cutting. In facility births, only five women said they did not know what was used to cut the cord. In Mchinji District Hospital, a peri-urban context, the cord was cut with a pair of scissors in nearly all cases. In the rural hospital, either scissors or a razor blade was used. Overall, 27 of 48 cords in facility births were cut with a scissors and 15 with a razor blade; four women did not know what was used, and two gave other answers. Only about 10 percent of women (8 of 84) did not know what had been used to cut the cord.

Women also responded easily to the question about what was used to tie the cord. In home births, the majority (25 of 36) reported that thread was used, nine said a cloth was used, and two did not know. The answers to this question for facility births ranged more widely and displayed some confusion about what had been used. Although 18 said it was a 'peg', 12 said it was thread, six reported it was cloth, and another 12 said it was 'scissors', which can be interpreted as a form of clamp. The interviews had revealed some uncertainty about was meant by 'pegs' and 'scissors'. These responses confirm that uncertainty.

Women were asked if the instruments used for cutting and tying the cord were boiled to determine if the instruments were sterile or not. This question was asked only of women who gave birth at home, for we assumed that the instruments used in a hospital are sterile. Most of the women who gave birth at home or in the rural hospital had brought new razor blades with them, so they had not been boiled. Only 6 of 36 women said their razor blade had been boiled. Therefore, we should also ask if the razor blade was new.

The question about what was put on the cord was understood by most women; only a few were confused by its meaning. Eighty-five percent of women said 'No' when asked whether anything was put on the cord. Among the 11 who said something had been put on the cord, four said traditional medicine or something similar, one mentioned a cleansing agent, and three mentioned a peg or scissors. In these questions on cord care, very few women in our sample said they did not know or did not remember. There were no differences in the proportion who said they did not remember when sorted by place of birth or by time of birth, recent or long ago.

It should be noted that these women did not mention waiting until the placenta was delivered to take other actions such as cutting the cord or wiping the newborn. They paid great attention to the delivery of the placenta, and some said a delay in the delivery of the placenta was dangerous. However, they did not delay other actions until the placenta was delivered.

The responses to questions concerning cord care in Malawi suggest three revisions to questions sometimes used in surveys:

- The question about whether the blade had been boiled or not should be preceded by a question asking if the blade was new.

- No question should assume that scissors will be used to cut the cord in hospitals, for that was not always the case. Razor blades, ones brought by the pregnant women, were also used, even though this type of use is contrary to national policy.

- The time of delivery of the placenta may not be appropriate to use as a reference point for other actions, for the time of delivery varies greatly across the board.

4.9 Care of the newborn: wiping, wrapping, and bathing

The structured questionnaire included many questions about care and covering of the newborn to prevent hypothermia. The questions about wiping, wrapping, and bathing were answered without hesitation. The verb used for wiping (*kupukuta*) means cleaning without water and is best translated as wiping rather than 'drying'. Eighty-six percent of newborns were wiped after birth; only four of 84 respondents said they did not know whether the baby was wiped.

All respondents replied 'Yes' when asked if the baby was wrapped in a dry cloth. They were then asked how they knew it was a dry cloth. All but two said they had brought the cloth themselves to the place of delivery or that it was their cloth. One woman explained her answer by stating that one should not use a wet cloth, highlighting that she knew about the importance of keeping the newborn warm and dry.

Two questions about timing were asked using the delivery of the placenta as a reference point. The respondents did not have trouble answering these questions. However, given that the timing of the placenta delivery varies so much, the study team recommended that it not be used as a reference point. Therefore, we recommend that the delivery of the placenta not be used in survey questions as a reference point for other events.

The accounts in the narrative section as well as the answers to the questionnaire show that most newborns in Mchinji district were wiped soon after birth, all newborns were wrapped not long after birth, and some born at home were bathed and then wrapped rather than being wiped first. About one-third of babies born at home were bathed in the first 12 hours after birth; no newborns in facilities were bathed before discharge. It also seems important to note that 66 newborns (79 percent) were bathed from one to three days after birth.

4.10 The timing of newborn care events

The newborn care survey questions used in SNL and some DHS surveys ask about the timing of newborn care in various ways. The indicators proposed to SNL by the Technical Working Group (TWG) also pay great attention to assessing when newborn care (wiping, wrapping, and bathing) was performed. However, obtaining accurate information about the length of time between birth and other events remains an enduring challenge for survey research. We have been unsure to what extent women pay attention to the exact timing of events, and whether they would even notice the time elapsed. We have wondered how clearly those women who did notice the time would remember after months or years. And we have been uncertain how to systematize the coding of responses to questions about timing of events.

Surveys that have asked respondents questions about the timing of events have shown that respondents often give non-numeric answers (short time, long time, little time, lots of time). Non-numeric answers present a challenge for coding the answers. What do respondents mean by 'a short time; not a long time; some time'. How should such answers be coded?

The structured questionnaire included five questions about the length of time elapsed since birth. The five questions were:

#10 How long after birth was the baby dried?
#13 How long after birth was the baby wrapped?
#16 How long after birth was the baby bathed for the first time?
#20 How long after the delivery was this done? [health check for mother]
#37 How long after the delivery was this done? [health check for baby]

In order to determine the proportion of non-numeric answers given, and to better understand what those answers meant, the study used a format that involved three possible answers to each of the five questions.

- a blank space in which the interviewer wrote down whatever the mother said
- a non-numeric answer, followed by the interviewer asking: What do you mean? and then writing down whatever the mother said in a second blank space
- a pre-coded set of answers in numbers of minutes, hours, or days

If a respondent gave a numeric answer (5 minutes, half an hour), the interviewer wrote the answer in the blank and coded the answer accordingly. If a respondent gave a non-numeric answer, she would be asked 'What do you mean?', and her answer would be written out and the interviewer would code that response. This question was only asked of respondents whose answer was non-numeric in an attempt to drill down to a more specific numeric answer. We

present the responses to question #10 in detail below to illustrate how the answers were considered, and then summarize the responses to each of the other questions about periods of time.

4.10.1 Asking about when the baby was wiped

Interviewers obtained 72 answers to the preceding question #10. In 12 cases, the newborn was not wiped. Twenty-one (29 percent) women gave a numeric answer, and 51 women (71 percent) gave a non-numeric answer. Among the numeric answers, there were 15 who reported 1 to 5 minutes, one said 20 minutes, and five said about an hour. Among the numeric answers given, 10 were home births and 11 were facility births.

Table 2 summarizes the responses to the initial question #10.

Table 2 Answers to timing of wiping question

Numeric	**Total**
1-5 minutes	15
20 minutes	1
1 hour	5
Total	**21**
Non-numeric	**Total**
Did not take long	30
Short time	16
Some time	5
Total	**51**

Most of the non-numeric answers were statements like: ‘it did not take long’; ‘a short time’; ‘it took some time’. There were 30 (42 percent) who said it did not take long, another 16 (16 percent) who said it was a short time, and 5 who said it took some time. We assumed initially that ‘it did not take long’, and it was only ‘a short time’, are essentially equivalent. As a result, the respondents who gave non-numeric answers can be grouped into two groups: 46 said a short time, and five a longer time. But is it possible to estimate time periods from these expressions?

In an attempt to explore the exact meaning of these non-numeric expressions, the survey interviewers followed up their initial question with: ‘What do you mean?’ The 30 women who said it ‘did not take a long time’ gave these explanations:

1-5 minutes	10
15 minutes	1
1 hour	1
Don’t know	3
Other	1
Refers to another event	14

The answers reveal the broad range of meaning given by respondents who spoke of a time period as a 'very short time': one-half referred to another event, and thus declined to give any expression of time, while one-third were thinking of a very short time (<10 minutes). By asking a follow-up question, interviewers obtained an additional 12 numeric answers along with 18 non-numeric ones. There were also 16 women who said something like 'a short time'. The same range of answers can be seen in those who spoke of a 'short time' as for those who spoke of 'not long'.

4.10.2 Asking about when the baby was wrapped

A total of 81 of 84 women reported their baby had been wrapped. Among them, 30 (37%) gave a numeric answer, 50 gave a non-numeric answer, and 1 said 'Don't Know'. Among the numeric answers, 22 were classified as 1 to5 minutes, 6 as 10 to30 minutes, and only two said 'One hour'. Six respondents referred to a previous event in the delivery and postnatal sequence instead of describing a time period. A total of 57 respondents (70 percent) answered with 'short time', 'did not take long', or an answer in minutes coded as 1 to 5 minutes.

Table 3 summarizes the responses to the initial question #13.

Table 3 Answers to timing of wrapping question

Numeric	**Total**
1-5 minutes	22
10-30 minutes	6
1 hour	2
Total	**30**
Non-numeric	**Total**
Did not take long	18
Short time	17
Some time	9
Ref. to an event	6
Don't know	1
Total	**51**

The explanations given for non-numeric answers for the timing of wrapping differ slightly from that of wiping, for we find fewer numeric explanations and far more answers in terms of following another event. From the 18 cases with the answer 'did not take a long time', and the 17 cases of 'short time', we find only 7 numeric answers, but we find 21 answers that refer to an earlier event (cord cutting, placenta, wiping, etc.). We also find 6 'Don't Know' answers. Thus after obtaining an explanation, we obtained 37 (30 + 7) numeric answers from 81 respondents, or 46 percent.

It seems reasonable to assume that part of the reason women referred so often to previous events in their answers rather than giving a period of time is their awareness of the events that preceded the wrapping. It seems logical to find more references to preceding events in response to the wrapping question than the wiping one because the time period from birth to wrapping is longer than the time period from birth to wiping the baby.

For these two questions about time periods, we obtained a numeric answer in 29 percent and 37 percent (wiping and wrapping respectively) of the cases in response to the first and main question. Two questions often used in surveys ask about the timing of wiping and wrapping:

- How soon after birth was NAME wiped?
- Was the baby wiped immediately after delivery?

It does not seem wise to ask women these questions and try to record or code their answers in large sample surveys, for responses simply range too widely, and coding would be highly variable. That is, how would interviewers code the non-numeric response to such questions? Therefore, we do not recommend that these questions be asked with pre-coded answers as was done in the 2007 DHS in Bangladesh.

This section began by noting that we were unsure about what women notice with regard to length of time, or how clearly they recall time periods, and that we faced a challenge in coding responses. The small number of 'Don't Know' answers shows that whether women recall clearly or not, they answer quite readily. However, only a minority of the answers are numeric, and thus easily coded. How could we solve the problem of knowing how to code non-numeric answers in a survey context?

One way to solve the coding problem is to ask women directly to choose from a list of time periods read out to them. An interviewer could read the categories and ask the woman to choose the one that fits best with her answer. We could, for example, use the following categories: (a) 1 to 5 minutes, (b) 6 to 10 minutes, (c) 11 to 30 minutes, (d) 31 minutes to 1 hour, (e) > 1 hour, (f) Don't know. Other categories are of course possible.

This approach does have several drawbacks: (a) it does not fit with the format of most survey questions, (b) it slows down the process of questioning, and (c) choosing among multiple choice answers seems less reliable than an accurate coding of what respondents actually say. However, this approach does solve the problem of coding non-numeric answers consistently.

4.10.3 Asking about when the baby was bathed

Most respondents gave one of three types of answers to this question: (a) a length of time (1 day), (b) a time of day for birth and bathing (for example, birth at 6:00 a.m. and bathing at 10:00 a.m. next day), and (c) non-numeric statements such as 'not long' although this was only the case for four respondents. Only one respondent did not remember when bathing was done, and only three did not give any time. Of the respondents who actually gave a length of time, the most common answers were 1 day (20), 2 days (12), and 3 days (11). If respondents gave a time of day for the birth and the bathing, the interviewer could calculate the length of time after birth that the bathing occurred. When the lengths of time are calculated and added to the list above, this adds an additional 15 cases for 1 day, another two for 2 days, and three for 3 days. Table 4 shows the distribution of responses after all possible calculations are made:

Table 4 Answers to timing of bathing question	
Less than 1 hour	5
Two hours	2
5-10 hours	3
1 day	35
2 days	14
3 days or more	17
Not long	4
Don't remember	1
No time given	3
Total	**84**

The question on timing of the first bath can be asked as it has been because relatively few responses provided had no reference to time, and the coding categories of the answers can be broad. The indicator proposed by the TWG is the 'percent of newborns with delayed bath'. The definition of 'delayed bath' is more than six hours. Therefore, the pre-coded answers could be <6 hours, 6 hours or more, and 'Don't know'. Such wide categories will make coding of responses unambiguous for interviewers. It seems important to note that in this sample, 66 newborns (79 percent) were bathed from 1 to 3 days after birth, and only 10 (14 if we include the 'not long' cases) were bathed in the first 10 hours after birth.

4.11 Summary points for newborn care questions

The following points should be considered in the formulation of survey questions for newborn care:

- Not all blades used to cut the cord will be boiled; new blades brought by pregnant women were also used.
- Scissors will not always be used to cut the cord in hospitals; razor blades brought by pregnant women were also used.
- Time of delivery of the placenta is not an appropriate reference point for other actions; the time of delivery varied greatly among pregnant women.

Women are very familiar with events such as wiping or wrapping a newborn and bathing a baby. The questions asked about the timing of wiping and wrapping present major coding challenges for interviewers. Therefore, we recommend that if survey questions about timing are absolutely needed, interviewers should read out categories of time and ask the respondent to select the one that suits her situation best. The question about when the infant was bathed for the first time, on the other hand, does not present any coding difficulties.

5 RESULTS: ESSENTIAL NEWBORN CARE IN BANGLADESH

This chapter presents the findings from the portion of the study conducted in and near Dhaka city, Bangladesh. The text summarizes findings from the interviews with women, discusses the implications of the findings for survey research, and recommends ways to formulate certain survey questions. The interviews were divided into two parts: part 1 consisted of an open-ended conversation with minimal structure to discuss the process of delivery and newborn care in narrative form; part 2 was a structured questionnaire with questions about newborn care, postpartum care for the mother, and postnatal care for the baby. The structured questionnaire followed directly after the narrative. The interviewers obtained consent to be interviewed from each of the women selected in the register.

5.1 Generating a narrative

In the narrative part of each interview, interviewers asked general questions about labour pains, the delivery, and newborn care, which were followed by questions asking for more detail. The main purpose of this process was to allow women to talk about their experiences in their own terms and with their own concepts. In situations where events are explored only through survey questions, the researcher determines what is relevant, and the respondent cannot easily add new elements relevant to her experience. In this more open-ended exercise, we sought to identify events that were important to women and to discover the order in which these events occurred. The answers can then serve as background material to develop future survey questions.

The transcripts from the conversations in narrative form revealed that a number of topics were very familiar to the women: labour pain, the delivery of the baby, care of the cord, delivery of the placenta, care of the newborn (wiping and wrapping), and bathing the baby. The events that follow the delivery of the baby are the ones of most importance from a public health point of view: care of the cord, delivery of the placenta, care of the newborn (wiping and wrapping), and bathing the baby.

Two other topics were often mentioned but are less well known in international health circles: the use of mustard oil to massage the newborn or the umbilical cord, and the routine use of a saline solution containing oxytocin to speed delivery. Mustard oil is said to warm the body of a newborn and was used primarily in one of the two urban areas. According to respondents, doctors, nurses, and TBAs (known as *dai*) routinely gave a saline drip to hasten the delivery of the baby. The title of ‘doctor’ in Bangladesh does not imply training as a medical doctor; rather it is often used to describe someone who sells drugs and other medical treatments.

In the following sections, we briefly identify the events most often mentioned by the respondents at home and in facilities, describe the order of those events, and compare recent with long ago births and home versus facility births. As indicated, the sample consisted of 40 mothers who gave birth at home and 40 mothers who gave birth in a health care facility.

5.2 Typical events for home births

The example here shows the sequence of events that one woman gives in her account of birth at home. The sequence of events was common in the home births of many of the respondents, although the exact description of events differed to some extent:

- Respondent called her mother-in-law when she started to feel pains.
- Mother-in-law sat beside her and asked respondent's husband to call the TBA.
- The baby was delivered between 4 a.m. and 5 p.m. just before the morning call to prayer.
- The baby was delivered before the TBA arrived.
- The placenta was delivered by the TBA about 2 minutes after the delivery.
- The TBA cut the cord after the placenta was delivered.
- The respondents' mother-in-law held the baby in a soft cotton cloth (Tanya).
- The newborn's body was massaged with oil.
- The newborn was wiped with a cloth.
- The newborn was wrapped in another cloth.
- The baby was given to the mother for breast feeding.
- The mother breastfed the newborn.

Many women went to their mother's home for delivery rather than remaining in their own home. Some went late in their pregnancy, while others even waited until the last minute when labour pains began or when their water broke.

The key events mentioned by nearly all women who gave birth at home were the following:

- labour pains
- delivery of newborn
- cutting the cord
- tying the cord with a thread
- delivery of the placenta
- wiping the newborn
- massaging the newborn's body with mustard oil, or bathing the baby
- wrapping the newborn
- breastfeeding the infant

The home births were all attended by several women: a mother, mother-in-law, sisters, sisters-in-law, aunts, and even grandmothers. If a woman gave birth in her mother's house, which was common, she was surrounded by her close female relatives: mother, aunts, and sisters. Our sample did not include any accounts, either at home or in a facility, in which a woman gave birth alone with no other woman to assist her. Nearly always there was a TBA and several other women to care for the baby and for the mother. The tasks these women performed included warming water for washing, bathing the newborn with water or massaging the newborn with oil, wiping and wrapping the newborn, cleaning the mother, giving her moral support, preparing food

and drink for the mother, and cleaning up. The father and another male relative or two were often around as well, either in the room of delivery or just outside.

Many of these accounts, from both urban and rural areas, specifically mentioned that the cord was cut with a boiled blade and tied with a boiled thread; either the TBA brought those objects with her, or the husband boiled them while the woman was in labour. The cord was cut sometimes before the placenta was delivered, sometimes afterwards. It seems important to note this observation because a few women said that the cord should be cut only after the placenta was delivered. That normative statement does not fit with the accounts we collected. Most of the newborns in the urban areas were wiped and then bathed, or just bathed, before being wrapped, while most newborns in the rural areas were massaged with mustard oil and not bathed the day of delivery. Several women mentioned that massaging the newborn with oil helps to warm them.

Many of the descriptions of home births in the city include mention of an intravenous injection or giving of saline solution during labour to increase the rate of contractions. At least half of the urban births at home mentioned an injection given by the TBA or a doctor or nurse who dropped by to check on the mother. We found fewer cases of saline use in rural home births. These saline solutions, with oxytocin added, are purchased over the counter in local pharmacies.

Here is an example of a respondent who went to her parents' house to deliver with the aid of a doctor in private practice who gave the woman a saline drip:

(RES=respondent, INT=interviewer)

RES: 'Doctor' came and gave me an injection. He wanted to know about my condition, how I was then. Because, if everything was not OK, he would not be able to inject me. So, he checked out my condition. When he found my condition was OK, he injected me. Then my baby was delivered right away.

INT: That means that both the Dr and the Dai were present during your delivery.

RES: Hmm…

INT: What was the saline for?

RES: As I was weak at that time, Dr gave me the saline through the intravenous tube to get round.

The infants delivered at home were given to mothers within half an hour or less of the birth, and most of them were able to breastfeed right away. At least four among the 40 were given warm cow's milk because, as they explained, breast milk was slow in coming. In quite a few cases, when the placenta was slow to come out, someone would put the mother's hair in the mother's mouth to make her gag or vomit, saying that the pressure created would force the placenta out. Very rarely was the abdomen massaged to expel the placenta.

Although most of the information collected about the timing of events comes from the structured questionnaire, occasionally the narrative section also contains a discussion of the duration of time. Here is a conversation about the time that passed before the baby was bathed.

RES: After (the nurse) gave a bath to the baby, she gave it to my mother.

INT: Was the baby given a bath just after birth? After how much time was the baby bathed?

RES: Maybe after 10-15 minutes.

INT: 10-15 minutes later.

RES: Maybe it would be 30 minutes later (adha ghonta), as they took time to boil the water.

INT: Did they boil the water?

RES: Yes.

INT: Ok, then just after birth of the baby, they cut its umbilical cord?

RES: Yes.

INT: Who was with you then?

RES: There were my elder sister and my mother with me, and also the nurse.

The open-ended questions in the structured questionnaire provide more data about how women talked about the duration of time.

5.3 Typical events for facility births

Births in rural and urban hospitals shared certain characteristics. The sequence reported here comes from one interview, and describes common elements in facility births.

- The delivery pain started in the morning. It increased gradually.
- The water broke at around 4:00 or 4:30 p.m.
- She went to the clinic at 5:00 p.m.
- The baby was delivered at 8:45 p.m.
- The placenta was delivered within 5 minutes of the newborn delivery.
- The cord was cut and tied after the delivery of the placenta.
- The baby was wiped with a cloth after the delivery of the placenta.
- The baby was bathed and then wiped with another cloth.
- After that, the baby was wrapped with a towel.
- The baby was given to her grandmother.
- The grandmother gave the baby to the mother one half hour or one hour after delivery.
- The mother fed the baby breast milk.

Overall, nearly all descriptions of hospital delivery included the following elements:

- woman in labour in hospital
- doctor, nurse, or TBA gives a saline drip
- delivery is assisted by one or two nurses
- cord is cut
- cord is tied with a clip or thread
- placenta is delivered
- newborn is wiped
- newborn is wrapped
- newborn is breastfed

Most of these actions were taken by a nurse or a TBA. In the urban facilities, TBAs did sometimes accompany the woman in labour in a facility, but relatives were not often permitted to remain. A mother or sister was sometimes present. In the rural facilities, however, in addition to a TBA and mother or sister, other family members were often present at the time of delivery. Also sometimes present were a father, aunts, grandmothers, or other female relatives or in-laws. Many women mentioned that a husband had brought supplies needed for the delivery in addition to bringing the woman to the clinic. A sister, mother, or grandmother often helped with the wiping or wrapping of the newborn. It was nearly always a nurse or TBA who cut the cord and tied it with a clip or a thread.

Nearly all women in our sample of 40 births in a health facility were given some sort of intravenous drip, a saline solution of some kind, during their labour to speed up contractions and provide energy. TBAs and medical staff add oxytocin to the solution, or purchase it with the oxytocin already added. The effects of the use of these intravenous drips may vary widely, depending on the amount of oxytocin in the solution and the speed of the drip.

The following exchange about the timing of cord cutting occurred in an urban hospital.

INT: Who cut the umbilical cord?

RES: The nurse cut the umbilical cord, and then she tied it.

INT: Can you tell me the time when the cord was cut?

RES: I could not say anything about the time.

INT: When was the cord cut?

RES: The umbilical cord was cut 3 to 4 minutes after the birth.

INT: Was anything put on the cord?

RES: No, we did not put anything on the cord.

Although there were a few exceptions, most infants born in a health facility were not bathed or massaged with oil in the first hour after birth. They were wiped, wrapped, and then presented to the mother to try out breastfeeding. A few mothers said that they massaged the baby with oil after they returned home, which was most often a few hours after delivery. We found five cases (out of 40) in which weighing a newborn was mentioned. That does not mean that only those newborns were weighed; some mothers may not have seen the weighing and others may have simply forgotten to mention it. But it does mean that weighing a newborn in these facilities may not be routine.

Most of the infants born in hospitals were given to their mother within 30 minutes of birth, and some much sooner. Judging from the accounts we collected, TBAs and nurses gave newborns to mothers as soon as possible. Sometimes the newborn was placed on the mother's chest before the cord was cut. If the health of the mother and baby seemed normal, mothers remained in the hospital for a few hours only. A few said they were in the hospital for only one hour. Those who gave birth during the night would go home the next morning. None of the women said anything about the formalities necessary for leaving a facility (signing papers, health checkup, etc.).

The conversation below shows how events often unfold in a clinic or maternity ward.

RES: During this time, my daughter was kept sometimes by my mother, sometimes by my mother-in-law. After that, they told me, "Take her in to your lap." Then I took her into my lap. Then, they told me, "Feed her." I fed her. That's all.

INT: Do you remember, what was done with her umbilical cord?

RES: Umbilical cord! It was cut off after the delivery. And the cord fell off at home.

INT: Can you explain it?

RES: The doctor cut the cord after the delivery. Later on, after we bathed her at home, the cord fell off.

INT: Can you remember when she was wiped?

RES: Yes.

INT: When?

RES: After the placenta was delivered.

INT: How was the baby kept to keep her from catching cold?

RES: She was wrapped with a cloth and a towel. My mother kept her close to her chest in such a way that my daughter couldn't catch cold.

The exchange shows that both the mother and mother-in-law were present even though the birth occurred in an urban clinic, and that the baby was not bathed until the baby was brought home.

The contrast between home and hospital births does not appear as great as might be expected. That is, in quite a few home births, the woman mentioned a visit by a nurse or doctor who examined the pregnant mother and provided advice on how to proceed. Many of the TBAs gave women a saline drip during labour at home. In rural hospitals, a TBA and several family members as well as a nurse or two were often present at the time of delivery. The differences in the place of delivery are largely that, in a facility, delivery is assisted by a doctor or nurse; intravenous injections, a saline drip, or both are nearly always given; and the newborn is not bathed or massaged with oil in a facility.

5.4 Comparison of time and place of births

Data analysis for the narrative section included several comparisons of respondents: rural versus urban respondents, those who gave birth recently versus those who gave birth one to two years ago, and home versus facility births. The comparison between urban and rural births showed no differences except in two details: (1) In urban hospitals, female relatives of the pregnant woman were not permitted into the delivery room, while they were allowed into the delivery room in rural hospitals; and (2) In births at home, babies in urban homes were wiped and then bathed, while babies in rural homes were usually wiped and then massaged with mustard oil.

A comparison between recent and longer ago births showed no differences in the events mentioned or in the way that women spoke about the time elapsed since the birth. Therefore, we should be confident that mothers who gave birth in the past two to three years, as well as a few months ago, are able to recall events that occurred.

The descriptions of all the births—whether at home or in a facility, in rural or in urban areas—are composed of the same basic events. A woman feels labour pains or contractions and heads for the hospital or sends word to a TBA, or travels to her mother's house to prepare for giving birth. The cord is always cut and tied, or pinned; the newborn is usually wiped, and always wrapped in cloths soon after birth. The placenta is delivered very soon after birth or somewhat later. These events were common to all births.

However, certain differences between home and facility births should be noted. First, and most important, in facility births, a doctor or nurse assists with the delivery and will often cut and tie the cord as well as deliver the placenta. The cord is cut with a scissors or a blade and tied with a thread or clip in facilities, while in the home, women specified that a boiled blade and boiled thread were used. Infants born in facilities were not bathed or massaged with oil right after birth as they were at home. And while nearly all women were given an IV drip in facilities, only some women delivering at home received an IV drip. Finally, women in urban hospitals did not usually have a relative with them to the delivery room, though they sometimes had a TBA with them. In rural hospital settings as well as at home, women had several female relatives assisting them in the delivery.

Table 5 below summarizes some differences between home and facility births.

Table 5 Facility and home births in Bangladesh: events

	Home births	Facility births
Assistance at delivery	TBA, mother, relatives	Doctor or nurse, TBA
Present in delivery room	Female relatives, father	TBA and 1 to 2 relatives
Saline drip with oxytocin	Many cases	Nearly all cases
Bathing newborn	Only in urban births	No bathing
Massaging with mustard oil	Only in rural births	Rarely massaged
Checkup for mother or baby	No information	No information

5.5 Events of local significance

The use of an intravenous drip of saline or another solution to speed the time of delivery has become nearly universal for births in health facilities in the two areas of Bangladesh where data were collected, and it is also common in home births. Many of the respondents mentioned *pusging salaine*, which means administering an IV drip; some also spoke of intravenous injections. It would be useful to know about the content of these solutions: what the contents are, where the solutions are obtained, and if the content of these drips is fairly consistent. Most often the contents are a saline solution with glucose and oxytocin added. In any case, women have come to expect this intervention during labour.

If the delivery of the placenta is delayed, many women are made to gag on hair (their own) put in their mouth. The gagging reflex is supposed to hasten the delivery of the placenta. Occasionally a cloth or fingers were used instead of hair with the same purpose.

Mustard oil is used for many medicinal purposes. Babies born at home are often massaged with mustard oil after they are wiped and before they are wrapped. Some respondents said this use of oil would warm the newborn. No one stated that oil was put on the umbilical cord after cutting, but some women massaged the cord with mustard oil once they arrived home. Several interviewers said that Muslim populations believe that a newborn should be massaged with mustard oil, while Hindus believe that a newborn should be bathed right away. It is unclear to what extent religious affiliation affects what happens to newborns. However, we cannot conclude that most Hindus bathe their newborns right away or that most Muslims massage them with oil. We found only two cases of herbal medicine being used to hasten delivery. Perhaps this function of speeding up the delivery has been taken over by the saline drips.

5.6 Summary of narratives

The descriptions obtained of delivery and newborn care at home and in facilities make it clear that women recall quite clearly their labour pains, the delivery of the placenta, cord care in most cases, newborn care that involved wiping and wrapping, and sometimes bathing or massaging of the newborn. The ways of cutting and tying of the cord, and wiping and wrapping the baby, are very similar in home and facility births. The women in our sample who gave birth in health care facilities did not stay there very long. Several stayed only one hour in the facility. At the moment of delivery and in the first half hour after delivery, these were always several

people with the mother: medical staff and female relatives mainly. Only in urban hospitals were women discouraged from having a female relative or two with her. We did not find a single case in our sample of a woman who gave birth alone.

In asking follow-up questions in the narrative section, interviewers asked when certain things occurred: when the placenta was delivered, the cord was cut, and the baby wiped or wrapped. Some women noted that the event happened after another event (right after the placenta was delivered, very soon after birth), but others gave a numeric answer, a number of minutes: two to three minutes, five minutes, ten minutes, or half an hour. Still others were not sure about the time elapsed between event A and event B. However, the majority of women gave a numeric answer to follow-up questions. An event that happened right away or very soon after another event was described as occurring two to three minutes or five minutes after, and five to ten minutes or half an hour indicated that it took a little longer.

The narrative section identified the events around delivery and newborn care that women easily recall. There was no significant difference in terms of recall of events among women who gave birth two to three years ago compared with women who gave birth more recently. Thus we know the events that women remember, and we know the order in which those events occur most often. We know far less about the recall of the time period between delivery and specific events such as wiping, wrapping, and bathing of the newborn.

5.7 Asking survey questions

While part 1 of the interviews with women addressed issues related to delivery and newborn care in an open-ended manner, part 2 consisted of survey questions about newborn care and postnatal checkups with predominantly pre-coded answers. The questionnaire included questions that have been part of several DHS national surveys as well as questions used in SNL surveys. The topics covered were cord care, newborn care (wiping, wrapping, and bathing), a health checkup from a health care provider for the mother and for the baby, and what was done for each health check. The questionnaire format used in Bangladesh was the same as the one used in Malawi and was described in section 4.7.

The following sections summarize responses to questions about care of the cord and about wiping, wrapping, and bathing the newborn in Bangladesh. Given the importance of data on timing of wiping, wrapping, and bathing, a separate section is devoted to how women responded to questions about the timing of these events.

5.8 Care of the cord

Women did not experience any trouble in understanding the questions about cord care. In the 40 home births, one respondent said she did not know what was used to cut the cord, and another said that bamboo bark was used. The other 38 women reported a blade was used. Thirty-one of the 38 said the blade was boiled, five said it was not, and two blades came from a delivery kit. So in at least 33 of the 40 cases of birth in a home, the cord was cut with a sterile instrument.

Some women who delivered in facilities did not know what was used to cut the cord. The answers to what was used to cut the cord in facility births included 12 ‘Don’t Know’ answers, 12

Scissors, 7 Blades, 6 Surgical Knife, and 3 Other. So 30 percent of these women did not know or remember what instrument was used. We assume that all instruments used in facilities are sterilized, so the proportion of those who do not recall is not of great concern.

Women did not hesitate in answering the question about what was used to tie the cord. In most cases a thread was used. Only two women did not know what had been used. A clip was used in 14 of the 40 facility deliveries and one home delivery. Ten women from the home birth group said the thread had not been boiled.

Women were asked if anything was put on the cord, and that question was easily answered as well. Four women said they did not know or did not remember, and four women who gave birth in a facility said 'Yes'. All the others said that nothing was put on the cord. In the four cases with affirmative answers, a doctor or nurse had put some form of antiseptic on the cord.

5.9 Care of the newborn: wiping, wrapping, and bathing

The structured questionnaire included many questions about care and covering of the newborn because hypothermia is a great danger to newborns. Women in Bangladesh did not have much trouble responding to these questions, although some found the question about drying somewhat confusing. The term 'drying' should be replaced with 'cleaning' or 'wiping' to be better understood. All in all, 'wiping' is the preferred term.

Nearly all women (n=75) replied 'Yes' to the question about whether the newborn was cleaned after birth. Only two women said 'No', and three said they did not know. Similarly, we asked women if their baby had been wrapped in a dry cloth, and 77 of 80 said 'Yes', while 3 said 'No'. Since these two questions yielded the same answer 94 percent and 96 percent of the time, the information may not prove very useful for programmatic purposes.

Specialists in newborn care have often wondered about the accuracy of mothers' reports about the duration of time between birth and other events such as wiping, wrapping, and bathing. Some have suggested we consider using the delivery of the placenta as a reference point to avoid the uncertainly about length of time. With that in mind, we asked this question: Was the baby wiped before the placenta was delivered? Thirty percent said 'Yes' and 64 percent said 'No', with another 4 percent saying they did not know. Women did not have trouble answering this question, for wiping and the delivery of the placenta are events that women clearly remember. However, since the placenta is sometimes delivered along with the baby, sometimes delivered after fifteen- to twenty minutes, or sometimes longer after birth, it does not constitute a stable reference point. Therefore, we suggest that the use of the term 'delivery of the placenta' be dropped as a point of reference to place other events.

Women were also asked how long after birth the baby was bathed for the first time. Only two women replied that they did not know. Interviewers were asked to write out what mothers said and then code the answers into four categories: less than one hour, one to six hours, more than six hours, and Don't Know. A total of 16 responses were coded as less than one hour, three answers were classified as one to six hours, and 59 (74 percent) were placed in the category of more than six hours. Twelve of the 16 who were bathed within one hour were home births.

5.10 The timing of newborn care events

Obtaining accurate information about the length of time between birth and other events constitutes an enduring challenge for survey research. The survey questionnaires that have included questions about time elapsed since delivery have generally used pre-coded answers, so we do not have evidence about the actual answers respondents gave. Thus the question remains: are women able to say how long after birth a baby is wiped or wrapped? Do they, or did they, notice when these events occurred? Why should we expect women to provide accurate answers to how long after birth a certain event occurred?

Finally, experience in asking respondents questions about the timing of events has shown that respondents often give non-numeric answers such as a short time, long time, little time, lots of time (Yoder and Konaté 2002). If we want to assess the length of short time periods, we need to find a way to standardize the coding of non-numeric answers.

The structured questionnaire includes five questions about the length of time elapsed since birth. Too better record and understand the way respondents answered such questions, we used an answer format both in Malawi and in Bangladesh that involved three separate answers. The five questions were:

#12 How long after birth was the baby dried?
#15 How long after birth was the baby wrapped?
#18 How long after birth was the baby bathed for the first time?
#B3 How long after the delivery was this done? [health check for mother]
#C3 How long after the delivery was this done? [health check for baby]

Each of these questions usually had a format that allowed up to three answers to be given:

- a blank space in which the interviewer wrote down whatever the mother said
- a non-numeric answer, after which the interviewer would ask: What do you mean? and would then write down whatever the mother said in a second blank space
- a pre-coded set of answers in numbers of minutes, hours, or days

When we obtain a numeric answer (five minutes, thirty minutes, one hour) to a survey question, we usually take that answer at face value and do not ask further questions about it. We also assume the answer is a close approximation of what occurred. However, the coding of non-numeric answers represents a real challenge for survey research.

In this study, if a respondent gave a numeric answer (such as five minutes, half an hour) to a question about time, the interviewer wrote that answer in the blank and coded the answer accordingly, but did not ask: 'What do you mean?' The answers to these five questions were entered into SPSS for easy retrieval and analysis in Malawi, and were shown on the questionnaires in Bangladesh. This format allows us to record exactly what women said in response to the questions about time; it allows women one chance to explain what they meant; and it gives us the chance to classify the numeric responses into several categories. A consideration of all three answers provides data on what we can expect when we ask such questions in a survey context.

For numeric answers to closely correspond to actual events, several things must happen. First, respondents must be familiar with thinking about the length of time periods in minutes or hours, and they must have experience in making such calculations. They must distinguish between two and four minutes, for example, and be used to making such judgments. Second, respondents must have access to a watch or a clock at the beginning and end points of the period of time in question. In our case the beginning point would be the delivery of the newborn, while the endpoint could be a variety of events: wiping, wrapping, bathing, or discharge of the baby. Third, the respondent must recall either the two end points in time or the total amount of time elapsed since birth. Some individuals might be able to estimate the duration of time fairly accurately without a timepiece, but we assume they would be in the minority.

Because we do not expect women to notice the time on a clock of events after their delivery, we do not know to what extent women pay attention to the timing of events. Are they used to thinking in terms of minutes? Would they be able to say how long after birth a baby is wiped or wrapped? Do they, or did they, notice when these events occurred?

We present the responses to #12 (timing of wiping) in detail in the next section to illustrate how the answers were considered, and then we summarize the responses to each of the other questions. We compare the responses to those of the first general question of women who differ by where they gave birth and by whether the birth was recent or longer ago.

5.10.1 Asking about when the baby was wiped

This question elicited 78 answers related to time, for two newborns in our sample of 80 were not wiped. Besides the four who said Don't Know, or I did not see that, women gave three types of answers:

- General term for duration of time such as 'Right Away', 'Soon', or 'Quite Awhile'
- Statement that 'wiping/cleaning' happened after another event such as cutting of the cord or delivery of the placenta
- Numeric answer in terms of minutes (2 to 3, 5, 10, 10 to 15 minutes)

Overall, the first answer to question #12 (drying/wiping/cleaning) can be classified as follows:

- 32 of 78, or 41 percent were numeric
- 23 of 78, or 29 percent were adverbial (right away, later)
- 19 of 78, or 24 percent used an event as a reference point (after cord cutting or placental delivery)

It seems likely that the group of women (29 percent) who gave an adverbial answer (right after birth, right away, etc.) did so because babies are so often wiped, or cleaned, soon after delivery: as soon as the cord is cut and sometimes before the cord is cut. Because newborns are often wiped soon after birth, the moment of delivery serves as the natural point of reference for answering the question. Thus they find it easy to say 'Right Away'.

The interviewers did code all responses into one of three categories (1 to 5, 6 to 15, and 16 to 30 minutes) by asking what respondents meant and by using estimations. For facility birth, 26 fell into the 1- to 5-minute category while 11 were placed in the 6- to 15-minute category. Three women said 'Don't Know'. The distribution among these three categories for home births was 9, 21, and 8. So while there were no estimates of longer than 15 minutes for facility births, 8 responses for home births fell into the 16- to 30-minute category.

This account raises the issue of our assumptions about providing a numeric versus an adverbial (right away, right after birth) response. Numeric answers are preferred because they allow a classification of responses into specific categories and thus an assessment of the time elapsed after delivery. We also assume that numeric answers are more accurate than adverbial ones. This assumption can be justified if we accept that being more precise, and more detailed, is the same as 'more accurate'.

The answers were also grouped according to place of birth (home versus facility) and time since birth (one to three months versus two to three years) to see if any difference would appear in the patterns of responses. Among home births, 19 of 38 (50 percent) gave numeric answers, while in facility births, 13 of 40 (32 percent) provided numeric answers. The numbers and the differences are too small to draw a conclusion, though it does fit well with the difference in the clarity of recall of events between home and facility births. As earlier indicated, women who gave birth in a facility did not recall the events after birth as clearly as did those who gave birth at home (see Appendix D).

We also compared answers of recent versus longer ago births in homes. We found a higher proportion of numeric answers in the recent birth group (one to three months ago) than in births longer ago: 12 of 18 (67 percent) gave numeric answers versus 7 of 20 (35 percent) among women who gave birth two to three years ago. It is tempting to say that this difference suggests better recall for recent cases, but the numbers are too small to make that argument very forcefully.

5.10.2 Asking about when the baby was wrapped

The pattern of the answers to question #15 about when the baby was wrapped appears slightly different from those of question #12. Three newborns were not wrapped and two women did not know about the timing. We include the 'Don't Know' answers in our denominator because they may represent a challenge to code (women do not necessarily say 'I don't know'). The percentage of numeric answers to question #15 was much higher: 61 percent (47 out of 77) compared to #12 (41 percent). In addition to the 47 numeric answers, we found 21 references (27 percent) to specific events (cord cutting, wiping, and so on) and only seven (9 percent) adverbial answers (right after birth). The most frequent answer was 10 minutes, or 5 to 10 or 10 to 15, mentioned 18 times out of 77 (23 percent).

The three types of answers can be easily compared below:

- 47 of 77, or 61 percent, were numeric
- 7 of 77, or 9 percent, were adverbial (right after birth)
- 21 of 77, or 27 percent, used an event as a reference point (cord cutting, wiping, and so on)

Interviewers coded responses to the question about wrapping as they did for wiping. There were four possible categories: 1 to 5, 6 to 15, 16 to 30, and more than 30 minutes. For facility births, the responses were distributed as follows: 10, 21, 4, and 0, with 2 'Don't Know'. For home births, the responses were: 8, 23, 8, and 1. Responses did not differ by place of birth.

The main challenge faced by survey researchers who want to ask questions 12 and 15 about the time elapsed since birth is how to code non-numeric answers. For efficient marking, the non-numeric answers need to be coded rapidly and on the spot, with no follow-up question. There are two ways to meet this challenge: (a) train interviewers extensively to get women to explain what they mean by their non-numeric answers, and then code the time; or (b) read the time categories to respondents out loud and ask them to select the category that fits best. Both options have drawbacks.

The first option reduces the efficiency of marking answers, for it requires interviewers to ask follow-up questions. This first option was used by NIPORT for the 2007 DHS in Bangladesh. A representative from NIPORT reported during the study training that NIPORT had trained interviewers to follow up with questions to get the proper coding. This approach introduces a great deal of variation into the questioning and the coding, for interviewers will vary in the way they ask follow-up up questions, and they will vary in how they code the answers. This option introduces a great deal of untraceable variation into the survey data and increases the time of the interviews. For these reasons, we do not recommend this approach.

The second option—reading the time categories out loud as part of the question—is more transparent, but still awkward, because the interviewer needs to read out loud all of the categories and ask respondents to choose the one most appropriate. This option is preferable to the first one, however, for it does allow us to group responses into several major categories in a way that can be documented.

5.10.3 Asking about when the baby was bathed

Most respondents gave a number of days or said 'next day' as their answer to this question. There were, however, 18 out of 78 (2 DK) women who spoke of minutes or an hour or so. Twelve of these 18 women gave birth at home in an urban area. This finding fits with the accounts that women had provided in the narrative section that found that babies in home births were bathed early in urban areas and were massaged with mustard oil in rural areas. The most common responses were 'next morning', or 'next day', (n=19), and 'three days' (n=12).

The indicator suggested to SNL by the TWG related to bathing of a newborn focuses on delayed bathing, or the percentage of newborns who were bathed more than six hours after birth. It is relatively straightforward to train interviewers to code responses in the field because the

response categories are so broad: less than 6 hours, more than 6 hours, and so forth. Therefore, this question does not present any problems in understanding or in coding of responses.

5.11 Summary points for newborn care questions

The study team in Bangladesh reached the same conclusion as the team in Malawi about the use of the placenta as a reference point. The recommendation regarding this question is the same as in Malawi: Delivery of the placenta is not an appropriate reference point in time against which to refer other actions, for the timing of delivery varies greatly across the board.

6 RESULTS: POST-NATAL CARE FOR MOTHER AND NEWBORN

6.1 Importance of data on getting a health checkup

Infant and child mortality have steadily decreased in much of the developing world in the past 30 years, but neonatal mortality (NNM) has not shown the same sort of decline. More and better data on neonatal care has improved our understanding of the factors that contribute to NNM. As Alfredo Fort has noted, 'birth asphyxia, the roles of hypothermia from bathing and lack of drying and wrapping of the newborn soon after birth, low birth weight/prematurity, and infections have been well established as contributors to neonatal deaths' (Fort et al. 2009:1). After analysis of DHS data from five Asian countries, Fort found that small birth size as noted by the mother was positively associated with NNM rates in four of the five countries. Furthermore, not having received postpartum care was associated with higher NNM in three of five countries.

A medical checkup for mother and baby during the first day or two after delivery offers an excellent opportunity to identify conditions known to increase maternal mortality and NNM. Among the elements usually mentioned that should be monitored in the mother are signs of haemorrhage, fever, elevated blood pressure, or difficulty in breastfeeding. For the baby, essential items to be checked are temperature, blood pressure, breathing, breastfeeding, the condition of the cord and the umbilical area, and protection against hypothermia. Neonatal care specialists agree on the high importance of conducting postnatal checkups, although the specific content of each checkup for the mother and baby have not been determined.

The DHS and MICS surveys, as well as many other population-based surveys, have asked women in many countries if they have had a health checkup, who conducted the checkup, and how long after delivery it occurred. The same question was asked about a checkup for the baby. These questions were also asked in the structured questionnaire for this study. In addition, the questionnaire included questions about whether or not a number of checks were performed. Those checks asked about the items of concern mentioned above. Questions were also asked about the advice mothers were given (see Appendix B).

6.2 A health checkup for the mother

The initial question in the sequence about checks on maternal health was:

After the birth of your baby, did any health care provider check on your health?

This question sought to determine the percentage of women who had been checked—a visit for the purpose of checking on certain health items—and to assess how well women understood the question. The same question was asked in Malawi and in Bangladesh. The study teams encountered several problems in asking this question. Many women in Malawi and Bangladesh were not sure just what was meant by a 'check on your health', so interviewers explained what a health checkup would be. In Malawi they gave examples of what would be checked (blood pressure, temperature, and so on), and in Bangladesh, they used other expressions (how you are; how you are feeling; problems during delivery). In addition, nurses in Malawi do not always tell women what they are doing when they are actually checking their

health, so some women may have said they had not been checked when a nurse had done so. In Bangladesh, some mothers were confused by the term used for 'health care provider', but that issue was likely a problem of translation rather than an issue intrinsic to the question.

After the question was clarified, in Malawi, 42 out of 84 women (50 percent) said they had received a health checkup, and only one person said they did not know. Among the respondents who gave birth in a facility, 71 percent (34 of 48) received a checkup while only 22 percent (8 of 36 women) who gave birth at home were checked. In all cases but one, the contact occurred before discharge or before the TBA left the house. The checkups in facilities were conducted by clinical officers, medical assistants, nurses, and TBAs. In the 2004 Malawi DHS, 57 percent of births occurred in facilities.

In Bangladesh, only 4 women out of 40 (10 percent) having home deliveries reported having a health checkup after the question was clarified, while 20 out of 40 (50 percent) women giving birth in a facility reported having been checked. Since 85 percent of births in Bangladesh nationally occur outside a facility (2007 Bangladesh DHS), these numbers suggest that relatively few women overall are likely to be given a health checkup soon after delivery.

Both study teams realized that the meaning of this question had to be explained to be understood. The study team in Malawi recommended the addition to the question of examples of the kind of things that constitute a checkup: checking temperature, blood loss, breasts, etc. Mentioning specific items would provide respondents with some content to help them determine whether they had been checked or not. The Bangladesh team recommended that a 'health checkup' be explained as referring to health problems in general, and that the term 'health care provider' be replaced by 'anyone'.

The TWG did not propose to SNL an indicator related to maternal health that would show the percentage of mothers who were given postnatal care during a certain period of time after delivery, but other groups have done so. These groups have used an indicator along the lines of the one proposed for newborns (percent checked within two days of delivery by a skilled birth attendant). It should be noted that many of the TBAs referred to by respondents in Malawi and Bangladesh have not received any training and thus should not be considered skilled birth attendants according to international definitions.

6.2.1 The timing and content of a medical checkup for mothers in Malawi

Exactly 50 percent of the respondents said someone checked on their own health after delivery in Malawi. A follow-up question on timing is needed to provide data for the proposed indicator. The answers to the follow-up question (How soon after birth was this done?) ranged from two minutes to one week. Table 6 shows the distribution of numeric responses from two minutes to one week. There were 16 non-numeric answers recorded.

Table 6 Numeric answers to timing of checkup for mother	
2-15 minutes	7
1 hour	4
2-5 hours	4
6-10 hours	1
1 day	5
2-3 days	4
1 week	1
	26

Five women said it 'did not take a long time'. Their explanations for what they meant varied from three minutes to four hours, but were all within the first 4 hours after birth. Several of the other 11 non-numeric responses suggested a time period of a few hours. We estimate that 26 of the answers should be coded as 'less than 10 hours'. It should also be noted that 38 of the 42 mothers reported a contact with a health care provider or TBA within two days after delivery.

The answers to the timing question raise two issues that need to be addressed. The first issue is: How should the answers be coded? That is, what should the pre-coded answer categories be, and what guidance should be given to interviewers? DHS surveys use boxes that allow interviewers to write the answers in hours, days, or weeks. Interviewers are trained to record responses given in terms of minutes as less than one hour [00 in the hour boxes]; interviewers receive guidance during training on how to handle non-numeric answers. Alternatively, if an indicator is adopted (such as the percent of mothers checked up to two days after delivery), then broad categories could be used (less than one day, one day, two days, more than two days). In this case, coding of non-numeric answers would be straightforward. Thus it is important to choose the indicator before recommendations for a question and answer sequence can be made.

The second issue is: What do we consider to be a postpartum checkup? The wide disparity in the answers to the timing question raises the possibility that not all respondents understood the question in the same way despite the explanations provided by the interviewers. Some women gave answers in minutes while others replied in terms of hours or a day or two. It seems likely that some women were reporting on their first medical contact, which may or may not have been a health check with standard content. If a woman reports a check 10 minutes after delivery, what is the likelihood that she had a postpartum checkup? And how would such a judgment be made?

The maternal and newborn care community could decide that the survey question on health checkups is meant to identify any kind of medical contact, and not be concerned about the content of such a contact. With this approach, we would no longer interpret the positive answers to the question as evidence of a health checkup. We would label this simply a medical contact. A nurse who visits a woman 15 minutes after delivery would likely be able to hear about or observe a severe health problem, and thus could intervene. If the main indicator were to become the proportion of mothers who have at least one contact with a health care provider within two days of delivery, it would not matter that some women understand the question to mean any contact with a medical person, while others interpret it in terms of an actual checkup. Of course, the

issue is complicated by the fact that women did not understand what was meant by a 'health check'.

The question about timing of a checkup was followed by several questions about the content of that checkup. That is, women were asked about the specific tasks the health care provider fulfilled. Of the 42 women who had been checked by a health care provider in Malawi, 29 had their temperature taken, 25 had their blood pressure taken, and 10 had their breasts checked. In addition, 24 said they were advised about danger signs after explanations from the interviewers.

In Malawi, the question about having been warned of danger signs (Were you advised about danger signs and going to the doctor?) was confusing to mothers, largely because it combines two questions: asking about danger signs, and then asking about reasons for seeing a doctor. Many women thought we had in mind very serious danger signs. The study team recommended that the question be dropped or divided into two: one question about danger signs, with an example or two, and a second question about reasons for going to see a doctor. In this study 24 women reported that someone spoke to them about danger signs.

6.2.2 The timing and content of a medical checkup for mothers in Bangladesh

As noted above, 10 percent of women (4 out of 40) in our sample who gave birth at home had someone check on their health, while 50 percent of mothers who had facility births (20 of 40) reported a check on their health. The follow-up question on timing (How long after delivery was this done?) produced a wide range of answers: a total of nine (all in facilities) gave answers in terms of minutes. One woman said 'Don't Know'. The 23 responses can be categorized as follows: 9 in the first hour after delivery, 11 after 1 to 15 hours, and 3 from 2 to 7 days.

The range of responses (10 minutes to 7 days) in Bangladesh raises the same issues about coding of responses and about the understanding of the questions as found in Malawi. As in Malawi, some may have reported on their first medical contact after birth in the hospital, while others reported on a contact that included standard content. Women did not understand what was meant by a 'health check'. In Bangladesh, 39 percent of women were checked within the first hour after delivery. Should they be regarded as having had a postpartum checkup? Without a consensus of what constitutes a health checkup, it is difficult to know how to interpret the data we have been collecting.

There is also a contextual issue to be considered in Bangladesh related to the persons who assist a mother who has just given birth. The underlying image of this question is one of a nurse or doctor coming to see a mother and baby in the delivery room, maternity ward, or home to check on certain aspects of her health: temperature, blood pressure, haemorrhaging, nursing, and so on. In fact, in home births, women have several women with them for some time: at least one TBA and several female relatives. These women wash the mother, feed her, watch over the baby, and see that all is well.

In Bangladesh, among the 24 women who reported a checkup, 15 had their temperature taken, eight were checked for bleeding, and seven had their breasts checked. No question about checking blood pressure was asked. The questions about the advice provided by the HCP who

conducted the checkup were revised to ask if the HCP or anyone else had discussed the topics in question (danger signs, breastfeeding, and family planning). A total of 16 women had discussions with someone about family planning, 22 mentioned talking about danger signs, and 53 spoke of conversations about breastfeeding.

6.3 A checkup for the baby

After the series of questions about a health checkup for the mother, the following question was asked:

After the birth of your baby, did any health care provider check his/her health?

As with the earlier question about a checkup on the mother's health, some women in both countries were not sure what was meant by 'checking on the baby's health'. As with the question regarding a checkup for the mother, the study teams recommended that examples of the items of importance in a checkup be added to the question, as they were in the field, for improved comprehension: checking temperature, blood pressure, breathing, and care of the cord. That way, mothers would be given some content for what we have in mind as being 'checked' in reference to the baby.

Just as for a postnatal checkup for the mother, a higher proportion of health checks were performed in Malawi than in Bangladesh. In Malawi, 47 of 84 women (56 percent) reported that their newborn was checked: 10 of 36 women who had home births, and 37 of 48 women with births in facilities, along with two who gave 'Don't Know' answers responded similarly. In Bangladesh, 28 of 80 women reported that their newborn was given a health checkup: 8 of 40 home births and 20 of 40 facility births responded likewise. This information can be seen in Table 7.

Table 7 Percent of newborns with health checkup

Site	Facility	Home	TOTAL
Malawi	77	28	56 (n=84)
Bangladesh	50	20	35 (n=80)

As with the health check for mothers, if we consider a check by a TBA as similar in its effect to one performed by a nurse or doctor, the question should be asked in both home and facility births. In addition, for better comprehension of the question, we recommend that examples be added to the question to clarify that we are seeking information about a specific series of checks on the health of the baby.

6.3.1 The timing and content of a checkup for newborns: Malawi

After the questions on the advice given to mothers, respondents were asked if any health care provider checked on the baby's health. Among all respondents, 47 of 84 women (56 percent) said 'Yes': 10 in home births and 37 in facility births. In line with the question about the timing of a checkup for the mother, answers to the question about the timing of a checkup for the newborn varied widely: from one minute to six weeks. Among the 29 clearly numeric responses,

we found five cases of 1 to 15 minutes, five of 1 to 5 hours, 14 cases of 1 day, two examples of 2 to 3 days, and three examples of 1 to 6 weeks. A check of the non-numeric answers reveals another five cases of a checkup after 1 day and three cases of 1 to 3 hours. The rest of the answers did not provide information on the timing of a checkup.

This question about the timing of a checkup for the newborn, as with the checkup for the mother, produced answers that were nearly all within the first two days after delivery. Among the answers that could be understood numerically, 31 of 34 of the contacts occurred within the first two days. The earlier comments about the challenges of coding and of interpreting the data on the time of a checkup for the mother apply equally for the newborn's checkup. If the indicator is the percent of mothers with a checkup for the baby within the first two days, then the exact timing of a checkup is not important. If the indicator becomes the percent of mothers with the recommended number of postnatal visits, the exact timing of such contacts becomes even less important.

A good proportion of newborns had specific items checked. 33 out of 47 (70 percent of those checked) had their temperature taken, 20 had their breathing checked, 13 had their cord checked, and 19 were checked to see if they were breastfeeding normally. Eleven were checked two times, and four were checked three times. Thus 15 of 47 women said their newborn had been checked two or three times.

6.3.2 The timing and content of a checkup for newborns: Bangladesh

As with the question on the timing of a check on the mother's health, the time of checking on the baby's health yielded a minority of affirmative answers: 28 of 80 said their baby had been checked by a health care provider. With home births, 8 of 40, or 20 percent, of the newborns had been checked, while in births at facilities, 20 of 40, or 50 percent, of newborns had been checked. Seven of the eight women whose baby was checked in home births answered in terms of days, and one said 'one hour'. In facility births, 12 women gave answers coded as 'less than one hour', 6 were coded as from 1 to15 hours, and two answered in number of days. It seems reasonable to assume that checkups performed within the first hour (43 percent of the cases) represented initial contact with a medical person. Whether that first contact also included items that make up a health check is unknown.

The pattern of responses to this question mirrors that of responses to the question about a health check for the mother, and the same comments apply equally to these responses. The specifics of an indicator for postnatal care for mother and for the newborn have yet to be determined. It is not yet clear whether the international community will decide on the number of visits recommended or if any content will be specified.

The majority of the newborns had their breathing checked: 20 of 28, plus four 'Don't Know' answers. Twelve respondents said the baby's temperature was checked, while seven 'Don't Know' answers were recorded. Eleven said the cord was checked, with six 'Don't Know' answers. Some of the women did not know or were unable to remember just what had been done to check on the baby's health.

Finally, respondents were asked how many times the baby got a health checkup in the first week. While 13 respondents said once, six respondents said three or four times, and six said more than four times. Given the unlikelihood of such frequent checkups in a context where 22 percent of newborns are checked at all by a medically trained provider (NIPORT, 2009), it seems likely that many women thought they were being asked about their contacts with medical personnel.

6.4 Summary

The responses to these two questions about health checkups reveal several significant findings. First, respondents in Malawi and in Bangladesh did not understand what was meant by 'a health check', so interviewers had to explain the meaning of the question. Second, relatively few women who gave birth in a home had someone check on their health: 8 of 36 in Malawi and 4 of 40 in Bangladesh. Third, many of those who had someone check on their health in a facility were checked within the first 15 to 30 minutes after delivery, while others were checked a few hours or days after giving birth. Those health checks so soon after delivery were likely the first contact the woman had with a medical staff person after delivery. The question is: should those contacts be considered to be a health check as defined by the international health community? And should there be a list of minimal content before a visit is labelled a 'health check'? At some point the international community for maternal and neonatal health will address these questions.

7 SUMMARY AND RECOMMENDATIONS

The overall study objective was to provide guidance on what questions can be reasonably asked in a newborn care module prepared for use in large sample surveys. That is, what questions will be easily and unambiguously understood by respondents and be easily and accurately coded. We are mainly interested in the events that follow delivery and that involve newborn care and postnatal care for the mother and the newborn. We consider three elements of questions: (1) whether or not the events asked about are usually recalled by women, (2) whether or not the terms used are clear to respondents, and (3) whether the answers provided can be easily and unambiguously coded.

7.1 Key events

The narrative section provided evidence about the events that women recall consistently. Women readily spoke about labour pains, the delivery process, cord cutting and cord tying, and delivery of the placenta. They gave specific times for commencement (start of labour pains) and termination of labour (i.e., birth of the baby). Women paid attention to how and when the placenta was delivered because they recognized the dangers of a delayed placenta delivery. Women also talked about wiping and wrapping the newborn, and whether or not the baby had been bathed.

Because the narrative section was recorded and transcribed, the texts show the terms women used in describing all of these events. The dialectical variations in languages sometimes led to use of two or more terms for the same event: the cord, cord care, the placenta, the wiping, and so on. However, Appendixes D and E show the terms suggested by the respective study teams who drew on how women spoke of their experience and the answers to the structured questionnaire. Responses to the structured questionnaire provided additional evidence about the terms most easily understood, as they included questions about care of the cord, wiping, wrapping, and bathing the newborn as well as questions about postpartum and postnatal care. The vocabulary in these two lists show the terms that will be most widely understood by women.

The study also looked for evidence of the order of events that occurs most often in home birth and facility births. The most frequent order of events could be used to guide the order for a series of questions. That is, since wiping, wrapping, and bathing most often occur in that order, questions about these events should also follow that order. Women could recall the order of these main events that follow delivery. The data analysis for each respondent placed the events that followed delivery on a timeline that displays the order most often found (Appendix C) in home and facility births. The timeline begins with labour pains and includes all the events of particular interest to the study.

The order of events sometimes affects which actions are taken. For instance, newborns who are bathed a few minutes after birth (rather than the next day) are not wiped: they are bathed and then wrapped. Newborns who are wiped, then wrapped, and then bathed, are wrapped again after being bathed.

Some experts have suggested that the delivery of the placenta be used as a point of reference. Women's descriptions certainly showed that they paid very close attention to the delivery of the placenta, for a delay in delivery was always of concern. However, the study teams in both countries found that the timing of the delivery of the placenta varies widely from woman to woman. Therefore, the delivery of the placenta is not a suitable point of reference for other events such as wiping or wrapping the newborn. We recommend that survey questions that use the delivery of the placenta as a reference point be dropped.

The data indicate that women recall very clearly the process of delivery, care of the cord, delivery of the placenta, and wiping, wrapping, and bathing a baby. Asking about the timing of these events, however, presents more of a challenge.

7.2 Questions about essential newborn care

The questions related to newborn care address care of the cord, the wiping or drying of the newborn, the wrapping of the infant, and bathing for the first time. Concern about cord care relates to the danger of infection, while wiping, wrapping, and bathing are related to the danger of hypothermia.

7.2.1 Asking about cord care

The indicators about cord care proposed to SNL by the TWG focus on what instrument was used to cut the cord, whether that instrument was sterile, and whether or not anything was put on the cord. For example, in the 2007 DHS in Bangladesh, these questions were asked.

430B What was used to cut the cord?
430C Was the _____ (instrument) boiled before the cord was cut?
430D Was anything applied to the cord immediately after cutting and tying it?
430E What was applied to the cord after it was cut and tied?

Our study questionnaire asked what was used to cut the cord, and that question caused no problems for respondents. In home births, women were then asked if the instrument had been boiled. In Bangladesh, most razor blades had been boiled, so the question sequence provided what was expected. In Malawi, where mothers are asked to bring new blades for cord cutting, most blades were new. Assuming that a new razor blade is sterile, this question does not provide the information that is being sought, since a negative answer to 'Was it boiled?' does not imply a non-cleaned blade. We recommend asking 'Was this a new razor blade?' for all who reported a blade had been used, and then asking 'Was it boiled?' for those who say the blade was not new. This sequence of questions would provide a more valid and reliable measure of sterility of the razor blades in countries where new razor blades are commonly used to cut the cord.

The question about whether anything was put on the cord after it was cut and tied caused some confusion in Malawi. Some mothers who gave birth in a facility said that a clamp was put on the cord, while others told about applying oil or antiseptic to the cord after they returned home. We suggest asking if any substance was put on the end of the cord and paying close attention to the translation of the verb to increase comprehension.

7.2.2 Asking about wiping, wrapping, and bathing

The indicators proposed to SNL by the TWG related to wiping, wrapping, and bathing of the newborn focus on the length of time between birth and these three actions. It is recommended that a newborn be wiped right after birth, and also wrapped right away, while mothers should wait at least six hours before bathing the baby for the first time. For example, in the 2007 DHS in Bangladesh, these questions were asked.

430G How long after (NAME) was born was the body wiped (dried)?
430H How long after (NAME) was born was the body wrapped?
430J How long after delivery was (NAME) bathed for the first time?

Our study asked questions similar to these, but we began the sequence by asking if the baby had been dried/wiped. The verbs used in both Malawi and Bangladesh can be translated better as 'wiping' than drying. We recommend that survey questions use the term wiping instead of drying. As discussed above, wiping, wrapping, and bathing are events that are familiar to all mothers.

Women had no problem in either country in understanding what was meant by wiping, wrapping, or bathing. The challenge in the use of these questions comes in the coding of the responses, for respondents gave several kinds of answers: (a) Numeric responses that are easy to code (2 to 3 minutes, half an hour), (b) Responses that are general statements (adverbial) about how long it took (right after, soon after, in a little while), and (c) Responses that use another event as a reference point (after wiping, after delivery of the placenta).

The findings for both countries indicate that for a question about wiping or wrapping, the majority of women will give non-numeric answers. There are several explanations for this finding. First, since the reference point given in the question is the moment of delivery, and the time elapsed is very short in most cases, it is easy to say 'very soon' or something to that effect. Second, women may not be used to describing short periods of time in terms of minutes. Third, women are highly unlikely to have noticed 'how many minutes' passed between delivery and wiping or wrapping. In addition, the Malawi data show that what is meant by answers such as 'very soon', 'right away', or 'not long' varied widely in length of time. This fact also suggests that women who do provide a time in minutes may be guessing or estimating the time.

These findings show that if such questions are used in a survey, more than half of the answers will be coded by interviewers in the field according to their own estimates of what is meant by respondents. This approach was used in the 2007 DHS in Bangladesh. Because this approach leaves much to the discretion of interviewers, and individual variation in coding could be wide, we do not recommend this approach to coding these questions.

It would be possible, on the other hand, to collect information about length of time by asking respondents to choose among lengths of time read out to them, such as: less than five minutes; 5 to 15 minutes, and so on. The division of time into appropriate categories depends on what programmes recommend. Although slightly more cumbersome than asking the simple question, the approach does standardize the question-and-answer sequence so that all interviewers can be trained to code answers in the same way.

Several of the indicators proposed by TWG to SNL use the word 'immediately'. If these indicators are to be adopted, we need to specify what is meant by the term. How many minutes will pass before an event is no longer immediate? Is three minutes different from six? Is two minutes different from five? In other words, programmes must be able to delineate what is meant by the term 'immediately' before the coding categories are chosen. The coding categories should be derived from programme recommendations.

Asking about how soon the baby was bathed presents less of a challenge for coding because the coding categories include longer periods of time (< 1 hour, 1 to 6 hours, etc.), and women are more likely to give numeric responses. Any answer in minutes is coded as '< 1 hour', and many answers are given in terms of days (next day, two days). This question about how long after delivery the baby was bathed for the first time can be asked as it has already been asked in a number of surveys.

A comparison of responses by mothers who gave birth recently with those who gave birth two years ago showed a small difference in the precision of answers about timing. Those who gave birth longer ago gave fewer details about the timing of events. However, the differences were small. Therefore, we can include respondents who gave birth two to three years ago in our survey samples.

7.3 Questions about postnatal care for mother and baby

The current DHS core questionnaire for women asks the main question in this form:

After you gave birth to (NAME), did anyone check on your health?

That question is asked of women who gave birth at home. For those who gave birth in a health facility, the phrase, *'before you were discharged'* is added. That phrase means: 'before you left the facility'. Questions are then asked about who did the checking and when this 'first check' occurred. Similar questions are asked about checking on the newborn, with the same follow-up questions.

In the two months after (NAME) was born, did any health care provider or traditional birth attendant check on his/her health?

These two main questions asking about a health checkup for mother and baby (postnatal care) raise the same issues as survey questions on postnatal care:

- Are these two questions well understood by respondents?
- How do we interpret the answers?
- Should we ask these questions for both home and facility births?

7.3.1 Understanding the question

This study has found several sources of ambiguity in the general question asked. In both Malawi and in Bangladesh, many women did not understand what was meant by a 'health checkup', or 'a check on your health'. Study teams in both countries needed to explain what a health checkup would be so women could answer the question. In Malawi they used a number of

examples of what such a checkup would involve in their explanations, while in Bangladesh they described what was meant by health in general.

In addition, in Bangladesh, some women did not understand the terms used to translate 'health care provider'. The proper translation of this term was a challenge to the translators. This problem, we believe, is an issue of translation more than of the question wording itself. Finally, according to the study team in Malawi, some women may have been checked by a nurse without the woman realizing that a checkup had been performed.

We recommend that the general question about a medical checkup include examples of the type of things an appropriate health care worker would do in a checkup to facilitate understanding. We suggest that the main question be asked with two examples added: a check of temperature and a check for bleeding. Something similar can be devised for the check of the baby: a check on temperature and a check of the cord. Otherwise interviewers will be asked to explain the question, and variability in asking questions is introduced. Such a revision would provide some content to the term checkup and may help a respondent remember that a nurse had checked on her. It would also likely reduce the number of respondents who reported on a first medical contact because it would give examples of what a checkup is expected to include.

7.3.2 Interpretation of data collected

The issue of how the data on health checkups should be interpreted stems from three separate concerns:

(1) There is a contrast in our image of what constitutes a health checkup and the image held by respondents. We have an image of a nurse or doctor coming to examine a woman who has recently given birth in order to check on certain conditions vital to her health. Respondents, on the other hand, have just given birth and are involved in a series of activities that affect their own health as well as that of the newborn. Because the women interviewed did not understand what was meant by a 'health check', we know they do not share our image of what that might be.

(2) When asked about how long after delivery their checkup occurred, the answers have ranged from responses in minutes to days. As mentioned earlier, we assume that a woman who was checked 10 minutes after birth is reporting on the first contact she had after delivery with a nurse or doctor, while someone who says one or two days is less likely to be reporting on a first casual contact and may be referring instead to a contact or check with recommended content and counselling. We do not know if this first contact included checking on items considered essential to a medical checkup or not. This reasoning may not hold in some facilities if they have guidelines that suggest that a health checkup be done within the first 20 to 30 minutes. The question is, should we consider this first contact to be our 'health check' or not?

The 2007 DHS in Bangladesh asked respondents if they had a medical person check on their health and when that occurred. Thirty percent of women had such a checkup, and most were checked within four hours of delivery. Among the women who received a checkup (n=1500), 68 percent were checked within four hours after delivery. The percentage reporting a checkup for the baby is virtually the same. Similarly, in Egypt in 2005, 80 percent of mothers who gave birth

in a facility were checked within three hours of birth. Should we consider medical contact within the first hour or two to be a health check?

It is not possible to answer that question clearly without information on the content of the contact. The question then becomes: How many (one or more) items on a recommended list of items need to be included in a 'health check' before it can be said that a woman has had a health check?

It is also possible that the reference point given--the moment of delivery--complicates the question. That is, because we are using the time of birth as our reference point, respondents may easily think that the question is asking about the first contact they had with medical staff.

(3) In both Malawi and Bangladesh, the study questionnaire included a question about how many times the newborn had been checked by a health care provider. In Malawi about one-third of those whose baby had been checked said that two or three checkups had been performed. In Bangladesh, where only 35 percent of newborns in our sample had been checked at all, 43 percent of those who were checked had been checked three or four times or more. The chances of a newborn getting three health checkups in one week seem extremely small in a context where the majority of newborns are not checked at all. It should be noted that in the 2007 DHS in Bangladesh, 31 percent of newborns were checked by someone who may or may not have had medical training.

If we accept that some respondents have reported on their first medical contact in a facility, and others have reported on a medical checkup that involved a number of checks on health-related conditions, then we must say that we are not sure what these data tell us. That is, we are simply unable to say what percent of women were given a health check from the data provided.

7.3.3 Revisions suggested

We propose a simpler and more restricted question for finding out if a woman had a health checkup. We can provide a later reference point for both home and facility births, and thus place less emphasis on the moment of delivery. That is, we could ask the following example questions:

> *After the birth of your baby, did anyone check on your health before you left the hospital? That is, did anyone check your temperature and blood pressure?*
>
> *After the birth of your baby, did the TBA or any other birth attendant check on the baby's health before she left the house? That is, did anyone check on the baby's temperature and umbilical cord?*

As suggested earlier, we should add two examples in order to clarify the meaning of a health checkup (for example, temperature, loss of blood, blood pressure). For those who said they had been checked, we could ask when that happened, and have four answer categories: one in minutes, one in hours, one in days, and one 'Don't Know' response. For those who said 'No', we could then ask if anyone came to check on them after they left the facility or after the TBA left the house.

We might wonder about the effect of asking if 'anyone' checked on 'your health (or the baby's health)', but any person who checked their health is likely to be part of the medical staff. Asking about 'before you left the hospital' shifts the reference point to a somewhat later point, making it less likely for respondents to report on the initial contact with medical staff. In any case, the challenges in asking about a checkup of a mother and a baby are the same.

7.3.4 Asking about home and facility births

The TWG and others have often discussed the pros and cons of asking women who gave birth in hospitals the same questions as those who gave birth at home. Recent DHS surveys have asked all women if *'anyone checked on their health'* after delivery, and whether the delivery occurred in a facility or outside (home births). Women who gave birth at home (outside a facility) were also asked if anyone performed a health check on their newborn.

In general, the same questions should be asked of women who give birth at home and in facilities unless data are available that show that the question makes no sense to the one group, or that nearly all women in one group give the same answer. With regard to questions in a possible neonatal care module, women in Malawi and in Bangladesh were able to respond to questions about what happened to their newborn. It is true that women who gave birth in facilities were less sure about what happened to their newborn than those who gave birth at home. However, it would be best to ask all the same questions in any initial stage.

7.4 Indicators proposed to SNL by the TWG

The Technical Working Group (TWG) on Neonatal Care met several times in 2008 and 2009. In May of 2009 the TWG proposed to SNL the indicators found below:

Cord care

- Percent of newborns with cord cut with clean instrument.
  - *Numerator:* # of newborns with cord cut using new blade or boiled instrument.
  - *Denominator:* # of last live births in the (two or five) years prior to the survey.

Data for this indicator can be collected by asking the following questions:

a) When NAME was born, what instrument was used to cut the cord?

If they say 'blade', we ask:
b) Was this a new blade?

If they say something other than blade, we ask:
c) Was it boiled?

If they say no, we ask:
c) Was it boiled?

- Percent of newborns with nothing applied to cord.
  - *Numerator:* # of newborns with nothing applied to cord.
  - *Denominator:* # of last live births in the (two or five) years prior to the survey.

Data for this indicator can be collected with this question:

"Was anything put on the end of the cord right after it was cut?"

Thermal care

- Percent of newborns dried immediately after delivery.
  - *Numerator:* # of newborns dried with cloth immediately after delivery.
  - *Denominator:* # of last live births in the (two or five) years prior to the survey.

- Percent of newborns wrapped immediately after delivery.
  - *Numerator:* # of newborns wrapped with a dry cloth immediately after delivery.
  - *Denominator*: # of last live births in the (two or five) years prior to the survey.

Data for these two indicators can be collected by asking the question: "How long after delivery was NAME wiped/wrapped? With two conditions:

1) The SNL group decides what is meant by the term 'immediately' in terms of minutes.

2) Answering categories for length of time for coding answers be formulated and read out to respondents so they select the category that best fits their answer.

- Percent of newborns with delayed bath.
  - *Numerator:* # of newborns with first bath delayed at least six hours after birth.
  - *Denominator:* # of last live births in the (two or five) years prior to the survey.

Data for this indicator can be collected with the main question as it has been asked for some time because the coding categories regarding time are so broad.

Postnatal care check

- Percent of newborns receiving a postnatal care check within two days of birth.
  - *Numerator:* # of newborns who received a postnatal care check < two days after delivery.
  - *Denominator:* # of last live births in the (two or five) years prior to the survey.

We recommend that the term 'postnatal check' be replaced with the term 'medical visit' in order to be certain that we do not inflate the percentages of women whose newborns received a health checkup.

Given the importance of checking on the health of women who have just given birth, it would be logical to add an indicator for postpartum care or postnatal care for the mother, one in parallel to the postnatal care check above:

- Percent of women receiving a medical visit within 2 days of delivery.

7.5 Overall summary

The process of giving birth and caring for newborns in the study areas of Malawi and of Bangladesh were remarkably similar, but a certain number of contrasts were found as well. The events recalled by women were roughly the same: the time of the onset of contractions, the time of the birth, noticing who was present to assist with the delivery, noticing when the placenta was delivered, the cutting of the cord, the wiping and wrapping of the newborn, and the giving of the newborn to the mother for breastfeeding. The rapid wiping and wrapping of newborns was nearly universal.

A few contrasts were also found. In Bangladesh, all women had other women around them when they delivered, whether at home or in a facility. In Malawi, one-third of women at home and one-fourth in the peri-urban hospital were alone when they delivered—the baby came too quickly. In Bangladesh the infants born at home were either massaged or bathed a few minutes after birth; neither action was taken in facility births. In Malawi many women took traditional medicine to hasten delivery, while in Bangladesh, a saline drop was commonly used for the same purpose. In both Malawi and Bangladesh, about one-half of women who gave birth in facilities reported that someone had checked on their health after they had given birth.

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APPENDIX A

Part 1: Narrative

Before staring the interview chat with the woman and help her feel at ease.

1. Please tell me about your most recent delivery, beginning when you first felt labour pains until when the baby came out. Tell me about who was there to help you, and what did they do?

   [Ask mother: What happened next? What happened before that? Tell me more.]

   Check list: Ask about if not mentioned
   - Length of labour
   - Delivery of placenta
   - How someone helped her
   - Any problems with the delivery

2. Please tell me about what you saw happening with the baby right after it came out. Who took care of the baby, and what did they do?

   [Ask mother: What happened next? What happened before that? Tell me more.]

   Check list: Ask about if not mentioned
   - Care of the cord
   - Any problems with the baby
   - What others did for the baby
   - Something done to keep the baby warm

3. Please tell me about what happened to you after the delivery. Tell me all you can remember

   [Ask mother: What happened next? What happened before that? Tell me more.]

   Check list: Ask about if not mentioned
   - Where was baby then?
   - Were there other people present and what were they doing?

APPENDIX B

Part 2

WCBA ID	|__|__|-|__|__|-|__|__|__|-|__|
Date of interview	
Zone ID	
Interview ID	
Interview start time	
Interview end time	

We would like to ask you a few questions about your most recent birth			
Part A: Newborn care			
We have a few questions to ask you about your most recent birth			
1	After the baby was born what instrument was used to cut the cord?	_____ 998 = Don't know → 999 = Don't remember →	 Q3 Q3
2	SKIP IF DELIVERED IN A HEALTH FACILITY Was it boiled?	1 = Yes 2 = No 3 = Came from delivery kit/bag 4 = Don't know 5 = Don't remember	
3	What was used to tie the cord?	_____ 998 = Don't know → 999 = Don't remember →	 Q5 Q5
4	SKIP IF DELIVERED IN A HEALTH FACILITY Was it boiled?	1 = Yes 2 = No 3 = Don't know 4 = Don't remember	
5	Was anything put on the cord?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q7 Q7 Q7
6	What was put on the cord?	_____ 998 = Don't know 999 = Don't remember	
7	Did the baby cry right after birth?	1 = Yes 2 = No 3 = Don't know 4 = Don't remember	
8	Where was the baby put after it came out?	_____ 998 = Don't know 999 = Don't remember	

9	Was the baby wiped after birth?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q12 Q12 Q12
10	How long after birth was the baby dried?	_____ *Probe: What do you mean?* _____ *Code:* 1 = 1-5 minutes 2 = 6-15 minutes 3 = 16-30 minutes 4 = more than 30 minutes 5 = Don't know 6 = Don't remember	
11	Was the baby dried before the placenta was delivered?	1 = Before 2 = After *Probe: How do you know that / what did you see?* _____ 3 = Don't know 4 = Don't remember	
12	Was the baby wrapped in a dry cloth?	1 = Yes *Probe: How do you know that / what did you see?* _____ 2 = No → 3 = Don't know → 4 = Don't remember →	Q15 Q15 Q15
13	How long after birth was the baby wrapped?	_____ *Probe: What do you mean?* _____ *Code:* 1 = 1-5 minutes 2 = 6-15 minutes 3 = 16-30 minutes 4 = more than 30 minutes 5 = Don't know 6 = Don't remember	
14	Was the baby wrapped before the placenta came out?	1 = Before 2 = After *Probe: How do you know that / what did you see?* _____ 3 = Don't know 4 = Don't remember	

15	Was the baby's head covered with anything?	1 = Yes 2 = No 3 = Don't know 4 = Don't remember	
16	How long after birth was the baby bathed for the first time?	_____ *Probe: What do you mean?* _____ *Code:* 1 = Less than 1 hour 2 = 1-6 hours 3 = More than 6 hours 4 = 6-24 hours 5 = More than 24 hours 6 = Don't know 7 = Don't remember	

Part B: Postpartum care for the mother			
We have a few questions to ask you about the health checks you had after your most recent birth			
17	After the birth of your baby, did any health care provider check YOUR health?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q34 Q34 Q34
18	Was it before or after discharge from the facility / when you left the TBA's house / when the person who helped you left the house?	1 = Before 2 = After 3 = Don't know 4 = Don't remember	
19	Who gave you the health check? *Probe: What type of health care provider?*	_____ 998 = Don't know 999 = Don't remember	
20	How long after the delivery was this done?	_____ *Probe: What do you mean?* _____ *Code:* |__|__| Minutes |__|__| Hours |__|__| Days |__|__| Weeks |__|__| Months 5 = Don't know 6 = Don't remember	

We would like to know what the health care provider did to check on your health			
21	Did the health care provider take your temperature?	1 = Yes 2 = No 3 = Don't know 4 = Don't remember	
22	Did the health care provider check for bleeding?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q24 Q24 Q24
23	How did the health care provider do that?	_____ _____ _____	
24	Did the health care provider check your breasts?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q26 Q26 Q26
25	What did the health care provider do exactly?	_____ _____ _____	
26	Did the health care provider check your blood pressure?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q28 Q28 Q28
27	What did the health care provider do exactly?	_____ _____ _____	
Finally, we would like to know about the advice you were given during the checkup			
28	Did the health care provider talk to you about danger signs after delivery or when you need to see a doctor?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q30 Q30 Q30
29	Can you give an example of what was said?	_____ _____ _____	
30	Did the health care provider talk to you about breastfeeding?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q32 Q32 Q32
31	Can you give an example of what was said?	_____ _____ _____	
32	Did the health care provider talk to you about family planning?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q34 Q34 Q34
33	Can you give an example of what was said?	_____ _____ _____	

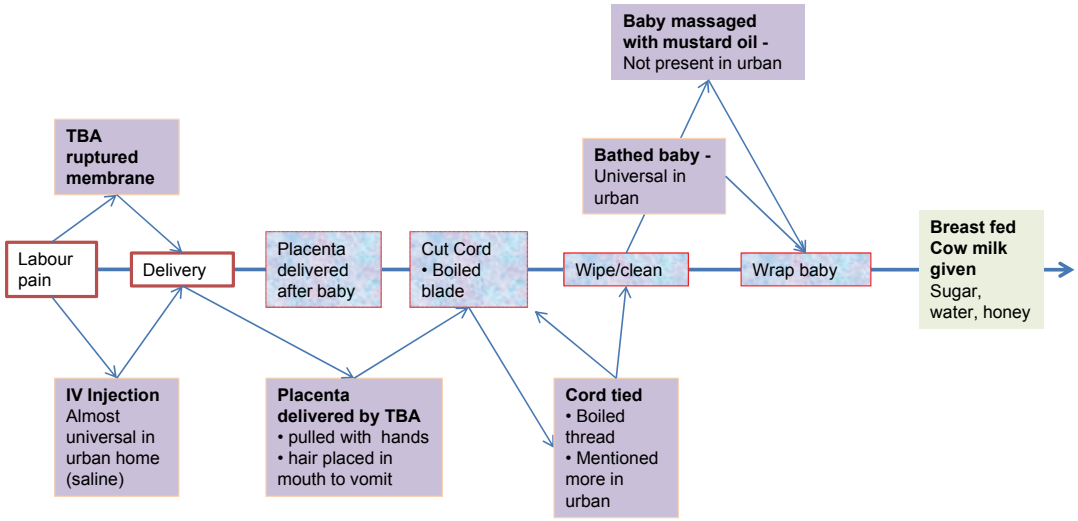
Part C: Postnatal care for the newborn			
We have a few questions to ask you about the health checks your most recent baby had after it was born			
34	After the birth of your baby, did any health care provider check HIS/HER health?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q53 Q53 Q53
35	Was it before or after discharge from the facility / when you left the TBAs house / when the person who helped you left the house?	1 = Before 2 = After 3 = Don't know 4 = Don't remember	
36	Who gave your baby the health check? *Probe: What type of health care provider?*	_____ 998 = Don't know 999 = Don't remember	
37	How long after the delivery was this done?	_____ *Probe: What do you mean?* _____ *Code:* |__|__| Hours |__|__| Hours |__|__| Days |__|__| Weeks |__|__| Months 998 = Don't know 999 = Don't remember	
38	Where was the health check conducted?	1 = Health facility _____ 2 = Mobile clinic 3 = TBA's house 4 = Woman's house 5 = Other _____ 6 = Don't know 7 = Don't remember	

We would like to know what the health care provider did to check on your baby's health			
39	What did the health care provider do to the baby during the health check?	_____ _____ _____ _____ _____ _____ _____ _____ _____	
40	Did the health care provider take your baby's temperature?	1 = Yes 2 = No 3 = Don't know 4 = Don't remember	
41	Did the health care provider check your baby's breathing?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q43 Q43 Q43
42	What did the health care provider do exactly?	_____ _____ _____	
43	Did the health care provider check your baby's umbilical cord?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q45 Q45 Q45
44	What did the health care provider do exactly?	_____ _____ _____	
45	Did the health care provider check if your baby was feeding normally?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q47 Q47 Q47
46	What did the health care provider do exactly?	_____ _____ _____	
47	Did the health care provider ask if the baby had any convulsions?	1 = Yes 2 = No 3 = Don't know 4 = Don't remember	
Finally, we would like to know about the advice you were given about your baby			
48	Did the health care provider advise you on baby care?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q50 Q50 Q50

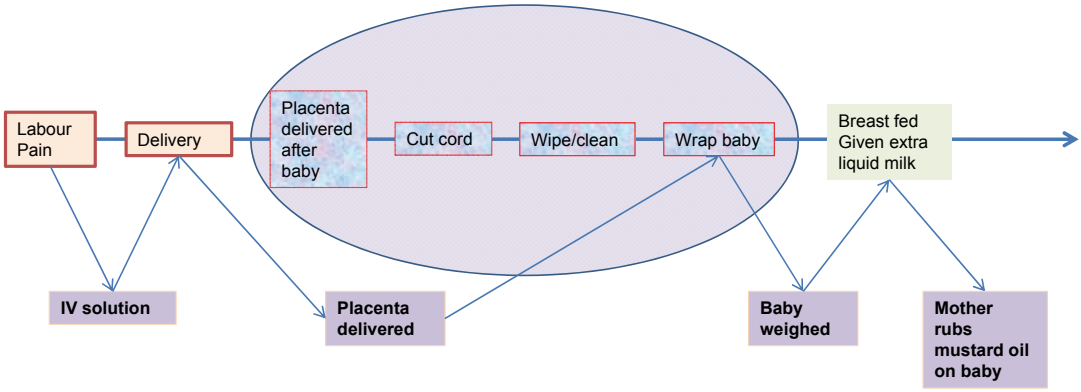
49	What did the health care provider tell you exactly?	_____ _____ _____	
50	Did the health care provider advise you about immunizations?	1 = Yes 2 = No → 3 = Don't know → 4 = Don't remember →	 Q53 Q53 Q53
51	What did the health care provider tell you exactly?	_____ _____ _____	
52	How many times did the baby get a health check in the first week after birth? *Probe: Postnatal health checks and not checks for something else*	|__|__| Times 998 = Don't know 999 = Don't remember	
Part D: Final comments			
53	If a mother's answer to any question seems important to our study, please write below what the mother said and indicate the question number.		

APPENDIX C

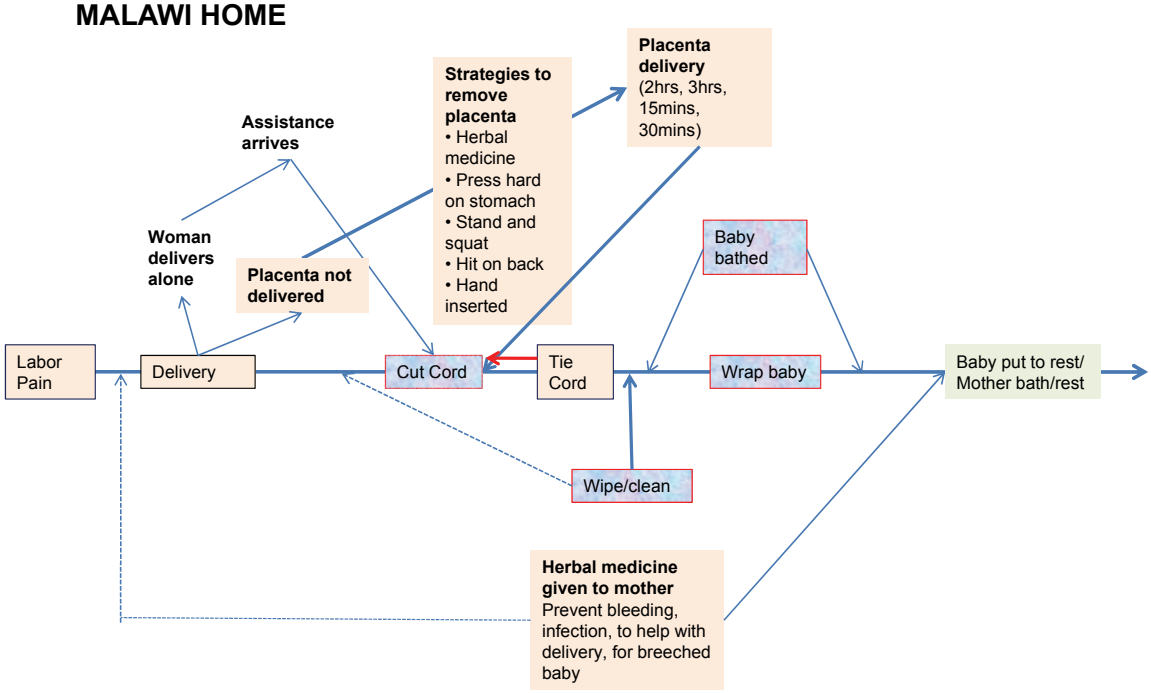
BANGLADESH HOME
rural/urban



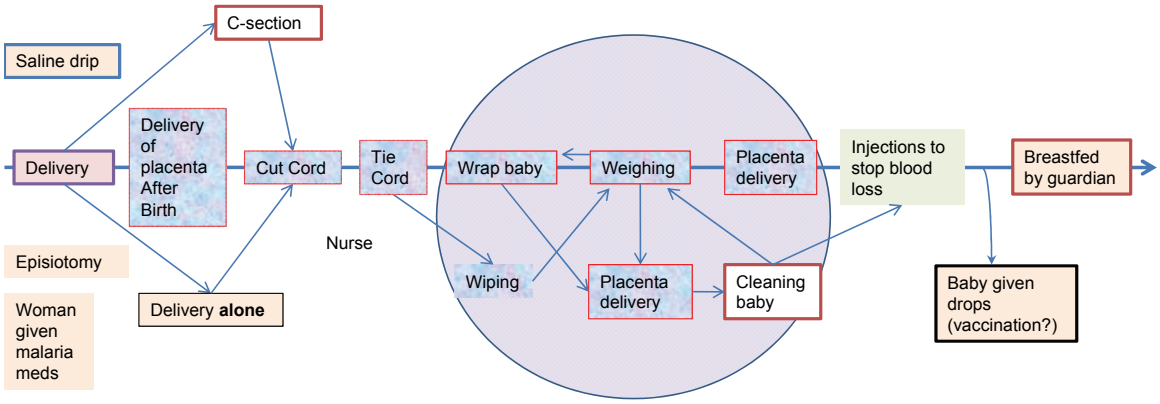
BANGLADESH FACILITY



MALAWI HOME



MALAWI FACILITY



APPENDIX D

Terms relevant to delivery and newborn care

Mchinji District is a predominantly Chichewa speaking district in central-western Malawi. The district borders both Zambia and Mozambique, and it has a small population of people other than Chewa, including Ngoni, Senga, and Yao who speak a range of other Bantu languages. This is reflected in the range of terms that were identified for some of the key concepts in this study.

No district in Malawi is typical in terms of culture or language. As a result, the terms highlighted below may be understood very well in other districts, particularly those that are predominantly Chichewa speaking, but there may also be some terms that are less well understood in these areas. This list forms a useful starting point for developing questions to ask across the whole of Malawi, but it will still be important to conduct local pretesting to assess which terms are not understood and to change them accordingly.

During the three-day feedback session with supervisors and interviewers, the terms used by respondents in the narrative and structured questionnaire sections were closely examined. The group then prepared a glossary of key terms related to labour, delivery, newborn care, and postnatal checkups that are likely to be used in survey questions or in the answers that women give to survey questions in Chichewa.

Chichewa translations of key terms in English

Labour pains

Matenda is most commonly understood in all areas. *Kudwala* is also well understood. Recommend to use: Matenda.

After birth pains

In the peri-urban areas around the main district town they commonly use *cham'mimba.* In the more rural areas they use *cham'mimba* and *chiteta.* However, some may not know *chiteta*. Recommend to use: Cham'mimba (just clarify that it is after delivery).

Giving birth

Kuchira is the most commonly used term. *Kubereka* is used sometimes, but mostly for animals rather than humans. However, even in Senga-speaking areas of the district, they will understand *kuchira*. Recommend to use: Kuchira.

Newborn

Mwana and *khanda.* People would understand either term, but *khanda* is more correct for a newborn. *Mwana* is, strictly speaking, an older child. Recommend to use: Khanda.

Placenta

Matenda and *nsengwa* are the most commonly used words in Chichewa and will both be well understood. Recommend to use: matenda or nsengwa.

Umbilical cord

In the rural areas, some people would understand *ntchofu,* and some *mchombo.* In the peri-urban areas around the main district town, most people would understand *mchombo*. Some people call the cord, while still attached to the placenta, *ntchofu*. But when the cord is cut it becomes *mchombo*, and the remaining part, the placenta, becomes the *matenda*. Recommend to use: Mchombo or ntchofu.

Care of the cord

Cord care includes cutting and tying, or clamping. *Kusamala* is commonly used. Recommend to use: Kusamala.

Cord cutting

Most commonly people say *kudula mchombo.* Some people may be confused about *mchombo* because the cord is conceptualized to become *mchombo* only after it is cut. Recommend to use: Kudula mchombo or kudula ntchofu.

To tie the cord

Recommend to use: *Kumanga.*

String or thread for cord tying

Recommend to use: *Ulusi*.

To clamp the cord

Recommend to use: *Kupana.*

Clamp

Women often do not know what this instrument actually is, for it is used only in the hospital. Several terms have been introduced into Chichewa to translate this term: *Mascisors, maspanna*, and *mapegi*. They may be confused if only one of these terms is used so it is best to list all the terms. Recommend to use: Mascisors or maspanna or mapegi.

Cleaning

Cleaning, wiping, covering, and wrapping were referred to in many narratives as one thing—*kukonzakonza.* Strictly speaking it means taking care of the baby. Upon probing, women are able to distinguish between cleaning/wiping and wrapping. In referring to cleaning/wiping, women will commonly use *kupukuta.* Recommend to use: Kupukuta.

Wiping

Cleaning, wiping, covering, and wrapping were referred to in many narratives as one thing—*kukonzakonza.* Strictly speaking, it means taking care of the baby. Upon probing women are able to distinguish between cleaning/wiping and wrapping. In referring to wiping, women will commonly use *kupukuta. Kupukuta* is also used for cleaning. It does not imply the use of any water. Recommend to use: Kupukuta.

Covering (the baby)

Cleaning, wiping, covering and wrapping were referred to in many narratives as one thing—*kukonzakonza.* Strictly speaking, it means taking care of the baby. Upon probing

women are able to distinguish between cleaning/wiping and wrapping. In referring to covering up, women will commonly use *kuvungavunga*. In other areas they might use *kufundika.* Recommend to use: *Kuvungavunga.*

Wrapping

Cleaning, wiping, covering, and wrapping were referred to in many narratives as one thing—*kukonzakonza.* Strictly speaking, it means taking care of the baby. Upon probing women are able to distinguish between cleaning/wiping and wrapping. In referring to wrapping the baby, women will commonly use *kukulunga.* Recommend to use: Kukulunga.

Wrappers or cloths

Recommend to use: *Chitenje* (word for cloth in general; *zitenje* is plural)

Bathing

Kusamba is most commonly understood. However, *kusamba* is also the term for menstruation. Recommend to use: Kusamba (contextualise this as bathing the baby to avoid confusion, as in *kusamba khanda*).

Traditional medicine

Zitsamba is most commonly used and universally understood. Recommend to use: Zitsamba.

Feuds/grudges among family members that can lead to problems for the woman during delivery through sorcery.

The most commonly used term in this area is *kuthemberera*. This relates most closely to a curse. *Kuthemberera* might also be a curse from God, so better to use *kuthembererana*, which indicates that the curse comes from within the community. Recommend to use: Kuthembererana.

Traditional Birth Attendant (TBA)

Everyone will understand *azamba. Dokotala* is also used but could be confusing in some contexts. Recommend to use: Azamba.

Nurse

Recommend to use: *Anesi.*

To do a health check

Recommend to use: *Kupima* or *kuyesa.*

Fever

Malungo is the most common term, but it also means malaria and leads to a lot of confusion. It might be better to use *kuthentha kwa thupi,* which is more specific. Recommend to use: *Kuthentha kwa nthupi.*

Summary

These terms in Chichewa are all drawn from the recorded conversations generated in the narrative section in which women described their experiences in their own terms. Their use was also verified in the structured questionnaire section. Therefore, these are the terms recommended for use in survey questions about delivery and newborn care for any survey questions in Chichewa.

Some events related to delivery and newborn care are not considered as distinct by women in Malawi as they are for medical researchers. That is, in observing social interactions or individual actions, the ways the actions are subdivided are not the same. One example is 'caring for the newborn', which is *kukonzakonza* in Chichewa. Mothers in Malawi think in terms of the overall care given to newborns, which involves wiping and wrapping as well as checking to see how they looked. Because of our concern with hypothermia, we divide such care into wiping or cleaning, perhaps covering, and wrapping. In Chichewa all these actions can be covered by one verb.

Survey questions about newborn care have usually asked about the 'drying' of the newborn. In Chichewa, the verbs associated with drying are better translated as 'wiping', or 'cleaning'. Because the action of 'drying' involves cleaning without the use of water, we recommend that survey questions in English use the term wiping rather than drying.

APPENDIX E

Terms relevant to delivery and newborn care

Although virtually everyone in Bangladesh speaks Bangla, or Bengali, local dialects vary somewhat in the terms used for describing the experience of giving birth and caring for a newborn. Thus in some rural households, women used terms different from standard Bengali terms, and the interviewers asked for help in translating. Interviewers were able to find ways to make the questions clear to respondents and to understand what women told them.

The list of terms found below shows the terms that were most often used by women during the interviews in the narrative section. These terms were part of a glossary prepared as part of the summary of the events for each woman interviewed. The terms can serve as a reference for the translation of survey questions related to delivery and newborn care.

The team found that women in rural areas talked more about their experiences than did women from Dhaka, so rural interviews generally lasted much longer. The interviewers in the rural area often found it difficult to speak with the mother alone, for friends and family members wanted to listen. In addition, the study team found that it took a great deal of time to locate women who had given birth in a health facility in the rural area, because most women deliver at their home or that of their mother.

Bangla translations of key terms in English

Giving birth	Khalash
The delivery	Proshob
Labour pains	Betha
Water breaking	Pani vanga
Placenta	Phul
Umbilical cord	Nari
Saline solution	Saline
Cord cutting	Nari kat
Thread	Shuta
To tie the cord	Nari Bandhar Jonno Atkano
Clamp	Nari Bandha
To clean	Porishkar
To clean with water	Dhowano

To wipe with a cloth	Mochano
To wrap	Morano
To cover	Dhaka
Warm	Om
Bath	Gosol
Bathing	Gosol
Soft cotton cloth	Naykra
A knitted cloth	Katha
A rug/carpet made of leaves	Pati
Plastic sheet	Uriya
Intravenous injection	Siraye
Traditional medicine	Kobirazi Oushudh
Nurses Aid	Aaya
Bag made of jute	Chala
Right away	Sathei sathei
Traditional Birth Attendant	Dai
Newborn baby	Baccha
Doctor	Daktar
Nurse	Sister
Health care provider	Daktar
Fever	Jor
To do a health check	Shastho Porikha Kora

Summary

The English terms found above sometimes elicited several possible translations into Bangla. The study team examined the possible translations and chose the one most commonly given. The usage of the terms in the narrative section was later confirmed in the structured questionnaire section. It would be useful to compare these recommended terms with those used in recent surveys that included a section on newborn care in Bangladesh such as the 2007 DHS.