2012 Liberia Health Outcome Monitoring Report

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LOT QUALITY ASSURANCE SAMPLING SURVEY IN LIBERIA

MEASURE Evaluation is funded by the U.S. Agency for International Development (USAID) under terms of Cooperative Agreement GHA-A-00-08-00003-00 and implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with Futures Group, ICF International, John Snow, Inc., Management Sciences for Health, and Tulane University. The views expressed in this publication do not necessarily reflect the views of USAID or the United States government. TR-12-88 (December 2012).

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Acknowledgements

USAID and MEASURE Evaluation acknowledge the hard work, enthusiasm, and dedication of the members of the County Health and Social Welfare Teams from Bomi, Bong, Lofa, Nimba, Montserrado, Margibi, and Grand Bassa. Their effort was key in making the 2012 Health Outcome Monitoring exercise using Lot Quality Assurance Sampling (LQAS) the success it was. Our gratitude is also extended to the Ministry of Health and Social Welfare Health Management Information System Unit for their involvement under the leadership of Assistant Minister Mr. C. Sanford Wesseh, whose strategic and practical participation was critical to the 2012 implementation of LQAS.

Also we acknowledge the active involvement of the following implementing partners in this activity: Rebuilding Basic Health Services (RBHS), Merlin, Save the Children, International Rescue Committee, and Project Management Unit.

Finally we acknowledge the invaluable support received from Subah-Belleh Associates (SBA) to organize and manage the necessary logistics for conducting the LQAS survey in seven counties.

Section 1 Overview

The Ministry of Health and Social Welfare (MOHSW) in Liberia is developing an annual health behavior and health outcome monitoring system using Lot Quality Assurance Sampling (LQAS).

LQAS is a relatively rapid and inexpensive approach to data collection for monitoring and evaluation purposes. It can be used to empower program managers to assess program performance, enabling them to determine whether program objectives and targets have been achieved within a specific unit of interest (a geographical area, a facility, an organization, or any other catchment area). The LQAS data collection method and simplified data analysis provides a viable alternative to traditional surveys. It allows for smaller sample sizes than standard probability surveys, and the lower associated costs allow for more frequent sampling. Thus, the speedy collection and ready availability of data from LQAS can help program managers use data as evidence to inform decisions, help in the planning and budgeting process and in formulating targeted interventions.

With LQAS, the entire program area (or catchment area) is divided into meaningful sub-divisions or "lots." The lot is usually defined as a program supervision area, and the measure is binary (e.g., yes/no, or acceptable/not acceptable) for each indicator included in the study. For example, to determine the status of immunization coverage, "acceptability" is determined by whether the "lot" (supervision area) meets the target for immunization coverage—yes/no. Information from each lot can then be aggregated to provide a coverage estimate for the entire catchment area.

LQAS provides three key pieces of information. It identifies 1) what the problem is because of indicators selected and their coverage estimates, 2) how big the problem is because of the comparison of responses to target levels set for selected indicators, and 3) where the problem is because of the results available by geographic sub-division. However, LQAS does not offer information on why there is problem. Other sources of information are needed to explain the underlying reasons for quantitative results from an LQAS survey, and to identify strategies for improvement.

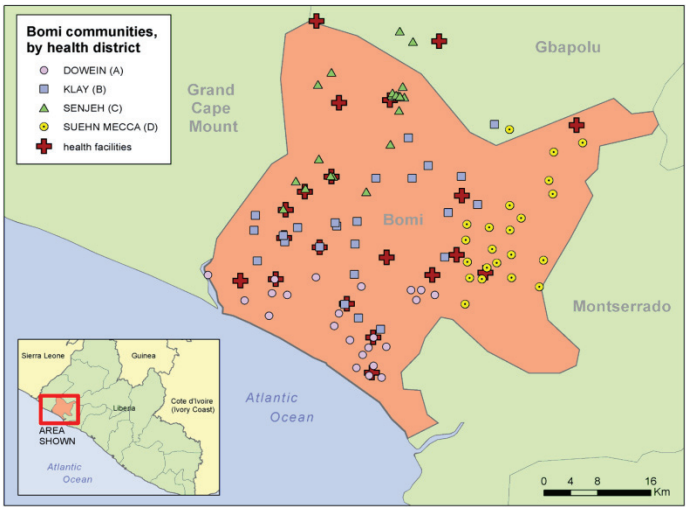
It is important to clarify that the LQAS approach is not intended to measure incremental change over time. It is designed to assess whether a target has been "met" or "not met" in a designated program supervision area. The small sample size that is required for providing binary (met/not met, acceptable/unacceptable) estimates is a key feature of an LQAS. However, the small sample size at the lot level means that confidence intervals around point estimates at the aggregate level will be wide, such that changes in these point estimates do not register as statistically significant—unless they are very large (e.g., 40–50% increase or decrease).

Section 2 2012 Implementation

2.1 STUDY PROTOCOL

Seven separate LQAS surveys were completed in the counties of Bomi, Bong, Grand Bassa, Lofa Margibi, Montserrado, and Nimba. LQAS methodology requires well-defined, programmatically meaningful "lots" (also known as "supervision areas") for the collection, analysis and interpretation of data. In Liberia, the designated lots, or supervision areas (SA) in each county are defined by health district boundaries or a combination of health districts.

Figure 1 Bomi "Lot" Designation



2.1.1 Stage 1: Selection of supervision areas

For the 2012 LQAS, County Health and Social Welfare Teams (CHSWT) identified the health districts or combination of health districts as supervision areas within each of the counties. These supervision areas constitute the primary sampling units (PSU), and ranged between 4 and 6 per county, with a minimum sample size of 95. The number of supervision areas selected was dependent upon the number of health districts in the county and the management of programs within those health districts. Details of the history and statistics behind this method have been discussed elsewhere.[1]

[1] Lemeshow, S. and Taber, S. (1991). Lot Quality Assurance Sampling: Single and double Sampling Plans. *World Health Statistics Quarterly* 44, 115–132.

2.1.2 Stage 2: Program Areas, Target Population, and Indicator Selection

At a national stakeholder meeting on September 7, 2011, participants decided that the second round of the LQAS-based outcome monitoring survey would include the same six program areas that were covered in the 2011 LQAS pilot:

» family planning (FP);
» nutrition;
» malaria;
» maternal health;
» child health; and
» water, sanitation, and hygiene (WASH).

A core set of indicators within the six program areas were approved by the national stakeholders in addition to county-selected indicators. A total of 33 indicators were selected (see Appendix II), the majority of which were used in the previous LQAS survey. Several of the indicators and their definitions were changed in the 2012 implementation based on the lessons learned from the previous round. The definitions of the following indicators were changed:

Table 1 New Indicator Definitions

2011 Indicator	2012 Indicator	Change
Mothers of children age 0–23 months receiving adequate iron and folic acid tablets during last pregnancy.	Mothers of children age 0–23 months who received iron and folic acid tablets during last pregnancy.	The word "adequate" was removed, and mothers were eligible to be counted in this indicator if they ever received any iron and folic acid. This change was because the majority of mothers did not make recommended follow up visits and therefore did not receive the adequate dosage of pills during their pregnancy.
Children age 6–23 months fed age-appropriate food during the last 24 hours.	Children age 6–23 months receiving a minimum acceptable diet.	The component of frequency was added to the definition to bring the indicator in line with international standards.
Children 0–59 months living in households with access to improved sanitation.	Children age 0–59 months living in households with access to improved sanitation.	While the indicator statement did not change, the definition changed to include both improved toilet facilities and improved household waste disposal. Due to the infrequency of these two components occurring simultaneously as required by the indicator, the results for both improved toilet facilities and improved household waste disposal are shown separately in addition to the combined indicator.

The two child health indicators—*'Percent of children age 0-59 months who are underweight (-2SD for the median weight for age)'* and *'Percent of children age 0–23 months who are Low Birth Weight (<2500 gms)'*—were approved indicators for Round 2, but were not calculated because the information was not available. The source of the data for these indicators is the child health card and there were insufficient observations of recorded information to calculate an estimate for

these indicators. This round of implementation noted only 50.1% of child health cards had a record of the child's birth weight.

In addition to these changes, the following indicators were new in the 2012 implementation:

» Women 15–49 years meeting minimum acceptable dietary diversity.
» Prevalence of households with moderate to severe hunger.
» Mothers of children 0–23 months who made/received at least 1 postnatal care visit after the last birth.
» Mothers of children 0–23 months who made/received at least 1 postnatal care visit within 6 weeks after delivery.

Target populations were determined from the indicators selected. As such, nine sub-groups of respondents were defined for this survey. Each selected sample point required the completion of ten sub-questionnaires by the nine identified groups. The interviewer was responsible for completing the entire questionnaire packet, regardless of how many houses were needed to identify eligible respondents. While the overall number of questions in a LQAS survey is often few compared to those for a standard probability survey, the length of the interviews is affected by the time spent finding and recruiting eligible respondents.

LQAS sub-groups included:

» women of reproductive age (15–49 years),
» women with children aged 0–59 months,
» women with children aged 0–5 months,
» women with children aged 0–23 months
» women with children aged 12–23 months,
» women with children aged 6–23 months,
» women with children aged 0–59 months who had a diarrheal episode in the previous two weeks,
» women with children aged 0–59 months who had a febrile episode in the previous two weeks, and
» women with children aged 0–59 months who had cough and difficulty breathing in the previous two weeks.

2.1.3 Stage 3: Sample Design

Population data from the 2008 Population and Housing Census of Liberia were obtained for these counties from the Liberia Institute of Statistics and Geo-Information Services (LISGIS) and were used in designing the sample.

Table 2 Sample Size for Outcome Monitoring Using LQAS

County	Number of supervision areas	Number of interviews per SA	Total interviews per SA
Bomi	4	24	96
Bong	6	19	114
Lofa	6	19	114
Nimba	6	19	114
Grand Bassa	6	19	114
Margibi	4	24	96
Montserrado	5	19	95
LQAS Total	**37**		**743**

For each county or catchment area, all indicators included in the study have a sample size between 95 and 114. A minimum denominator of 95 within the county (catchment area) as well as a minimum of 19 sampling points within each supervision area (health district) were required in order to provide enough observations for an acceptable level of statistical error for each indicator and for making management decisions. In catchment areas with fewer than five supervision areas (Bomi and Margibi had four supervision areas each), a denominator of 96 was completed. This ensured that there were equal numbers of sample points within each supervision area and that the denominator for each indicator is equal to or greater than 95. For counties with 6 supervision areas, 19 interviews per area were completed for a county-level denominator of 114.

The sample points (between 95 and 114 depending on the county) were randomly selected based on probability proportional to population size. The sample was computer-generated with larger communities being more likely to be selected than smaller communities, but all communities were eligible for selection.

2.1.4 Stage 4: Target Setting

A target setting exercise was carried out with CHSWTs in late 2011. In defining a target for each of the indicators for 2012, CHSWTs used available Health Management Information System (HMIS) data, or 2011 LQAS estimates where applicable, or other appropriate data. With a newly-added survey indicator, where a target was not readily available for assessing comparative performance among supervision areas within that county; the average calculated for that county was used as the benchmark.

2.1.5 Stage 5: Selecting Houses

A simple random sample of 19 or 24 sample points were chosen within each supervision area. If the selected sample point or community had more than 30 houses, the community was divided into two to five sections with approximately the same number of houses. A random selection of a section was done, usually

with the spin of a bottle or a pen. A number between one and the number of houses in that section was selected from a random number table; the interviewer then went to the middle of that section, spun a bottle for the starting direction and picked the starting house that corresponded to that random number.

At the house identified as the starting point, interviewers determined whether the woman living there was eligible to be interviewed and in which of the LQAS sub-groups she was eligible. When the appropriate interviews were completed, the interviewer then proceeded to the next closest house with the nearest door to seek out eligible women for completing the remaining sub-questionnaires in the packet for that sample point. This approach is called "parallel sampling" and is unique to LQAS. This method ensures that each survey indicator has the same number of responses in the denominator regardless of house composition in the identified starting point.

2.1.6 LQAS Results

1. An average coverage estimate for each indicator for the county (county is the total area covered by the four or more selected and contiguous supervision areas). The coverage estimates will have a precision less than or equal to +/– 10%, and the aggregate measure will be weighted by supervision area population size.

2. A "yes" or "no" answer to whether the supervision area is within an acceptable range of the specified performance benchmarks (i.e., targets) in each of the selected supervision areas within a county. Alternatively, whether the supervision area is within an acceptable range of the "average coverage" for the county, as determined by the decision rule for average coverage.

   A decision rule is used to determine whether a supervision area is acceptable/unacceptable based on either 1) indicator targets or 2) the indicator's average for the county. In addition, by combining the 4 or more supervision areas for a county, the denominator will be no less than 95 (5×19, 6×19, or 4×24). This larger sample size makes it possible to calculate a coverage estimate at the county level, taking into account population sizes of each supervision area.

2.2 TRAINING FOR FIELD WORK AND DATA ENTRY

Two-week training workshops were conducted for CHSWTs and interviewers who were hired by Subah-Belleh Associates (SBA), the local consultancy firm that was contracted to assist with logistics for the LQAS activity. From March 5 to March 16, 2012, 72 persons participated in a three-part exercise covering; LQAS methodology, questionnaire content, and LQAS data collection protocol and a field-based practice session. For the first four days, the participants had classroom-based lectures, discussions, and activities that were designed to build capacity in implementing a LQAS survey of those especially from CHSWT and MOHSW HMIS personnel to begin the transition of this exercise from MEASURE Evaluation to the MOHSW and CHSWT.

At the end of each day a mini quiz was administered, and each morning the quiz was reviewed. On two Fridays, March 9 and 16, the teams travelled to Sass Town and Gbah Town in Bomi County and 12th Street in Sinkor, Monrovia, respectively, to conduct field practice. The field-based session focused on techniques for random selection of houses within a community and of women interviewees; conducting parallel sampling of interviewees; survey administration and protocols; data recording; and oversight of survey teams by designated team leaders.

On both Fridays, the participants and trainers discussed the field exercise, shared observations, and discussed what adjustments needed to be made. Roles and responsibilities of the data collectors, supervisors, and Data Quality Assurance (DQA) Teams were also discussed. Training completion certificates were given to each participant by the Assistant Minister of Health, Mr. C. Sanford Wesseh, in a short ceremony after which 28 survey interviewers (four per team) and seven supervisors (one per team) were selected for the seven county survey teams. The teams then met with the DQA teams to discuss logistics.

Table 3 Number of LQAS Training Participants

Organizations	Number of training participants
Bomi CHSWT	4
Grand Bassa CHSWT	4
Nimba CHSWT	5
Bong CHSWT	4
Lofa CHSWT	3
Montserrado CHSWT	2
Margibi CHSWT	5
MOHSW HMIS Unit	3
Implementing Partners	5
University of Liberia (Pacific International Research and Evaluation)	4
SBA Recruits	33
TOTAL	**72**

Data entry training was conducted April 2–6, 2012 in Monrovia. There were 21 participants, nine of whom had been invited by SBA, six from the MOHSW and six from the CHSWTs. The training covered the basics of Census and Survey Processing System (CSPro), a suite of computer applications used for entering, editing, tabulating, and disseminating data from censuses and surveys. Participants learned to create simple data entry applications and to use the CSPro application for data entry, export, and analysis. Instruction was very practical, with CSPro used to enter data from LQAS sub-questionnaire packets that had been completed during training field practice in Sass Town and Sinkor.

2.3 FIELD WORK

Field work was conducted in all seven counties from March 19 to April 20, 2012. Among the 65 interviewers involved, 743 questionnaire packets were completed in the 37 supervision areas across the seven counties.

A national polio immunization campaign, undertaken March 23–30, meant that additional interviewers were needed to replace the CHSWT team members who were also involved in the polio immunization campaign. This was the case except for two counties—Grand Bassa, where the CHSWT had already established a separate team to work on the polio immunization; and Bong where due to other county engagements at the time of the LQAS survey, CHSWT staff members who had gone through the LQAS survey training could not participate in the actual data collection. In their absence, a team of SBA hires collected the data.

Each survey team was supplied with 95 to 114 pre-coded questionnaire packets and replacement questionnaires and was equipped with a vehicle and driver.

DQA Teams assigned to county teams were responsible for observing how each survey team practiced random selection techniques; reviewing content and quality of team's completed questionnaires; reviewing field work performance of all seven survey teams; and facilitating delivery of completed questionnaires to Monrovia for data entry. If any questionnaire was found to have inconsistent or missing information, interviewers were asked to return to the sample point to correct the mistake. During the course of the five-week data collection exercise, an average of 91% of questionnaires were assessed as acceptable; meaning they did not need to be returned to the field for correction.

2.4 DATA ENTRY AND ANALYSIS

By the end of the day on Friday, April 20, the first round of data entry for all 743 questionnaire packets was completed. SBA's data entry supervisor confirmed this through a cross tabulation of all entered data records. During the data entry period (April 10–20), data entry clerks found errors on a total of eleven questionnaire packages that were significant enough to warrant return to the field for clarification or correction. The DQA teams worked closely with the Data Entry team to resolve these issues as they arose.

During May 10–20, 2012, fifteen participants attended a workshop designed to train persons in ho w to analyze LQAS data. Topics covered during the workshop included: a review of the LQAS methodology; how to transform raw data from questionnaires to analyzable data; how to correctly use the LQAS decision rule table to determine whether lots had met program targets; how to analyze LQAS data at the lot-level using low tech methods (pencil/paper) and Microsoft Excel; how to use basic and logical functions in Microsoft Excel, how to calculate a weighted county estimate using Microsoft Excel; and how to graph LQAS data using Microsoft Excel.

2.5 DATA DISSEMINATION AND USE

From June 1 to 19, data-use workshops were conducted in each of the seven counties. One-day workshops in Bomi, Monsterrado, Margibi and Grand Bassa started with a brief introduction to the LQAS methodology and the different implementation activities that occurred from September 2011 to May 2012. Thereafter, there was an in-depth discussion and interpretation of the preliminary results. In the afternoon, there was a discussion of data use and an introduction to the *Linking Data to Action Framework* with an action planning exercise based on data that was discussed during the sharing of the preliminary results.

The *Linking Data to Action Framework* is a management tool and framework that assists project managers and stakeholders to use the data they collect to make informed programmatic decisions. It is a step-by-step process that has the user look at the findings of data sources, analyze the findings with the relevant stakeholders, determine a decision or action that needs to be taken based upon the evidence, outline the steps required to implement the action or decision, and then communicate the actions to the respective stakeholders. In each of the seven county meetings, the CHSWT looked at relevant data and completed a mock action plan based on their analysis of the data. CHSWTs were encouraged to apply the framework using multiple data sources as they prepared their County Operational Plans.

In Nimba, Lofa, and Bong counties, where one-and-a-half day workshops were held, the Rebuilding Basic Health Services (RBHS) project, led by JSI, participated in the workshops. Assistant Minister of Health, Mr. C. Sanford Wesseh, participated in two county meetings in Bong and Lofa. Following the brief introduction to the LQAS methodology and sharing of the LQAS findings, the RBHS project presented findings from the Performance of Routine Information System Management (PRISM) assessment that was conducted in those three counties.

For those three counties, the data use exercise then took on an added dimension with a comparison of similar indicators from the Health Management Information System (HMIS) with those in the LQAS survey. Participants were asked to note the differences in the numerators and denominators and specify the data quality issues that may exist with each data source. The participants discussed the major finding(s) despite the differences and data quality issues, and the *Linking Data to Action Framework* was used in planning for use of information discussed from selected indicator(s).

Thirty-seven national stakeholders participated in the national dissemination meeting held on June 15, 2012 at the MOHSW offices. Results of selected indicators were presented by Assistant Minister Wesseh who also fielded questions from the national stakeholders regarding the methodology, implementation, and issues of institutional capacity building.

Section 3 Results Narrative by Program Area

3.1 MATERNAL HEALTH

Maternal health indicators related to antenatal care (ANC), delivery, and postnatal care provide valuable information on where women in these seven counties of Liberia are accessing services as well as what kind of services they are accessing. Overall, the first antenatal care visit is well attended by women across all seven counties. County averages exceeded expectations surpassing predetermined targets at both the county average level and the near complete success rate of the lots meeting county-specific decision rules.

However, women fail to complete the recommended minimum of four visits throughout the duration of their pregnancy. County averages often did not meet the county-specific targets. CHSWTs suggested reasons for the discrepancy between the first and the second visit such as long waiting times at ANC clinics, community outreach activities providing the same services that women would receive in the clinic, and a lack of health seeking behavior among Liberians in general, particularly those in the agricultural sector.

Because fewer women are receiving the minimum antenatal care, this may reflect in their failure to receive the associated services provided during pregnancy. These services include the distribution of iron and folic acid tablets and the administration of the tetanus vaccine. It is noted that a very high percentage of mothers received iron and folic acid tablets during their last pregnancy which would contradict the previous statement. While all counties met their target for this indicator, the target does not capture the adequacy of the iron and folic acid distribution. It only measured whether women had received any tablets at the first visit or later, but does not reflect the recommended full dosage of a six-month supply. On the other hand, counties failed to reach targets related to tetanus vaccination coverage (either new vaccinations or boosters). Women need to attend the clinic at least twice to receive the two dosages required for full vaccination coverage during a pregnancy (unless they are only receiving a booster).

Use of health facilities as places of delivery continues to be lower than expected across the seven counties. With county averages ranging from 45.1% in Grand Bassa to 79.1% in Lofa, women are not accessing skilled birth attendants at a facility. County-determined targets were generally reflective of the situation previously noted from other sources of data in these seven counties, but many lots failed to reach even the relatively low targets. Most CHSWTs cited the inaccessibility of facilities for women in labor and the proliferation of trained traditional midwives (TTMs) and traditional birth attendants (TBAs) within the communities as reasons for the low coverage. Women often give birth at the home of the TTM or TBA rather than going to a facility, according to the CHSWTs. Low vitamin A administration could be a reflection of low facility births as vitamin A is often given at the time of delivery.

There is wide variation across the counties in the percentage of women attending postnatal visits. Percentages range from 39.2% in Montserrado to 88.2% in Bomi. Of those women who do visit a clinic to check on their health after delivery, the majority do so within the recommended six weeks. CHSWTs mentioned that women often go back to a clinic to check on the health of the child, but are less inclined to go back for a postnatal visit to check on their own health unless they are aware of a problem with their health. This could in part be due to the lack of communication at health facilities as to the importance of postnatal visits. In total, only 54.9% of women in all seven counties were informed that they needed to return to a health facility for a check-up after delivery.

3.2 MALARIA PREVENTION

Almost half the deaths among children below five years in Liberia are attributed to malaria.[2] Despite the efforts to ensure universal distribution of long lasting insecticide-treated nets (LLIN), household ownership is very low. Coverage of households with at least one LLIN ranged from 35.8% in Margibi to 14.5% in Bomi. CHSWTs mentioned different modes of distribution with the majority nets distributed through antenatal clinics and sick child visits. Some CHSWTs mentioned a lack of adequate supply despite a policy of distribution based on the number of sleeping spaces rather than one net per household.

Few children under five years old (less than 50%) sleep under nets due to both the lack of LLIN ownership and knowledge of use and attitudes to bednets, according to CHSWT members. For those households who did report someone sleeping under the bednet, in the majority of instances recorded, the person who slept under the net was a child under five (53.8%). Other household members who slept under the bednet the previous night included mothers (44.9%), fathers (18.0%), other children (11.6%), and another adult (5.2%). LLIN use ranged from 35% in Margibi to 13% in Bomi.

Use of artemisinin-based combination therapy (ACT) as a first line treatment within 24 hours of onset of fever among children under five years old is very low across all seven counties. Estimates range from no responses in Montserrado to 15.8% coverage in Nimba. This is a function of both the definition of the indicator and the MOHSW policy for administration of ACT. First, the indicator requires that ACT be the first line treatment. CHSWT mentioned that most mothers would first visit a local pharmacy or drug store before taking the child to a health center for treatment and some mothers may not know what treatment is received. Second, the indicator requires that treatment is sought within the first 24 hours of onset of symptoms. It was difficult for mothers to determine if medical attention was sought in this period. Finally, the MOHSW now requires that ACT be prescribed for laboratory confirmed cases of malaria, not just for a febrile episode. For the next round of outcome monitoring, stakeholders will have to change the definition of this indicator or exclude it as it is impractical in its current formulation.

[2] Ministry of Health and Social Welfare, 2011 Malaria Indicator Survey.

Intermittent Preventive Treatment (IPT) is an effective means of preventing low birth weight in children by preventing malaria during pregnancy. IPT is administered first at the beginning of the second trimester and then at the beginning of the third trimester. As was noted before, while women completed their first visit in the first trimester of pregnancy, they are not meeting the minimum required number of antenatal visits. Since IPT is administered in these follow up visits, estimates of IPT coverage were affected. Most counties failed to meet their target for this indicator, but all counties had lots that had adequate performance.

3.3 CHILD HEALTH

One of the primary indicators of overall child health is child immunization. The coverage of the DPT3 vaccine is often used as a proxy for vaccination coverage, and all counties averaged 85% coverage and above.[3] However, this high coverage in DPT3 vaccination does not translate into high coverage for complete immunization before a child reaches his first birthday. According to CHSWT members, while many children are receiving a number of these vaccines either at facilities or during vaccination campaigns, low coverage could be due to under-reporting on vaccination cards maintained by the mother. While this may be true, this data reflects both written documentation of vaccination as well as verbal report. Full immunization coverage ranged from 59.6% in Margibi to 88.5% in Bomi.

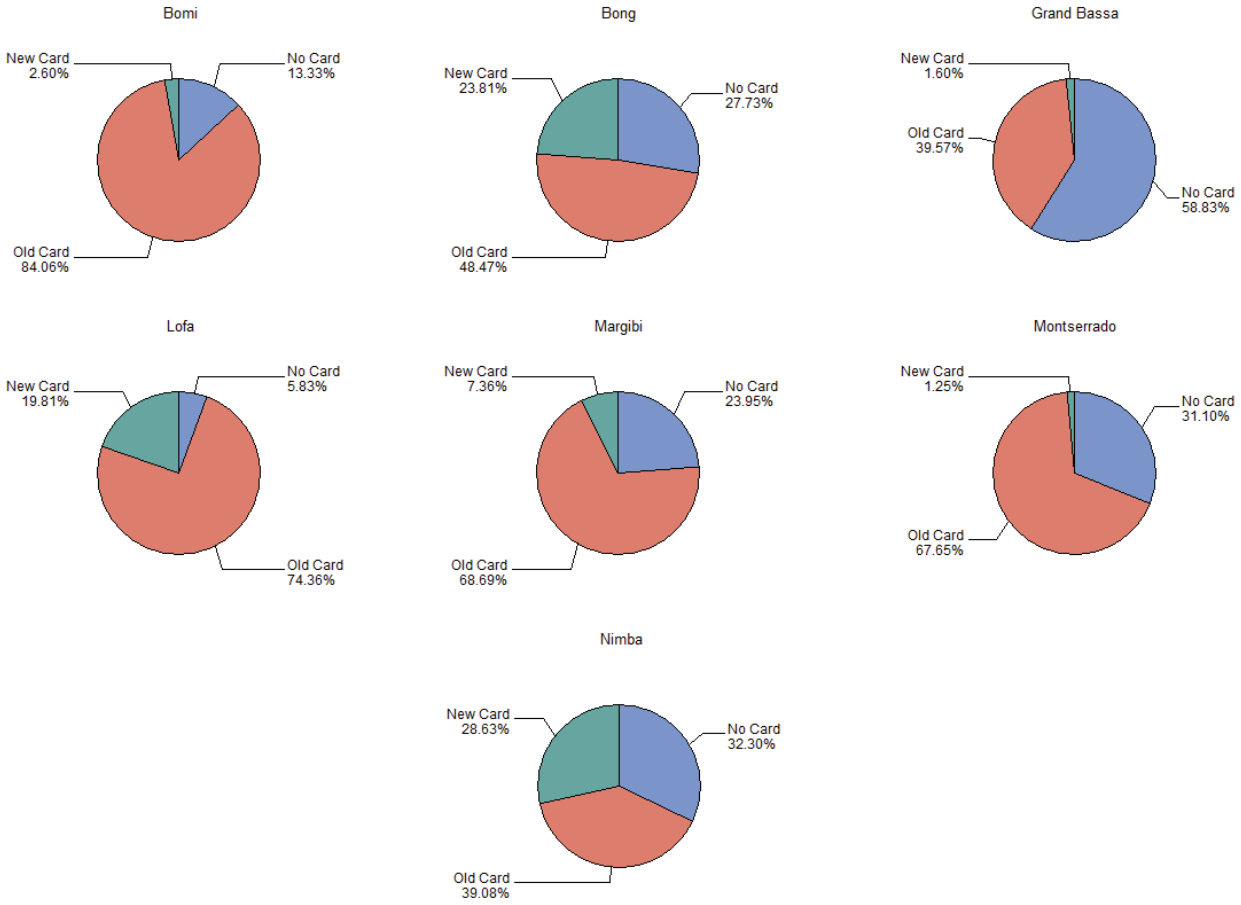
Mothers in Liberia are encouraged to maintain Child Health Cards at home. This card registers vaccinations as well as other key measures of child health. Women who could produce their child's health card reached a coverage of only 41.2% in Grand Bassa, but other counties had higher coverage up to 94.2% in Lofa. This could be a reflection of the failure to educate mothers on the importance of health record maintenance or the fact that some health facilities file Child Health Cards in-house, according to the CHSWT members. Most counties fell below their target for this indicator. With a campaign to roll out a new Child Health Card in Liberia, the survey noted which cards were old and which were new. In total, 29.5% of women could not produce any card, 59.4% produced the old card, and 11.1% produced the new card. Women were most likely to show the new card in Nimba county (4.9% coverage) and least likely in Bomi county (0.1% coverage).

Recommendations are that children under five years receive Vitamin A supplementation every six months. On the whole, the seven counties achieved high coverage of Vitamin A supplementation within the last six months with averages from 74.4% in Grand Bassa to 98% in Nimba. Generally counties were at or near the target set for this indicator.

On average, half of children under five years old with diarrhea received oral rehydration solution (ORS) with zinc from an appropriate health care provider. MOHSW guidance recommends the administration of ORS with a zinc

[3] Fully immunized is defined as having received DPT3/Penta3, BCG, measles, yellow fever and polio vaccines.

Figure 2: Type of Child Health Card Found at Household



supplement if zinc is not included in the commercially prepared ORS. CHSWT members suggested that these numbers could be higher, but some counties face zinc tablet shortages. They also noted the use of other treatments for diarrhea such as flagyl. Additionally, they suggested that ORS is purchased from pharmacies which would not be included in this indicator due to the necessity of receiving the ORS from an appropriate health care provider. While some counties do not consider government community health volunteers (gCHVs) to be appropriate providers of ORS, they were included in the calculation of this indicator to remain consistent with MOHSW training of gCHVs under the Integrated Community Case Management for malaria, diarrhea and pneumonia. In this instance, gCHVs are defined as appropriate providers of ORS.

There is variation across the seven counties in seeking treatment from an appropriate health care provider for a child with symptoms of respiratory infection or pneumonia. In Grand Bassa, 61.9% of children with these symptoms were taken to an appropriate health care provider, while in Lofa, 89% were taken. Similarly, there is wide variation in the use of antibiotics, received from an appropriate health care provider to treat acute respiratory infection/pneumonia. The range is from 41% in Montserrado to 82.1% in Lofa. Some of the explanations given for low coverage are the use of pharmacies and drugstores to purchase medications

without seeing a provider, community case management for these symptoms, as well as the use of other medications besides antibiotics to treat the symptoms.

3.4 NUTRITION

World Health Organization (WHO) recommendations are that breastfeeding is initiated within the first hour of life and exclusive breastfeeding is maintained for the first six months of life. In the seven counties, breastfeeding initiation varies from a low of 47% in Margibi to a high of 80% in Lofa. According to CHSWT members, breastfeeding initiation could be influenced by the place of delivery. Women who deliver outside of facilities may not receive the same encouragement to breastfeed as those who do. In addition, traditional beliefs about colostrum or prelacteal feeding may affect the coverage observed. Despite the challenges of initiation, with the exception of Montserrado, exclusive breastfeeding during the first six months of life continues to be the norm across the other six counties, with more than 70% coverage. The CHSWT in Montserrado mentioned that high maternal employment and adolescent pregnancy could be partly responsible for the low coverage.

For children older than six months and less than two years, a combined diet of breastmilk and a variety of supplementary foods in the proper frequency is measured in an indicator of minimum acceptable diet. Despite a target of only 50% of children meeting this minimum diet, all of the counties failed to reach this target with only the occasional lot passing acceptability. CHSWT members recognized the staples of Liberian food may not meet the minimum variety and traditionally infrequent meals fall short of the minimum frequency. A similar measure looking only at dietary diversity alone (rather than diet diversity and frequency for children) is women's acceptable dietary diversity. The assessment of women's dietary diversity based on nine major food groups indicate that there is a wide variation in women meeting the minimum acceptable diet diversity across counties. The coverage of acceptable diversity ranges from 38.5% in Lofa to 72.3% in Nimba. CHSWT members once again suggested that traditional Liberian food may not provide enough variety to meet the requirements of a minimum acceptable diet.

At the household level, measures of food availability and instances of hunger were combined to create a household hunger scale. With a wide variation in reported instances of households with moderate to severe hunger, Nimba appears to be faring well with the least reported instances. On the other hand, more than 60% of households in Bomi reported moderate to severe hunger.

3.5 WATER, SANITATION AND HYGIENE

Access to improved drinking water and adequate sanitation facilities are Millennium Development Goals that Liberia has adopted. As was noted in a previous section, this round of outcome monitoring used an indicator that aggregated waste disposal and toilet facilities in a measure of improved sanitation. However, the two elements were infrequently observed together,

therefore estimates ranged between 0% in Bomi to 5% in Montserrado. When disaggregated, there were more instances of household access to improved toilet facilities (a high of 63.5% in Montserrado) than instances of improved waste disposal (a high of 22% in Bong). Counties questioned whether this indicator should continue to be measured as they were not currently implementing programs to improve sanitation conditions.

In the majority of the counties, more than half of the women had access to improved drinking water. The exception was Grand Bassa where less than half had access to improved drinking water. Further, the majority of households across all counties have soap for hand washing. However, there was a gap across all counties between households who had soap for hand washing and women who reported washing their hands at least two of the appropriate times during the day.

3.6 FAMILY PLANNING

Use of modern methods of family planning remains low across all counties. Estimates ranged from 3.6% in Nimba to 21.1% in Montserrado. When asked why they were not using contraceptives, most women indicated that they were still interested in having more children (see table below). There were a small proportion of women whose decision not to use contraceptives was the result of negative information (e.g., bad side effects) or misinformation (e.g. cost of contraceptives when they are provided free of cost). However, the majority of women indicated that they were interested in using contraceptives in the future. This is a useful signal of future desire to use contraceptives.

Table 4 Main Reason for Not Using Family Planning—Averages Across the Seven Counties

Trying to get pregnant/wish to have more children	24.8%
Heard bad things	15.1%
Don't know about them	12.6%
Side effects/health concerns	12.1%
Baby too young	9.5%
Does not like contraceptives	6.2%
Not ready to start using family planning	2.9%
Partner/relative forbids it	2.6%
Currently not in a relationship	2.3%
Access/availability/cost	4.7%
Other reasons	29.1%

Section 4 Results by County

4.1 BOMI COUNTY

Supervision areas	Health district	Communities
A	Dowein	Takpoima, Gogbeh, Zohn Bamon, Golee, Bowein, Glebo, Gogbeh, Jenneh #3, Charlie, Gowein, Torsor, Bogbeh, Demeh, Zorkuluwein, Leyahn, Konma, Koniah, Gbangba, Manjama, Gbaigbon, Gbedru, Kpagbola, Beh
B	Klay	Gorda, Malema Gorblah, Golodee Lasannah, Factory Camp, Gissi Camp, Malema Camp, Yormu, Gohnzipo, Dodee, Amadu, Klay, Tar, Geleh, Jorlue, Wayniah, Jenneh, Denyondee, Gongor, Guie Town, Sass Town, Vaituwo, Gulnee, Blagai, Guah
C	Senjeh	Mamie, Genor, Gbalakpa, Old Fahn, Sirleaf Camp, Building Camp, Gbah Jakeh, Gayah Hill, Zui Camp, Gayah Hill, Married Camp, Government Farm New Camp, Tubmanburg, Tubmanburg-Tarr William Community, Tubmanburg-Old Camp Tumah Site
D	Suehn Mecca	Big Geveh, Gbai, Beyan, Morris Kubono, Dendee, Sueh, Madina, Alasala, Suawoo, Sonodee, Begin, Lyen, Golodee, The, Gbojeh, Manzen, Gbao #2, Sumo, Gebeni, Gbojay, Gbojay, Nowaisu, Seh

4.1.1 Child Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months who received vitamin A supplementation within last 6 months						
86.5% (79.1–93.9)	24	90%	19 (90%)	A	23	Yes
				B	19	Yes
				C	21	Yes
				D	21	Yes
Children age 12–23 months who received DPT3/pentavalent-3 vaccination before 12 months						
98.0% (95.9-100.0)	24	95%	21 (95%)	A	21	Yes
				B	24	Yes
				C	24	Yes
				D	24	Yes
Children age 12–23 months who were fully immunized before 12 months						
86.5% (79.5-93.5)	24	92%	21 (95%)	A	16	No
				B	22	Yes
				C	20	No
				D	24	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children age 0–59 months who can produce a child health card						
86.7% (79.3–94.1)	24	95%	21 (95%)	A	22	Yes
				B	21	Yes
				C	20	No
				D	21	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider						
85.7% (79.0–92.4)	24	85%	18 (85%)	A	19	Yes
				B	21	Yes
				C	23	Yes
				D	17	No
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics						
80.7% (72.8–88.6)	24	65%	13 (65%)	A	19	Yes
				B	18	Yes
				C	22	Yes
				D	17	Yes
Children age 0–59 months with diarrhea in the last 2 weeks who received oral rehydration solution and zinc						
46.8% (36.3–57.3)	24	70%	14 (70%)	A	16	Yes
				B	12	No
				C	11	No
				D	7	No

4.1.2 Malaria Prevention

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider						
85.5% (78.2–92.8)	24	90%	19 (90%)	A	21	Yes
				B	18	No
				C	22	Yes
				D	21	Yes
Children age 0–59 months with a febrile episode during the last two weeks who received ACT treatment within 24 hours of onset of fever						
3.0% (0.0–7.0)	24	35%	4 (35%)	A	0	No
				B	0	No
				C	2	No
				D	0	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net						
14.5% (7.2–21.8)	24	60%	11 (60%)	A	6	No
				B	1	No
				C	4	No
				D	4	No
Children age 0–59 months who slept under an insecticide treated bed-net the previous night						
13.0% (5.9–20.0)	24	30%	3 (30%)	A	5	Yes
				B	1	No
				C	4	Yes
				D	3	Yes
Mothers of children age 0–23 months who received second dose of IPT for malaria during pregnancy						
71.5% (61.9–81.0)	24	75%	15 (75%)	A	17	Yes
				B	17	No
				C	18	No
				D	16	No

4.1.3 Nutrition

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery						
71.5% (62.1– 81.0)	24	50%	9 (50%)	A	14	Yes
				B	18	Yes
				C	18	Yes
				D	17	Yes
Children age 0–5 months who were exclusively breastfed during the last 24 hours						
79.1% (70.4–87.9)	24	85%	18 (85%)	A	20	Yes
				B	20	Yes
				C	16	No
				D	22	Yes
Children age 6–23 months receiving a minimum acceptable diet						
15.2% (7.8–22.5)	24	50%	9 (50%)	A	5	No
				B	0	No
				C	8	No
				D	0	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 years meeting minimum acceptable dietary diversity						
42.5% (32.0–53.0)	24	50%	9 (50%)	A	5	No
				B	11	Yes
				C	12	Yes
Prevalence of households with moderate to severe hunger						
64.0% (54.4–73.6)						

4.1.4 Water Sanitation and Hygiene (WASH)

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months living in households with access to improved sanitation						
0.0%	24	30%	3 (30%)	A	0	No
				B	0	No
				C	0	No
				D	0	No
Children age 0–59 months living in households with access to improved toilet facilities						
5.1% (0.5–9.8)	24	55%	10 (55%)	A	2	No
				B	2	No
				C	1	No
				D	0	No
Children 0–59 months living in households with access to improved waste disposal						
8.0% (1.8–14.1)	24	20%	1 (20%)	A	0	No
				B	1	Yes
				C	4	Yes
				D	1	Yes
Children age 0–59 months who live in a household with soap						
91.2% (85.0–97.3)	24	90%	19 (90%)	A	23	Yes
				B	21	Yes
				C	22	Yes
				D	22	Yes
Mothers of children age 0–59 months who washed their hands with soap at least 2 of the appropriate times						
72.9% (63.3–82.5)	24	76%	16 (80%)	A	18	Yes
				B	18	Yes
				C	16	Yes
				D	19	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with reasonable access to improved drinking water						
82.1% (74.3–89.8)	24	70%	14 (70%)	A	18	Yes
				B	21	Yes
				C	21	Yes
				D	17	Yes

4.1.5 Maternal Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children age 0–23 months who made/received the first antenatal care visit during the first trimester of the last pregnancy						
94.1% (88.8–99.3)	24	75%	15 (75%)	A	23	Yes
				B	22	Yes
				C	22	Yes
				D	24	Yes
Mothers of children age 0–23 months who made/received at least 4 antenatal care visits during last pregnancy						
53.1% (42.7–63.4)	24	85%	18 (85%)	A	17	Yes
				B	13	No
				C	14	No
				D	7	No
Mothers of children age 0–23 months who received iron and folic acid tablets during last pregnancy						
98.8% (96.6–100.0)	24	80%	16 (80%)	A	24	Yes
				B	23	Yes
				C	24	Yes
				D	24	Yes
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy						
70.0% (60.4–79.5)	24	85%	18 (85%)	A	16	No
				B	15	No
				C	19	Yes
				D	16	No
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant						
51.8% (41.8–61.9)	24	65%	13 (65%)	A	15	Yes
				B	12	No
				C	16	Yes
				D	5	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months who made/received at least 1 postnatal care visit after the last birth						
88.2% (81.6–94.7)	24	65%	13 (65%)	A	21	Yes
				B	19	Yes
				C	23	Yes
				D	21	Yes
Mothers of children 0–23 months who made/received at least 1 postnatal care visit within 6 weeks after delivery						
84.0% (76.5–91.5)	24	65%	13 (65%)	A	20	Yes
				B	18	Yes
				C	22	Yes
				D	20	Yes
Mothers of children 0–23 months who received vitamin A within 8 weeks after delivery						
61.2% (51.0–71.3)	24	80%	16 (80%)	A	15	No
				B	16	Yes
				C	11	No
				D	19	Yes

4.1.5 Family Planning

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women age 15–49 currently using a modern method of family planning						
12.6% (5.3–19.8)	24	30%	3 (30%)	A	3	Yes
				B	2	No
				C	5	Yes
				D	1	No
Women age 15–49 not currently using a modern method but who would like to be						
84.5% (76.8–92.2)	24	77%	16 (80%)	A	20	Yes
				B	21	Yes
				C	20	Yes
				D	20	Yes

4.2 BONG COUNTY

Supervision areas	Health district	Communities
A	Fuamah	Totoquelleh, Woelipolu Village, Valoah, New Kpaylimu, Degei, Nenh, Jimmy, Donbli, Wallace E Village, Bong Mines, Wein, Gwilly, Kpoatama
B	Jorquelleh	Gbarnga, Gbarnga Nuko's, Richard Henry, Wainsue, Nakpala, Janyea, Konkon, Gborwoe, Quayarkula, Blameyea, Darwor-Ta, Gbarnga Franco Village
C	Kokoyah	Togar Vilage, Rock Crusher, Pastor Konamie, Daniel Harris, Boegbon, Leo, Gwamue, Malonkai, Gbalorkpala, Botota, Peter, New Town, Tarpeh, U-La, Gueh Garyeazohn, Duah, Behwee, Quokapor
D	Panta-Kpaii and Zota	Foequelleh, Gahnmue, Gowhue, Gbarnga Siaquelleh, Jowah, Shankpallai, Yowee, Gbankonnah, Kollie-Ta, Jonkai, Gbansue Sulonmah I, Zowieta, Chaltu Ta, Yila, Palala City, Kowai, Zebay, Seketa, Duta
E	Salala and Sanoyeah	Neimah Town (A), Yogbo, Neimah Town (B), Tokpaipolu I, Moipa Ta (B), Wolo, Buyarlah, A.B.C. Camp II, Salala, Lackie, G.W Cooper Farm I, Conneh Farm, Bellemu # 2 (Yarkporlorla), Koryelay, Kelebei, Kernemu (A), Bilitanlah/Dogba Ta, Varney Village, Gou II
F	Suakoko	Glenkomah, Qualakohn Ta, Geata, Russell, Kornonpa Ta, Garyea II, Gbondoi, Kollie Suah, Kokila I, Kolila II, Voloblai, Kayata, Gleanasiasue, Worla-Ta (Sonnahh-Ta), Gbarnga, Gbarnga Cutting Garden, Gbarnga Suacoco, Gbanla

4.2.1 Child Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months who received vitamin A supplementation within last 6 months						
85.9% (79.1–92.7)	19	74%	12 (75%)	A	15	Yes
				B	18	Yes
				C	18	Yes
				D	17	Yes
				E	16	Yes
				F	14	Yes
Children 12–23 months receiving DPT3/pentavalent-3 vaccination before 12 months						
89.1% (83.3–95.0)	19	70%	11 (70%)	A	17	Yes
				B	18	Yes
				C	13	Yes
				D	16	Yes
				E	16	Yes
				F	19	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 12–23 months fully immunized before 12 months						
76.9% (69.1–84.7)	19	62%	10 (65%)	A	14	Yes
				B	16	Yes
				C	8	No
				D	13	Yes
				E	13	Yes
				F	19	Yes
Mothers of children 0–59 months who can produce a child health card						
71.2% (62.5–80.0)	19	76%	13 (80%)	A	14	Yes
				B	16	Yes
				C	10	No
				D	16	Yes
				E	12	No
				F	11	No
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider						
76.2% (68.0–84.4)	19	75%	12 (75%)	A	16	Yes
				B	11	No
				C	11	No
				D	17	Yes
				E	17	Yes
				F	14	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics						
55.8% (46.0–65.6)	19	48%	7 (50%)	A	12	Yes
				B	8	Yes
				C	8	Yes
				D	12	Yes
				E	13	Yes
				F	10	Yes
Children 0–59 months with diarrhea who received oral rehydration solution and zinc						
59.0% (49.2–68.9)	19	33%	4 (35%)	A	14	Yes
				B	10	Yes
				C	13	Yes
				D	11	Yes
				E	13	Yes
				F	9	Yes

4.2.2 Malaria Prevention

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider						
82.9% (75.4–90.4)	19	89%	15 (90%)	A	18	Yes
				B	16	Yes
				C	15	Yes
				D	14	No
				E	17	Yes
				F	15	Yes
Children age 0–59 months with a febrile episode during the last 2 weeks who received ACT treatment within 24 hours of onset of fever						
6.2% (1.1–11.3)	19	2%	1 (20%)	A	0	No
				B	2	Yes
				C	1	Yes
				D	0	No
				E	2	Yes
				F	1	Yes
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net						
30.4% (21.6–39.3)	19	50%	7 (50%)	A	8	Yes
				B	3	No
				C	11	Yes
				D	7	Yes
				E	5	No
				F	6	No
Children age 0–59 months who slept under an insecticide treated bed-net the previous night						
28.9% (20.0–37.7)	19	17%	1 (20%)	A	7	Yes
				B	3	Yes
				C	8	Yes
				D	7	Yes
				E	5	Yes
				F	6	Yes
Mothers of children 0–59 months who received second dose of IPT during last pregnancy						
57.1% (47.3–66.9)	19	58%	9 (60%)	A	13	Yes
				B	8	No
				C	13	Yes
				D	12	Yes
				E	13	Yes
				F	9	Yes

4.2.3 Nutrition

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery						
58.6% (49.0–68.3)	19	74%	12 (75%)	A	13	Yes
				B	7	No
				C	10	No
				D	13	Yes
				E	12	Yes
				F	13	Yes
Children age 0–5 months who were exclusively breastfed during the last 24 hours						
76.4% (67.9–84.9)	19	96%	16 (95%)	A	13	No
				B	13	No
				C	15	No
				D	16	Yes
				E	14	No
				F	16	Yes
Children 6–23 months receiving a minimum acceptable diet						
18.0% (10.7–25.3)	19	50%	7 (50%)	A	4	No
				B	3	No
				C	6	No
				D	6	No
				E	1	No
				F	3	No
Women 15–49 years meeting minimum acceptable dietary diversity						
65.1% (55.5–74.7)	19	50%	7 (50%)	A	17	Yes
				B	11	Yes
				C	12	Yes
				D	12	Yes
				E	11	Yes
				F	14	Yes
Prevalence of moderate to severe hunger						
29.2% (20.2–38.2)						

4.2.4 Water Sanitation and Hygiene (WASH)

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved sanitation						
3.5% (0.0–7.4)	19	30%	3 (30%)	A	0	No
				B	2	No
				C	0	No
				D	1	No
				E	0	No
				F	0	No
Children age 0–59 months living in households with access to improved toilet facilities						
7.6% (2.1–13.1)	19	50%	7 (50%)	A	1	No
				B	4	No
				C	0	No
				D	1	No
				E	1	No
				F	0	No
Children 0–59 months living in households with access to improved waste disposal						
22.0% (13.9–30.0)	19	20%	1 (20%)	A	6	Yes
				B	5	Yes
				C	7	Yes
				D	5	Yes
				E	2	Yes
				F	3	Yes
Children 0–59 months who live in a household with soap						
90.2% (84.1–96.3)	19	89%	15 (90%)	A	18	Yes
				B	16	Yes
				C	18	Yes
				D	18	Yes
				E	18	Yes
				F	16	Yes
Mothers of children 0–59 months who washed their hands with soap at least 2 of the appropriate times						
60.3% (50.5–70.2)	19	76%	13 (80%)	A	13	Yes
				B	12	No
				C	14	Yes
				D	10	No
				E	12	No
				F	10	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved drinking water						
63.2% (54.0–72.5)	19	70%	11 (70%)	A	10	No
				B	12	Yes
				C	8	No
				D	17	Yes
				E	9	No
				F	13	Yes

4.2.5 Maternal Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months attending the first ANC visit during the first trimester of last pregnancy						
80.4% (72.5–88.2)	19	65%	10 (65%)	A	17	Yes
				B	15	Yes
				C	13	Yes
				D	16	Yes
				E	17	Yes
				F	13	Yes
Mothers of children 0–23 months attending at least 4 ANC visits during last pregnancy						
70.6% (62.0–79.1)	19	68%	11 (70%)	A	16	Yes
				B	16	Yes
				C	10	No
				D	14	Yes
				E	15	Yes
				F	8	No
Mothers of children 0–23 months receiving adequate iron and folic acid tablets during last pregnancy						
97.6% (94.2–100.0)	19	62%	10 (65%)	A	19	Yes
				B	18	Yes
				C	19	Yes
				D	19	Yes
				E	18	Yes
				F	19	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy						
36.6% (27.2–46.0)	19	56%	9 (60%)	A	6	No
				B	4	No
				C	10	Yes
				D	9	Yes
				E	6	No
				F	9	Yes
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant						
56.4% (46.6–66.3)	19	20%	1 (20%)	A	8	Yes
				B	12	Yes
				C	8	Yes
				D	13	Yes
				E	10	Yes
				F	10	Yes
Mothers of children 0–23 months who attended at least 1 postnatal care visit after the last birth						
54.0% (44.0–64.0)	19	65%	10 (65%)	A	13	Yes
				B	10	Yes
				C	16	Yes
				D	11	Yes
				E	9	No
				F	8	No
Mothers of children 0–23 months who attended at least 1 postnatal care visit within 6 weeks after delivery						
43.9% (34.0–53.8)	19	65%	10 (65%)	A	8	No
				B	8	No
				C	13	Yes
				D	10	Yes
				E	8	No
				F	6	No
Mothers of children 0–23 receiving vitamin A within 8 weeks after delivery						
48.0% (37.9–58.1)	19	69%	11 (70%)	A	9	No
				B	10	No
				C	10	No
				D	9	No
				E	9	No
				F	8	No

4.2.6 Family Planning

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 using a modern method of family planning						
19.2% (11.1–27.3)	19	11%	1 (20%)	A	2	Yes
				B	5	Yes
				C	0	No
				D	3	Yes
				E	6	Yes
				F	2	Yes
Women 15–49 not using a modern method of family planning but would like to						
66.0% (56.5–75.4)	19	75%	12 (75%)	A	14	Yes
				B	11	No
				C	13	Yes
				D	16	Yes
				E	11	No
				F	12	Yes

4.3 GRAND BASSA COUNTY

Supervision areas	Health district	Communities
A	Commonwealth and Neekreen	Nyantee Village, Meanikine, Gbardyu, John Doeneah, Gonnigar, Kpanada, Water Tower, Tarrbarr, Watco, Sugar Cane Farm, Corn Farm Community, Tinway Town Community, Tinway Town Community, Preston/Roberts Streets, Korkorwein/Old Barrack, Otis Shop Community, Gorzohn Community
B	District # 1 and Owensgrove	Robert Village, Gbar Community, Owensgroove City, Kru, Karsuah Village, Mill Willie, Wroth, Duo Village, Nor-You, Penweh Village, Bokai Town, Black Curve, Sowkon Village, Killy Kaidue, Peter Gbarleh, Jacob Lorteh/Dc, Biniface Village, Piegoun Village/Chocoville, Douweh/Wheeto Town
C	District # 2	Tepenneh, Zahn, Waygron Village, Zogbah Town, Tenezee Village, Mano, Palapolu, Tontah Village, Joe Gborgar Village, Senyah, Vionless's Village, Hilary, Wayah, Wehngbo, Dulumue Town, Bohn Town, Kayar's, Keh, Kutuah
D	District # 3	Quepue Gar Camp, Toyota Camp, Gbean Camp, Operator Camp, Djucolo Camp (New), Kennedy, Glow, Gbargar Village, Swaniwein, Karmgbo, Wayzohn Community, Zorwein, Candy/Frank K.Brown Joe/I, Beh/Gbeh, Timbo/Giah, Larway/James Zoko, Zeongar, Boeglay/Morris
E	District # 4	Gbadepuah, Boryah Village, David Suah, Gbor Village, Zondo, Bonding Camp, Gbole Wreh, Kpah Village, Blobartn, David Villages, Sekepo/Kru, Wrangbo, Mohn, Yeabloe, Gio Town, Sakwa, Yor, Zukun, Twenty Houses

Supervision areas	Health district	Communities
F	St. John River City	Juah Town, SOS Children Village, Wilmot Weeks/Sawdanan, Reeves/Frazier Village, Baryou/Jimmy Reeves, Waka, Gartean, Ben, Tutu, Deegar, Saywleh, Duezor, Giakpee Village, Hartford, Queagar, Gbarwhole, Gleagbah, Gbarglay Tarr, Quegar

4.3.1 Child Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months who received vitamin A supplementation within last 6 months						
74.4% (66.1–82.7)	19	85%	14 (85%)	A	16	Yes
				B	13	No
				C	10	No
				D	17	Yes
				E	11	No
				F	12	No
Children 12–23 months receiving DPT3/pentavalent-3 vaccination before 12 months						
83.5% (76.7–90.3)	19	71%	12 (75%)	A	16	Yes
				B	18	Yes
				C	12	Yes
				D	19	Yes
				E	10	No
				F	19	Yes
Children 12–23 months fully immunized before 12 months						
67.3% (58.7–75.9)	19	60%	9 (60%)	A	11	Yes
				B	15	Yes
				C	9	Yes
				D	19	Yes
				E	5	No
				F	19	Yes
Mothers of children 0–59 months who can produce a child health card						
41.2% (31.0–51.4)	19	55%	8 (55%)	A	9	Yes
				B	10	Yes
				C	2	No
				D	7	No
				E	9	Yes
				F	7	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider						
61.9% (52.2–71.6)	19	70%	11 (70%)	A	13	Yes
				B	12	Yes
				C	5	No
				D	14	Yes
				E	12	Yes
				F	8	No
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics						
59.1% (48.9–69.3)	19	65%	10 (65%)	A	10	Yes
				B	11	Yes
				C	11	Yes
				D	14	Yes
				E	9	No
				F	14	Yes
Children 0–59 months with diarrhea who received oral rehydration solution and zinc						
62.2% (52.1–72.3)	19	88%	15 (90%)	A	11	No
				B	14	No
				C	9	No
				D	13	No
				E	11	No
				F	13	No

4.3.2 Malaria Prevention

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider						
58.1% (48.4–67.9)	19	90%	15 (90%)	A	14	No
				B	13	No
				C	4	No
				D	10	No
				E	10	No
				F	10	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received ACT treatment within 24 hours of onset of fever						
5.5% (0.4–10.5)	19	50%	7 (50%)	A	2	No
				B	1	No
				C	1	No
				D	0	No
				E	1	No
				F	0	No
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net						
19.1% (10.9–27.3)	19	55%	8 (55%)	A	3	No
				B	6	No
				C	2	No
				D	4	No
				E	3	No
				F	3	No
Children age 0–59 months who slept under an insecticide treated bed-net the previous night						
18.4% (10.3–26.4)	19	30%	3 (30%)	A	3	Yes
				B	6	Yes
				C	2	No
				D	4	Yes
				E	2	No
				F	3	Yes
Mothers of children 0–23 months who received second dose of IPT during last pregnancy						
47.2% (36.9–57.6)	19	60%	9 (60%)	A	7	No
				B	10	Yes
				C	11	Yes
				D	10	Yes
				E	9	Yes
				F	8	No

4.3.3 Nutrition

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery						
68.0% (58.4–77.7)	19	72%	12 (75%)	A	11	No
				B	14	Yes
				C	17	Yes
				D	15	Yes
				E	10	No
				F	10	No
Children age 0–5 months who were exclusively breastfed during the last 24 hours						
73.6% (64.3–82.9)	19	80%	13 (80%)	A	14	Yes
				B	15	Yes
				C	12	No
				D	14	Yes
				E	13	Yes
				F	18	Yes
Children 6–23 months receiving a minimum acceptable diet						
22.3% (14.0–30.6)	19	50%	7 (50%)	A	3	No
				B	2	No
				C	7	Yes
				D	7	Yes
				E	2	No
				F	7	Yes
Women 15–49 years meeting minimum acceptable dietary diversity						
41.1% (31.0–51.3)	19	50%	7 (50%)	A	7	Yes
				B	11	Yes
				C	7	Yes
				D	9	Yes
				E	4	No
				F	9	Yes
Prevalence of moderate to severe hunger						
45.7% (35.5–55.8)						

4.3.4 Water Sanitation and Hygiene (WASH)

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved sanitation						
4.8% (0.0–9.9)	19	30%	3 (30%)	A	3	Yes
				B	0	No
				C	0	No
				D	0	No
				E	0	No
				F	0	No
Children age 0–59 months living in households with access to improved toilet facilities						
15.0% (7.2–22.7)	19	45%	6 (45%)	A	7	Yes
				B	1	No
				C	0	No
				D	2	No
				E	0	No
				F	2	No
Children 0–59 months living in households with access to improved waste disposal						
8.7% (2.3–15.2)	19	20%	1 (20%)	A	4	Yes
				B	1	Yes
				C	0	No
				D	1	Yes
				E	0	No
				F	1	Yes
Children 0–59 months who live in a household with soap						
81.2% (73.2–89.3)	19	60%	9 (60%)	A	16	Yes
				B	16	Yes
				C	15	Yes
				D	15	Yes
				E	15	Yes
				F	14	Yes
Mothers of children 0–59 months who washed their hands with soap at least 2 of the appropriate times						
69.6% (60.0–79.3)	19	60%	9 (60%)	A	12	Yes
				B	13	Yes
				C	11	Yes
				D	15	Yes
				E	15	Yes
				F	14	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved drinking water						
45.9% (35.5–56.4)	19	70%	11 (70%)	A	10	No
				B	7	No
				C	9	No
				D	9	No
				E	7	No
				F	10	No

4.3.5 Maternal Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months attending the first ANC visit during the first trimester of last pregnancy						
77.0% (68.1–85.9)	19	65%	10 (65%)	A	13	Yes
				B	16	Yes
				C	14	Yes
				D	16	Yes
				E	15	Yes
				F	14	Yes
Mothers of children 0–23 months attending at least 4 ANC visits during last pregnancy						
54.6% (44.2–65.1)	19	70%	11 (70%)	A	11	Yes
				B	9	No
				C	9	No
				D	10	No
				E	12	Yes
				F	12	Yes
Mothers of children 0–23 months receiving adequate iron and folic acid tablets during last pregnancy						
95.3% (92.2–98.4)	19	60%	9 (60%)	A	19	Yes
				B	19	Yes
				C	18	Yes
				D	19	Yes
				E	14	Yes
				F	17	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy						
47.8% (37.4–58.2)	19	75%	12 (75%)	A	10	No
				B	9	No
				C	8	No
				D	11	No
				E	5	No
				F	9	No
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant						
45.1% (35.1–55.0)	19	45%	6 (45%)	A	12	Yes
				B	7	Yes
				C	2	No
				D	11	Yes
				E	5	No
				F	7	Yes
Mothers of children 0–23 months who attended at least 1 postnatal care visit after the last birth						
52.3% (42.6–62.1)	19	65%	10 (65%)	A	7	No
				B	8	No
				C	10	Yes
				D	16	Yes
				E	9	No
				F	10	Yes
Mothers of children 0–23 months who attended at least 1 postnatal care visit within 6 weeks after delivery						
50.0% (39.9–60.0)	19	65%	10 (65%)	A	7	No
				B	8	No
				C	10	Yes
				D	14	Yes
				E	9	No
				F	10	Yes
Mothers of children 0–23 receiving vitamin A within 8 weeks after delivery						
42.4% (32.1–52.7)	19	63%	10 (65%)	A	8	No
				B	7	No
				C	5	No
				D	11	Yes
				E	8	No
				F	6	No

4.3.6 Family Planning

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 using a modern method of family planning						
15.1% (7.4–22.7)	19	20%	1 (20%)	A	3	Yes
				B	1	Yes
				C	1	Yes
				D	6	Yes
				E	2	Yes
				F	1	Yes
Women 15–49 not using a modern method of family planning but would like to						
72.1% (62.8–81.4)	19	20%	1 (20%)	A	14	Yes
				B	11	Yes
				C	14	Yes
				D	15	Yes
				E	14	Yes
				F	14	Yes

4.4 LOFA COUNTY

Supervision areas	Health district	Communities
A	Foya	Sadu-Pumbor, Kpordu, Sakpawa, Yalladu Korkosua, Kamboloe, Foya Town, Jomata, Gbazzie, Mamah, Wobu Kenor, Kpalawu, Kpelloe Tengia, Konkpama, Markor - I
B	Kolahun	Solamun, Nyewolihun, Kortuhun (1), Hembalahun, Kpandehewa, Kortuvela Town Center, Tongolahun Town Center, Lehuma Town, Masambolahun, Sosmoilahun Town (A), Gbelahun-A, Karmalahun, Mbaloma, Woejoma, Dangalahun I, Bafehun, Gombu
C	Salayea	Tinsue, Beyan, Glk Farm, Salayie, Ganglota, Tailemai, Gbanway, Yarpuah, Kpayea, Sucromu, Gbotai Village, Gorlu, Kpeteyea Village, Gboyea
D	Vahun	Airfield, Hengima, Gbajobu, Levuma, Kemokla, Njegbema Village, Memolahun, Koyama, Dukor Gbondo
E	Quardu Boundi and Voinjama	Kolograzu, Zeayorzu Town, Selega, Betejama, Lawalazu(B), Wotalah, Voinjama, Dayzabah, Lormai, David Selma's, Barkedu, Tussus, Jarmulor, Mamekonnedu, Marverkonnedu, Bongolodu(B)
F	Zorzor	Zealapala, Kilewu, Goyawulue Village, Woyeawoba Village, Wudeyeazu Village, Zorzor, Wumuyeazu Village, Barwen, Konia. Nekeba II, Ziggida, Konia, Zelemai(A), Zuwulor(A), Wakesu B, Sekou Village, Borkeza

4.4.1 Child Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months who received vitamin A supplementation within last 6 months						
87.7% (81.0–94.5)	19	70%	11 (70%)	A	17	Yes
				B	17	Yes
				C	15	Yes
				D	18	Yes
				E	16	Yes
				F	17	Yes
Children 12–23 months receiving DPT3/pentavalent-3 vaccination before 12 months						
88.1% (81.6–94.6)	19	94%	16 (95%)	A	16	Yes
				B	16	Yes
				C	15	No
				D	15	No
				E	18	Yes
				F	19	Yes
Children 12–23 months fully immunized before 12 months						
66.6% (56.9–76.3)	19	80%	13 (80%)	A	11	No
				B	12	No
				C	14	Yes
				D	11	No
				E	13	Yes
				F	16	Yes
Mothers of children 0–59 months who can produce a child health card						
94.2% (89.7–98.6)	19	70%	11 (70%)	A	19	Yes
				B	19	Yes
				C	18	Yes
				D	18	Yes
				E	16	Yes
				F	17	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider						
89.0% (82.8–95.1)	19	96%	16 (95%)	A	18	Yes
				B	18	Yes
				C	17	Yes
				D	16	Yes
				E	14	No
				F	18	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics						
82.1% (74.8–89.5)	19	89%	15 (90%)	A	18	Yes
				B	16	Yes
				C	13	No
				D	16	Yes
				E	13	No
				F	16	Yes
Children 0–59 months with diarrhea who received oral rehydration solution and zinc						
78.4% (70.5–86.3)	19	58%	9 (60%)	A	18	Yes
				B	13	Yes
				C	13	Yes
				D	15	Yes
				E	15	Yes
				F	13	Yes

4.4.2 Malaria Prevention

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider						
85.6% (78.4–92.8)	19	99%	16 (95%)	A	17	Yes
				B	15	No
				C	16	Yes
				D	16	Yes
				E	15	No
				F	19	Yes
Children age 0–59 months with a febrile episode during the last 2 weeks who received ACT treatment within 24 hours of onset of fever						
10.2% (4.1–16.4)	19	57%	9 (60%)	A	3	No
				B	1	No
				C	2	No
				D	4	No
				E	1	No
				F	2	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net						
37.4% (27.5–47.4)	19	64%	10 (65%)	A	8	No
				B	7	No
				C	5	No
				D	12	Yes
				E	7	No
				F	5	No
Children age 0–59 months who slept under an insecticide treated bed-net the previous night						
35.5% (25.7–45.3)	19	23%	2 (25%)	A	8	Yes
				B	7	Yes
				C	5	Yes
				D	12	Yes
				E	6	Yes
				F	4	Yes
Mothers of children 0–59 months who received second dose of IPT during last pregnancy						
76.2% (67.7–84.6)	19	78%	13 (80%)	A	17	Yes
				B	14	Yes
				C	14	Yes
				D	16	Yes
				E	12	No
				F	14	Yes

4.4.3 Nutrition

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery						
79.6% (71.5–87.7)	19	73%	12 (75%)	A	16	Yes
				B	16	Yes
				C	12	Yes
				D	18	Yes
				E	15	Yes
				F	13	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–5 months who were exclusively breastfed during the last 24 hours						
78.9% (70.4–87.3)	19	95%	16 (95%)	A	15	No
				B	16	Yes
				C	16	Yes
				D	17	Yes
				E	13	No
				F	15	No
Children 6–23 months receiving a minimum acceptable diet						
24.6% (15.7–33.5)	19	50%	7 (50%)	A	4	No
				B	7	Yes
				C	1	No
				D	6	No
				E	6	No
				F	2	No
Women 15–49 years meeting minimum acceptable dietary diversity						
38.5% (28.8–48.3)	19	50%	7 (50%)	A	8	Yes
				B	7	Yes
				C	11	Yes
				D	6	No
				E	4	No
				F	10	Yes
Prevalence of moderate to severe hunger						
44.3% (34.5–54)						

4.4.4 Water Sanitation and Hygiene (WASH)

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved sanitation						
1.9% (0.0–4.7)	19	30%	3 (30%)	A	0	No
				B	0	No
				C	0	No
				D	0	No
				E	1	No
				F	1	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months living in households with access to improved toilet facilities						
29.3% (20.0–38.7)	19	90%	15 (90%)	A	7	No
				B	3	No
				C	4	No
				D	7	No
				E	7	No
				F	5	No
Children 0–59 months living in households with access to improved waste disposal						
2.7% (0.0–5.7)	19	20%	1 (20%)	A	0	No
				B	0	No
				C	1	Yes
				D	1	Yes
				E	1	Yes
				F	1	Yes
Children 0–59 months who live in a household with soap						
96.3% (93.1–99.5)	19	90%	15 (90%)	A	19	Yes
				B	19	Yes
				C	15	Yes
				D	19	Yes
				E	18	Yes
				F	18	Yes
Mothers of children 0–59 months who washed their hands with soap at least 2 of the appropriate times						
84.7% (77.8–91.6)	19	88%	15 (90%)	A	19	Yes
				B	14	No
				C	15	Yes
				D	19	Yes
				E	15	Yes
				F	15	Yes
Children 0–59 months living in households with access to improved drinking water						
73.5% (64.4–82.6)	19	70%	11 (70%)	A	11	Yes
				B	12	Yes
				C	19	Yes
				D	17	Yes
				E	16	Yes
				F	15	Yes

4.4.5 Maternal Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months attending the first ANC visit during the first trimester of last pregnancy						
91.5% (86.2–96.7)	19	53%	8 (55%)	A	19	Yes
				B	18	Yes
				C	17	Yes
				D	17	Yes
				E	16	Yes
				F	16	Yes
Mothers of children 0–23 months attending at least 4 ANC visits during last pregnancy						
66.0% (56.2–75.8)	19	79%	13 (80%)	A	11	No
				B	14	Yes
				C	15	Yes
				D	15	Yes
				E	11	No
				F	13	Yes
Mothers of children 0–23 months receiving adequate iron and folic acid tablets during last pregnancy						
99.7% (99.0–100.0)	19	75%	12 (75%)	A	19	Yes
				B	19	Yes
				C	19	Yes
				D	18	Yes
				E	19	Yes
				F	19	Yes
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy						
67.2% (57.6–76.8)	19	89%	15 (90%)	A	13	No
				B	12	No
				C	8	No
				D	16	Yes
				E	14	No
				F	13	No
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant						
79.1% (71.2–87.0)	19	72%	12 (75%)	A	18	Yes
				B	13	Yes
				C	14	Yes
				D	17	Yes
				E	12	Yes
				F	17	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months who attended at least 1 postnatal care visit after the last birth						
83.5% (75.9–91.2)	19	65%	10 (65%)	A	15	Yes
				B	18	Yes
				C	17	Yes
				D	18	Yes
				E	15	Yes
				F	14	Yes
Mothers of children 0–23 months who attended at least 1 postnatal care visit within 6 weeks after delivery						
81.9% (73.9–89.9)	19	65%	10 (65%)	A	15	Yes
				B	17	Yes
				C	16	Yes
				D	18	Yes
				E	15	Yes
				F	14	Yes
Mothers of children 0–23 receiving vitamin A within 8 weeks after delivery						
66.2% (57.0–75.5)	19	80%	13 (80%)	A	16	Yes
				B	13	Yes
				C	12	No
				D	14	Yes
				E	9	No
				F	11	No

4.4.6 Family Planning

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 using a modern method of family planning						
12.8% (6.2–19.4)	19	15%	1 (20%)	A	5	Yes
				B	1	Yes
				C	3	Yes
				D	3	Yes
				E	0	No
				F	3	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 not using a modern method of family planning but would like to						
64.0% (54.2–73.8)	19	65%	10 (65%)	A	11	Yes
				B	15	Yes
				C	12	Yes
				D	13	Yes
				E	12	Yes
				F	10	Yes

4.5 MARGIBI COUNTY

Supervision Areas	Health District	Communities
A	Firestone	Harbel-Cotton Tree, Division 40 Camp #2, Division 44 Pinco Camp, Duside Long Camp, Division 6 Front, Division 37, Division 9 Old Camp, Division 29 Camp 2 and 3, Division 24 Camp 2, Division 29 Church, Division 30
B	Gibi	Birr, David Village, Taylor, Worhn, Gbolin Boe-Dian, Morris Yoyyor Village, Bethel, Togar, Boy Dee, Nana, Sheriff Farm #2, Niomi Village, Gialeh, Charben Town, Buldu Village, James Boto Town, Farhn Kon, Varney, Suah, Gbudu Town, Ninganbo, Garmoleh, Fahn Tika, Zeyan
C	Kakata	Marie Johnson Camp, Chinese Farm, Sue, Wolola, Anthony Barclay Farm, Gwepolosue, Col. David Village, Thomas Juwoo, Paynes, Harriet Dennis, Johnny Bah, Butun, Felen Town, Kissi Camp, Marvis Cooper, Kakata City, Kakata City-End Of Jambo Villa
D	Mambah Kaba	Welakpah, Gargbeh, Monclay, Boyette, Giah, Lloydville/Zeechugbarn, Harbel-Cotton Tree, Swanwrin, Charlesville, Browne, Marsital City, Kpozon, Duazon Old Town, Duazon New Town, Duazon Public, Schiefflin Avenue

4.5.1 Child Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months who received vitamin A supplementation within last 6 months						
91.7% (85.6–97.9)	24	86%	19 (90%)	A	23	Yes
				B	21	Yes
				C	22	Yes
				D	21	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 12–23 months receiving DPT3/pentavalent-3 vaccination before 12 months						
84.6% (76.4–92.8)	24	85%	18 (85%)	A	22	Yes
				B	22	Yes
				C	20	Yes
				D	18	Yes
Children 12–23 months fully immunized before 12 months						
59.6% (48.4–70.9)	24	81%	18 (85%)	A	16	No
				B	13	No
				C	14	No
				D	13	No
Mothers of children 0–59 months who can produce a child health card						
76.0% (66.6–85.5)	24	85%	18 (85%)	A	16	No
				B	18	Yes
				C	20	Yes
				D	18	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider						
74.4% (64.6–84.2)	24	60%	11 (60%)	A	22	Yes
				B	14	Yes
				C	16	Yes
				D	17	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics						
79.2% (70.3–88.2)	24	55%	10 (55%)	A	19	Yes
				B	13	Yes
				C	20	Yes
				D	19	Yes
Children 0–59 months with diarrhea who received oral rehydration solution and zinc						
62.6% (51.6–73.5)	24	45%	7 (45%)	A	14	Yes
				B	10	Yes
				C	14	Yes
				D	20	Yes

4.5.2 Malaria Prevention

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider						
76.7% (67.1–86.2)	24	83%	18 (85%)	A	20	Yes
				B	12	No
				C	18	Yes
				D	19	Yes
Children age 0–59 months with a febrile episode during the last 2 weeks who received ACT treatment within 24 hours of onset of fever						
7.3% (1.5–13.0)	24	25%	2 (25%)	A	4	Yes
				B	2	Yes
				C	1	No
				D	0	No
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net						
55.4% (44.4–66.4)	24	55%	10 (55%)	A	9	No
				B	13	Yes
				C	16	Yes
				D	14	Yes
Children age 0–59 months who slept under an insecticide treated bed-net the previous night						
42.9% (31.8–53.9)	24	50%	9 (50%)	A	6	No
				B	13	Yes
				C	13	Yes
				D	10	Yes
Mothers of children 0–23 months who received second dose of IPT during last pregnancy						
57.4% (46.2–68.6)	24	40%	6 (40%)	A	14	Yes
				B	17	Yes
				C	15	Yes
				D	10	Yes

4.5.3 Nutrition

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery						
47.2% (35.8–58.7)	24	75%	15 (75%)	A	11	No
				B	16	Yes
				C	12	No
				D	9	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–5 months who were exclusively breastfed during the last 24 hours						
64.2% (53.7–74.8)	24	74%	15 (75%)	A	15	Yes
				B	15	Yes
				C	18	Yes
				D	11	No
Children 6–23 months receiving a minimum acceptable diet						
31.0% (20.6–41.4)	24	50%	9 (50%)	A	8	No
				B	9	Yes
				C	6	No
				D	9	Yes
Women 15–49 years meeting minimum acceptable dietary diversity						
54.9% (43.6–66.2)	24	50%	9 (50%)	A	15	Yes
				B	10	Yes
				C	14	Yes
				D	10	Yes
Prevalence of moderate to severe hunger						
32.3% (21.8–42.7)						

4.5.4 Water Sanitation and Hygiene (WASH)

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved sanitation						
14.4% (6.1–22.7)	24	30%	3 (30%)	A	5	Yes
				B	1	No
				C	4	Yes
				D	1	No
Children age 0–59 months living in households with access to improved toilet facilities						
21.4% (12.0–30.7)	24	20%	1 (20%)	A	9	Yes
				B	2	Yes
				C	5	Yes
				D	1	Yes
Children 0–59 months living in households with access to improved waste disposal						
43.9% (32.5–55.3)	24	20%	1 (20%)	A	12	Yes
				B	3	Yes
				C	12	Yes
				D	8	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months who live in a household with soap						
92.7% (87.4–97.9)	24	83%	18 (85%)	A	19	Yes
				B	23	Yes
				C	24	Yes
				D	23	Yes
Mothers of children 0–59 months who washed their hands with soap at least 2 of the appropriate times						
74.4% (64.3–84.6)	24	55%	10 (55%)	A	18	Yes
				B	19	Yes
				C	17	Yes
				D	19	Yes
Children 0–59 months living in households with access to improved drinking water						
57.8% (47.0–68.6)	24	70%	14 (70%)	A	18	Yes
				B	7	No
				C	10	No
				D	18	Yes

4.5.5 Maternal Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months attending the first ANC visit during the first trimester of last pregnancy						
78.7% (69.5–87.8)	24	81%	18 (85%)	A	21	Yes
				B	18	Yes
				C	19	Yes
				D	16	No
Mothers of children 0–23 months attending at least 4 ANC visits during last pregnancy						
59.1% (47.9–70.3)	24	30%	3 (30%)	A	12	Yes
				B	13	Yes
				C	15	Yes
				D	16	Yes
Mothers of children 0–23 months receiving adequate iron and folic acid tablets during last pregnancy						
93.8% (88.1–99.5)	24	81%	18 (85%)	A	23	Yes
				B	22	Yes
				C	22	Yes
				D	23	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy						
48.6% (37.1–60.1)	24	80%	16 (80%)	A	13	No
				B	12	No
				C	11	No
				D	11	No
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant						
56.8% (45.5–68.1)	24	75%	15 (75%)	A	13	No
				B	13	No
				C	15	Yes
				D	12	No
Mothers of children 0–23 months who attended at least 1 postnatal care visit after the last birth						
51.7% (40.2–63.2)	24	65%	13 (65%)	A	12	No
				B	15	Yes
				C	13	Yes
				D	11	No
Mothers of children 0–23 months who attended at least 1 postnatal care visit within 6 weeks after delivery						
50.8% (39.4–62.3)	24	65%	13 (65%)	A	12	No
				B	15	Yes
				C	13	Yes
				D	10	No
Mothers of children 0–23 receiving vitamin A within 8 weeks after delivery						
53.1% (41.8–64.4)	24	81%	18 (85%)	A	10	No
				B	13	No
				C	15	No
				D	12	No

4.5.6 Family Planning

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 using a modern method of family planning						
13.0% (5.0–21.0)	24	25%	2 (25%)	A	2	Yes
				B	3	Yes
				C	5	Yes
				D	1	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 not using a modern method of family planning but would like to						
82.2% (73.7–90.7)	24	76%	16 (80%)	A	16	Yes
				B	21	Yes
				C	21	Yes
				D	22	Yes

4.6 MONTSERRADO COUNTY

Supervision Areas	Health District	Communities
A	Careysburg	Joe Ricks, Boloncol, Balatannah, Central Crozierville, Tolbert, 15 Gate Community, Hope In Christ, Gboko, Marchee, Key Center, Govoyalah/Urey Farm, Tarr, Division 16 (Mamo Camp), Kollie, Garzon Reccess, Division #15, Glee #8, Division #16 Long Camp, Division #17
B	Commonwealth	Dougbah, Louisiana Waterside, Cofflin, Glozon, Worlakor, Cooper Farm, Kpequoi, Jlahzon, Tarnue (2), Karnkarn, P.K. Hage Farm, Mount Barclay (2), Lower Johnson (3), Avenue, Kpanwhien
C	Greater Monrovia	Z100 Lagoon East, Z200 Vicky Spot, Z300 Paity Town, Z400 West Point, Z1000 Congo Town Old Rd, Z1100 Rehab/Borbor Town, Z1100 Kpelle Town, Z1100 Wood Camp, Z1100 Gsa Road Rockville, Z1100 City View, Z1100 Pipeline B, Z600 Bernard Quarters, Z1200 J.E Marshall, Z700 Fiama, Z1300 Chocolate City, Z800 New Matadi, Z1400 Barnersville Estate, Z900 Nippay Town, Z1600 New Georgia Road
D	St. Paul River	Gbarteah, Kai, Geyway (3), Zolu (2), Mango, Kpalla-Brisbane Road, Kpalla-Jah Tondo, Kpalla-Kpalla/Dakulyla (2), Kpalla-Perry Town /Wilson Corner Displace Camp, Central Royesville, Sawegbeh, Billey, Moulton Corner, Bracewell Ave, Kakako
E	Todee	Morris Farm, Valeiyehn, Molly, Gobah, Freeman Reserved, Division 18, Tengbeh, Keyan, Bili, Kortuman, Zolu Paye, Yarkpazuah, Holder Farm (2), Edwin Best, Samukai, Mary Farm, Zannah, Botoi, Zalamu

4.6.1 Child Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months who received vitamin A supplementation within last 6 months						
84.8% (70.1–99.5)	19	80%	13 (80%)	A	17	Yes
				B	15	Yes
				C	16	Yes
				D	17	Yes
				E	17	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 12–23 months who received DPT3/pentavalent-3 vaccination before 12 months						
93.3% (84.2–100.0)	19	83%	14 (85%)	A	17	Yes
				B	16	Yes
				C	18	Yes
				D	15	Yes
				E	17	Yes
Children age 12–23 months who were fully immunized before 12 months						
79.3% (64.6–94.0)	19	72%	12 (75%)	A	13	Yes
				B	11	No
				C	16	Yes
				D	5	No
				E	13	Yes
Mothers of children age 0–59 months who can produce a child health card						
68.9% (50.2–87.6)	19	70%	11 (70%)	A	12	Yes
				B	12	Yes
				C	13	Yes
				D	15	Yes
				E	13	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider						
65.3% (45.9–84.7)	19	79%	13 (80%)	A	15	Yes
				B	16	Yes
				C	12	No
				D	16	Yes
				E	13	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics						
41.0% (21.6–60.5)	19	55%	8 (55%)	A	15	Yes
				B	11	Yes
				C	7	No
				D	13	Yes
				E	12	Yes
Children age 0–59 months with diarrhea in the last 2 weeks who received oral rehydration solution and zinc						
58.1% (38.2–78.0)	19	44%	6 (45%)	A	11	Yes
				B	11	Yes
				C	11	Yes
				D	13	Yes
				E	8	Yes

4.6.2 Malaria Prevention

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider						
65.1% (45.7–84.5)	19	83%	14 (85%)	A	12	No
				B	17	Yes
				C	12	No
				D	15	Yes
				E	16	Yes
Children age 0–59 months with a febrile episode during the last 2 weeks who received ACT treatment within 24 hours of onset of fever						
0.0%	19	27%	3 (30%)	A	0	No
				B	0	No
				C	0	No
				D	0	No
				E	0	No
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net						
39.0% (19.2–58.9)	19	58%	9 (60%)	A	9	Yes
				B	4	No
				C	8	No
				D	2	No
				E	2	No
Children age 0–59 months who slept under an insecticide treated bed-net the previous night						
33.7% (14.3–53.1)	19	23%	2 (25%)	A	7	Yes
				B	2	Yes
				C	7	Yes
				D	1	No
				E	2	Yes
Mothers of children age 0–23 months who received second dose of IPT for malaria during pregnancy						
47.6% (27.4–67.7)	19	62%	10 (65%)	A	11	Yes
				B	11	Yes
				C	9	No
				D	8	No
				E	10	Yes

4.6.3 Nutrition

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery						
61.5% (42.0–81.0)	19	67%	11 (70%)	A	11	Yes
				B	9	No
				C	12	Yes
				D	8	No
				E	12	Yes
Children age 0–5 months who were exclusively breastfed during the last 24 hours						
39.3% (19.9–58.8)	19	61%	10 (65%)	A	16	Yes
				B	6	No
				C	7	No
				D	8	No
				E	13	Yes
Children age 6–23 months receiving a minimum acceptable diet						
9.7% (0.5–18.8)	19	50%	7 (50%)	A	5	No
				B	5	No
				C	1	No
				D	7	Yes
				E	11	Yes
Women 15–49 years meeting minimum acceptable dietary diversity						
53.2% (33.0–73.3)	19	50%	7 (50%)	A	10	Yes
				B	8	Yes
				C	10	Yes
				D	10	Yes
				E	14	Yes
Prevalence of households with moderate to severe hunger						
24.6% (8.6–40.6)						

4.6.4 Water Sanitation and Hygiene (WASH)

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months living in households with access to improved sanitation						
5.2% (0.0–14.2)	19	30 5	3 (30%)	A	1	No
				B	2	No
				C	1	No
				D	1	No
				E	0	No
Children age 0–59 months living in households with access to improved toilet facilities						
52.9% (33.1–72.8)	19	50%	7 (50%)	A	4	No
				B	2	No
				C	11	Yes
				D	5	No
				E	2	No
Children 0–59 months living in households with access to improved waste disposal						
16.8% (2.0–31.5)	19	–	1 (20%)	A	5	Yes
				B	6	Yes
				C	3	Yes
				D	6	Yes
				E	0	No
Children age 0–59 months who live in a household with soap						
95.4% (86.4–100.0)	19	87%	15 (90%)	A	19	Yes
				B	18	Yes
				C	18	Yes
				D	19	Yes
				E	19	Yes
Mothers of children age 0–59 months who washed their hands with soap at least 2 of the appropriate times						
73.8% (56.0–91.5)	19	75%	12 (75%)	A	17	Yes
				B	11	No
				C	14	Yes
				D	15	Yes
				E	11	No
Children 0–59 months living in households with reasonable access to improved drinking water						
91.6% (82.5–100.0)	19	66%	11 (70%)	A	12	Yes
				B	11	Yes
				C	18	Yes
				D	17	Yes
				E	8	No

4.6.5 Maternal Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children age 0–23 months attending the first antenatal care visit during the first trimester of the last pregnancy						
83.0% (68.3–97.7)	19	61%	10 (65%)	A	16	Yes
				B	15	Yes
				C	16	Yes
				D	14	Yes
				E	13	Yes
Mothers of children age 0–23 months attending at least 4 antenatal care visits during last pregnancy						
72.5% (54.8–90.3)	19	68%	11 (70%)	A	16	Yes
				B	13	Yes
				C	14	Yes
				D	9	No
				E	16	Yes
Mothers of children age 0–23 months who received iron and folic acid tablets during last pregnancy						
99.2% (98.4–100.0)	19	51%	8 (55%)	A	18	Yes
				B	19	Yes
				C	19	Yes
				D	18	Yes
				E	17	Yes
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy						
23.9% (7.4–40.4)	19	56%	9 (60%)	A	6	No
				B	8	No
				C	4	No
				D	9	Yes
				E	8	No
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant						
74.8% (58.4–91.3)	19	49%	7 (50%)	A	10	Yes
				B	7	Yes
				C	15	Yes
				D	10	Yes
				E	7	Yes
Mothers of children 0–23 months attending at least 1 postnatal care visit after the last birth						
39.2% (19.7–58.7)	19	65%	10 (65%)	A	12	Yes
				B	10	Yes
				C	7	No
				D	10	Yes
				E	10	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months attending at least 1 postnatal care visit within 6 weeks after delivery						
39.0% (19.5–58.4)	19	65%	10 (65%)	A	12	Yes
				B	9	No
				C	7	No
				D	10	Yes
				E	9	No
Mothers of children 0–23 months who received vitamin A within 8 weeks after delivery						
39.7% (19.8–59.6)	19	32%	4 (35%)	A	5	Yes
				B	5	Yes
				C	8	Yes
				D	5	Yes
				E	3	No

4.6.6 Family Planning

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women age 15–49 currently using a modern method of family planning						
21.1% (4.6–37.5)	19	20%	1 (20%)	A	3	Yes
				B	4	Yes
				C	4	Yes
				D	4	Yes
				E	5	Yes
Women age 15–49 not currently using a modern method but who would like to be						
83.8% (69.1–98.5)	19	60%	9 (60%)	A	15	Yes
				B	17	Yes
				C	16	Yes
				D	15	Yes
				E	16	Yes

4.7 NIMBA COUNTY

Supervision areas	Health district	Communities
A	Sanniquellie-Mah	Gbobayee #2, Vahnyanpa, Sanniquellie, Kpayelepula, Flowin, Duo Gbeah, Lugbye, Gbarpa, Yekepa, Nengbain, Ganta, Whipa, Zoyatuocentral (Nuauplay)
B	Saclepea -Mah	Menyen, Tonwin, Gblehyee, Yenkpalah, Tinyee, Lampa, Flumpa, Cocopa Camp 6, Cocopa Camp 5, Yarsonnoh, Torkopa, Mehnpa, Bueh Town, Saclepea, Gonkartee Pa, Garwonpa, Fleedin
C	Gbehlay-Geh	Dantuo (Nuahplay) Village, Peter Teah Village, Younlay, Duoplay, Zeanlay #2, Luonpea Village, Karnplay/Larpea, Karnplay/Larpea, Manbor, Bouannay, Blemieplay, Slangonplay, Lowlay, Senlay, Fleuhnplay, Quekerplay, Geanplay, Mahdiaplay #3, Gbei Vonwea
D	Tappita	Gblor Diallah Town, Wrolay, Tappita City, Alfred Gaye and Sam Zobueh, Ziah New, Zuaplay, Nenoko, Graie Township, Balawein, Yellay, Old Yourpea, Beatuo, Kanblee, Bonglay, Sarlay, Mletontuo, Toweh Town
E	Yarwin-Mehnsonnoh	Blameh, Mehnla, Nyonkiayee, Garyeesonnoh, Guotoin, Zowehon, Boition, Sendin Tropa, Zekepa, Voipa, Kaipa, Zekepa, Dahnpa, Kwendin, Zahnzaye, Barbar Village, Boyee, Goekorpa (Yeagoan)
F	Zoe -Geh	Devongbin, Sangarplay, Fiaplay, Guerkpahnah, Gblah, Bahn, Rlekporlay, Gwehlay, Bennehglay(Leadopoeplay), Beeplay, Wea New Town, Nyarlay, Tiaplay, Barlorplay, Nyor Display, Buehplay #1, Dinplay, Zehlay

4.7.1 Child Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months who received vitamin A supplementation within last 6 months						
98.0% (95.5–100.0)	19	75%	12 (75%)	A	19	Yes
				B	18	Yes
				C	18	Yes
				D	19	Yes
				E	18	Yes
				F	19	Yes
Children 12–23 months receiving DPT3/pentavalent-3 vaccination before 12 months						
91.7% (86.0–97.4)	19	95%	16 (95%)	A	16	Yes
				B	18	Yes
				C	19	Yes
				D	17	Yes
				E	15	No
				F	19	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 12–23 months fully immunized before 12 months						
75.3% (66.8–83.9)	19	95%	16 (95%)	A	13	No
				B	14	No
				C	14	No
				D	13	No
				E	12	No
				F	19	Yes
Mothers of children 0–59 months who can produce a child health card						
65.4% (56.2–74.6)	19	73%	12 (75%)	A	13	Yes
				B	17	Yes
				C	8	No
				D	10	No
				E	12	Yes
				F	13	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider						
75.6% (66.9–84.2)	19	87%	15 (90%)	A	14	No
				B	15	Yes
				C	14	No
				D	14	No
				E	11	No
				F	16	Yes
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics						
68.9% (59.7–78.2)	19	52%	8 (55%)	A	11	Yes
				B	14	Yes
				C	12	Yes
				D	13	Yes
				E	12	Yes
				F	17	Yes
Children 0–59 months with diarrhea who received oral rehydration solution and zinc						
55.1% (45.5–64.7)	19	37%	5 (40%)	A	14	Yes
				B	11	Yes
				C	7	Yes
				D	8	Yes
				E	12	Yes
				F	9	Yes

4.7.2 Malaria Prevention

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider						
76.8% (68.8–84.7)	19	84%	14 (85%)	A	17	Yes
				B	16	Yes
				C	14	Yes
				D	13	No
				E	12	No
				F	12	No
Children age 0–59 months with a febrile episode during the last 2 weeks who received ACT treatment within 24 hours of onset of fever						
15.8% (8.4–23.2)	19	34%	4 (35%)	A	3	No
				B	2	No
				C	3	No
				D	3	No
				E	3	No
				F	4	Yes
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net						
35.8% (26.4–45.1)	19	62%	10 (65%)	A	7	No
				B	11	Yes
				C	8	No
				D	4	No
				E	9	No
				F	3	No
Children age 0–59 months who slept under an insecticide treated bed-net the previous night						
35.0% (25.6–44.3)	19	31%	4 (35%)	A	7	Yes
				B	11	Yes
				C	7	Yes
				D	4	Yes
				E	9	Yes
				F	3	No
Mothers of children 0–59 Months who received second dose of IPT during last pregnancy						
54.3% (44.4–64.2)	19	61%	10 (65%)	A	10	Yes
				B	14	Yes
				C	9	No
				D	11	Yes
				E	9	No
				F	8	No

4.7.3 Nutrition

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery						
53.6% (43.5–63.6)	19	78%	13 (80%)	A	11	No
				B	9	No
				C	10	No
				D	9	No
				E	8	No
				F	12	No
Children age 0–5 months who were exclusively breastfed during the last 24 hours						
82.6% (74.9–90.4)	19	85%	14 (85%)	A	15	Yes
				B	13	No
				C	18	Yes
				D	17	Yes
				E	17	Yes
				F	16	Yes
Children 6–23 months receiving a minimum acceptable diet						
27.6% (18.5–36.6)	19	50%	7 (50%)	A	6	No
				B	8	Yes
				C	3	No
				D	4	No
				E	6	No
				F	4	No
Women 15–49 years meeting minimum acceptable dietary diversity						
72.3% (63.9–80.8)	19	50%	7 (50%)	A	16	Yes
				B	9	Yes
				C	14	Yes
				D	14	Yes
				E	12	Yes
				F	15	Yes
Prevalence of moderate to severe hunger						
11.3% (5.7%- 17%)						

4.7.4 Water Sanitation and Hygiene (WASH)

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved sanitation						
4.8% (0.0–9.5)	19	30%	3 (30%)	A	2	No
				B	1	No
				C	0	No
				D	1	No
				E	0	No
				F	0	No
Children age 0–59 months living in households with access to improved toilet facilities						
24.5% (16.0–33.1)	19	50%	7 (50%)	A	9	Yes
				B	3	No
				C	4	No
				D	4	No
				E	3	No
				F	1	No
Children 0–59 months living in households with access to improved waste disposal						
7.1% (1.8–12.4)	19	20%	1 (20%)	A	2	Yes
				B	2	Yes
				C	0	No
				D	2	Yes
				E	2	Yes
				F	0	No
Children 0–59 months who live in a household with soap						
87.1% (81.4–92.8)	19	85%	14 (85%)	A	19	Yes
				B	18	Yes
				C	12	No
				D	15	Yes
				E	18	Yes
				F	16	Yes
Mothers of children 0–59 months who washed their hands with soap at least 2 of the appropriate times						
73.3% (64.5–82)	19	90%	15 (90%)	A	15	Yes
				B	11	No
				C	13	No
				D	16	Yes
				E	14	No
				F	14	No

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Children 0–59 months living in households with access to improved drinking water						
69.8% (60.5–79.0)	19	70%	11 (70%)	A	14	Yes
				B	14	Yes
				C	11	Yes
				D	14	Yes
				E	15	Yes
				F	12	Yes

4.7.5 Maternal Health

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children 0–23 months attending the first ANC visit during the first trimester of last pregnancy						
81.6% (74.0–89.3)	19	74%	12 (75%)	A	16	Yes
				B	15	Yes
				C	16	Yes
				D	14	Yes
				E	13	Yes
				F	17	Yes
Mothers of children 0–23 months attending at least 4 ANC visits during last pregnancy						
68.4% (59.3–77.4)	19	65%	10 (65%)	A	10	Yes
				B	16	Yes
				C	14	Yes
				D	18	Yes
				E	14	Yes
				F	9	No
Mothers of children 0–23 months receiving adequate iron and folic acid tablets during last pregnancy						
99.2% (97.5–100.0)	19	22%	2 (25%)	A	19	Yes
				B	19	Yes
				C	19	Yes
				D	18	Yes
				E	19	Yes
				F	19	Yes

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy						
54.3% (44.7–63.9)	19	78%	13 (80%)	A	12	No
				B	5	No
				C	14	Yes
				D	12	No
				E	8	No
				F	9	No
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant						
56.4% (46.4–66.4)	19	72%	12 (75%)	A	11	No
				B	12	Yes
				C	9	No
				D	11	No
				E	5	No
				F	12	Yes
Mothers of children 0–23 months who attended at least 1 postnatal care visit after the last birth						
66.4% (57.1–75.7)	19	65%	10 (65%)	A	14	Yes
				B	13	Yes
				C	12	Yes
				D	9	No
				E	12	Yes
				F	14	Yes
Mothers of children 0–23 months who attended at least 1 postnatal care visit within 6 weeks after delivery						
64.0% (54.4–73.6)	19	65%	10 (65%)	A	13	Yes
				B	13	Yes
				C	12	Yes
				D	9	No
				E	12	Yes
				F	13	Yes
Mothers of children 0–23 receiving vitamin A within 8 weeks after delivery						
45.7% (36.0–55.3)	19	81%	14 (85%)	A	12	No
				B	10	No
				C	9	No
				D	6	No
				E	9	No
				F	4	No

4.7.6 Family Planning

Coverage (CI)	Sample size	Target	Decision rule	Lot	Correct responses	Meets decision rule?
Women 15–49 using a modern method of family planning						
3.6% (0.0–7.4)	19	1%	1 (20%)	A	1	Yes
				B	1	Yes
				C	0	No
				D	1	Yes
				E	1	Yes
				F	0	No
Women 15–49 not using a modern method of family planning but would like to						
87.2% (80.7–93.7)	19	58%	9 (60%)	A	17	Yes
				B	13	Yes
				C	18	Yes
				D	17	Yes
				E	16	Yes
				F	18	Yes

Appendix 1 Participant Manual and Workbook

Outcome Monitoring using LQAS in Seven Counties of Liberia

Participant Manual and Workbook

USAID
FROM THE AMERICAN PEOPLE

MEASURE
Evaluation

Contents

Acknowledgments

Adapted from Valadez, J., Weiss, W., Leeburg, C., Davis, R. 2003. *Assessing Community Health Programs: A Trainer's Guide Using LQAS for Baseline Surveys and Regular Monitoring*. St. Albans: Teaching Aids at Low Cost (TALC).

In addition, material has been adapted from *Outcome Monitoring and Evaluation Using LQAS*, 2011, for the Kenya-based APHIA II Evaluation Project. These publications were originally made possible through support provided by the Bureau for Global Health, U.S. Agency for International Development.

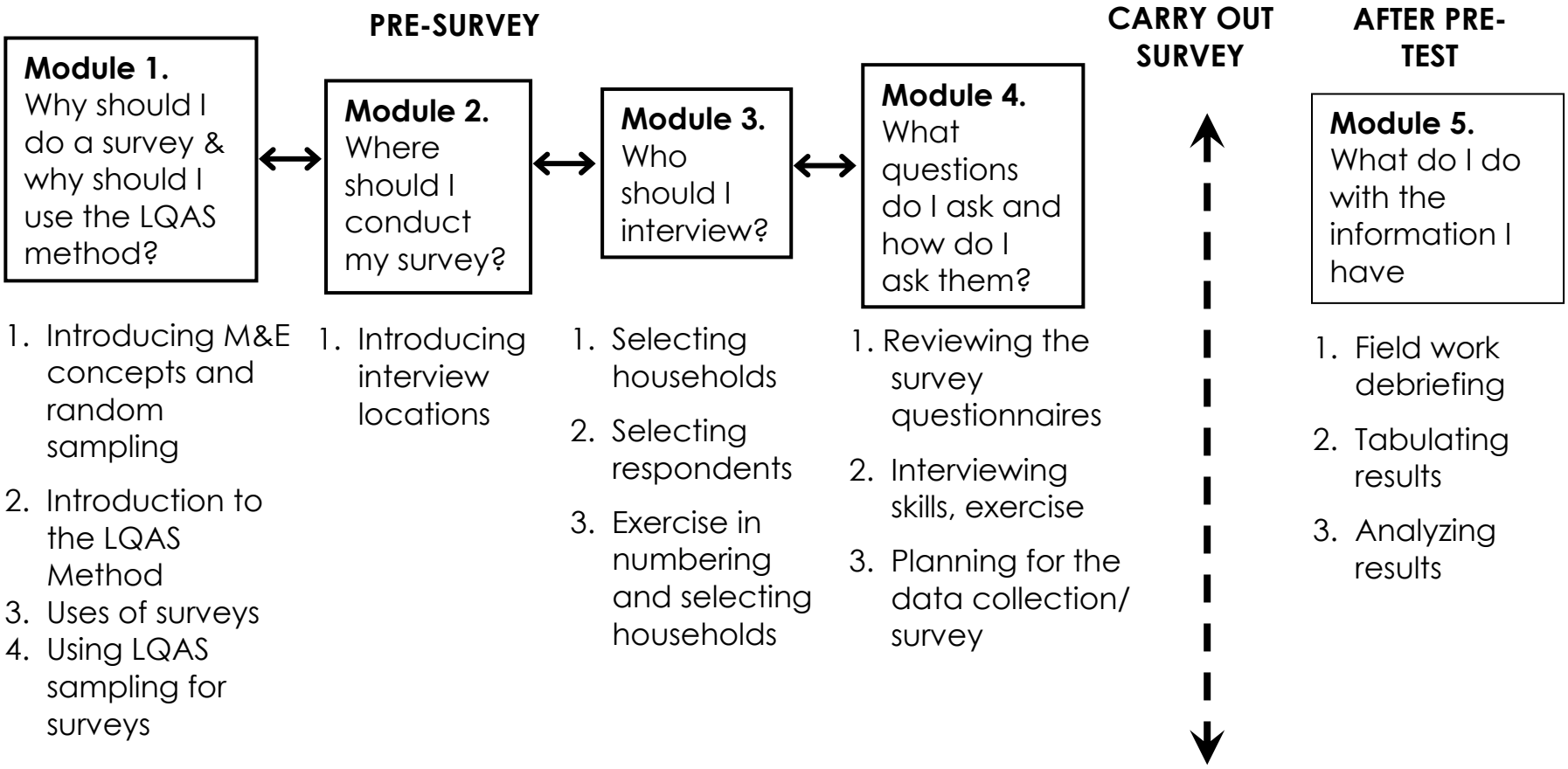
Purpose of the Lot Quality Assurance Sampling (LQAS) Workshop

- Train interviewers in LQAS methodology for conducting surveys to collect data for health services and program monitoring.
- Train program staff in how to interpret data from LQAS to identify priorities for improving program coverage.

Skills to be Learned

- LQAS Sampling Methods
- Interviewing Techniques

Overview of the LQAS Training



Agenda for Modules 1-4:

Sampling and Data Collection Workshop

Day/Time	Learning Activities
Monday	
Morning	Introductions, M&E concepts, introduction to random sampling
Afternoon	Introduction to LQAS
Tuesday	
Morning	Understanding LQAS, interpreting results
Afternoon	Selecting households and respondents
Wednesday	
Morning	Parallel sampling
Afternoon	Questionnaire review
Thursday	
Morning	Interview skills
Afternoon	Preparation for field practice
Friday	
Morning	Field practice
Afternoon	Field practice
Saturday	
Morning	Field practice review and wrap-up
Afternoon	Optional additional field practice

MODULE ONE

Why should I do a survey and why should I use the LQAS method?

Session 1: Introducing Monitoring & Evaluation Concepts and Random Sampling

Session 2: Introduction to the LQAS Methodology

Session 3: Uses of Surveys

Session 4: Using LQAS Sampling for Surveys

Session 1: Introducing Monitoring & Evaluation Concepts and Random Sampling

Monitoring vs. Evaluation

Monitoring

- Monitoring is the regular collection and analysis of information
- Monitoring assists timely decision-making, ensures accountability and provides the basis for evaluation and learning.
    - IFAD. (2002) *A guide for project M&E: Managing for impact in rural development.*
- Monitoring assesses progress against set objectives/output, supervises implementation and assesses the effectiveness of implementation strategies.
    - The Applied Nutrition Programme, University of Nairobi School of Nutrition Science and Policy, Tufts University. (2000). *Monitoring and evaluation of nutrition and nutrition-related programmes: A training manual for programme managers and implementors.*

Evaluation

- A systematic (and objective as possible) examination of a planned, ongoing or completed project. It aims to answer specific management questions and to judge the overall value of an endeavor and supply lessons to improve future actions, planning and decision-making.
    - IFAD. (2002) *A guide for project M&E: Managing for impact in rural development.*
- The process of determining the worth or significance of an activity, policy or program.
    - Kusek, J.Z. (2004). *Ten steps to a results-based monitoring and evaluation system: A handbook for development practitioners.* The World Bank.

Outcome Monitoring

Process: Focuses on outputs (number of training activities, services offered, brochures distributed, visits made).

Outcome: Focuses on changes in knowledge, practice, and service coverage.

Impact: Focuses on attributing changes seen in a population to the program.

Population-Based Surveys

- Assess changes in the population by administering questions to people in the general population
- The population can be a subset of a larger population that the program/project is interested, for example:
  - Young people age 15-24
  - Pregnant women
  - Orphans
- These differ from service provider surveys, e.g. HFA, SPA

Why do we need to sample?

Sampling allows you to use the "*few*" to describe the "*whole*," and this:

- Saves time

  and

- Saves money

Why a Random Sample?

- Every sampling unit (e.g. household) has equal chance of being selected
- Reduces errors that are possible when selection is done by convenience
- Does not make assumptions about conditions in a particular area or for a particular respondent

Random versus non-random sampling

- Quality of results, the degree to which you can be confident of your results can be measured by statistics
- Statistics are dependent upon the characteristics of your population
- Random sampling of a population gives an equal probability of being selected to all parts of the population and avoids bias of non-random techniques

In the field, non-random sampling can lead to mis-representation of the underlying population <u>and</u> it invalidates statistical support for results, so…

MAKE SURE YOU USE RANDOMIZATION TECHNIQUES WHEN SAMPLING!!!

Session 2: Introduction to the LQAS Methodology

"LQAS"?

Lot

Quality

Assurance

Sampling

Where does LQAS come from?

- Originally used in industry to assess industrial batch production
- Adapted and can be used as a monitoring and management aid for integrated public health programs
- Sample "lots" out of what is produced (not individual items)
- Count number that are of agreed upon quality and those that are not
- Based on desired level of quality, decide if overall lot achieves that level or not
- The decision rule is based on desired production standards
- The sample size and decision rule give the manager high probability of rejecting substandard lots

What is LQAS?

- Based on a limited number of observations
- Can distinguish lots meeting pre-set outcome targets from those that do not
- Used for monitoring, informs decision making on corrective measures
- Can be used aggregately to gauge coverage and outcome

LQAS Terminology

Supervision Area (SA): Lot or program area to be assessed or monitored

Coverage: Proportion with desired outcome in an indicator in a SA

Target: A coverage benchmark that provides a preset minimum acceptable coverage level

Average Coverage: Proportion showing desired outcome across all SAs of the whole program area/county

Decision rule: The number that corresponds to a specific coverage level for a given LQAS sample size

Defining Catchment Area and Lots/Supervision Areas

- Each County is treated as a separate LQAS survey
- For each LQAS the County is usually divided up into 5 Lots or Supervision Areas (SA)
- The sum total of the five lots or SAs represents the Catchment Area for that survey
- In this manual, the letters A, B, C, D, and E represent each lot

Note that it is possible to divide a county into less than five or more than 5 SAs as long as these SAs reflect the meaningful division of the county for monitoring of specific programs. The important things to consider during the division of counties into smaller SAs is that a minimum of 95 sample points are required at county level and a minimum of 19 sample points are required at the SA level for acceptable statistical precision.

Session 3: Uses of Surveys

Coverage vs. Average Coverage

An important use of surveys is to measure coverage.

- Why is it important to know about coverage?
- Coverage refers to the proportion of people with a certain characteristic at the SA level.
- Average coverage refers to the proportion of people with a certain characteristic at the catchment level (i.e. across the entire county).

What LQAS Surveys Can Show You

LQAS surveys can help you identify estimated levels of coverage of the health program area as a whole, AND if there are:

- *large* differences in coverage regarding health knowledge and practices among Lots/SAs
- *little* difference in coverage regarding health knowledge and practices among Lots/SAs

Activity: Uses of LQAS in Three Scenarios

The following three scenarios show you how LQAS can tell you useful information about coverage to inform programmatic decision-making. In these scenarios, assume that the county has set a target of immunizing **70%** of children before 12 months.

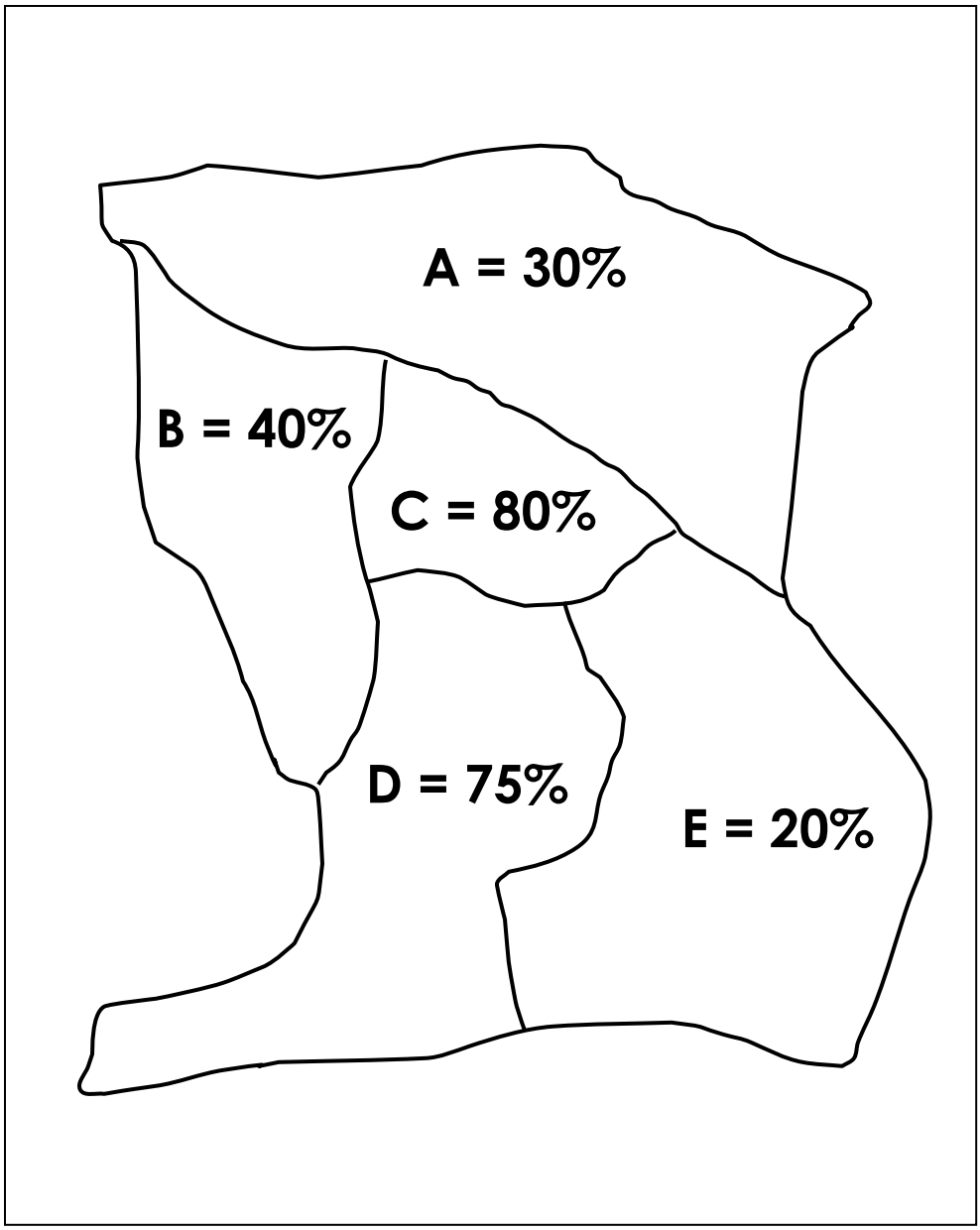
Scenario 1: Supervision areas A, B, and E are falling below the standard. What should the program manager do?

Scenario 2: All supervision areas are performing above the standard. What should the program manager do?

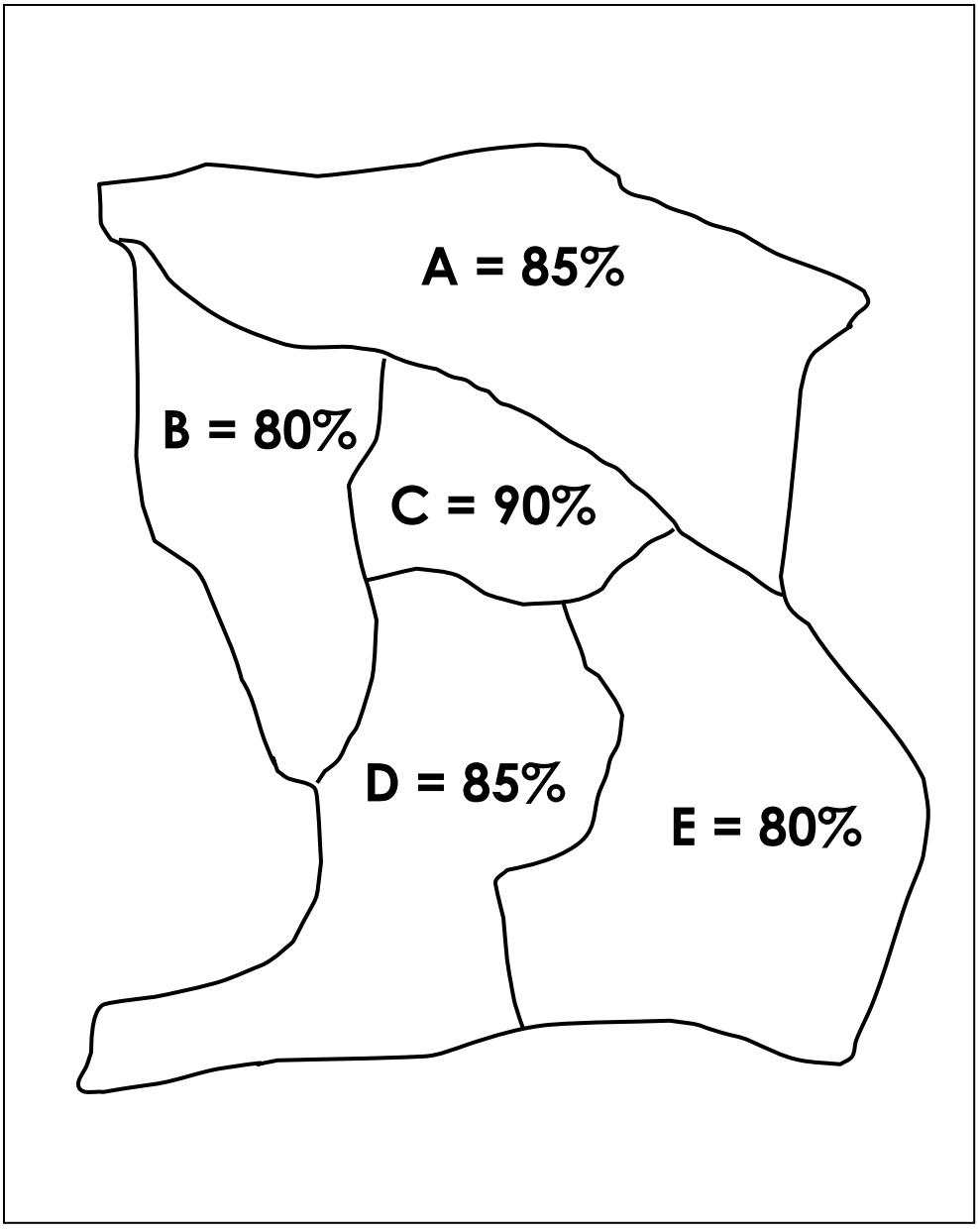
Scenario 3: All supervision areas are performing below the standard. What should the program manager do?

Note: LQAS is less useful for distinguishing differences in supervision areas when they are all performing at a high level or all at a low level.

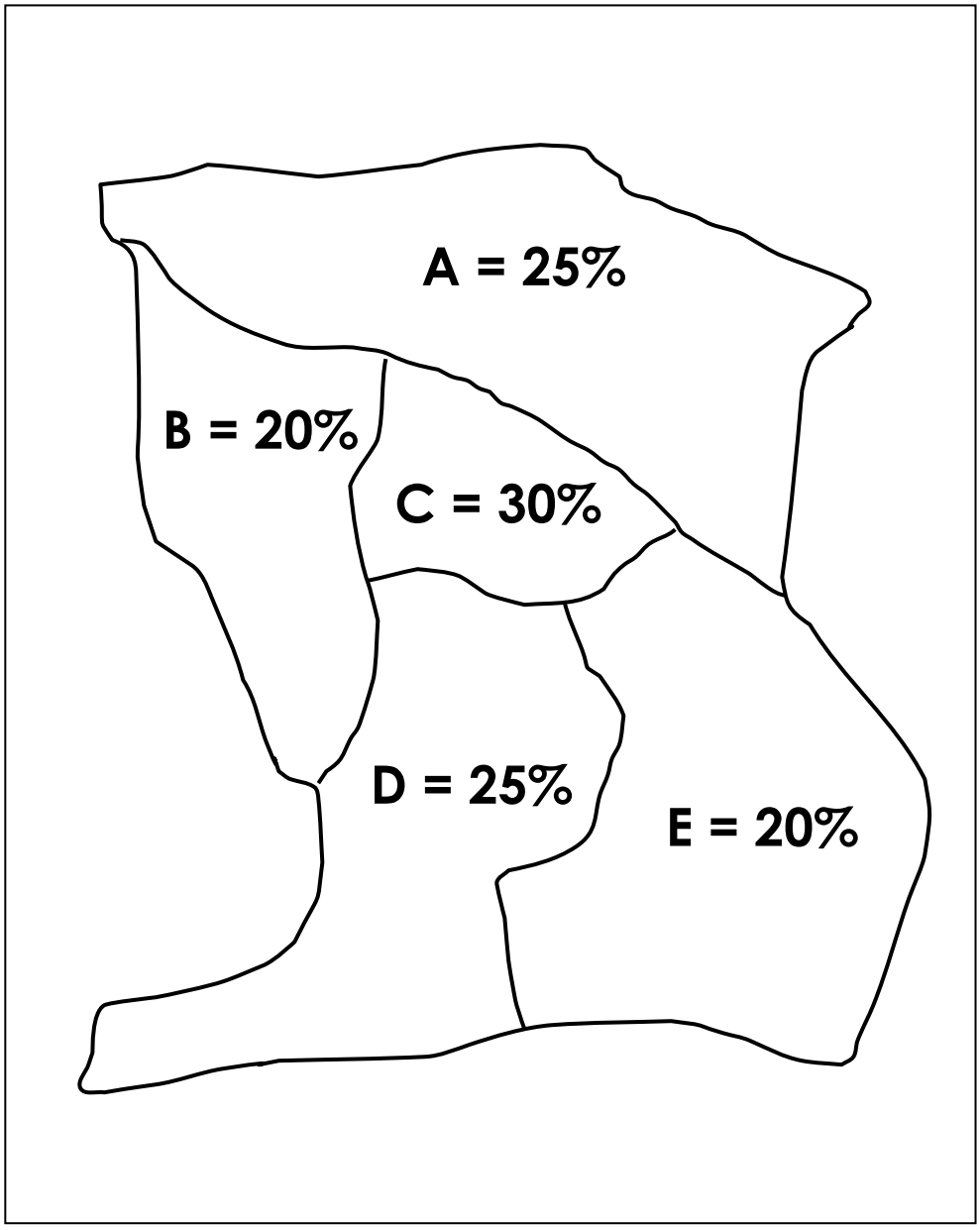
HEALTH PROGRAM: Scenario One (1)
Lots/Supervision Areas: A - E
Indicator: Percentage of children (12-23 months) who were fully immunized before 12 months.
Target: 70%



HEALTH PROGRAM: Scenario Two (2)
Lots/Supervision Areas: A - E
Indicator: Percentage of children (12-23 months) who were fully immunized before 12 months.
Target: 70%



HEALTH PROGRAM: Scenario Three (3)
Lots/Supervision Areas: A - E
Indicator: Percentage of children (12-23 months) who were fully immunized before 12 months.
Target: 70%



Activity: Using Survey Data

Indicator: Percentage of children (12-23 months) who were fully immunized before 12 months
Target: 70%

Possible Scenarios			
Supervision Area	**Scenario One (1) True Coverage (%)**	**Scenario Two (2) True Coverage (%)**	**Scenario Three (3) True Coverage (%)**
A	**30**	**85**	**25**
B	**40**	**80**	**20**
C	**80**	**90**	**30**
D	**75**	**85**	**25**
E	**20**	**80**	**20**

Analysis:

Look only at the true coverage figures within your assigned scenario (1, 2 or 3):

1. Discuss for a few minutes the differences in coverage among the 5 Lots/Supervision Areas *within your scenario*:
   - What is the difference in coverage among the 5 Lots/Supervision Areas?
   - How different is this? Very different? Little difference?

2. Does coverage for the overall health program area appear HIGH, LOW, or MIXED?

3. What may be possible reasons for why, in your scenario, the health program area has this coverage?

4. What might you propose to do about immunizations in the health program area?

Uses of LQAS surveys

Identify health knowledge and practices with:

1. *Large* differences in coverage among Lots/SAs.

   - Identify the low-coverage SAs to be able to:
     - learn causes of low coverage.
     - focus our efforts and resources on these SAs.
     - improve coverage of the whole health program area by improving coverage in these SAs.
   - Identify high-coverage SAs to be able to:
     - study and learn what is working well.
     - identify things that can be applied to other SAs.

2. *Little* difference in coverage among SAs.

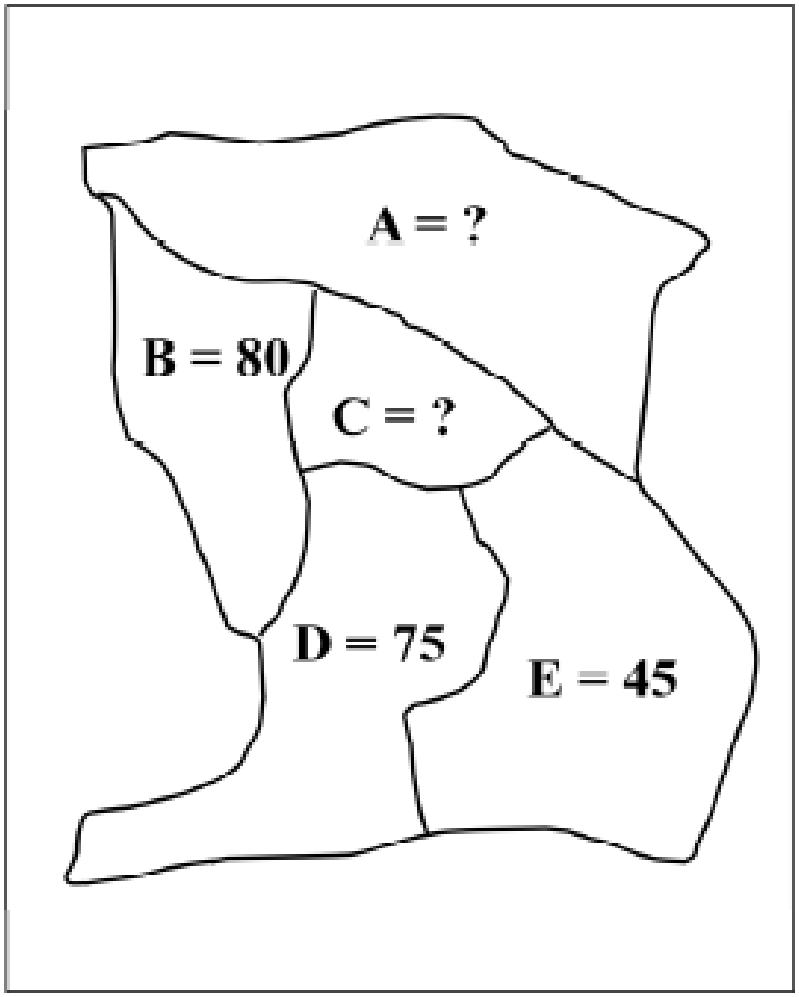
   - If coverage is generally high, consider shifting resources to improve other health knowledge and practices.
   - If coverage is generally low:
     - learn causes of low coverage.
     - identify/study other health program areas to learn what is working well.
     - identify things that can be applied in your own health program area.

Session 4: Using LQAS Sampling for Surveys

What a Random Sample of 19 Can Tell Us

- Good for deciding what are the higher-performing Lots/SAs to learn from
- Good for deciding what are the lower-performing Lots/SAs
- Good for differentiating knowledge/practices that have high coverage from those of low coverage
- Good for setting priorities among Lots/SAs with large differences in coverage
- Good for setting priorities among knowledge/practices within a Lot/SA

Lots/Supervision Areas: A - E
Indicator: Percentage of children (12-23 months) who were fully immunized before 12 months.



We want to know whether supervision area A or C need attention, meaning we are seeking evidence that they are performing in a substandard way in relation to a target we have set for immunization.

We don't know the coverage in supervision area A or C, so we will do a survey, randomly selecting and interviewing 19 young people from each of the two supervision areas. We will demonstrate that his is adequate for our purposes of identifying priority areas.

Activity: Is a Sample Size of 19 Adequate?

1. Form two groups.
2. Each group is provided with **two bags, A and C**. Each bag has red and blue marbles. Red marbles represent children who HAVE NOT been fully immunized, and blue marbles represent those who HAVE been fully immunized.
3. For each group, take a **random** sample of **19 marbles** from **bag A**. Count the blue marbles in the sample and record the number in the chart provided.
4. Replace the sampled marbles and repeat the process until you have taken **5 random samples of 19**.
5. Copy the sample results from the other group so you have a total of 10 random samples.
6. Now count all the marbles in the bag. How many blue marbles were in the bag? What percentage of all the marbles in the bag were blue?
7. Now let each group repeat this exercise using **bag C**.

Supervision Areas							
A				C			
#Correct (blue marbles)				#Correct (blue marbles)			
Sample		Sample		Sample		Sample	
1		6		1		6	
2		7		2		7	
3		8		3		8	
4		9		4		9	
5		10		5		10	

Verify "immunized" in the bag for SA A ➡ $\frac{\text{Total blue marbles in the bag}}{\text{Total blue and red marbles in the bag}} = \frac{\square}{\square} = \_\_\_\_\_\%$

Verify "immunized" in the bag for SA C ➡ $\frac{\text{Total blue marbles in the bag}}{\text{Total blue and red marbles in the bag}} = \frac{\square}{\square} = \_\_\_\_\_\%$

What a Random Sample of 19 Cannot Tell Us

- Not good for calculating exact coverage in a lot (but can provide an estimate of coverage for an entire program by aggregating all lots)
- Not good for setting priorities among Lots/SAs that have little difference in coverage among them

Why Use a Random Sample of 19?

- For a range of coverage target and error levels, a sample of 19 provides an acceptable trade-off for making management decisions
- When using LQAS to estimate whether or not a sample has achieved a certain threshold, samples moderately larger than 19 have practically the same statistical precision as a sample size of 19
- Therefore, a sample of 19 is efficient and saves money

LQAS Table: Decision Rules for Sample Sizes of 12-30 and Coverage Targets/Average of 10%-95%																		
Sample	**Average Coverage (Baselines) / Annual Coverage Target (Monitoring and Evaluation)**																	
Size*	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
12	N/A	N/A	1	1	2	2	3	4	5	5	6	7	7	8	8	9	10	11
13	N/A	N/A	1	1	2	3	3	4	5	6	6	7	8	8	9	10	11	11
14	N/A	N/A	1	1	2	3	4	4	5	6	7	8	8	9	10	11	11	12
15	N/A	N/A	1	2	2	3	4	5	6	6	7	8	9	10	10	11	12	13
16	N/A	N/A	1	2	2	3	4	5	6	7	8	9	9	10	11	12	13	14
17	N/A	N/A	1	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15
18	N/A	N/A	1	2	2	3	5	6	7	8	9	10	11	11	12	13	14	16
19	N/A	N/A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
20	N/A	N/A	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	17
21	N/A	N/A	1	2	3	4	5	6	8	9	10	11	12	13	14	16	17	18
22	N/A	N/A	1	2	3	4	5	7	8	9	10	12	13	14	15	16	18	19
23	N/A	N/A	1	2	3	4	6	7	8	10	11	12	13	14	16	17	18	20
24	N/A	N/A	1	2	3	4	6	7	9	10	11	13	14	15	16	18	19	21
25	N/A	1	2	2	4	5	6	8	9	10	12	13	14	16	17	18	20	21
26	N/A	1	2	3	4	5	6	8	9	11	12	14	15	16	18	19	21	22
27	N/A	1	2	3	4	5	7	8	10	11	13	14	15	17	18	20	21	23
28	N/A	1	2	3	4	5	7	8	10	12	13	15	16	18	19	21	22	24
29	N/A	1	2	3	4	5	7	9	10	12	13	15	17	18	20	21	23	25
30	N/A	1	2	3	4	5	7	9	11	12	14	16	17	19	20	22	24	26

N/A: *Not Applicable*, meaning LQAS can not be used in this assessment because the coverage is either too low or too high to assess an SA. This table assumes the lower threshold is 30 percentage points below the upper threshold.

: light-shaded cells indicate where *alpha* or *beta* errors are greater than or equal to 10%.

: dark-shaded cells indicate where *alpha* or *beta* errors are greater than15%.

Using the LQAS Table

Optimal LQAS Decision Rules for Sample Sizes of 12-30 and Coverage Targets of 10%-95%

On this table the first column (far left) is the size of your sample. Sample sizes of 12-30 are displayed. We are using a sample size of 19, (unless you only have four supervision areas in which case you would use a sample size of 24). The percentages across the top of the page represent targets a program might have for knowledge, practice, or coverage.

The numbers at the intersection of the target (column) and row (sample size) are called "decision rules", and they help us make a decision about a given supervision area. The way to think about the decision rule number is that it is the minimum number of people who must know, practice, or receive coverage for us to conclude that the supervision area does not need immediate attention.

In the example we have been using, it would be the minimum number of children (in our supervision area sample of 19) that we would need to find that have been fully immunized before 12 months in order to conclude that the supervision area does not need immediate attention.

Activity: Five Lots/SAs & One Indicator

LOT/SUPERVISION AREA: A, B, C, D or E			
Indicator: Percentage of children (12-23 months) who were fully immunized before 12 months	**Number of Qualified Responses**	**Coverage Estimate = 65.3%**	**Equal to or Above Average? Yes or No**
Lot/Supervision Area A	**12**		**Yes**
Lot/Supervision Area B	**9**		**No**
Lot/Supervision Area C	**16**	**Decision Rule = 11**	**Yes**
Lot/Supervision Area D	**11**		**Yes**
Lot/Supervision Area E	**14**		**Yes**

1. Add Number of Qualified Responses in all SAs: 12 + 9 + 16 + 11 +14 = **62**
   Add all Samples' Sizes: 19 + 19 + 19+ 19 + 19 = **95**
   Coverage Estimate = Average Coverage = 62/95 = **65.3%** = **70%**
(Round upward to the nearest interval of 5 to find the Decision Rule)

2. Use table to find Decision Rule.

3. Is coverage in the Lots/SAs generally equal to or below average? Yes or No?

4. Can you identify the Lots/Supervision Areas that have relatively lower immunization performance?

5. If yes, which are they? If not, why can't you identify them?

The Statistics of LQAS

If the true percentage of immunization coverage in the population were 80%, we would get 13 or more in a sample of 19 more than 90% of the time. (We would get less than 13 less than 10% of the time.)

At the same time, if the true percentage of knowledge in the population were 50%, we would get 13 or more in a sample less than 10% of the time.

So, if our target is 80% of children are fully immunized before 12 months, and we take a sample of 19, we can draw one of two conclusions:

1. If we get 13 or more, we conclude that the SA does not need attention at this time.

2. If we get less than 13, we conclude that the SA needs immediate attention.

Activity: The Statistics of LQAS

If the true percentage of immunization coverage in the population were 50%, we would get ___ or more in a sample of 19 more than 90% of the time. (We would get less than ___ less than 10% of the time.)

At the same time, if the true percentage of knowledge in the population were 20%, we would get ___ or more in a sample less than 10% of the time.

So, if our target is 50% of children are fully immunized before 12 months, and we take a sample of 19, we can draw one of two conclusions:

1. If we get ___ or more, we conclude that the SA _____ _____.

2. If we get less than ___, we conclude that the SA _____ _____.

Limits of LQAS

LQAS rarely misclassifies supervision areas that are far below (30 percentage points) a target as "in need of attention," but is less accurate when classifying supervision areas that are just a little below the target.

The probability of misclassifying a supervision area if our target is 50% coverage:

True population proportion who were fully immunized before 12 months	Probability of classifying the SA as not needing an intervention (based on n=19 with decision rule of 7 or more who were fully immunized)	Probability of classifying the SA as needing an intervention (based on n=19 with decision rule of 7 or more who were fully immunized)
15%	2%	98%
20%	7%	93%
25%	18%	82%
30%	33%	67%
35%	52%	45%
40%	69%	31%
45%	83%	18%
50%	92%	8%
55%	97%	3%
60%	99%	1%
70%	100%	0%

The closer the true population is to 50%, the more likely you are to classify it as not needing an intervention. You may say that if it is close to 50%, then it is not a priority.

The probability of misclassifying a supervision area if our target is 80% coverage:

True population proportion who were fully immunized before 12 months	Probability of classifying the SA as not needing an intervention (based on n=19 with decision rule of 7 or more who were fully immunized)	Probability of classifying the SA as needing an intervention (based on n=19 with decision rule of 7 or more who were fully immunized)
25%	0%	1%
30%	0.1%	99.9%
35%	0.3%	99.7%
40%	1%	99%
45%	3%	97%
50%	8%	92%
55%	17%	83%
60%	31%	69%
65%	48%	52%
70%	67%	33%
75%	83%	17%
80%	93%	7%
85%	98%	2%
90%	99.8%	0.2%
95%	100%	0%

There is a higher probability of misclassifying supervision areas that have a true coverage between 55 and 75 percent.

It is highly unlikely that we would fail to call a "50% population" substandard if our target is 80% and we take a sample of 19.

Summary: LQAS and Why the Sample Size of 19

- LQAS is designed to give managers a signal to take immediate corrective action in a SA in relation to meeting the target on a given indicator.

- The LQAS table is designed to detect SAs falling at least 30% below the target as requiring immediate corrective action.

- The signal requires:
    1. A target
    2. A sample size
    3. A decision rule

- Once we have two of these three requirements, the third is obtained from the LQAS table.

- The sample size of 19 is usually used because it is the smallest sample size with less than 10% alpha and beta errors (statistical errors) across all coverage targets.

Activity: Describing an LQAS Result

You are a program manager of an HIV program that has the goal of increasing appropriate testing and counseling concerning HIV for pregnant women in a region of your country. You have divided your program into 4 supervision areas and are working with providers to improve counseling and testing for HIV.

An indicator you have decided to track is the percent of pregnant women who are offered counseling and testing during their pregnancy. To assess the indicator you have developed a survey that you randomly administer to women who gave birth in the past year. At the beginning of the program you administered the survey and found that over the entire program area (all SAs combined) 25% of pregnant women were offered counseling and testing for HIV. Based on this you set a target that at the end of the program in four years 65% of women in the program area would be offered counseling and testing. You also set the target that after 2 years 40% would be offered counseling and testing

You are now two years into your program and have sampled and interviewed 19 women in each SA. You will examine the results of only two of the SAs here.

- Your decision rule is _____.

- In SA 1 you found that 7 of 19 women you interviewed (after random selection) said they had been offered counseling and testing.

- In SA 2 you found that 4 of 19 women you interviewed (after random selection) said they had been offered counseling and testing.

In each case what do you conclude at this time?

In pairs each person should take one of the SAs and in as simple terms as possible—and using what we have already seen and discussed—describe your result and what it implies for your program in that SA right now.

Use this space to write notes on how to accurately describe the results of a random sample of 19.

MODULE TWO

Where should I conduct my survey?

Session 1: Identifying Interview Locations

Session 1: Identifying Interview Locations

Identifying Locations for Interviews

Step 1. List communities and total population.

Step 2. Calculate the cumulative population.

Step 3. Calculate the sampling interval.

Step 4. Choose a random number that is less than the sampling interval.

Step 5. Beginning with the random number, use the sampling interval to identify communities for the 19 sets of interviews.

Steps 1 and 2: Population Sizes

Information on population size can come from a recent census in most cases unless there have been major population shifts. In that case other estimates can be used such as those coming from other surveys or other sources that have needed to estimate the relative size of each community. In Liberia, census data is available down to the sub-clan level, so that can be the basis for your population size data.

We really need a sense of the relative size of each location in comparison to others as we shall see. We need to be able to select locations with their probability of selection proportional to their size (PPS) meaning that larger communities have a greater probability of being selected. Why sample with PPS? We do this because we want the distribution of the population we are interested in learning about (young people age 15-24 in the example we have been using) in the sample to mirror their distribution in the broader population.

Step 1: List communities and total population

For the purposes of LQAS, we need a list of all communities in a single supervision area with their respective estimated populations. In the case of an urban area, we may have data for neighborhoods and could list the neighborhoods as separate communities.

We only need to know the total population of each community/neighborhood and not how many men vs. women or adults vs. children there are.

Example: List of Communities and Total Population
for a Lot/Supervision Area (Senjeh District, Bomi County)

Name of Community	Total Population
Matiah	13
Armah Konah	14
Ballay	14
Beafini	458
Bucbay	97
Bumah	14
Duwoe	7
Fahn Musa	9
Fallah-Foco	22
Gbadingla	100
Gbasormon	29
Gbonor	26
Gordee	5
Gugolor	10
Guwo	10
Jah Gballey	14
Kangba	53
Klay-Montue way	68
Kortee	42
Nathaniel	18
New Fahn	0
Old Fahn	16
Payroll	66
Quenkor	19
Tarweh	2
Weabai	47
Zarmeyan Town	219
Albert	37
Bugbay	213
Jarquay	26
Sayemonor	14
TOTAL	**1682**

Step 2: Calculate the cumulative population.

To begin calculating the cumulative population, you first must list the communities in a random order. Do not list them by size or alphabetically.

The cumulative population is found by adding the population of the second community to that of the first. Write this number in a separate column. Then you add the population of the third community to the sum of the first two. Repeat this process for all of the communities.

Example: Cumulative Population

Name of Community	Total Population	Cumulative Population
Matiah	13	13
Armah Konah	14	27
Ballay	14	41
Beafini	458	499
Bucbay	97	596
Bumah	14	610
Duwoe	7	617
Fahn Musa	9	626
Fallah-Foco	22	648
Gbadingla	100	748
Gbasormon	29	777
Gbonor	26	803
Gordee	5	808
Gugolor	10	818
Guwo	10	828
Jah Gballey	14	842
Kangba	53	895
Klay-Montue way	68	963
Kortee	42	1005
Nathaniel	18	1023
New Fahn	0	1023
Old Fahn	16	1039
Payroll	66	1105
Quenkor	19	1124
Tarweh	2	1126
Weabai	47	1173
Zarmeyan Town	219	1392
Albert	37	1429
Bugbay	213	1642
Jarquay	26	1668
Sayemonor	14	1682
TOTAL	**1682**	

Step 3: Calculate the Sampling Interval

The sampling interval is a simple calculation. It is calculated by dividing the total population in a supervision area by the number of interview sites you need. In our case, LQAS most often requires 19 interview sites per supervision area.

If there are decimal points in your sampling interval calculation, keep two at the end.

Note: If you only have 4 supervision areas, you will need to divide your cumulative population by 24.

Example: Calculating the Sampling Interval

Name of Community	Total Population	Cumulative Population
Matiah	13	13
Armah Konah	14	27
Ballay	14	41
Beafini	458	499
Bucbay	97	596
Bumah	14	610
Duwoe	7	617
Fahn Musa	9	626
Fallah-Foco	22	648
Gbadingla	100	748
Gbasormon	29	777
Gbonor	26	803
Gordee	5	808
Gugolor	10	818
Guwo	10	828
Jah Gballey	14	842
Kangba	53	895
Klay-Montue way	68	963
Kortee	42	1005
Nathaniel	18	1023
New Fahn	0	1023
Old Fahn	16	1039
Payroll	66	1105
Quenkor	19	1124
Tarweh	2	1126
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Albert	37	1429
Bugbay	213	1642
Jarquay	26	1668
Sayemonor	14	1682
TOTAL	**1682**	**--**

Sampling Interval = Tot. Cumulative Pop/19 sample lots = **?**

Step 4: Choose a random number

To choose interview locations using our sampling interval, we first need a random starting number. Choosing random numbers is a common task when conducting a survey using randomization. You can use any randomizing process you wish, but using a random number table is recommended.

The random number has to be between 0 and the sampling interval that you have previously calculated.

The highest possible number of digits in the random number matches the number of digits in the sampling interval. If you have a sampling interval with four digits, you will choose a random number with four digits or fewer digits. If your random number table has more digits than you need, you decide whether to use the first set of digits or the last set of digits of the random numbers.

To pick your random number, you close your eyes and hold a pencil in the air over the random number table. You then bring the pencil down on the table while keeping your eyes closed. The pencil should strike on or near a row of random numbers near one of the columns of numbers. If the numbers are within your interval (0 to the sampling interval figure), that is your random starting number.

If the numbers are not within your range, move down to the next row until you find a number that is within the range.

You random number will help you identify the first interview location.

Example: Select a number from the Random Number Table (that is less than the Sampling Interval)

87172	43062	39719	10020	32722	86545	86985	04962	54546	23138	62135	55870	97083	67875
28900	50851	30543	89185	16747	95104	49852	26467	58869	79053	06894	23975	34902	23587
86248	71156	55044	13045	33161	95604	57876	23367	10768	78193	60477	70307	06498	48793
10531	51391	41884	69759	32741	70072	01902	96656	90584	59263	49995	27235	40055	20917
02481	90230	81978	39127	93335	74259	25856	52838	49847	69042	85964	78159	40374	49658
23988	13019	78830	17069	58267	69796	94329	34050	25622	55349	10403	93790	77631	74261
37137	47689	82466	24243	10756	54009	44053	74870	28352	66389	38729	80349	50509	56465
38230	82039	34158	90149	82948	60686	27962	39306	53826	47852	76144	38812	76939	03119
98745	08288	19108	84791	58470	59415	45456	44839	86274	25091	42809	56707	47169	95273
44653	58412	91751	14954	87949	81399	51105	29718	82780	11262	23712	99782	42829	26308
88386	66621	16648	19217	52375	05417	26136	05952	71958	25744	52021	20225	01377	47012
50660	58138	01695	69351	25445	20797	74079	60851	47634	36633	93999	96345	58484	12506
36732	74234	84240	46924	62744	39238	78397	60869	26426	55588	56963	59506	17293	45096
34187	78277	83678	34754	46616	45250	25291	04999	19717	60324	66915	03473	98329	82447
26095	98131	79362	39530	53870	87445	26277	90551	28604	39865	40686	05435	74511	69866
00067	74289	20706	74076	28206	36960	09231	82988	57062	35331	08212	68111	52199	05065
42104	26434	30953	15259	76676	63339	75664	23993	63538	34968	47655	44553	61982	13296
82580	46580	87292	23226	21865	60338	04115	33807	38395	98484	40387	69877	24910	13317
89266	14764	17681	68663	66030	[illegible]931	17372	35601	63805	55739	42705	30549	31697	33478
47100	92329	89435	69974	40[illegible]	[illegible]2649	93444	41317	02749	19052	34647	92814	88046	34020
59566	26527	44706	85670	[illegible]223	36275	82013	82673	60955	62617	90214	24589	59715	57612
10946	24676	66513	56743	[illegible]	89042	08263	70753	89045	39189	04306	06090	94515	17772
34013	69250	27977	84[illegible]	[illegible]2	65088	55739	35953	18533	39339	78037	32827	68269	69218
21606	11751	30073	[illegible]	[illegible]569	27865	90215	34772	21779	11734	64313	49764	30816	56852
56620	92612	77157	[illegible]	90144	29781	01683	52503	60080	73703	70080	80686	47379	33279
49238	90475	84346	[illegible]	21222	40106	02671	52684	38514	68434	16407	58164	13341	48142
50738	21999	73537	51802	78179	27872	57937	29696	67783	29373	96563	74619	77099	17190
58761	21571	71192	[illegible]723	25088	10483	71430	47068	78378	80237	32113	09381	62931	29243
55335	71937	22025	33538	04648	74232	57839	62431	61835	04784	06732	34202	93497	72070
26515	31143	83795	78445	32869	31489	81587	90354	97672	70106	35008	37899	36246	97805
32625	36806	00082	26902	26250	28919	38054	49027	22209	42696	46980	17065	61288	30208
20311	96089	20141	30362	04980	32703	04202	91080	28660	89691	84660	73433	70169	11273
10941	73003	87930	85620	06956	38719	88711	61454	64076	13316	02203	54437	54306	78229
56982	46636	34070	30803	39095	80387	08971	25067	07377	70704	13629	68474	99229	05535
14661	10670	15811	00454	81124	46977	89983	48836	48182	17054	06344	24267	16686	21401
52760	78118	23277	29760	00099	97325	54762	43117	73199	19621	24599	11030	64809	35088
48874	20831	02286	73635	93771	54264	49801	22653	01524	84621	91023	64028	29278	15987
44817	77408	48447	25934	22912	43086	68126	92970	91833	26418	72454	97636	94593	07880
17896	79375	70883	70135	21589	51181	71969	32951	35036	17219	27357	96517	55307	84470
27166	22347	92146	92189	16301	15747	72837	59174	75024	39459	54910	95335	95013	47068
13665	30490	63583	73098	19976	03001	94645	40476	43617	85698	66512	42759	20973	98759
58644	73840	08103	97926	57340	63077	08114	10031	35668	21740	33787	44756	20527	65367
72570	36278	06602	56406	85679	85529	08576	50874	59706	01019	29980	56742	05356	04810
92041	68829	02163	59918	83041	71241	90678	79835	86324	13075	29913	99831	25688	53648
71240	74119	53090	23693	14007	90107	68804	54927	68964	26535	28184	21630	12362	67990

Step 5: Identify communities for the 19 sets of interviews

Combining Steps 3 and 4, you are now able to identify interview locations. You need to find 19 separate locations to conduct interviews within the supervision area.

Location Number 1 is the random number that you select (Step 4). Location Number 2 is the random number plus the value of the sampling interval (Step 3). Location Number 3 is the value of Location Number 2 plus the sampling interval. This process is repeated until you have 19 separate interview locations.

These values are applied to the Community List developed in Steps 1 and 2. The number of the interview is placed within the appropriate community.

The number of the interview location must be "within" the interval implied by the cumulative population.

Communities with larger populations may have more than one interview location.

Example: Identify the Location of Each of the 19
Interviews in a Lot/Supervision Area: Worksheet

Random Number = 31 Sampling Interval = 88.52

LQAS No.	Calculation	Interview Location
1.	Random Number (RN) = Location Number 1	31
2.	RN + Sampling Interval = Location Number 2	31+88=119
3.	Interview Location Number 2 + Sampling Interval	119+88=207
4.	Interview Location Number 3 + Sampling Interval	207+88=295
5.	Interview Location Number 4 + Sampling Interval	295+88=383
6.	Interview Location Number 5 + Sampling Interval	383+88=471
7.	Interview Location Number 6 + Sampling Interval	471+88=559
8.	Interview Location Number 7 + Sampling Interval	559+88=647
9.	Interview Location Number 8 + Sampling Interval	647+88=735
10.	Interview Location Number 9 + Sampling Interval	735+88=823
11.	Interview Location Number 10 + Sampling Interval	823+88=911
12.	Interview Location Number 11 + Sampling Interval	911+88=999
13.	Interview Location Number 12 + Sampling Interval	999+88=1087
14.	Interview Location Number 13 + Sampling Interval	
15.	Interview Location Number 14 + Sampling Interval	
16.	Interview Location Number 15 + Sampling Interval	
17.	Interview Location Number 16 + Sampling Interval	
18.	Interview Location Number 17 + Sampling Interval	
19.	Interview Location Number 18 + Sampling Interval	

Example: LQAS Sampling Frame for a Lot/Supervision Area

Name of Community	Total Population	Cumulative Population	Interview Location Number	Number of Interviews
Matiah	13	13		
Armah Konah	14	27		
Ballay	14	41	31	**1**
Beafini	458	499	119; 207; 295; 383; 471	**5**
Bucbay	97	596	559	**1**
Bumah	14	610		
Duwoe	7	617		
Fahn Musa	9	626		
Fallah-Foco	22	648	647	**1**
Gbadingla	100	748	735	**1**
Gbasormon	29	777		
Gbonor	26	803		
Gordee	5	808		
Gugolor	10	818		
Guwo	10	828	823	**1**
Jah Gballey	14	842		
Kangba	53	895		
Klay-Montue way	68	963	911	**1**
Kortee	42	1005	999	**1**
Nathaniel	18	1023		
New Fahn	0	1023		
Old Fahn	16	1039		
Payroll	66	1105	1087	**1**
Quenkor	19	1124		
Tarweh	2	1126		
Weabai	47	1173		
Zarmeyan Town	219	1392	1175;1263;1351	**3**
Albert	37	1429		
Bugbay	213	1642	1439;1527; 1615	**3**
Jarquay	26	1668		
Sayemonor	14	1682		
TOTAL	**1682**			**19**

MODULE THREE

Whom should I interview?

Session 1: Selecting Households

Session 2: Selecting Respondents

Session 1: Selecting Households

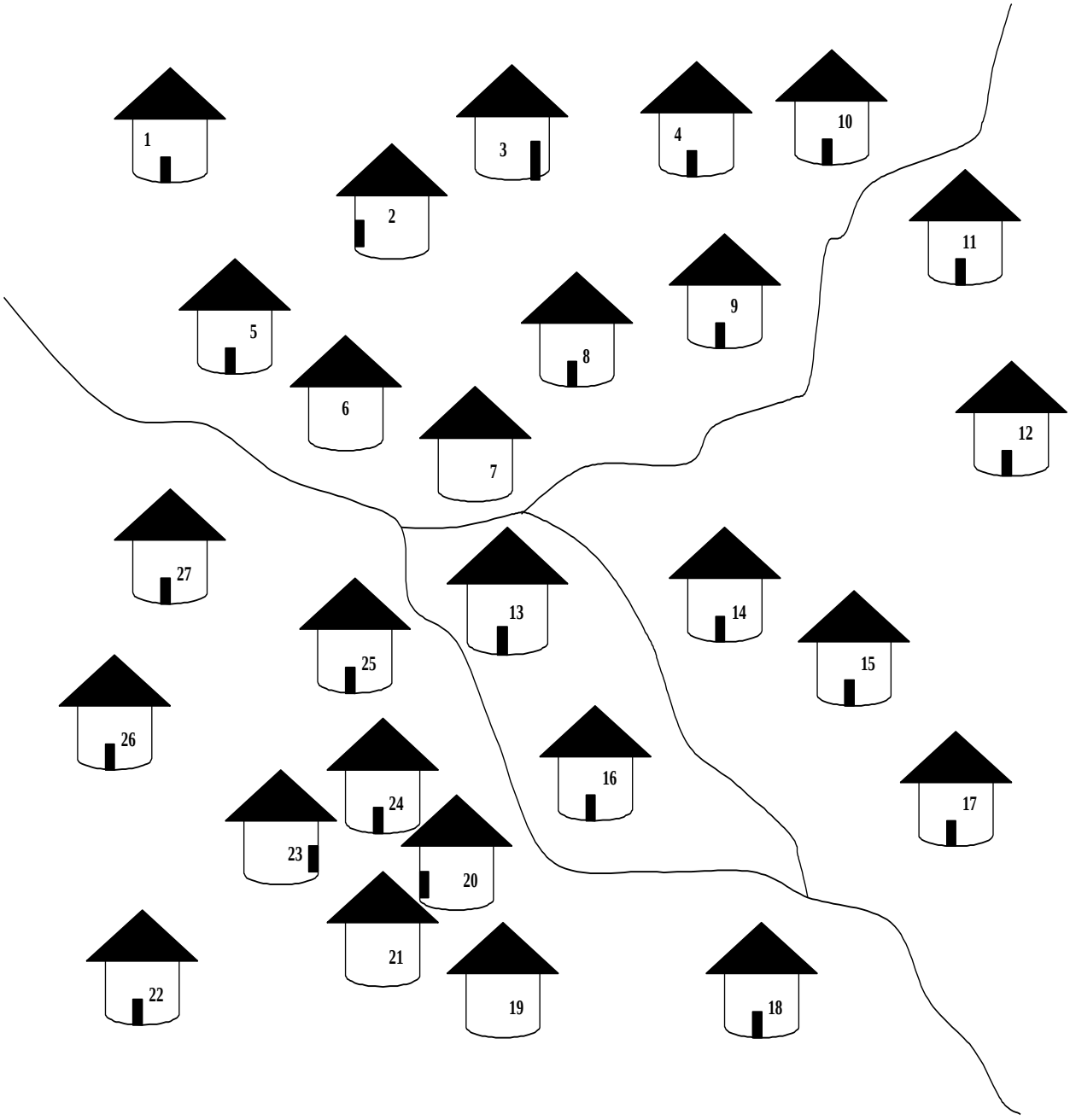
How to Randomly Select the First Household in the Location You are Assigned to Conduct Interviews

What is a household? A **household** is defined as a group of persons who share the same kitchen or hearth; a group of persons who eat from the same cooking pot.

IF:	THEN:
A complete household list is available (tax list, census, map)	Assign a number to each house. Select a random number between 1 and the highest number. Household corresponding to number selected is starting point!
If community size is "about" 30 households or less	Make a household list or map with location of each household (use assistance of a key informant from community). Assign a number to each house. Select a random number between 1 and the highest number to be your starting point! **OR, you can use the "spin-the-bottle" technique to randomly select direction and then count the number of houses along that axis, and randomly select a number corresponding to a house that will be your starting point.**
If the community size is more than "about" 30 households	Subdivide the community into 2-5 sections with about same number of households in each section. Select one section at random. If section has more houses than you can easily count, subdivide into 2-5 sections again and select one at random. Do this until approximately 30 or fewer houses remain. Make a house list or map with location of each household (use an assistant or key informant from your community).

	Then assign a number to each house and randomly select. **OR, you can use the "spin-the-bottle" technique, but with more than one spin; i.e. spin to pick a 'quadrant,' or section of 30 HHs, go to the center of the selected quadrant, then spin again to pick a house along the axis (as above).**
If an apartment building with multiple households in the structure has been selected	If an apartment building was randomly selected (by the "spin the bottle" technique or other means), the random number table can be used to randomly select a floor in the apartment building, and then the random number table can be used a second time to randomly select an apartment on that floor.
If a household has been selected, but nobody is home, or a suitable respondent is not available	Proceed to the next closest door. If all doors are next to each other or are equally close, then choose the next door to your right (while facing the door).

1st Example: Household List Not Available – Size 'About' 30



More Than 30 Households

When there are more than 30 households in a community, you will need to subdivide the community into smaller areas of approximately 15-25 households. This is the process:

1. Subdivide the community into two or more equal sections (you do not need to create a map of the entire interview location, but should be sure that the subdivisions are roughly equal in size).

2. Select one of these sections at random.

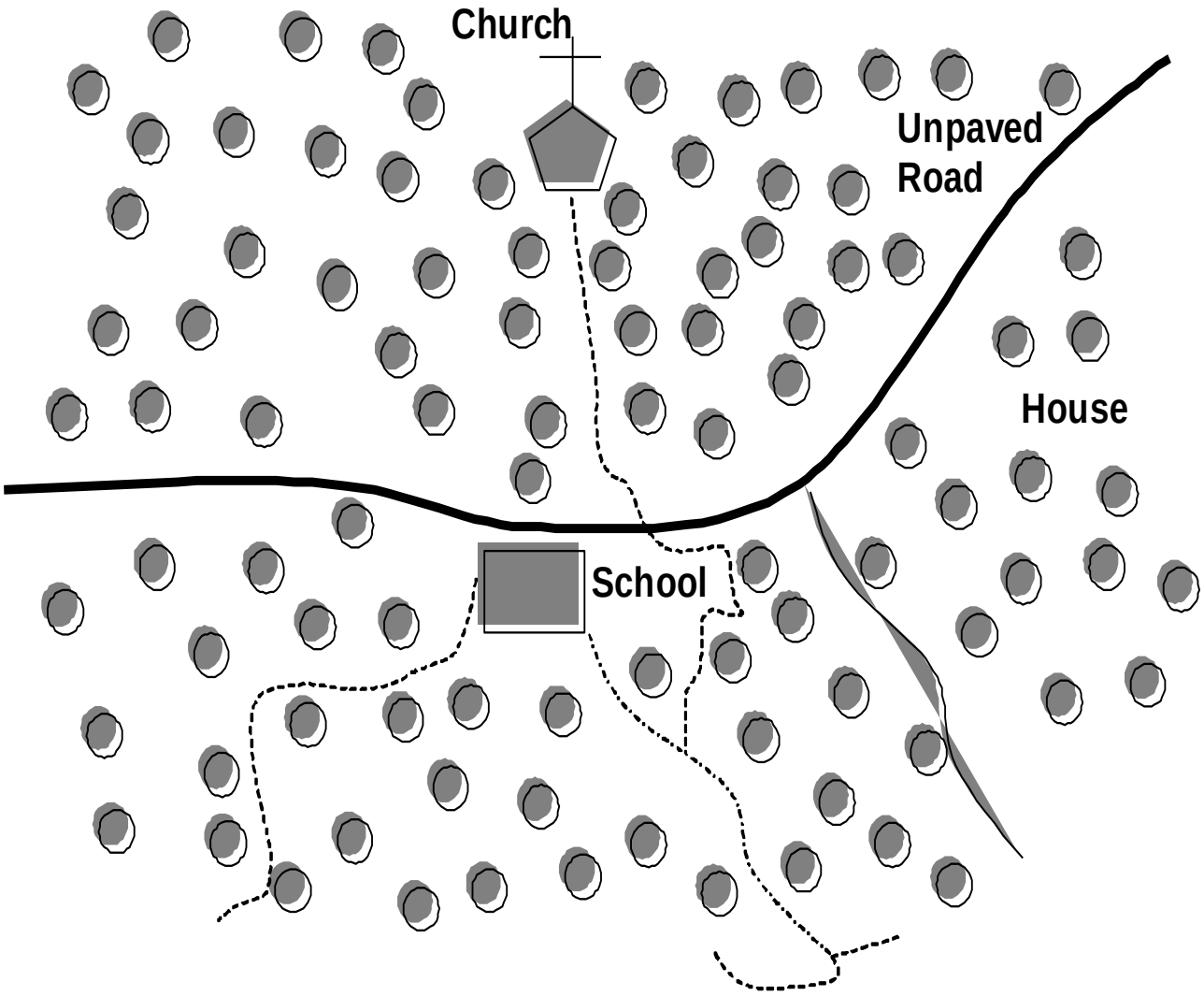
3. If the selected area is still too large, subdivide it again into two or more equal sections, number each section, and select one section at random.

4. Continue until you have one small section with 15-25 households.

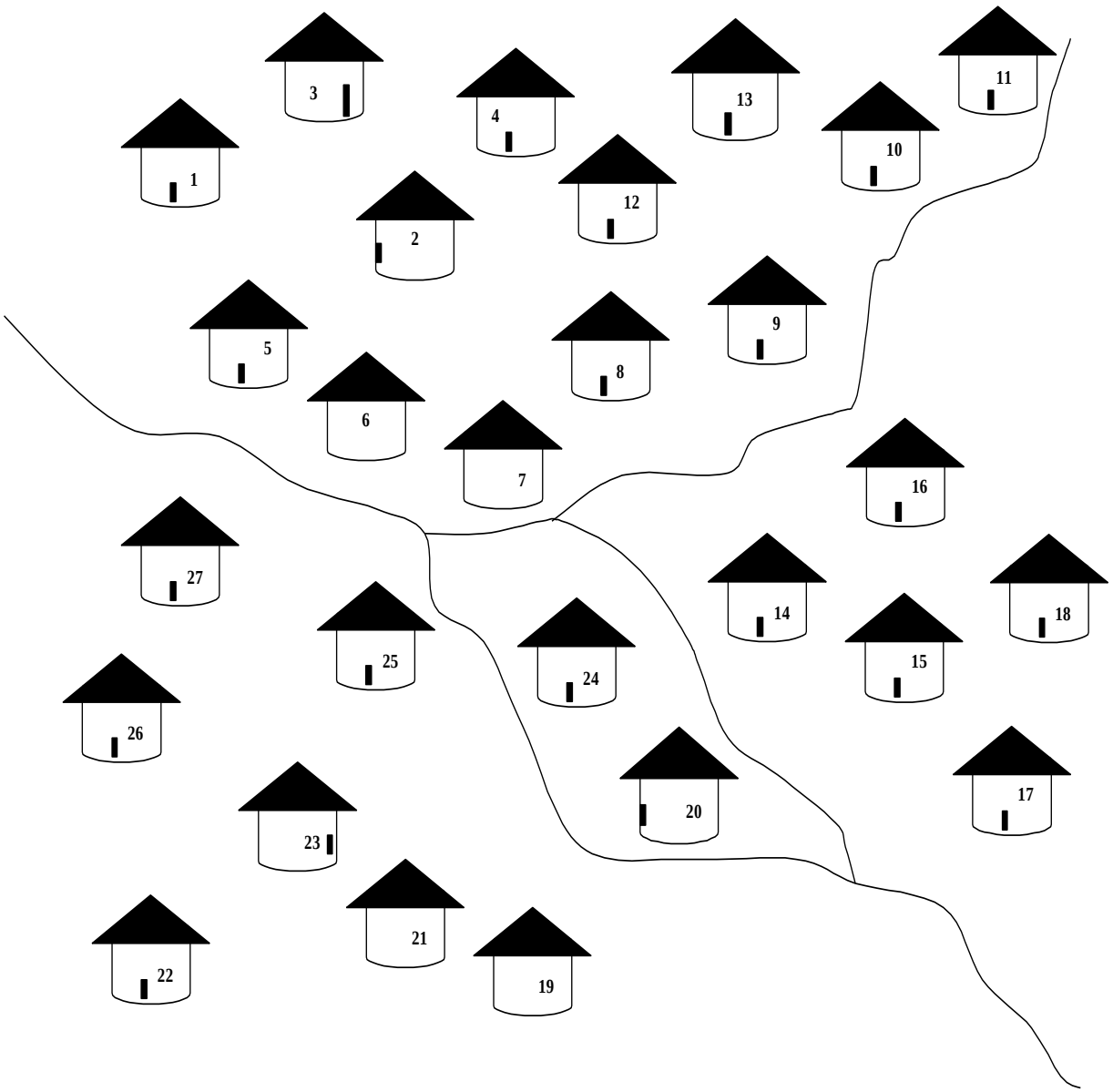
5. Draw a map of the section with the help of an informant.

6. Number the households in this section on the map (you only need to count the houses in the selected section). Then you can randomly select a household by selecting a random number from 1 to the highest numbered household.

2nd Example: Household List Not Available –
Size Greater Than 30



3rd Example: Group of 27 Households Numbered for Random Selection of 1 Household



Session 2: Selecting Respondents

Rules for Identifying Respondents

If the type of respondent you are looking for:	Then:
Is at the household* you selected	Interview that person if she consents. *[Always make sure to determine if multiple questionnaires can be completed at the location]*
Does not live at the household you selected **OR…** Lives at that household **BUT** is absent and far away (more than 15 minutes away)	Go to the next-nearest household from the front entrance to the household you are at, and check at this "next-nearest" household... Continue this process until you find the respondent type you are looking for. [Hint: if 2 households are equally near, then choose the one with the closest door.]
Lives at that household, is absent **BUT** is nearby (within 15 minutes)	Go find the respondent with the help of a guide from the community.... **IF** you cannot find the person in the next 15 minutes... **GO** to the next-nearest household from the front entrance of the household of the person you cannot find.

* Household = group of persons who share the same kitchen or hearth; or, a group of persons who eat from the same cooking pot.

NOTE: If there is more than one person in the household that has the characteristics of the respondent you are looking for, use a random process to identify which person to interview.

Parallel Sampling: Indicator-Specific Sample Groups

- In LQAS, each indicator of interest must have a complete sample (of 19) in each supervision area if we are to be able to pose the acceptable/not acceptable judgment for the supervision area on the indicator.

- At each interview location, it is unlikely that just one respondent will be eligible to answer questions relating to all the indicators of interest to a project.

- Since eligible respondents may differ from one indicator to another, relevant questions are grouped into questionnaires for the appropriate eligible respondent groups.

- At each sampled interview location, each sub-questionnaire will be administered to only one eligible respondent.

- This approach is called "parallel sampling," since each questionnaire with its eligible respondent group ("sub-sample") actually constitutes a complete survey on a set of indicators for the project.

Examples of Indicators and Eligible Sub-Samples

Group of Indicators of Interest in the Survey	Eligible Respondent Groups
Use of family planning	Women aged 15-49 years
Exclusive breastfeeding	Mothers of children aged 0-5 months
Breastfeeding initiation, low birth weight, antenatal care, skilled birth attendance, iron and folic acid during pregnancy, TT and IPT during pregnancy, vitamin A for new mothers	Mothers of children aged 0-23 months
Immunizations before 12 months	Mothers of children aged 12-23 months
Vitamin A for children, underweight, bednet ownership and use, ACT treatment for children, treatment of diarrhea for children, hand washing, improved sanitation	Mothers of children aged 0-59 months

Steps for Carrying Out a Parallel Sample

1. Determine the number of sample groups based on your program goals and related indicators.
2. Use a single questionnaire packet for each sample group.
3. Select interview location.
4. Select the first household in a location.
5. Select an appropriate respondent for at least one sub-questionnaire in a household.
6. Continue with additional sub-questionnaires in the same household if the respondent is still appropriate,
   OR
   Select the next household looking for an appropriate respondent for the second (or subsequent) sub-questionnaire.

Activity: Household Composition Scenarios

♦ **Household #1**
- Mother 35 years with children 5 months old and 26 months old
- Sister of woman is 23 years old with child 14 months
- Grandmother is 50 years old

♦ **Household #2**
- Mother 48 years old with children 30 years, 27 years, 22 years and 18 years

♦ **Household #3**
- Abandoned house – owners absent

♦ **Household #4**
- Girl 8 years old
- 3-month-old baby
- Mother of 3-month-old in market, and she is the sister of the 8-year-old
- 6-month-old baby
- Mother of 6-month-old is dead; she was also the sister of the 8-year-old girl

♦ **Household #5**
- Man 65 years
- Man's wife 60 years
- 15-month-old baby
- Mother of 15-month-old visiting the capital city
- Father in city

♦ **Household #6**
- Father 45 years old
- One wife, 48 years old
- Daughter, 24 years and pregnant

- Children 19 months and 38 months. Mother reports that 19 month old has had a cough and fever in the past two weeks

♦ **Household #7**
- Mother of 9-year-old child is not home – child does not know when mother will be back
- 9-year-old child
- 8-month-old child of woman
- Grandmother is 55 years old

♦ **Household #8**
- Woman 45 living alone
- No children

♦ **Household #9**
- Woman 20 years old with child 6 months
- Sister of 20-year-old is 25 years old and has child 3 years old
- 3rd sister 30 years old with 13-month-old baby. She reports that her baby had a high fever in the past two weeks

♦ **Household #10**
- Mother 35 years old – pregnant
- Child of pregnant mother is 13 months old
- Neighbor woman is 35 years old
- Neighbor has a 10-month-old baby

♦ **Household #11**
- 4-month-old twin girls
- Mother of twins, 27 years old
- 40-year-old brother of mother
- 32-year-old wife of brother (of mother)

♦ **Household #12**
- New bride of 14 years with 2-month-old baby

- Her 19-year-old husband
- Mother-in-law 47 years

♦ **Household #13**
- Refugee woman from neighboring country with an 18 month-old
- Her sister, who immigrated when she was 39, about 12 years ago
- Sister has a 4 year-old

♦ **Household #14**
- Three sisters, one with a six-week-old baby, one with an 8-month-old and one who is childless.
- Husband of sister with 8-month-old is 24 years.

♦ **Household #15**
- Mother 18 – pregnant, has 4-month-old baby
- Father is working on the roof of the house

♦ **Household #16**
- 8-year-old boy
- His mother, 24 years, is cooking dinner
- His 32-year-old father is travelling outside the country

♦ **Household #17**
- Mother 18 years old with child 24 months, pregnant
- Father 26 years

♦ **Household #18**
- Abandoned house – owners absent

♦ **Household #19**
- Wife, 35 years old and pregnant
- Father 55 years old

♦ **Household #20**
- Wife, 19 with 8-month old baby
- Mother reports that baby has had diarrhea within the past two weeks
- Father is 30 years old and at a neighbor's house

MODULE FOUR

What questions do I ask and how should I ask them?

Session 1: Reviewing the Survey Questionnaires, One-by-One

Session 2: Interviewing Skills

Session 3: Planning for the Data Collection/Survey

Session 4: Field Pre-test

Session 1: Reviewing the Survey Questionnaires, One by One

Activity: Questionnaire Review

Pay particular attention to:

- The different sections of the questionnaires:
    - Introduction and informed consent
    - Identification of eligible respondents
    - Respondent's characteristics (age, sex, marital status…)
- Different types of questions:
    - Open-ended
    - Closed (single response/multiple response)
    - Pre-coding
- Probes and prompts
- Skip Patterns

Session 2: Interviewing Skills

Why Interviewing is Important

- Sound programming decisions depend on reliable data,

and

- Reliable data depends on getting good information from local respondents,

and

- Getting good information from respondents depends on conducting effective interviews.

Interview Etiquette

- Dress appropriately.
- Present official document/certificate from organization or project if necessary.
- Get informed consent to conduct interview.
- Do not enter the house unless you are invited.
- If you remain outside, do not ask for a chair; sit on the porch, steps, etc.
- Tell people how long the questionnaire will take.
- Do not accept lunch (unless it would be rude to refuse).
- Do not give gifts to interviewees.
- Thank interviewees at the end.

Effective Interviewing Techniques

1. Introduce yourself, your organization, the purpose of the survey (show document or certificate if necessary) and get consent to conduct interview.

2. Maintain confidentiality:
    - Do not interview the respondent in the presence of others (unless he/she indicates otherwise).
    - Explain that all answers will be kept confidential.

3. Ask questions exactly as written or with minor changes that were agreed upon during the training.

4. Wait for a response; be silent, then probe.

5. If the respondent doesn't understand or the answer is unclear, ask the question again, making as few changes in wording as possible.

6. Do not suggest—by tone of voice, facial expression, or body language—the answer you want.

7. Do not ask leading questions, questions that signal the correct answer or that suggest the answer you would like.

8. Try not to react to answers in such a way as to show that you approve or disapprove.

9. If one answer is inconsistent with another, try to clear up the confusion – without leading the respondent to a certain answer.

10. Try to maintain a conversational tone of voice; don't make the interview seem like an interrogation.

11. Know the local words for sensitive/delicate topics.

12. Use neutral probes for questions that allow respondents to list several responses, (e.g.,"Anything more?")

13. Make eye contact.

Session 3: Planning for the Data Collection/Survey

Randomness Reminder

A commitment to random sampling means that you will…

- Randomly select communities in which surveys are to be conducted
- Randomly select subdivisions within a community after carefully mapping the community (if necessary)
- Randomly select a starting household after mapping the randomly selected subdivision
- Randomly select a respondent in the randomly selected household if there is more than one eligible respondent there
- Respect the 15-minute rule and going to the next nearest household
- Randomly select all respondents in a parallel sampling situation

Survey Checklists

1. PRE-SURVEY CHECKLIST

Before the survey begins, be sure the following tasks have been completed:

1. Review the sampling frame before designing the plan for data collection. **DONE** ✓

2. For each lot: Count the questionnaires to be sure you have the appropriate number of questionnaires based on sample size, either 19 or 24 sets of photocopies that include each of the 10 sub-questionnaires of the LQAS questionnaire for the respondent type and for each Lot/Supervision Areas.

3. For each county: Count the questionnaires to be sure you have 4, 5 or 6 sets of the 24 or 19 sets of photocopies (≥ 95 sets per county), depending on the county. Each of the sets should include each of the 10 sub-questionnaires of the LQAS questionnaires for the respondent type and for each Lot/Supervision Areas.

4. Review each one of the 19 questionnaire packets to make sure that they have the correct number of pages, there is a printed sticker with a unique identifier on each sheet of paper, and they are securely stapled.

5. Review the materials checklist below. Be sure you have the following materials (if needed):

Materials Checklist

- ❑ 19 (or 24) questionnaires for correct respondent + 2 extras
- ❑ Pencil and pencil sharpener
- ❑ Eraser
- ❑ Clipboard
- ❑ Day pack or bag to carry questionnaires and materials
- ❑ Random number tables
- ❑ Rules to select respondents in a household
- ❑ Raincoat
- ❑ Community maps or paper for making maps
- ❑ 'Questionnaire-specific' materials: flash cards for contraceptive products, anti-malarial (ACT), iron folate, Vit. A

2. CHECKLIST FOR DATA COLLECTORS

After you are in the field, make sure participants complete the survey in the following manner:

1. If a community census is available, assign numbers to households and randomly select a starting household (and proceed as in step 6 below).
2. If no community census is available, update community maps if available, assigning numbers to all houses in the community before selecting starting household(s). If no map is available, divide community in sectors.
3. If the community is small, e.g., 30 houses or less, randomly select a starting household (using either random number if houses can be quickly numbered or using "spin the bottle" technique)
4. If the community is large, e.g., more than 30 houses, divide into sections (each section with a similar number of houses):
   - number each section;
   - randomly select one of the community sections; (example: if you have divided the community into 3 sections, select a random number between 1 and 3.)
   - go to the selected section to confirm size and layout of section; if the section is large, subdivide it into subsections and randomly select one (and repeat this process until you get a subsection with 30 or fewer houses);
   - either number on the map each house in the section or subsection selected and randomly select one house or use "spin the bottle" technique to identify a direction to proceed.
5. If it is very difficult to divide the community or a section of it into sections, then:
   - ask a respondent to take you to a place where exactly 50% of the houses are in front of you, 50% of the houses are behind you, 50% are to the right and 50% are to the left;
   - number these 4 sections;
   - choose one randomly;
   - go to that section and repeat the procedure until you can see a manageable number of houses. Count if expedient, "spin the bottle" if not;
   - select number or direction randomly;
6. Go to the selected house to begin interviewing.
7. After completing an interview and one or more questionnaires in the selected house, visit the closest house until all the 10 sub-questionnaires for that sample point have been completed.

8. After completing all sub-questionnaires, select another starting household (or section and then household) at random if there is more than one sampling point in the community or continue to a new community.

Remember: For each questionnaire, randomly select a starting household and then go to the closest house until the questionnaire packet is complete.

3. CHECKLIST FOR SUPERVISORS (Pre-survey, During and Post-survey)

The following is a checklist for program supervisors:

1. Review the data collection plan with each interviewer.

2. Indicate the minimum number of interviews to be completed in one day.

3. During week 1 you can let data collectors work in pairs if you think this will increase their confidence.

4. Provide the technical and administrative support required by each interviewer (transport, lunch, etc.)

5. At the end of each day always review the questionnaires of each interviewer to ensure that they have been correctly filled out, are complete and consent for interview was acquired. Check for any missing information or responses, and missing pages.

6. Make necessary corrections to questionnaire and inform the interviewer of problems found. If information is missing, the interviewer should revisit the house to complete the questionnaire before going to another community.

7. Confirm that all questionnaires have been filled in for each Lot/Supervision Area and that no pages are missing. If your LQAS sample size is 19 then you should have 19 completed questionnaires.

8. Organize the questionnaires by County and by LQAS number (for example – from 1 to 19), according to the Lot/Supervision Area. For five Lots/Supervision Areas in Montserrado, for example, you would organize the questionnaires as follows:

MONTSERRADO COUNTY:
Folder 1: Respondent Type A, Area 1: 01 to 19
Folder 2: Respondent Type A, Area 2: 01 to 19
Folder 3: Respondent Type A, Area 3: 01 to 19
Folder 4: Respondent Type A, Area 4: 01 to 19
Folder 5: Respondent Type A, Area 5: 01 to 19

Session 4: Field Pre-Test

Activity: Preparation for Pre-Test

- We will practice what we have learned so far in a nearby community. The key skills we will practice are:
    - Random sampling to select households for LQAS
    - Respondent selection with parallel sampling
    - Interviewing using the sample questionnaires
- The participants will form teams of three (or six)
- Each team will be taken to a community with a sample interview location.
- The team will be expected to select the first household for interview, identify eligible respondents, and conduct the interview.
- Each team is expected to complete at least two questionnaire packets.
- Each team will record their experience on the above skill areas for sharing with the rest on return from the field.
- We will then discuss in plenary what went well and areas needing improvement.

Process for Pre-Test

1. Meet with community leader.

2. If possible either revise existing or quickly create a community map.

3. Subdivide the community into sections of 30 or fewer households.

4. Assign each section (each group of 30 or fewer households) either a number or a direction (for "spin the bottle" technique).

5. Select a section using either a random number or a randomly selected direction.

6. Perform steps 3 through 5 again if the selected section is still too large.

7. Once a reasonably sized section is selected; pick a starting household using a Random Number Table.

8. Identify the "next-nearest" household when necessary.

Summary of Training

- LQAS is a tool for outcome monitoring
- Data collected through LQAS can help you:
    - identify areas of your county that are performing well or performing poorly
    - compare the performance of individual lots to other lots
    - compare the performance of your county to other counties
- Knowing sub-county level performance can help you make strategic programmatic decisions to improve health in your county
- Improving health in your county improves the health of all of Liberia

MEASURE Evaluation is a MEASURE project funded by the U.S. Agency for International Development and implemented by the Carolina Population Center at the University of North Carolina at Chapel Hill in partnership with Futures Group International, ICF Macro, John Snow, Inc., Management Sciences for Health, and Tulane University. Views expressed in this presentation do not necessarily reflect the views of USAID or the U.S. Government. MEASURE Evaluation is the USAID Global Health Bureau's primary vehicle for supporting improvements in monitoring and evaluation in population, health and nutrition worldwide.

Appendix 2 Indicators and Definitions

Child Health
Children age 0–59 months who received vitamin A supplementation within last 6 months
Children age 12–23 months who received DPT3/pentavalent-3 vaccination before 12 months
Children age 12–23 months who were fully immunized before 12 months
Mothers of children age 0–59 months who can produce a child health card
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who were taken to an appropriate health provider
Children age 0–59 months with cough and fast and/or difficult breathing or cough and fever in the last 2 weeks who received antibiotics
Children age 0–59 months with diarrhea in the last 2 weeks who received oral rehydration solution and zinc
Malaria Prevention
Children age 0–59 months with a febrile episode during the last 2 weeks who received treatment from an appropriate health care provider
Children age 0–59 months with a febrile episode during the last 2 weeks who received ACT treatment within 24 hours of onset of fever
Children age 0–59 months living in a household with at least 1 insecticide treated bed-net
Children age 0–59 months who slept under an insecticide treated bed-net the previous night
Mothers of children age 0–23 months who received second dose of IPT for malaria during pregnancy
Nutrition
Mothers with children age 0–5 months who initiated breastfeeding immediately (within 1 hour) after delivery
Children age 0–5 months who were exclusively breastfed during the last 24 hours
Children age 6–23 months receiving a minimum acceptable diet
Women 15–49 years meeting minimum acceptable dietary diversity ***NEW***
Prevalence of households with moderate to severe hunger ***NEW***
Water Sanitation and Hygiene (WASH)
Children age 0–59 months living in households with access to improved sanitation
Children age 0–59 months living in households with access to improved toilet facilities ***NEW***
Children 0–59 months living in households with access to improved waste disposal ***NEW***
Children age 0–59 months who live in a household with soap
Mothers of children age 0–59 months who washed their hands with soap at least 2 of the appropriate times
Children 0–59 months living in households with reasonable access to improved drinking water

Maternal Health
Mothers of children age 0–23 months who made/received the first antenatal care visit during the first trimester of the last pregnancy
Mothers of children age 0–23 months who made/received at least 4 antenatal care visits during last pregnancy
Mothers of children age 0–23 months who received iron and folic acid tablets during last pregnancy
Mothers of children age 0–23 months who received 2 TT or booster during last pregnancy
Mothers of children age 0–23 months who gave birth in a facility attended by a skilled birth attendant
Mothers of children 0–23 months who made/received at least 1 postnatal care visit after the last birth ***NEW***
Mothers of children 0–23 months who made/received at least 1 postnatal care visit within 6 weeks after delivery ***NEW***
Mothers of children 0–23 months who received vitamin A within 8 weeks after delivery
Family Planning
Women age 15–49 currently using a modern method of family planning
Women age 15–49 not currently using a modern method but who would like to be

*Note: Indicators that were added for the 2012 implementation of LQAS Outcome Monitoring are marked "**NEW**"*

Appendix 3 Names of Interviewers and Supervisors

Team Members	Team Position*	Organization	Brief Profile
Bomi			
Elizabeth J. Doe	Supervisor	CHSWT	Child survival focal person, BCHSWT
John K. Kollie	Enumerator	CHSWT	Community health development director, BCHSWT
Boakai Karnley	Enumerator	CHSWT	District health officer, BCHSWT
V. Emery David	Enumerator	MOH	Research assistant, MOHSW
Abigail T. Gbessagee	Enumerator/ Replacement Supervisor	SBA	BPA in public administration, has 1 year of data collection experience
Tezee M. Davis	Replacement Enumerator	SBA	Junior student, African Methodist Episcopal University
Ruth M. Benda	Replacement Enumerator	SBA	High school graduate
Yassah Y. Yates	Replacement Enumerator	SBA	High school graduate, has 3 years of data collection experience
Bong			
J. Nehemiah Sneh	Supervisor	SBA	BA, has five years of data collection experience
Augustine D. David	Enumerator	SBA	BA, has 3 years of data collection experience
Martenneh K. Dorley	Enumerator	SBA	sophomore Student, University of Liberia, has 2 years of data collection experience
Edna K. Dolo	Enumerator	SBA	Senior student in nursing, has 2 years of data collection experience
Richard T. Kollie	Enumerator	SBA	BA, has 2 years of data collection experience
Grand Bassa			
Sam F. Ticker, Jr.	Supervisor	CHSWT	Clinical supervisor, GBCHSWT
V. David Duoko	Enumerator	CHSWT	County health registrar, GBCHSWT
Isaac G. Bannie	Enumerator	CHSWT	M&E officer, GBCHSWT
Darnuweli Dormea	Enumerator	MOH	Research assistant, MOHSW
Lawrence J. Wesseh	Enumerator	SBA	Senior student, University of Liberia, has 4 years of data collection experience
Lofa			
John K. Akoi	Supervisor	CHSWT	Clinical supervisor, LCHSWT
Siefa H. Kokulo	Enumerator	CHSWT	M&E officer, LCHSWT
Joseph M. Mulbah	Enumerator	CHSWT	County health registrar, LCHSWT
Varney Kiazolu	Enumerator	SBA	BA, has 2 years of data collection experience
Germel J. Smith	Enumerator/ Replacement Supervisor	SBA	High school graduate, has 4 years of data collection experience

Team Members	Team Position*	Organization	Brief Profile
Samuel S. Davies	Replacement Enumerator	SBA	BA, University of Liberia, has 1 year of data collection experience
Valkallah M. Tokpah	Replacement Enumerator	SBA	BBA in sociology, Cuttington University
Edward F. Fineboy	Replacement Enumerator	SBA	BA, has 8 years of data collection experience
Margibi			
Benjamin G. Saygar	Supervisor	CHSWT	M&E officer, MCHSWT
Ernest N. Gbagleh	Enumerator	CHSWT	County surveillance officer, MCHSWT
Joseph M. Govergo	Enumerator	CHSWT	Child survival focal person, MCHSWT
Augustine M. Kpehe	Enumerator	CHSWT	Clinical supervisor, MCHSWT
Alfred Dalieh	Enumerator/ Replacement Supervisor	SBA	High school graduate, has 2 years of data collection experience
Christiana W. Acolatse	Replacement Enumerator	SBA	Senior student, University of Liberia, has 2 years of data collection experience
Bannie S. Tambah	Replacement Enumerator	SBA	BA, has 2 years of data collection experience
Koboi B. Kadii	Replacement Enumerator	SBA	High school graduate, has 15 years of data collection experience
Tamia Morris	Replacement Enumerator	SBA	Senior student, United Methodist University, has 4 years of data collection experience
Montserrado			
Jerry D. Wamah	Supervisor	CHSWT	M&E officer, MCHSWT
Ishmael Belleh	Enumerator	CHSWT	County health registrar, MCHSWT
William K. Karmon, Jr.	Enumerator	SBA	AA, has 2 years of data collection experience
Juston P. Kiamue	Enumerator	Merlin	Health information system officer, Merlin
Sownie K. Baeyan	Enumerator/ Replacement Supervisor	SBA	BA, has 3 years of data collection experience
Robert Barclay	Replacement Enumerator	SBA	BSc in economics, has 3 years of data collection experience
Elizabeth Sonnie	Replacement Enumerator	SBA	Sophomore student, African Methodist University, has 2 years of data collection experience
Nimba			
Jonathon S. Tokpah	Supervisor	CHSWT	M&E officer, NCHSWT
Stephen W. Wongbay	Enumerator	CHSWT	Nutrition supervisor, NCHSWT
Bernard Lakpor	Enumerator	CHSWT	Child survival focal person, NCHSWT
Karntay Deemie	Enumerator	CHSWT	Clinical supervisor, NCHSWT
Isaac Z. Zuo	Enumerator/ Replacement Supervisor	SBA	Senior student, Stella Maris Polytechnic, has 2 years of data collection experience

Team Members	Team Position*	Organization	Brief Profile
Loupu B. Kesselly	Replacement Enumerator	SBA	High school graduate, has 3 years of data collection experience
Roland E. Ballah	Replacement Enumerator	SBA	Vocational trainee, has 3 years of data collection experience
Edwin Sherman	Replacement Enumerator	SBA	High school graduate, has 5 years of data collection experience
Cooper Koryor	Replacement Enumerator	SBA	High school graduate, has 5 years of data collection experience
Unknown			
Daluboe Z. Subah	Replacement Enumerator	SBA	BA, African Methodist Episcopal University, has 3 years of data collection experience

* *Team positions include Supervisor (1 for each team), Enumerator, Replacement Supervisor and Replacement Enumerator. The SBA replacements were used during the implementation of a national polio campaign the week of March 23–30.*

Field Quality Control Team Members

Members	Organization	Counties	Time Period
Forkpa D. Karmon	SBA	Bong, Lofa, Nimba	March 19–April 20
Tendeh Collins	SBA	Grand Bassa, Margibi	March 19–April 20
Sumo Zeze	SBA	Bomi, Montserrado	March 19–April 20
Christina Bernadotte	UNC Chapel Hill	Bomi, Grand Bassa, Margibi, Montserrado	April 2–April 20
Jack Hazerjian	UNC Chapel Hill	Bong, Lofa, Nimba	April 2–April 20
Janine Barden-O'Fallon	UNC Chapel Hill	Bomi, Montserrado	March 26–April 6
Robert Mswia	Futures Group	Bong, Lofa, Nimba	March 19–April 1
Stephanie Watson-Grant	UNC Chapel Hill	Grand Bassa, Margibi	March 19–March 25
Zahra Reynolds	UNC Chapel Hill	Bomi, Grand Bassa, Margibi, Montserrado	March 19–April 1

Data Entry Training Participants

Member	Organization
Solomon Tellewoyan	SBA
Edwina K. Barclay	SBA
Lovetta Saiquoi	SBA
Melvin Fania	Bong County Health Team
Evelyn S. Dolo-Seward	Save the Children
K. Mohammed Saah	IRC
Govego B. Thompson	Lofa County Health Team

Member	Organization
Willie Z. Taweh	Bomi County Health Team
Bahn W.G. Kardor	Margibi County Health Team
Fulton Q. Shannon	MOH
Vivian L. Nyankun	SBA
Gibrilla Sesay	Grand Bassa County Health Team
Emmanuel G. Menson	Nimba County Health Team
Blanche L. Korwulah	SBA
Mike L. Ishmael	SBA
Anthony Konah	SBA
Watanic M.V. Jebateh	SBA
Gaye E. Tyler	SBA
Eunice Saydee	SBA
Josephfor K. Zumo	Montserrado County Health Team
Dennis E. Saylay	Bomi County Health Team

Data Analysis Training Participants

Member	Organization
Isaac G. Bannie	Bassa County Health Team
Dennis E. Saylay	Bomi County Health Team
Willie Z. Taweh	Bomi County Health Team
Melvin Fania	Bong County Health Team
Gibrilla Sesay	Grand Bassa County Health Team
Vekeh L. Donzo	International Rescue Committee
Govego B. Thompson	Lofa County Health Team
Siefa H. Kokulo	Lofa County Health Team
Bahn W. G. Kardor	Margibi County Health Team
Benjamin G. Saygar,Sr.	Margibi County Health Team
Jerry D. Wamah	Montserrado county Health Team.
Josephfor K. Zumo	Montserrado county Health Team.
Emmanuel G. Menson	Nimba County Health Team
Jonathan S. Tokpah	Nimba County Health Team
Anthony Konah	Subah Belleh Associates
Edwina K. Barclay	Subah Belleh Associates
Vivian L. Nyankun	Subah Belleh Associates
Watanic M.V. Jabateh	Subah Belleh Associates

Appendix 4 Questionnaires

Questionnaire Completion Checklist

INSTRUCTIONS: Please check the box for the appropriate questionnaire once completed.

- Sub-Questionnaire 1: All women aged 15-49 ☐
  (Family planning, Food security and nutrition)
- Sub-Questionnaire 2: Children 0-59 months ☐
  (Water/sanitation/hygiene, malaria prevention, child health and nutrition)
- Sub-Questionnaire 3: Children 0-5 months ☐
  (Breastfeeding etc)
- Sub-Questionnaire 4: Children 6-23 months ☐
  (Child Nutrition and vitamin supplementation)
- Sub-Questionnaire 5: Children 12-23 months ☐
  (Immunization)
- Sub-Questionnaire 6: Children 0-23 months ☐
  (Pre & Post natal care)
- Sub-Questionnaire 7: Children 0-59 months with ARI ☐
- Sub-Questionnaire 8: Children 0-59 months with diarrhea ☐
- Sub-Questionnaire 9: Children 0-59 with fever ☐
- Sub-Questionnaire 10: All women aged 15-49 ☐
  (Family planning use)

Informed Consent

INSTRUCTIONS: Please read the following to each respondent. When they give verbal consent, sign below and note the date.

Good day. My name is _____. I am working on an outcome monitoring activity approved by the Ministry of Health and Social Welfare (MOHSW). The purpose of the activity is to help the MOHSW and the County Health and Social Welfare Teams to make decisions that will better provide health programs for women of reproductive age, mothers and children less than five years. We would like to ask you some questions to get information about your eating habits, illnesses your child may have experienced in the last two weeks, malaria prevention and treatment, and family planning practices. The interview should take about 30 minutes of your time.

The only people who will see the questionnaires are people working on this study. The questionnaires will be kept in a secure location. When describing the findings from the survey only summary information will be used and never any information about specific individuals.

Your participation in this study is completely voluntary and you may decline to answer any specific question or completely refuse to participate. We would however greatly appreciate your help in responding to the survey questions. The results will be used to improve health programs in this area.

_____

Signature of Interviewer

(Certifying that the passage above has been read to the respondent and consent has been granted)

d	d	/	m	m	/	y	y	y	y

County / Lot :_____ / _____ **Community / Questionnaire # :_____ / _____**

1

Sub-Questionnaire: Women aged 15 to 49 years

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

		/			/				
d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Woman's full name: ----------

8. Woman's age in years (completed years):----------

Instructions: If exact age not known, probe to identify calendar events that indicate the year.

Food Security & Nutrition

9. In the past [4 weeks/30 days], was there ever a day when there was no food to eat in your house because of no means to get food?
   1. Yes----------[ ]
   2. No ----------[ ] **Go to Q.11**

10. How many days did this happen in the past [4 weeks/30 days]?
    1. 1–2 days ----------[ ]
    2. 3–10 days ----------[ ]
    3. More than 10 days ----------[ ]

11. In the past [4 weeks/30 days], did anyone in your household go to sleep at night hungry because there was not enough food?
    1. Yes----------[ ]
    2. No ----------[ ] **Go to Q.13**

12. How often did this happen in the past [4 weeks/30 days]?
    1. 1–2 times ----------[ ]
    2. 3–10 times ----------[ ]
    3. More than 10 times ----------[ ]

13. In the past [4 weeks/30 days], did anyone in your household go a whole day and night without eating anything at all because there was not enough food?
    1. Yes----------[ ]
    2. No ----------[ ] **Go to Q.15**

14. How often did this happen in the past [4 weeks/30 days]?
    1. 1–2 times ----------[ ]
    2. 3–10 times ----------[ ]
    3. More than 10 times ----------[ ]

15. Please tell me the foods (meals and snacks) that **<u>you</u>** ate and anything you drank yesterday during the day and night, whether at home or outside the home. Start with the first food or drink of the morning.

Instructions: Write down all foods and drinks mentioned. When composite dishes are mentioned ask for the list of ingredients.

When the respondent has finished, probe for meals and snacks not mentioned.

Morning (Waking to 1200 hrs)	**Afternoon (1200 hrs to 1700 hrs)**	**Evening/Night (1700 hrs to bedtime)**

16. ***Instructions: When the respondent recall is complete, fill in the food groups based on the information recorded above. For any food groups not mentioned, ask the respondent if a food item from this group was consumed.***

Response Category Number	Food Group	Examples	Check if Yes
(1)	Cereals	Corn/maize, rice, wheat, or any other grains or foods made from these (e.g. bread, porridge)	
(2)	White roots and tubers	Potato, yam, cassava, eddoe or any foods made from these (e.g. fufu or dumboy)	
(3)	Vitamin A rich vegetables and tubers	Pumpkin, carrot, or sweet potato that are orange inside (e.g. red sweet pepper)	
(4)	Dark green leafy vegetables	Any dark green leafy vegetables (e.g. cassava leaves, potato greens)	
(5)	Other vegetables	Other vegetables (e.g. tomato, onion, eggplant)	
(6)	Vitamin A rich fruits	Mango, papaya and 100% fruit juice made from these	
(7)	Other fruits	Other fruits including plantain, wild fruits and 100% fruit juice	
(8)	Organ meat	Liver, kidney, heart or other organ meats of blood-based foods	
(9)	Flesh meat	Beef, pork, lamb, goat, bush meat, chicken, duck, groundhog, other birds, insects, snails	
(10)	Eggs	Eggs from chicken, duck, guinea fowl or any other egg	
(11)	Fish and seafood	Fresh or dried fish or shellfish	
(12)	Legumes, nuts and seeds	Dried beans, dried peas, lentils, nuts, seeds of foods made from these (e.g. peanut butter)	
(13)	Milk and milk products	Milk, cheese, yogurt/curd or other milk products	
(14)	Oils and fats	Oil, fats or butter added to food or used for cooking	
(15)	Sweets	Sugar, honey, sweetened soda or sweetened juice drinks, sugary foods such as chocolates, candies, cookies and cakes	
(16)	Red palm products	Palm butter, palm oil, palm nut	

Family Planning

17. Are you currently using any method of contraception/birth control/family planning?
    1. Yes----------[ ]
    2. No ----------[ ] **Go to Sub-Questionnaire 10**

18. What is the main method you or your husband/partner are using now to avoid/postpone getting pregnant? ***Instructions: Multiple answers possible. If woman is not able to cite a method, read down list of methods, show her the photos and check affirmative answers.***
    1. Pill ----------[ ]
    2. Male condom----------[ ]
    3. Injectables ----------[ ]
    4. Implants----------[ ]
    5. IUD----------[ ]
    6. Female condom----------[ ]
    7. Emergency contraception ----------[ ]
    8. Female sterilization (Tubal ligation) ----------[ ]
    9. Male sterilization (Vasectomy)----------[ ]
    10. Rhythm----------[ ] ***Go to Sub-Questionnaire 10***
    11. Withdrawal ----------[ ] ***Go to Sub-Questionnaire 10***
    88. Other (**specify**): ----------[ ] ***Go to Sub-Questionnaire 10***
    98. Don't know----------[ ] ***Go to Sub-Questionnaire 10***

19. Do you have a child less than 5 years old?
    1. Yes----------[ ]
    2. No----------[ ] ***END THIS INTERVIEW***

20. What are their birth dates?

Instructions: If all children are greater than 59 months old, end this interview.

Instructions: Record first child's birth date:

d	d	/	m	m	/	Y	y	y	y

Instructions: If exact date not known, check and verify from the child card or probe to identify local or seasonal events so that month and year can be determined.

Instructions: Record next child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: Record next child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: Record next child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: Record next child's birth date:

		/			/				
d	d	/	m	m	/	y	y	y	y

21. ***Instructions: Select one of the children under 5 years old and record their age (in months completed): _____***

Notes for Interviewer:

- ***If child is less than 59 months old, continue to Sub-Questionnaire 2 for Mothers of Children 0 to 59 Months.***

END THIS QUESTIONNAIRE

Thank you!!!

County / Lot :_____ / _____ **Community / Questionnaire # :_____ / _____**

2

Sub-Questionnaire for Mothers of Children 0 to 59 Months

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name: ----------

8. Mother's age in years (completed years):----------
   Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, check and verify from the child card or probe to identify local or seasonal events so that month and year can be determined.

12. Age of child (in months completed):_____

Water, Sanitation and Hygiene

13. What is the MAIN source of drinking water for members of your household?
    1. Piped Water----------[ ]
    2. Creek/river/lake----------[ ]
    3. Rainwater ----------[ ]
    4. Dug well with hand pump----------[ ]
    5. Open well (unprotected)----------[ ]
    6. Water from spring----------[ ]
    7. Mineral Water (Bottled water)----------[ ]
    8. Tanker truck/Cart with small tank----------[ ]
    88. Other (**specify**: _____) ----------[ ]

14. How long does it take to go there, get water, and come back?
    1. No. of minutes(_____)----------[ ]
    2. Water on premises----------[ ]
    3. Don't know ----------[ ]

15. Do you do anything to this water before using it for drinking?
    1. Yes----------[ ]
    2. No----------[ ] ***Go to Q.17***

16. What do you do to prepare drinking water? ***Instructions: Select all that apply.***
    1. Boiling----------[ ]
    2. Add chlorine/bleach----------[ ]
    3. Strain through a cloth----------[ ]
    4. Use water filter (ceramic/sand, etc)----------[ ]
    5. Sunlight/Water Guard----------[ ]
    6. Let it stand and settle----------[ ]
    88. Other (**specify**:_____)----------[ ]

17. What kind of toilet does your household use?
    1. Flush or pour flush----------[ ]
    2. Ventilated improved pit (VIP) latrine ----------[ ]
    3. Pit latrine with slab----------[ ]
    4. Pit latrine without slab/open pit----------[ ]
    5. Bucket toilet----------[ ]
    6. No facility/bush/field ----------[ ] ***Go to Q.21***
    88. Other (**specify**:_____)----------[ ]

18. Do other households use this toilet?
    1. Yes----------[ ]
    2. No----------[ ] ***Go to Q.20***

19. Is this a community toilet facility used by community members?
    1. Yes----------[ ]
    2. No----------[ ]

20. ***Instructions: Ask to see the toilet facility that the household uses. Does the facility exist and is it used?***
    1. Yes----------[ ]
    2. No----------[ ]

21. Do you have soap for use in your household?
    1. Yes----------[ ]
    2. No ----------[ ]

22. Do you typically wash your hands during the day?
    1. Yes----------[ ]
    2. No ----------[ ] ***Go to Q.25***

23. When during the day do you wash your hands? ***Instructions: Record <u>all</u> mentioned. After first answer probe: "Is there any other time during the day?"***
    1. Before feeding children----------[ ]
    2. Before food preparation----------[ ]
    3. After going to toilet----------[ ]
    4. After attending to a child who has gone pupu----------[ ]
    5. Before eating----------[ ]
    88. Other (**specify**: _____)----------[ ]

24. What do you use to wash your hands?
    1. Water only ----------[ ]
    2. Soap and water----------[ ]
    88. Other (**specify**: _____)----------[ ]

25. How do you dispose of your household waste/garbage?
    1. Incineration (with an incinerator)----------[ ]
    2. Burning (not using an incinerator)----------[ ]
    3. Burying/pit----------[ ]
    4. Take outside of household compound----------[ ]
    5. Put in community dumpsters----------[ ]
    88. Other (**specify**: _____)----------[ ]

<u>Malaria Prevention</u>

26. Do you have any bed nets in your house?
    1. Yes----------[ ]
    2. No ----------[ ] ***Go to Q.30***

27. Did you receive a new bed net within the past 5 years?
    1. Yes----------[ ]
    2. No----------[ ]

28. Who slept under a bed net last night?
    Instructions: Select all that apply
    1. Child (under 5 years)----------[ ]
    2. Interviewee/Mother----------[ ]
    3. Father/Husband----------[ ]
    4. Other adult----------[ ]
    5. Other child(ren)----------[ ]
    6. No one slept under the bed net last night----------[ ]

29. ***Instructions: Ask to see the bed net that (NAME) sleeps under and inspect it for holes or visible tears. (NO HOLES/TEARS= GOOD CONDITION, HOLES AND/OR TEARS=DAMAGED)***
    1. Good Condition----------[ ]
    2. Damaged----------[ ]
    3. Not seen (no net)----------[ ]
    4. Mother refused net observation/inspection----------[ ]

Health Monitoring

30. ***OBSERVE TO CONFIRM*** – Does the child have a health card?
    1. Yes----------[ ]
    2. No ----------[ ] ***END THIS SUB-QUESTIONNAIRE***

31. ***Instructions: Observe whether this is the old Child Health Card or the new Road to Health card?***
    1. Old card----------[ ]
    2. New card----------[ ]

32. ***Instructions: Observe whether the card has the following information:***
    1. birthdate recorded----------Y[ ] / N[ ]
    2. birth weight recorded----------Y[ ] / N[ ]

33. ***Instructions: If birth weight is recorded on the card, record (NAME's) birth weight here:***

    _____

Thank you!!!!

3

Sub-Questionnaire for Mothers of Children Aged 0 to 5 Months

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

		/			/				
d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name:----------

8. Mother's age in years (completed years):----------

Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

		/			/				
d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, probe to identify local or seasonal events so that month and year can be determined.

12. Age of child (in months completed):_____

Breast Feeding and Child Nutrition

13. Did you ever breast feed (**NAME**)?
    1. Yes ----------[ ]
    2. No----------[ ] ***Go to Q.18***

14. How long after birth did you **first** breast feed (**NAME**)?
    1. Immediately or within the first hour after delivery----------[ ]
    2. Within one to eight hours after delivery ----------[ ]
    3. More than eight hours after delivery ----------[ ]

15. In the first three days after delivery, was (NAME) given anything to drink besides breast milk?
    1. Yes ----------[ ]
    2. No----------[ ]

16. Was (**NAME**) **only** breast fed (or given breast milk) during the last day and night?
    1. Yes----------[ ]
    2. No----------[ ]

17. What else did (**NAME**) drink or eat yesterday during the day or at night? ***Instructions: Multiple answers possible. Wait for response and then probe by asking if they drank anything else during this time.***
    1) Nothing----------[ ]
    2) Plain water ----------[ ]
    3) Prepared infant formula ----------[ ]
    4) Any other milk such as tinned powder or fresh animal milk ----------[ ]
    5) Fruit juice----------[ ]
    6) Porridge (of e.g. rice, plantain or eddoe dust) ----------[ ]
    7) Any other liquids (**specify**:_____)----------[ ]

Childhood Illnesses

18. Did (**NAME**) experience any of the following signs or symptoms in the past two weeks?
    Instructions: Read choices '1' to '3'. CHECK ALL THAT APPLY. Probe for symptoms described below.
    1. Cough with difficulty breathing or cough with fever----------NO [ ] YES [ ]
       If YES, go to Sub-Questionnaire 7: Cough

    2. Diarrhea----------NO [ ] YES [ ]
       If YES, go to Sub-Questionnaire 8: Diarrhea.

    3. Fever (only)----------NO [ ] YES [ ]
       If YES, go to Sub-Questionnaire 9: Fever

Notes for Interviewer:

- ***If child had cough with difficulty breathing or cough with fever, mark as cough and complete Sub-Questionnaire 7: Cough;***
- ***If child had diarrhea ONLY or fever and diarrhea, mark as diarrhea and complete Sub-Questionnaire 8: Diarrhea;***
- ***If child had fever ONLY during the illness episode, mark as fever and complete Sub-Questionnaire 9: Fever;***
- ***If child had TWO OR MORE of cough, diarrhea, fever as DISTINCT illness episodes, mark YES for the illness with the longest duration and complete the corresponding Sub-Questionnaire for those symptoms.***

Thank you!!!!

……

4

Sub-Questionnaire for Mothers of Children Aged 6 to 23 Months

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name**:**----------

8. Mother's age in years (completed years):----------
Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, probe to identify local or seasonal events so that month and year can be determined

12. Age of child (in months completed):_____

Breast Feeding and Child Nutrition

13. Do you currently breastfeed/feed breastmilk to (**NAME**)?
    1. Yes ----------[ ]
    2. No----------[ ] ***Go to Q.16***

14. Did you feed breastmilk to (**NAME**) yesterday during the day and night?
    1. Yes----------[ ]
    2. No----------[ ] ***Go to Q.16***

15. How many times did you breastfeed (**NAME**) yesterday during the day and night?
    1) Number of times child was breastfed: _____

16. What did (**NAME**) **drink** yesterday during the day and at night? ***Instructions: Multiple answers possible wait for the spontaneous response and then probe for additional answers.***
    1) Nothing----------[ ]
    2) Breastmilk----------[ ]
    3) Plain water ----------[ ]
    4) Prepared infant formula ----------[ ]
    5) Any other milk such as tinned powder or fresh animal milk----------[ ]
    6) Fruit juice----------[ ]
    7) Porridge (of e.g. rice or plantain dust, eddoe dust)----------[ ]
    8) Any other liquids (**specify**:_____) ----------[ ]

17. What food (solid, semisolid, or soft foods other than liquids) did (**NAME**) **eat** yesterday during the day and night? ***Instructions: Multiple answers possible, wait for the spontaneous response and then probe for additional answers.***
    1) Nothing ----------[ ] ***Go to Q.19***
    2) Any food made from grains----------[ ]
    3) Pumpkin, carrots or sweet potatoes----------[ ]
    4) Any other food made from roots/tubers (e.g. potato, cassava or other local roots/tubers)----------[ ]
    5) Any green leafy vegetables ----------[ ]
    6) Mango, papaya or other local vitamin "A" rich fruit----------[ ]
    7) Any other fruit and vegetables (e.g. banana, oranges, tomatoes)----------[ ]
    8) Meat, poultry, or fish ----------[ ]
    9) Eggs----------[ ]
    10) Any foods made from legumes (e.g. beans or peanuts) ----------[ ]
    11) Yogurt/Curd----------[ ]
    12) Any food made with palm butter, cooked with palm oil----------[ ]
    13) Other (**specify**:_____) ----------[ ]

18. How many times did (**NAME**) **eat** any food (solid, semisolid, or soft foods other than liquids) yesterday during the day or at night?
    1) 1-2 times----------[ ]
    2) 3-4 times----------[ ]
    3) 5 or more times----------[ ]

Childhood Illnesses

19. Did your child (**NAME**) receive Vitamin A like this during the last 6 months? *(show picture of Vitamin A supplement)*
    1. Yes----------[ ]
    2. No----------[ ]
    98. Don't know ----------[ ]

20. Did (**NAME**) experience any of the following signs or symptoms in the past two weeks?
Instructions: Read choices '1' to '3'. CHECK ALL THAT APPLY. Probe for symptoms described below.

1. Cough with difficulty breathing or cough with fever----------NO [ ] YES [ ]
If YES, go to Sub-Questionnaire 7: Cough

2. Diarrhea- ----------NO [ ] YES [ ]
If YES, go to Sub-Questionnaire 8: Diarrhea

3. Fever (only)----------NO [ ] YES [ ]
If YES, go to Sub-Questionnaire 9: Fever

Notes for Interviewer:

- ***If child had cough <u>and</u> difficulty breathing or cough <u>and</u> fever, mark as cough and complete Sub-Questionnaire 7: Cough;***
- ***If child had <u>diarrhea</u> ONLY or <u>fever and diarrhea</u>, mark as diarrhea and complete Sub-Questionnaire 8: Diarrhea;***
- ***If child had fever ONLY during the illness episode, mark as fever and complete Sub-Questionnaire 9: Fever;***
- ***If child had <u>TWO OR MORE</u> of cough, diarrhea, fever as <u>DISTINCT illness episodes</u>, mark YES for the illness with the longest duration and complete the corresponding Sub-Questionnaire for those symptoms.***

Thank you!!!!

……

County / Lot :_____ / _____ **Community / Questionnaire # :**_____ / _____

5

Sub-Questionnaire for Mothers of Children Aged 12 to 23 Months

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name:----------

Instructions: If exact age not known, probe to identify calendar events that indicate the year.

8. Mother's age in years (completed years):----------

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, probe to identify local or seasonal events so that month and year can be determined.

12. Age of child (in months completed):_____

Immunization

13. Do you have a card where (**NAME's**) vaccination dates are written down? If yes, can you show me the card?
    1. Yes, card is seen----------[ ]
    2. No, either has no card or card not shown----------[ ]

14. Did (**NAME**) receive three Penta (Pentavalent) vaccinations before 1 year of age (12 months)?
Instructions: If an immunization card or other document is available, also copy the date for the immunizations requested in the space provided.

    1. Yes, verified on card----------[ ]

    Date of last **Penta (Pentavalent)** vaccination recorded:

d	d	/	m	m	/	y	y	y	y

    2. Yes, mother says so----------[ ]
    3. No, either not on card or mother says no ----------[ ]

15. Did (**NAME**) receive a BCG vaccination before 1 year of age (12 months)?

    1. Yes, verified on card----------[ ]

    Date **BCG** recorded:

d	d	/	m	m	/	y	y	y	y

    2. Yes, mother says so----------[ ]
    3. No, either not on card or mother says no----------[ ]

16. Did (**NAME**) receive a measles vaccination before 1 year of age (12 months)?
    1. Yes, verified on card----------[ ]

    Date **Measles** recorded:

d	d	/	m	m	/	y	y	y	y

    2. Yes, mother says so----------[ ]
    3. No, either not on card or mother says no ----------[ ]

17. Did (**NAME**) receive a polio vaccination before 1 year of age (12 months)?
    1. Yes, verified on card----------[ ]

    Date **Polio** recorded:

d	d	/	m	m	/	y	y	y	y

    2. Yes, mother says so----------[ ]
    3. No, either not on card or mother says no ----------[ ]

18. Did (**NAME**) receive a yellow fever vaccination before 1 year of age (12 months)?
    1. Yes, verified on card----------[ ]

Date **Yellow Fever** recorded:

d	d	/	m	m	/	y	y	y	y

    2. Yes, mother says so----------[ ]
    3. No, either not on card or mother says no----------[ ]

Childhood Illnesses

19. Did (**NAME**) experience any of the following signs or symptoms in the past two weeks?
    Instructions: Read choices '1' to '3'. CHECK ALL THAT APPLY. Probe for symptoms described below.
    1. Cough with difficulty breathing or cough with fever ----------NO [ ] YES [ ]
       If YES, go to Sub-Questionnaire 7: Cough

    2. Diarrhea- ----------NO [ ] YES [ ]
       If YES, go to Sub-Questionnaire 8: Diarrhea

    3. Fever (only)----------NO [ ] YES [ ]
       If YES, go to Sub-Questionnaire 9: Fever

Notes for Interviewer:

- ***If child had cough <u>and</u> difficulty breathing or fever <u>and</u> cough, mark as cough and complete Sub-Questionnaire 7: Cough;***
- ***If child had <u>diarrhea</u> ONLY or <u>fever and diarrhea</u>, mark as diarrhea and complete Sub-Questionnaire 8: Diarrhea;***
- ***If child had fever ONLY during the illness episode, mark as fever and complete Sub-Questionnaire 9: Fever;***
- ***If child had <u>TWO OR MORE</u> of cough, diarrhea, fever as <u>DISTINCT illness episodes</u>, mark YES for the illness with the longest duration and complete the corresponding Sub-Questionnaire for those symptoms.***

Thank you!!!!

……

County / Lot :_____ / _____ **Community / Questionnaire # :**_____ / _____

6

Sub-Questionnaire for Mothers of Children Aged 0 to 23 Months

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

		/			/				
d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name:----------

8. Mother's age in years (completed years):----------

Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

		/			/				
d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, probe to identify local or seasonal events so that month and year can be determined.

12. Age of child (in month's completed):_____

Prenatal Care & Early Post-Natal Care

13. While you were pregnant with (**NAME**), did you go to a health facility for a check-up for this pregnancy?
    1. Yes ----------[ ] ***Go to Q.15***
    2. No----------[ ]

14. Who did you **mainly** go to see for check-ups during your pregnancy? ***Check only one.***
    1. Traditional birth attendant/Midwife (untrained)----------[ ] ***Go to Q.17***
    2. Trained traditional midwife----------[ ] ***Go to Q.17***
    3. Nobody----------[ ] ***Go to Q. 17***
    4. Other (**specify**:_____) ----------[ ] ***Go to Q.17***

15. When you first went for a check-up, how many months was the pregnancy?
    Instructions: Ask to see her Antenatal Card or "Big Belly Card".
    1. Number of Months ( )----------[ ]
    98. Don't know----------[ ]

16. While you were pregnant with (**NAME**), how many total check-up visits did you attend at a health facility before birth? ***Ask to see her Antenatal Card or "Big Belly Card".***
    1. Number of visits (_____)----------[ ]
    98. Don't know----------[ ]

17. When you were pregnant with (**NAME**), did you take SP tablets like these (***show picture of SP tablets***) to protect you from malaria?
    1. Yes ----------[ ]
    2. No----------[ ] ***Go to Q.19***
    98. Don't know ----------[ ] ***Go to Q.19***

18. How many times did you take SP tablets like these (***show picture of SP tablets***) to protect you from malaria infection when you were pregnant with (**NAME**)?
    1. Number of times SP was taken during pregnancy (_____) ------[ ]
    98. Don't know----------[ ]

19. When you were pregnant with (**NAME**), did you take iron and folic acid tablets like these (***show picture of Iron+Folic Acid tablets***) to strengthen your blood?
    1. Yes ----------[ ]
    2. No ----------[ ]
    98. Don't know----------[ ]

20. When you were pregnant, **before you gave birth** to (**NAME**), did you receive an injection in the arm to prevent the baby from getting tetanus or jerking after birth?
    1. Yes ----------[ ]
    2. No----------[ ] ***Go to Q.22***
    98. Don't know----------[ ] ***Go to Q.22***

21. When you were pregnant, **before you gave birth** to (**NAME**), how many times did you receive the tetanus injection?
    1. Number of times(_____)----------[ ]***If 2 or more Go to Q. 25***
    98. Don't know ----------[ ]

22. At any time **before being pregnant** with (**NAME**), did you receive any tetanus injections to protect you or an earlier pregnancy?
    1. Yes----------[ ]
    2. No----------[ ] ***Go to Q.25***
    98. Don't Know----------[ ] ***Go to Q.25***

23. **Before being pregnant** with (**NAME**), how many other times did you receive a tetanus injection?
    1. Number of times (_____)----------[ ]
    98. Don't know----------[ ]

24. When did you receive the last tetanus injection to protect you or an earlier pregnancy **before being** pregnant with (**NAME**)?
    1. Less than 1 year----------[ ]
    2. Less than 2 years----------[ ]
    3. Less than 3 years----------[ ]
    4. More than 3 years----------[ ]
    98. Don't know----------[ ]

25. Where did you give birth to (**NAME**)?
    1. Clinic/Health center/Hospital ----------[ ]
    2. Your Home----------[ ]
    3. Trained Traditional Midwife's House----------[ ]
    4. Maternal Waiting Home in community----------[ ]
    5. Other (**specify**: _____)----------[ ]

26. Who assisted you with (**NAME's**) delivery?
    Instructions: Probe for the type of person and record most qualified person of those mentioned. Mark only 1 choice
    1. Doctor----------[ ]
    2. Nurse/Midwife----------[ ]
    3. Trained traditional midwife----------[ ]
    4. Family member (specify: _____)----------[ ]
    5. Other (**specify**: _____)----------[ ]

27. Within the first two months after (**NAME**) was born, did you take Vitamin A? ***Show picture of Vitamin A tablets.***
    1. Yes----------[ ]
    2. No----------[ ] ***Go to Q.29***

28. When did you receive the Vitamin A capsules?
    1. Before (**NAME**) was born----------[ ]
    2. After (**NAME**) was born----------[ ]
    3. Both before and after (**NAME**) was born----------[ ]
    98. Don't know----------[ ]

29. Were you informed that you had to go to the health facility for a check-up after delivery even if there was no problem with you or the baby?
    1. Yes----------[ ]
    2. No----------[ ]

30. Did you go to a health facility to check on your health after you gave birth?
    1. Yes----------[ ]
    2. No----------[ ] ***Go to Q.32***

31. When did you first go to the health facility for a check-up after you gave birth?
Instructions: Ask to see her Antenatal Card or "Big Belly Card".
    1. One day after delivery----------[ ]
    2. Within two weeks after delivery----------[ ]
    3. Between two and six weeks after delivery----------[ ]
    4. More than six weeks after delivery----------[ ]
    98. Don't know----------[ ]

Childhood Illnesses

32. Did (**NAME**) experience any of the following symptoms in the past two weeks?
Instructions: Read choices '1' to '3'. CHECK ALL THAT APPLY. Probe for symptoms described below.
    1. Cough with troubled breathing or cough with fever ----------NO [ ] YES [ ]
    If YES, go to Sub-Questionnaire 7: Cough

    2. Diarrhea- ----------NO [ ] YES [ ]
    If YES, go to Sub-Questionnaire 8: Diarrhea

    3. Fever (only)----------NO [ ] YES [ ]
    If YES, go to Sub-Questionnaire 9: Fever

Notes for Interviewer:
- ***If child had cough <u>and</u> troubled breathing or cough <u>and</u> fever, mark as cough and complete Sub-Questionnaire 7: Cough;***
- ***If child had <u>diarrhea</u> ONLY or <u>fever and diarrhea</u>, mark as diarrhea and complete Sub-Questionnaire 8: Diarrhea;***
- ***If child had fever ONLY during the illness episode, mark as fever and complete Sub-Questionnaire 9: Fever;***
- ***If child had <u>TWO OR MORE</u> of cough, diarrhea, fever as <u>DISTINCT illness episodes</u>, mark YES for the illness with the longest duration and complete the corresponding Sub-Questionnaire for those symptoms.***

Thank you!!!!

……

County / Lot :_____ / _____ **Community / Questionnaire # :**_____ / _____

7

Sub-Questionnaire for Mothers of Children 0 to 59 months: Cough and Difficult Breathing or

Cough and Fever in Last 2 Weeks

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

		/			/				
d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name: ----------

8. Mother's age in years (completed years):----------
Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

		/			/				
d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, probe to identify local or seasonal events so that month and year can be determined.

12. Age of child (in months completed):_____

Acute Respiratory Infection

13. When (**NAME**) was sick with a cough and difficult breathing **or** a cough and fever in the last 2 weeks, did you seek treatment for the cough/difficult breathing **or** cough/fever?
    1. Yes ----------[ ]
    2. No----------[ ] ***END THIS SUB-QUESTIONNAIRE***

14. How long did you wait before seeking care from the time the symptoms started?
    1. Same day ----------[ ]
    2. Next day ----------[ ]
    3. Two days ----------[ ]
    4. Three or more days ----------[ ]
    98. Don't know ----------[ ]

15. Where did you first go for treatment? **(*CHECK ONLY ONE*)**
    1. Health facility (**specify name**:_____) ----------[ ]
    2. General Community Health Volunteer (gCHV) or Community health worker----------[ ]
    3. Pharmacy/Drugstore----------[ ]
    4. Private doctor----------[ ]
    5. Black baggers ----------[ ]
    6. Traditional Practitioner ----------[ ]
    7. Friend/Relative----------[ ]
    88. Other (**specify**:_____)----------[ ]

16. Which medicines were given to (**NAME**) for his/her cough with difficult breathing or fever?
Instructions: Tick ALL medicines that were given. If mother is unable to recall drug name(s), ask her to show the drug(s) or prescription to you. If she is unable to show you, mark 'Don't know'.
    1. Co-Trimoxazole (Septrin)----------[ ]
    2. Other antibiotic (**specify** if possible: _____) ----------[ ]
    3. Cough syrup----------[ ]
    4. Something for fever (aspirin or paracetamol)----------[ ]
    8. None ----------[ ]
    88. Other (**specify**:_____)----------[ ]
    98. Don't know----------[ ]

Thank you!!!!

……

County / Lot :_____ / _____ **Community / Questionnaire # :**_____ / _____

8

Sub Questionnaire for Mothers of Children 0 to 59 months: With Diarrhea in Last 2 Weeks

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

d	d	/	m	m	/	y	y	y	y

2. County name:----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name: ----------

8. Mother's age in years (completed years):----------

Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, probe to identify local or seasonal events so that month and year can be determined.

12. Age of child (in months completed):_____

Treatment Given

13. When (**NAME**) had diarrhea in the last 2 weeks, did you seek treatment for the diarrhea?
    1. Yes ----------[ ]
    2. No----------[ ] **END THIS SUB-QUESTIONNAIRE**

14. How long did you wait before seeking care from the time symptoms started?
    1. Same day----------[ ]
    2. Next day----------[ ]
    3. Two days ----------[ ]
    4. Three or more days ----------[ ]
    98. Don't know ----------[ ]

15. Where did you <u>first</u> go for treatment? **(CHECK ONLY ONE)**
    1. Health facility (**specify name**:_____) ----------[ ]
    2. General Community Health Volunteer (gCHV) or Community health worker--------[ ]
    3. Pharmacy/Drugstore----------[ ]
    4. Private doctor ----------[ ]
    5. Black baggers----------[ ]
    6. Traditional Practitioner----------[ ]
    7. Friend/Relative ----------[ ]
    88. Other (**specify**: _____):----------[ ]

16. When (**NAME**) had diarrhea in the last 2 weeks, what was given to treat the diarrhea?
    Instructions: Show pictures of ORS. ***Multiple answers possible. Probe by asking if there was anything else given during the episode. MARK ALL RESPONSES.***
    1. Nothing----------[ ]
    2. Home preparation of ORS (*Running stomach medicine/a homemade sugar-salt drink)*----------[ ]
    3. Homemade ORS with zinc tablet added----------[ ]
    4. Commercial ORS packet ----------[ ]
    5. Home remedies/ Herbal medicine----------[ ]
    88. Other (**specify**:_____)----------[ ]

Thank you!!!!

……

County / Lot :_____ / _____ **Community / Questionnaire # :**_____ / _____

9

Sub-Questionnaire for Mothers of Children 0 to 59 months: With Fever in Last 2 Weeks

MOHSW/USAID/MEASURE Evaluation

Interview Information

1. Interview date:

		/			/				
d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Mother's full name:----------

8. Mother's age in years (completed years):----------

Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. Name of child:----------

10. Sex of child: MALE [ ] FEMALE [ ]

11. Child's birth date:

		/			/				
d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, probe to identify local or seasonal events so that month and year can be determined.

12. Age of child (in months completed): _____

Fever (Malaria)

13. When (**NAME**) was ill with fever in the last two weeks, did you seek treatment for (**NAME's**) fever?
    1. Yes----------[ ]
    2. No----------[ ] ***END THIS SUB-QUESTIONNAIRE***

14. How long did you wait before seeking care from the time the symptoms started?
    1. Same day----------[ ]
    2. Next day----------[ ]
    3. Two days----------[ ]
    4. Three or more days----------[ ]
    98. Don't know----------[ ]

15. Where did you first go for treatment? (***CHECK ONLY ONE***)
    1. Health facility (Specify name_____) ----------[ ]
    2. General Community Health Volunteer (gCHV) or Community health worker----------[ ]
    3. Pharmacy/Drugstore----------[ ]
    4. Private doctor ----------[ ]
    5. Black baggers----------[ ]
    6. Traditional Practitioner----------[ ]
    7. Friend/Relative----------[ ]
    88. Other (**specify**): ----------[ ]

16. Were any medicines given to (**NAME**) for his/her fever?
    1. Yes----------[ ]
    2. No----------[ ] ***END THIS SUB-QUESTIONNAIRE***

17. Which medicines were given to (**NAME**) for his/her fever?

Instructions: Tick all medicines that were given. If mother is unable to recall drug name(s), ask her to show the drug(s) to you. If she is unable to show you, mark 'Don't know'.

    1. ACT (artemisinin-based combination therapy) ----------[ ]
    2. Chloroquine----------[ ]
    3. Quinine----------[ ]
    4. SP/Fansidar ----------[ ]
    5. Aspirin ----------[ ]
    6. Paracetamol ----------[ ]
    7. Ibuprofen----------[ ]
    88. Other (specify):----------[ ]
    98. Don't Know----------[ ]

Thank you!!!!

County / Lot :_____ / _____ **Community / Questionnaire # :**_____ / _____

10

Replacement Sub-Questionnaire: Women Age 15 to 49
Not Currently Using Modern Contraceptives

MOHSW/USAID/RBHS/MEASURE Evaluation

Interview Information

1. Interview date:

		/			/				
d	d	/	m	m	/	y	y	y	y

2. County name: ----------

3. Survey Lot: ----------

4. Community name: ----------

5. Interviewer's name: ----------

6. Supervisor's name: ----------

Interviewee Information

7. Woman's full name: ----------

8. Woman's age in years (completed years):----------
Instructions: If exact age not known, probe to identify calendar events that indicate the year.

9. What are your main reasons for not using a modern method of contraception?
Instructions: Show pictures of pills, condom, injectable, implant, IUD. Select all that apply.
   1. Don't know about them----------[ ]
   2. Trying to get pregnant/wish to have more children----------[ ]
   3. Don't know where to get them----------[ ]
   4. Experienced side effects----------[ ]
   5. Heard bad things----------[ ]
   6. Not easily available----------[ ]
   7. Partner/relative forbids it----------[ ]
   8. Long walking distance----------[ ]
   9. Expensive/costly----------[ ]
   10. Religious reasons----------[ ]
   88. Other (**specify**:_____)----------[ ]
   98. Don't know----------[ ]

10. Would you like to be using a modern method of contraception/family planning/birth control?
Instructions: Show pictures of pills, condom, injectable, implant, IUD.
   1. Yes----------[ ]
   2. No ----------[ ]

11. Do you have a child less than 5 years old?
    1. Yes---[ ]
    2. No--[ ] ***END THIS INTERVIEW***

12. What are their birth dates?

Instructions: If all children are greater than 59 months old, end this interview.

Instructions: Record first child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: If exact date not known, check and verify from the child card or probe to identify local or seasonal events so that month and year can be determined.

Instructions: Record next child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: Record next child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: Record next child's birth date:

d	d	/	m	m	/	y	y	y	y

Instructions: Record next child's birth date:

d	d	/	m	m	/	y	y	y	y

13. ***Instructions: Select one of the children under 5 years old and record their age (in months completed): ___________________________***

Notes for Interviewer:

- ***If child is less than 59 months old, continue to Sub-Questionnaire 2 for Mothers of Children 0 to 59 Months.***

END THIS SUB-QUESTIONNAIRE

Thank you!!!

Appendix 5 Questionnaire Aids

Contraceptive Pills

Male Condom

Injectables

Implant

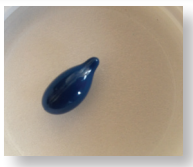
IUD

Female Condoms

SP

Iron and Folic Acid Tablets

Vitamin A



ORS and Zinc

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