Trainer's Guide

KPC Training Module 1: Training the Core Team

Key Contributors

The **CORE Group,** a membership association of international nongovernmental organizations (NGOs) registered in the United States, promotes and improves the health and well being of women and children in developing countries through collaborative NGO action and learning. CORE's *Monitoring and Evaluation Working Group* develops tools and trainings to increase child survival and health program performance and quality through the standardization of use of data, analysis, and reporting. This publication was made possible by support provided to CORE from the Bureau for Global Health, United States Agency for International Development (USAID) under cooperative agreement FAO-A-00-98-00030. This publication does not necessarily represent the views or opinion of USAID.

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Freedom from Hunger (FFH) focuses on the vital and interdependent connection between health and financial security for progress against chronic hunger and poverty. FFH works with direct service providers, technical assistance providers and NGOs to disseminate knowledge and tools tested and used on a global scale to build health and financial security for poor women, their families and communities. FFH is a CORE Group member.

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Abstract

The CORE Group's *Knowledge, Practice, Coverage (KPC) Survey Training Curriculum* provides trainer guidelines and participant handouts and resources to train field workers to carry out a KPC survey.   The **KPC Trainer's Guide** includes three modules: *KPC Training Module 1: Training the Core Team*; *KPC Training Module 2: Training Supervisors and Interviewers;* and *KPC Training Module 3: Training the Post-Survey Analysis Team*. KPC Training Module 1 provides a set of learning sessions used to train the Core Team in the field to provide overall administration of the survey, including choosing the sample, preparing the survey instrument, and planning how to use results to inform program planning. KPC Training Module 2 provides a set of learning sessions used to train Supervisors and Interviewers in the field to choose respondents, administer the survey, and assure quality control. KPC Training Module 3 provides a set of learning sessions to train the Post-Survey Team to carry out data analysis, decision making based on results, and report writing.

The CORE Group's *Knowledge, Practice, Coverage Survey Training Curriculum* includes three manuals:

1. KPC Training of Survey Trainers: Trainer's Guide and Participant's Manual and Workbook

2. KPC Survey Training: Trainer's Guides

   Module 1: Training the Core Team
   Module 2: Training Supervisors and Interviewers
   Module 3: Training the Post-Survey Analysis Team

3. KPC Survey Training: Participant's Manuals and Workbooks

   Module 1: Training the Core Team
   Module 2: Training Supervisors and Interviewers
   Module 3: Training the Post-Survey Analysis Team

ACKNOWLEDGMENTS

KPC SURVEY TRAINING
FOR THE CORE TEAM

The **Core Team Training** is designed for individuals who will form the Core Team, usually three to five people in-country who are directly responsible for designing, organizing, and implementing the KPC survey. The participants will be responsible for training field staff to implement the KPC survey in coordination with the KPC Survey Trainer who has received the TOST training. The Core Team will be made up of staff from the PVO, partners and the MOH.

Ideally, some members of the team will have experience with the following:

- Training
- Knowledge of adult education principles
- Experience doing a survey
- Skills in data management and analysis
- Technical knowledge of maternal-child or community health
- Management skills needed to administer a survey

These participants need technical information about how to design and implement the survey. They need resources and a modular curriculum for training Supervisors and Interviewers that can be adapted to their learners' needs.

The KPC Survey Trainer will have received the TOST KPC Survey training and have had field experience in conducting KPC Surveys, experience as a trainer and good knowledge of adult education principles.

Participants will leave the training with:

- An understanding of the process used and materials needed for implementing a KPC survey
- A KPC Survey design, including a sampling protocol, draft questionnaire, data analysis plan, logistics plan and budget

This five-day training will be held in the country where the KPC survey is going to be conducted immediately prior to starting the survey. The training should be held at a training site near the project with adequate space for the Core Team to work..

Table of Contents

HOW TO USE THIS CURRICULUM

How the Curriculum is Organized

This curriculum for training the KPC survey Core Team contains standard symbols and fonts throughout the text that provide visual signals to help the Trainer identify: 1) key questions to ask, 2) information to transmit verbally or visually, and 3) information that is instructional only. In addition, an information box at the beginning of each learning session is designed to help the Trainer prepare to present the session. An explanation of the features of the learning sessions follows:

Learning Session Format

Each learning session begins with a:

Facilitator's Information Box—The box at the beginning of each learning session has up to six elements in it.
1. **Purpose**—the overall purpose of the learning session.
2. **Objectives**—list of actions (what participants will do) that the steps in the learning session are constructed to accomplish.
3. **Preparation/materials**—list of actions or materials that you—the Trainer—must ensure are ready before the learning session can be presented. (For example, extra reading in the Field Guide will be listed that you, the Trainer, should complete before teaching the learning session.) Materials needed for each learning session are listed with the step in which they occur. These materials include Training Resources (TR), flip charts, and other materials. The materials are listed in the steps in which they occur. For example:
    Step X:
    - TR X: Title
    - TR XX: Title
    - Flip chart with title: XXX

    1-1

    Note*:* "TR" indicates that the content is a Training Resource in the Participant's Manual and Workbook. You are encouraged to show the same content on a slide or overhead. The content of the Training Resources is not included in the Trainer's Guide. Rather, an icon like the one at the right indicates which TR to use. You will be given an electronic version of all of the Training Resources so that you can create your own slide show or overheads.
4. **Time**—the estimated amount of time needed to implement all of the steps in the learning session.
5. **Steps**—a list of the steps needed to complete the learning session—the titles capture the process to be used and the content to be covered.

After the Facilitator's Information Box you will find:

- **Step**s—detailed instructions about how to proceed through each step. You are encouraged to adapt the suggested text to your style while assuring that all of the content is included and that the steps remain participatory and engaging. Special features for the Trainer to note include:
    - **Italics font** = instructions for the Trainer (not to be read to the trainees)
    - **Regular font** = specific information, instructions or questions for the Trainer to read or closely paraphrase for the trainees
    - **Arrow (➤)** = symbol that highlights specific questions to ask
    - **Box (❑)** = special technical or summary information to share with the trainees
    - **[Square brackets]** = the "correct" answer to expect from a technical question
    - **(Parenthesis)** = additional instructions or information

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Learner Needs Assessment (LNA)
At least two weeks prior to the training, the Trainer should prepare and ask participants to complete a Learner Needs Assessment (LNA). The completed LNA will be used by the Trainer to finalize the course design. Many trainers just assume they know what is needed in a learning event. Thus, they do not focus on the learner's needs, but on their own assumptions. The completed LNA should be used by the Trainer to fine-tune the training workshop by identifying skills and common themes that need to be addressed. Based on the LNA, the Trainer can opt to omit or modify some learning sessions or to include the optional learning session(s) to satisfy specific needs.

The LNA should be carried out through written questionnaires, interviews, focus groups, e-mail, telephone conversations, etc. When conducting an LNA, let the individuals know why you are asking the questions so they understand that their ideas and opinions are valued. Some sample questions include:

INVENTORY OF KPC SURVEY EXPERIENCE

Name: _____

E-mail: _____

Telephone #:_____

1. In the past 2 years have you:
    a. Designed Knowledge, Practice & Coverage (KPC) Surveys?   Yes   No
    b. Implemented KPC Surveys?   Yes   No
    c. Analyzed KPC Surveys?   Yes   No
        If yes, please list surveys by project type (Child Survival, Food Aid, other?) and date:
        _____

2. Have you used the KPC 2000+ Modules and Field Guide?   Yes   No
    See http://www.childsurvival.com/kpc2000/kpc2000.cfm. If yes, describe how you used it:
    _____

3. Are you most interested in: (number in order of importance: 1 = most important)
    ___ KPC training for survey design
    ___ Staff training for implementation of survey
    ___ Analysis of indicators

4. Do you know how to analyze data using computer software?   Yes   No
    If Yes, what software have you used?   _____

5. What experience do you have in using anthropometrics?   _____
    _____

6. What languages do you speak fluently?   _____

7. Can you commit your time to work as a member of the Core Team for this survey?
    (Approximate time involved: _____ days)   Yes   No

8. What is the most important thing you would like to learn in this training? _____
    _____

Materials

All Training Resources are included in the Module 1 Participant's Manual and Workbook. Materials needed for each learning session are listed in the preparatory instructions in each learning session, as well as in the summary table of preparations (this section, following the sample agenda). The Trainer can decide whether to use overheads, Power Point slides, and/or handouts for the Training Resources. For all of the learning sessions, the Trainer should have available flip chart paper, markers, tape and an overhead or Power Point projector and screen.

All participants will receive:

1. A Core Team Participant Manual and Workbook (red binder)
2. A Field Guide (black binder)
3. KPC 2000+ Tools (*Rapid CATCH* and Modules) (white binder)[1]

The colors of the binders listed above can be changed, but using different colors for each binder helps participants quickly identify the location of materials.

Within the sample agenda, you will note two tasks that are not formal learning sessions, but are important daily activities. At the beginning of every day (except the first) there is a 15- to 30-minute Q&A or review. This Core Team workshop is very complex and potentially frustrating for participants unless they have an opportunity to ask questions for clarification. Therefore, time is reserved every morning for clarifying issues from the previous day. This time can also be used to review the homework. The Survey Trainer should consider asking the participants to conduct the general review.

At the end of every day (except the last) there is a 15-minutes period devoted to evaluating the day's activities. Trainers can use a variety of methodologies for evaluation—ask the participants to draw pictures, say one word (word association), compose songs, or work in pairs to discuss how they feel about the day's session, etc. Again, the Survey Trainer should consider asking participants to conduct the evaluations.

Prior to the Training

- Conduct the LNA with all participants before finalizing the training agenda
- Provide participants with a copy of the KPC 2000+ Tools (Rapid CATCH and Modules) with instructions to review this material before the first day of training
- Ask each participant to bring a calculator
- Obtain a copy of the project proposal including the most recent project objectives and indicators (or the Detailed Implementation Plan if the KPC survey will be used for the end-of-project evaluation), population data for the project area where the KPC survey will be conducted (the name of each village or neighborhood with its population) and map of the project area.

Resources

A resources table should be set up somewhere in the room where the training is held to provide examples of both essential and "helpful" materials for managing a health project. Hard copies should be displayed, with arrangements made for either photocopies or electronic copies to be made available to participants. Materials should include Technical Reference Materials (TRM),[2] CSTS Crucial CS Interventions Checklist,[3] Methodology and Sampling Issues for KPC Surveys, Eric Sarriot, et al.[4] A copy of the Resource List **(TR1-3)** is included in the Participant's Manual and Workbook.

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[1] Trainers should check the CSTS website (www.childsurvival.com) for the latest versions
[2] Available at: http://www.coregroup.org/resources/TRM_2000.pdf
[3] Available at: http://www.childsurvival.com/tools/SOTAchecklist.doc
[4] Available at: http://www.childsurvival.com/kpc2000/method.doc

Sample Agenda for Core Team Training

Day 1	Learning Session Title	Time
1	Introduction to the KPC Survey Core Team Training	45 minutes
2	Purpose and Role of the KPC Survey	70 minutes
3	Role of the Key Staff in the KPC Survey Process	75 minutes
4	Identifying Information Needs and Gaps	50 minutes
5	Involving Stakeholders in KPC Survey Activities	45 minutes
6	Identifying the Target Population for the KPC Survey	15 minutes
	Daily Evaluation	30 minutes
Homework: Read Field Guide, Chapter 5; pp.37–78, review Rapid CATCH		Total 330 minutes =5 ½ hrs
Day 2		
	Q & A Day 1 and Homework	15 minutes
7	Overview of KPC 2000+ Tools	120 minutes
8	Adapting the Generic KPC 2000+	120 minutes
9	Sampling Basics—Why Sample?	30 minutes
10	Sampling Options for KPC Surveys	50 minutes
11	Bias, Confidence Intervals and Design Effect	90 minutes
	Daily Evaluation	5 minutes
Homework: Finalize questionnaire		Total 430 minutes = 7 ¼ hrs
Day 3		
	Q & A Day 2 and Homework	30 minutes
12	Lot Quality Assurance Sampling (LQAS)	130 minutes
13	Selection of Sampling Methodology	45 minutes
14	Community/Household/Informant Selection	150 minutes
	Daily Evaluation	15 minutes
		Total 370 minutes = 6 ¼ hrs
Day 4		
	Q & A Day 3 and Review	30 minutes
15	Purpose of Anthropometry within the KPC Survey	30 minutes
16	Requirements for Conducting Anthropometric Assessments	40 minutes
17	Anthropometric Data	50 minutes
18	Results Tables Design: Frequencies	30 minutes
19	Results Tables Design: Cross-Tabulation	60 minutes
20	Hand Tabulation	120 minutes
	Daily Evaluation	15 minutes
Homework: Finalize Results Tables		Total 375 minutes = 6 ¼ hrs
Day 5		
	Q & A Day 4 and Homework	30 minutes
21	Quality Control of Data	45 minutes
22	Developing a Data Analysis Plan	60 minutes
23	Finalizing Staffing Decisions	40 minutes
24	Preparations for Training Supervisors and Interviewers	120 minutes
25	Developing a Logistics Plan and Budget	90 minutes
		Total 385 minutes = 6 ½ hrs
Optional Learning Session		
26	Determining Sample Size	45 minutes

Module 1 Learning Sessions
Table of Preparations

Learning Session	Handouts/Overheads/Slides	Other Preparation
1. Introduction to the KPC Survey Core Team Training	- TR 1-1: Workshop Objectives - TR 1-2: Workshop Agenda - TR 1-3: Resource List - TR 1-4: Critical Decision Points - TR 1-5: Action Plan	- Welcome sign (not provided) - Prepare a resource table with documents listed in Step 3 - Module 1 Participant's Manual and Workbook (one copy for each participant) - KPC 2000+ Field Guide (one photocopy for each participant in a [white] binder)
2. Purpose and Role of the KPC Survey	- TR 1-6: What a KPC Survey Can and Cannot Do - TR 1-3: Resource List (from Learning Session 1) - TR 1-7: General Timeline for Child Survival Monitoring and Evaluation - TR 1-8: General Timeline for Conducting a KPC Survey	- Create cards using information from **TR 1-6** and **TR 1-8** - Flip charts with titles: *What a KPC Survey Can Do* *What a KPC Survey Cannot Do* *PVO* *Local Partners* *Community/Individual* - Wall or floor space for placing in order the seven sections of the timeline - Extra Reading: KPC 2000+ Field Guide, pp. 1–8 and 14-18
3. Role of the Key Staff in the KPC Survey Process	- TR 1-9: Typical KPC Staffing Patterns	- Flip charts with titles: *Typical KPC Survey Staffing Patterns* *Core Team* *Supervisors* *Interviewers* *Post-Survey Team* - Blank cards and tape or large "post-it notes" - Task Cards to use as four examples: - Selects Supervisors and Interviewers, - Interviews mothers, - Meets with community leaders, Writes survey report
4. Identifying Information Needs and Gaps	- TR 1-10: Determining Needs and Information Gaps - TR 1-11: Information Needs Form - TR 1-12: Examples of Qualitative Research Techniques - TR 1-13: Use of Qualitative Research in KPC Surveys - TR 1-5: Action Plan	Obtain a copy of a recent national DHS survey, past KPC surveys, other PVOs' KPC surveys, other quantitative studies, qualitative studies, MOH statistics, MICS National Reports

Learning Session	Handouts/Overheads/Slides	Other Preparation
5. Involving Stakeholders in KPC Survey Activities	▪ TR 1-14: Involvement of Local Stakeholders in the KPC Survey ▪ TR 1-15: The Very Efficient FAST KPC ▪ TR 1-16: Ways to Involve Stakeholders in the KPC Survey Process	♦ Ask a participant whom you think would be a good storyteller to read **TR 1-15: The Very Efficient FAST KPC.** Ask the participant to prepare to read the story to the other participants during the learning session. Remind the participant to read the story in a clear voice, with emotion, and to make changes in voice intonation, etc. ♦ Flip chart with title: *Involvement of Local Stakeholders in the KPC Survey* ♦ Extra Reading: KPC 2000+ Field Guide, pp. 19–21
6. Identifying the Target Population for the KPC Survey		♦ Homework assignment: read the KPC 2000+ Field Guide, Chapter 5; pp.37–78
7. Overview of KPC 2000+ Tools	▪ TR 1-17: KPC Survey Tools—Content Overview ▪ TR 1-18: KPC Rapid CATCH Question Categories ▪ TR 1-19: Content of the 15 KPC 2000+ Modules ▪ TR 1-20: KPC 2000+ Module Selection Sheet	♦ All participants should have received a copy of the KPC 2000+ Rapid CATCH and the 15 survey modules on Day 1. ♦ Flip chart of **TR 1-18** ♦ Flip chart with title: *KPC 2000+ Module Components* ♦ Extra Reading: KPC 2000+ Field Guide, pp. 10–13
8. Adapting the Generic KPC 2000+	▪ TR 1-21: Building the KPC Survey Questionnaire ▪ TR 1-22: Project Indicators Compared with KPC 2000+ Tools— ▪ TR 1-23: KPC 2000+ *Rapid CATCH* Indicators ▪ TR 1-20: KPC 2000+ Module Selection Sheet (from Learning Session 7) ▪ TR 1-24: So You Want to Add a Question?	♦ Complete **TR 1-22** with project indicators before beginning the learning session ♦ Extra Reading: KPC 2000+ Field Guide, pp. 34–36 ♦ Review Sampling: Survey Trainer's Notes Regarding Sampling, last page of this learning session
9. Sampling Basics—Why Sample?	▪ TR 1-25: Sampling Terminology	♦ Create 2 sets of Sampling Terminology Exercise "Cards" using the terms and definitions at the end of this learning session—write or photocopy the "terms" on paper/cards of one color and the "definitions" on paper/cards of another color, then cut them apart, keeping the two sets of "terms" <u>separate from each other</u> and from the two <u>separate</u> sets of "definitions."

Learning Session	Handouts/Overheads/Slides	Other Preparation
10. Sampling Options for KPC Surveys	▪ TR 1-26: Sampling for Chickens ▪ TR 1-27: Steps for Selecting a Simple Random Sample ▪ TR 1-28: Simple Random Sample Algorithm ▪ TR 1-29: Steps for Cluster Sampling	♦ Flip chart with title: *Sources for a Simple Random Sampling Frame* ♦ Extra Reading KPC 2000+ Field Guide, pp. 37–78
11. Bias, Confidence Intervals, and Design Effect	▪ TR 1-30: Types of Bias That May Affect a KPC Survey ▪ TR 1-31: Ways to Minimize Bias in a KPC Survey ▪ TR 1-32: Confidence Interval Formula ▪ TR 1-33: Confidence Interval Worksheet	♦ Flip chart with title: *Confidence Interval Formula* ♦ Calculators for participants who did not bring them

12. Lot Quality Assurance Sampling (LQAS)	▪ TR 1-34: LQAS Sampling Results
	▪ TR 1-35: Decision Rules
	▪ TR 1-36: What a Sample of 19 Can Tell Us
	▪ TR 1-37: What a Sample of 19 Cannot Tell Us
	▪ TR 1-38: Five Supervision Areas and One Indicator
	▪ TR 1-39: Five Supervision Areas and One Indicator Worksheet
	▪ TR 1-40: Supervision Area A and Five Indicators
	▪ TR 1-41: Comparing SAs A, B, C, D & E
	▪ TR 1-42: LQAS in Monitoring and Final Surveys
		♦ Flip chart with title: Indicator for Preventing HIV/AIDS Transmission
		♦ Prepare two (2) bags of 100 marbles each:
		  ● Bag 1: 50 green + 50 red
		  ● Bag 2: 80 green + 20 red
		♦ Practice the marble exercise before actually using it in Step 2. You may use an alternative to marbles, such as colored stones, but the alternative item must come in two distinct colors and each piece must be of the exact same size and shape as other pieces, in short, being indistinguishable by touch from the other pieces.
		♦ 2 clear jars or some other receptacle to hold the "sample" marbles

13. Selection of Sampling Methodology	▪ TR 1-43: Cluster Sampling versus LQAS: Issues to Consider	♦ Flip chart with title: *Factors to Determine the Type of Sampling Method to Use*

Learning Session	Handouts/Overheads/Slides	Other Preparation
14. Community/ Household/ Informant Selection	▪ TR 1-44: Steps for Sampling Clusters with PPS ▪ TR 1-45: Sampling Frame for Survey Using Cluster Sampling ▪ TR 1-46: Random Number Table ▪ TR 1-47: Project Sampling Frame ▪ TR 1-48: Village with Population Over 30 Households ▪ TR 1-49: Village with Population Under 30 Households ▪ TR 1-50: Principles of Parallel Sampling ▪ TR 1-51: Example of Parallel Sampling ▪ TR 1-52: Selecting the First Household in a Sample Area ▪ TR 1-53: Choosing Respondents Based on the Type of Dwelling ▪ TR 1-54: Conducting the Remaining Interviews in the Sample Area	♦ Prepare and photocopy a table showing project communities/neighborhoods with population and cumulative population as shown in **TR 1-47.** If using LQAS, divide the communities into Supervision Areas and prepare a separate table for each. ♦ Obtain a map of the project area suitable for marking selected communities (brought to the workshop by participants) ♦ It is suggested that TR 1-48 and 1-49 be used as overheads or slides if possible ♦ Make one additional copy of **TR 1-52**, **TR 1-53**, and **TR 1-54** for each participant to cut into pieces during this step ♦ Scissors to cut up algorithms ♦ Extra Reading: KPC 2000+ Field Guide, pp. 46–59 and 75–77
15. Purpose of Anthropometry within the KPC Survey	▪ TR 1-55: Interrelationship Between Health Interventions and Malnutrition	♦ Flip chart with title: *Reasons Anthropometry Is Useful*
16. Requirements for Conducting Anthropometric Assessments	▪ TR 1-56: Data Needs, Materials and Personnel for Index Measurements ▪ TR 1-57: Anthropometry Training Tips	♦ Create 4 Nutrition Indices Title Cards and 1 set of Nutrition Indices Description Cards— write each index/description on a separate card (indices and descriptions are provided at the end of this learning session)
17. Anthropometric Data	▪ TR 1-56: Data Needs, Materials and Personnel for Index Measurements ▪ TR 1-57: Anthropometry Training Tips	
18. Results Tables Design: Frequencies	▪ TR 1-62: Frequency Tables	♦ Use the table that the group developed in **TR 1-22** to create a small number of indicators for each person to work on to design dummy tables

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Learning Session	Handouts/Overheads/Slides	Other Preparation
19. Results Tables Design: Cross Tabulations	▪ TR 1-63: 2x2 Table and Odds Ratios ▪ TR 1-64: Tetanus Toxoid Immunization and Mother's Age ▪ TR 1-65: Malnutrition and Feeding Practices	♦ Flip chart with the title: Subgroups for KPC Survey Data Analysis ♦ For steps 2 and 3, you will need the project indicators from **TR 1-22**
20. Hand Tabulation	▪ TR 1-66: Why Tabulate Data <u>BY HAND</u>? ▪ TR 1-67: What to Look for When Tabulating/Analyzing KPC Data ▪ TR 1-68: Who Should Be Involved? ▪ TR 1-69: % Mothers w/2 TT Doses Before Birth of Youngest Child ▪ TR 1-70: % Mothers w/2 TT Doses Before Birth of Youngest Child with (Data) Marks ▪ TR 1-71: % Mothers w/2 TT Doses Before Birth of Youngest Child with Answers ▪ TR 1-72: Sample KPC Survey Questionnaire ▪ TR 1-73: Who Assisted You with Delivery? ▪ TR 1-74: What Are the Signs of Illness that Would Indicate Your Child Needs Treatment? ▪ TR 1-75: Younger Mothers Question: Who Assisted You with Delivery? ▪ TR 1-76: Older Mothers Question: Who Assisted You with Delivery? ▪ TR 1-77: Association between Mother's Age and Skilled Personnel Attending Births ▪ TR 1-78: LQAS Hand Tabulation Table for a Supervision Area ▪ TR 1-79: LQAS Summary Tabulation Table ▪ TR 1-80: Planning a Hand Tabulation Workshop	♦ 3 folders labeled "Cluster 1," "Cluster 2," "S.A. 1" ♦ **TR 1-72: Sample KPC Survey Questionnaire** (20 copies completed by hand with varied responses—place the 20 completed questionnaires in 2 folders; Cluster 1 and Cluster 2, 10 in each folder) ♦ It is recommended that **TR 1-75, TR 1-76 & TR 1-77** be presented as overheads ♦ Extra Reading: KPC 2000+ Field Guide, pp. 91–94

Learning Session	Handouts/Overheads/Slides	Other Preparation
21. Quality Control of Data	▪ TR 1-81: General Principles for Supervising Data Entry ▪ TR 1-82: Quality Data Entry with Epi-Info ▪ TR 1-83: Levels of Data Quality Control	♦ Flip charts with titles: • *In the Field* • *During Data Entry* • *During Final Cleaning* ♦ 30 colored papers cut in 7" circles with a tail of string attached to each (like a balloon) ♦ Flip chart with GIGO Principle: Garbage In, Garbage Out ♦ Balloons—filled with air and on a string, approximately two for each participant
22. Developing a Data Analysis Plan	▪ TR 1-84: Data Analysis Plan	♦ Extra Reading: KPC 2000+ Field Guide, pp. 95–100
23. Finalizing Staffing Decisions	▪ TR 1-85: KPC Survey Supervisor's Role and Responsibilities ▪ TR 1-86: KPC Survey Interviewer's Role and Responsibilities ▪ TR 1-9: Typical Staffing Patterns (from Session 3)	♦ Be prepared to distribute as a handout the conclusions reached during Learning Session 3: Role of the Key Staff in the KPC Survey Process ♦ Flip charts with titles: • *Qualifications of KPC Survey Supervisors,* • *Qualifications of KPC Survey Interviewers*
24. Preparations for Training Supervisors and Interviewers	▪ TR 1-87: Translating and Back-Translating the KPC Survey Questionnaire ▪ TR 1-88: Events Calendar (sample) ▪ TR 1-89: Tips on Making and Using an Events Calendar ▪ TR 1-90: Informed Consent Form ▪ TR 1-91: Sample Agenda for Training Supervisors and Interviewers	♦ Flip charts with titles: • *Local Lexicon* • *Events Calendar for Estimating Age in Children* • *Why Seek Informed Consent?* • *Suggested Changes to the Informed Consent Form* ♦ Prepare copies of the draft **KPC Survey Questionnaire** developed earlier in the workshop. ♦ Extra Reading: KPC 2000+ Field Guide, pp. 32–36 and 79–84

Learning Session	Handouts/Overheads/Slides	Other Preparation
25. Developing a Logistics Plan and Budget	■ TR 1-92: KPC 2000+ Field Guide Chapter 2 ■ TR 1-4: Critical Decision Points (completed during the workshop) ■ TR 1-93: KPC Logistics and Management Planning Form ■ TR 1-8: General Timeline for Conducting a KPC Survey (from Learning Session 2)	◆ If possible, assign the review of **TR 1-92** as a homework assignment before beginning this session. ◆ Flip chart with title: *Things to Consider When Setting Dates for a KPC Survey* ◆ Calendar for checking dates for at least six months into the future
26. Determining Sample Size (Optional)	■ TR 1-94: To Calculate Sample Size, You Will Need to Know . . . ■ TR 1-95: Calculating the Size of a Simple Random Sample ■ TR 1-96: Calculating the Size of a Cluster Sample ■ TR 1-97: What Happens to "n" If . . . ■ TR 1-98: (Optional) Homework on Sample Size: One Proportion	◆ Extra Reading KPC 2000+ Field Guide, pp. 37–73

ACRONYMNS

CATCH	Core Assessment Tool on Child Health
CI	Confidence Interval
CORE	Collaborations and Resources Group
CS	Child Survival
CSTS	Child Survival Technical Support (Macro International)
D.E.	Design Effect
DHS	Demographic and Health Survey
DIP	Detailed Implementation Plan
EU	European Union
FG	KPC 2000+ Field Guide
GH/HIDN	Bureau for Global Health's Office of Health, Infectious Disease and Nutrition USAID
HA	Height-for-Age
HAZ	Height-for-Age Z score
KPC	Knowledge, Practice and Coverage Survey
LNA	Learner Needs Assessment
LQAS	Lot Quality Assurance Sampling
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
OR	Odds Ratio
PPS	Probability Proportional to Size
PVO	Private Voluntary Organization
Q&A	Question and Answer
SA	Supervision Area
SQRT	Square Root
SRS	Simple Random Sampling
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid Vaccination
USAID	United States Agency for International Development
WA	Weight-for-Age
WAZ	Weight-for-Age Z score
WH	Weight-for-Height
WHZ	Weight–for-Height Z score

1. Introduction to the KPC Survey Core Team Training

Purpose:
To orient participants to the objectives and logistical aspects of the Core Team KPC Survey Training Workshop.

Objectives:
By the end of this learning session, participants will have:
 1. Engaged in an activity to welcome them to the workshop.
 2. Clarified the objectives of the workshop and discussed logistical concerns.
 3. Familiarized themselves with the basic materials used during the workshop.

Preparation/Materials:
Prepare a resource table with documents listed in Step 3
Step 1:
 - Prepare and post a welcome sign (not provided)
 - Module 1 Participant's Manual and Workbook (one copy for each participant)
 - **TR 1-1: Workshop Objectives**
Step 2:
 - Prepare **TR 1-2: Workshop Agenda** (the agenda needs to be created and included in the Module 1 Participant's Manual, since each workshop will have a different agenda depending on the results of the Learner Needs Assessment (LNA) conducted prior to the workshop— see TOST Trainer's Guide, B. Workshop Preparation, and Annex A)
Step 3:
 - **KPC 2000+ Field Guide** (one photocopy for each participant in a [white] binder)
 - **TR 1-3: Resource List**
 - **TR 1-4: Critical Decision Points**
 - **TR 1-5: Action Plan**

Time:
45 minutes

Steps:
1. Welcome the participants and review the workshop objectives – 5 minutes
2. Review the workshop agenda and logistics – 10 minutes
3. Introduce the planning tools and resource materials – 30 minutes

Steps

1. **Welcome the participants and review the Workshop Objectives** – 5 minutes

Give a brief welcome to the participants. Distribute the Module 1 Participant's Manual and Workbook to each of the participants and tell them that it contains all of the materials they need for the training workshop. Show them how the handouts are labeled in the Participant's Manual.

1-1

*Show and review **TR 1-1: Workshop Objectives**.*

2. **Review the Workshop Agenda and logistics** – 10 minutes

   *Show **TR 1-2: Workshop Agenda.** Review the agenda, including lunch and breaks. Mention that homework assignments and/or optional learning sessions/activities are included for most evenings.*

   Clarify all plans related to logistics, including lodging, meals, per diem, transportation, etc. Respond to participants' questions and concerns as needed.

   1-2

3. **Introduce the planning tools and resource materials** – 30 minutes

   Distribute one copy of the KPC Survey 2000+ Field Guide to each participant. Explain that the Field Guide is the reference guide that covers the important issues and concepts related to KPC Surveys. Tell them that, throughout the workshop, you will suggest extra reading in the Field Guide. The extra reading will give them a deeper understanding of the course content.

   *Direct the participants to the location of the resource table. Review the documents that are listed on **TR 1-3: Resource List.** Explain:*

   1-3

   The resources on the table and on **TR 1-3** provide additional information for a variety of topics that are covered throughout the workshop. The following materials are on the resource table:

   - the Technical Reference Materials (TRM)
   - CSTS Crucial Child Survival Interventions Checklist
   - Demographic and Health Survey (DHS)
   - Multiple Indicator Cluster Survey (MICS)

   You are encouraged to review the materials on the table during the workshop. Additional resources are listed on **TR 1-3,** as is information about how to obtain copies of the various resources.

   *Show **TR 1-4: Critical Decision Points.** Explain:*

   1-4

   The design of a KPC survey is a complex process, similar to putting together a puzzle. One piece may seem to fit now, but later the piece may need to be changed as the puzzle is completed. When it is necessary to make a critical decision, we will refer to this point in the process as a:

Critical Decision Point

> A Critical Decision Point occurs when there is a need for the Core Team to make a specific decision that affects the design and implementation of the KPC survey. It is important to record all Critical Decision Points, even though the decisions may change as additional information becomes available.

At designated times throughout the workshop, decisions are recorded on *TR 1-4*: **Critical Decision Points** record sheet.

Refer to ***TR 1-5: Action Plan.*** *Explain.*

✎ ACTION PLAN

The purpose of this workshop is to construct various products, e.g., a logistics plan, questionnaire, etc. Throughout the workshop, you will continuously note tasks that need to be completed to implement your KPC survey. Use *TR 1-5: ACTION PLAN* to record pending activities.

> **1-5**

Ask the Core Team to keep track of their overall responsibilities, as well as each Core Team members' individual responsibilities, as the steps in the action plan are addressed.

Then ask:

➢ **What are your questions about the workshop plan or materials?**

2. Purpose and Role of the KPC Survey

Purpose:
To clarify the definition, purpose and role of a KPC survey in the development and management of a project; to identify steps needed to complete a KPC survey.

Objectives:
By the end of the learning session, participants will have:
1. Defined what a KPC survey is and shared experiences using the KPC survey and other survey methods.
2. Generated a list of things that can and cannot be done using a KPC survey.
3. Identified examples of levels at which change occurs and tools for measuring change.
4. Defined the role of the KPC survey in the cycle of a project.
5. Arranged chronologically the steps required to carry out a KPC survey.

Preparation/Materials:
Step 2:
- Create cards using information from **TR 1-6: What a KPC Survey Can and Cannot Do**—write one point per card
- Flip chart with title: What a KPC Survey Can Do
- Flip chart with title: What a KPC Survey Cannot Do
- **TR 1-6: What a KPC Survey Can and Cannot Do**

Step 3:
- Three flip charts with titles: PVO, Local Partners and Community/Individual
- **TR 1-3: Resource List** (from Learning Session 1)

Step 4:
- **TR 1-7: General Timeline for Child Survival Monitoring and Evaluation**

Step 5:
- Create cards using **TR 1-8: General Timeline for Conducting a KPC Survey** (the last page of this learning session shows how you can create a 28-day implementation plan by dividing the timeline into seven sections of 4 days each (7 x 4 = 28)
- Wall or floor space for placing in order the seven sections of the implementation timeline (4 days each)
- **TR 1-8: General Timeline for Conducting a KPC Survey**

- Extra Reading: KPC 2000+ Field Guide, pp. 1–8 and pp. 14-18

Time:
70 minutes

Steps:
1. Define the KPC Survey and share previous experiences – 10 minutes
2. Determine what a KPC survey can and cannot do – 10 minutes
3. Place the KPC survey into context with levels where change may occur – 15 minutes
4. Review a Child Survival project cycle and how the KPC survey fits into that cycle – 5 minutes
5. Order the steps for a KPC survey implementation timeline – 30 minutes

Steps

1. **Define the KPC survey and share previous experiences** – 10 minutes

    Explain the purpose of the learning session:

    In this learning session we define what we mean by a KPC survey and explore its purpose and role. Let us first answer the question:

    ➢ **What is a KPC survey?**

    Allow several volunteers to respond. Then make the following short presentation adjusting it to acknowledge points the participants have already contributed.

    The Knowledge, Practice and Coverage (KPC) 2000+ Survey is a standardized population-based survey instrument for measuring change over time in levels of knowledge, key behaviors, and coverage of important health interventions. The KPC 2000+ Survey consists of the Rapid CATCH, which forms the core of the survey and includes the basic indicators that are important to capture in any health survey. In addition, there are 15 Child Survival health-indicator areas or "modules" which are used for additional indicators. The KPC 2000+ Survey questions can be combined or modified to address the specific health interventions included in the project.

    The KPC survey can be used at the beginning, at selected points during and/or at the end of a project to help define targets and evaluate project or program advancement. To conduct a KPC survey, a team is formed consisting of Interviewers, Supervisors (of the Interviewers), and the Core Team.

    Ask participants to briefly share their prior experience with implementing a KPC survey or a similar survey. Say:

    Think of your experience with survey work:

    ➢ **What was your role in completing the survey?**

    ➢ **What was the most difficult aspect about completing the survey?**

    ➢ **How did you use the results from the survey?**

2. **Determine what a KPC survey can and cannot do** – 10 minutes

    *Ask participants to put aside their Participant's Manuals for the next task. Post the two flip charts. Divide the group into two teams and give each team several of the cards drawn from **TR 1-6.***

What a KPC Survey Can Do	What a KPC Survey Cannot Do

Tell the teams:

Let us discuss what a KPC survey can and cannot accomplish. As a team, decide if your first card describes something that a KPC survey *can* or *cannot* do. Post your card under the title "Can Do" or "Cannot Do" to reflect your team's decision. Repeat the process for your remaining cards.

Once the teams have posted their decisions, ask:

➢ **What do you think about the placement of the cards?**

Review and discuss the placements. Adjust the cards as the group decides.

Show **TR 1-6: What a KPC Survey Can and Cannot Do**. *Say:*
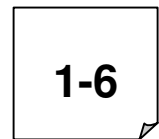
These are typical recommendations for what a KPC survey can and cannot do.

1-6

➢ **What additional observations do you have about what the KPC survey can and cannot do?**

3. **Place the KPC survey into context with levels where change occurs** – 15 minutes

Post the three flip charts.

PVO	Local Partners	Community/Individual

Tell the participants:

Development projects implement their activities at different "levels" to achieve their objectives. For health projects, the most common project levels are:

- PVO
- Local Partners
- Community/Individual

For example, projects working at the individual level might focus on mothers in their homes at a group meeting.

➤ **What are some examples of other people or groups for the three project levels?**

Write the responses on the appropriate flip chart. Probe to assure that they mention the following examples or add them to the flip charts, as necessary.

Focus "Levels" for Project Activities		
PVO	**Local Partners**	**Community/Individual**
▪ PVO Office ▪ PVO Health Unit ▪ CS Project Team	▪ Local NGO ▪ Private Partners ▪ MOH ▪ District/Municipalities ▪ Health Facilities	▪ Communities ▪ Community-based Organizations ▪ Community Health Workers ▪ Private Providers ▪ Pregnant women ▪ Mothers/Caregivers ▪ Children under 5 years of age

Ask:

➤ **Which of these levels is the focus of the KPC survey?** *[Individual]*

➤ **Who is interviewed and why?** *[Mothers and caregivers, because the KPC survey questions generally relate to results at the individual level and focus on behavior change.]*

Explain:

The KPC survey is used to measure change only at the household level, even though your project will probably work at these other levels also. It is beyond the scope of this workshop to go into detail about tools and resources that might help us analyze project performance at the other levels. Information on additional methods can be found in **TR 1-3: Resource List.** During Module 3 (the Post-Survey Team), other measurement methods to complement the KPC survey will be discussed.

1-3

4. **Review a Child Survival (CS) project cycle and how the KPC survey fits into that cycle** – 5 minutes

*Refer to **TR 1-7: General Timeline for Child Survival Monitoring and Evaluation.**
Say:*

1-7

Take a few moments to look over the diagram of a typical Child Survival project.

➤ **What strikes you about the general Child Survival project monitoring and evaluation activities?**

Discuss the many aspects of the project monitoring and evaluation activities:

> ➤ **When is the KPC survey used within a Child Survival project cycle?**
> *[Normally at baseline and final, sometimes at Mid-term. It can be accompanied by other tools both for measuring change at different levels and for monitoring change throughout the cycle.]*

> ➤ **How does this compare with your experience with other types of projects?**

Give the participants a few minutes to share their experiences and ideas.

5. **Order the steps for a KPC survey implementation timeline** – 30 minutes

   Explain the following phases:

The Pre-Implementation Phase involves activities such as meeting with project stakeholders and local experts, assessing data needs, developing a questionnaire, designing a sampling strategy, and training Supervisors and Interviewers.

The Field Implementation Phase involves the actual collection of data in selected communities.

The Post-Implementation Phase involves tabulating and analyzing the data, disseminating findings, and using the data for decision-making.

Mix up the 7 implementation timeline cards (drawn from TR 1-8) so that they are out of order. Spread out the cards on the floor. Say:

> It is estimated that the KPC Survey can be implemented—from start to finish—in 28 days. Here you see seven cards. Each card outlines the work to be accomplished in four days. Your task is to work together to place the cards in the logical implementation order.

*Once the participants have placed the cards, show **TR 1-8: General Timeline for Conducting a KPC Survey.** Reorder their cards, if necessary, and discuss the changes made. When the cards are correctly ordered, the letters in the first box of each card should read **KPCEXAM.***

1-8

Ask:

> ➤ **Which steps of this process have you found to take longer (or shorter) than is allowed for in this implementation timeline?**

Find out why the steps of the process mentioned took longer. Help participants think of ways to restructure the schedule if more or less time is needed for a given step.

> ➤ **What steps of this process have you found to be the most difficult (problematic) to carry out?**

Help participants troubleshoot how to make these problematic aspects of the process run more smoothly, if possible. Solicit ideas from the other participants.

➢ **What factors may alter the 28-day implementation timeline?**

Explain that this implementation timeline is used throughout the training process and firm dates will be set during a later learning session.

Suggest that participants complete the extra reading in the Field Guide, pp. 1–8, Purpose and Role of a KPC Survey, and pp. 14–18 about the phases and timeline of a KPC survey.

K • Consult with local experts/officials to assess needs, plan survey, form KPC Core Team • Identify possible field supervisors	• Conduct formative research • Identify survey targets & indicators • Design questions with stakeholders • Recruit supervisors	• Conduct formative research • Design questionnaire • Develop sampling strategy, analysis plan • Recruit field personnel	• Design questionnaire with stakeholders • Develop sampling strategy, analysis plan • Prepare training materials • Recruit field personnel

(Blank page intentional)

P			
• Design questionnaire; translate into local language • Prepare for training • Recruit field personnel • Finalize sampling strategy	• Design/translate questionnaire • Prepare training, hand tabulation materials • Recruit field personnel	• Design/ translate questionnaire • Recruit field personnel • Prepare training materials • Select sample areas	• Prepare for training: materials, logistics • Select sample areas • Prepare hand tabulation tables

(Blank page intentional)

C			
• Meet w/ supervisors for general training/ overview • Conduct pretest with supervisors; modify questionnaire based on pretest	• Supervisors visit community leaders to map/identify households for survey • Modify/ reproduce questionnaires for training	• Prepare for training & field implementation • Create data entry template; analysis program • Meet with community leaders	• Finalize preparations for training & field implementation • Prepare data entry/analysis programs

(Blank page intentional)

E			
• Prepare data entry & analysis programs • Begin drafting survey report (sections on objectives, methods, questionnaire)	• Reproduce questionnaires & materials for training workshop • Prepare data entry/analysis programs	• Train supervisors/ interviewers • Prepare data entry/analysis programs	• Train supervisors/ interviewers • Practice interviews • Prepare data entry program • Finalize logistics for field implementation

(Blank page intentional)

X			
• Train supervisors/ interviewers • Practice interviews • Reproduce questionnaires • Finalize logistics for field implementation	• Identify survey teams • Review protocols • Finalize logistics for implementation • Identify starting households • Finalize entry program	• Data collection • Data entry/ cleaning • Finalize analysis program • Finalize hand tabulation tables for workshops	• Data collection • Data entry/ cleaning • Finalize analysis program • Finalize hand tabulation tables for workshops

(Blank page intentional)

A			
• Data collection • Data entry/ cleaning • Finalize analysis program • Finalize hand tabulation tables for workshops	• Data collection • Data entry/ cleaning • Run analysis program • Finish tabulation tables	• Hand tabulation with field personnel and other individuals • Draft survey report • Run analysis program	• Analysis workshop w/ stakeholders & experts • Identify health priorities • Draft survey report • Prepare for feedback sessions

(Blank page intentional)

M			
• Finish first draft of survey report • Refine action plan • Designs ways to display KPC findings • Prepare for feedback sessions	• Feedback at community/local level • Develop action plan/M&E plan • Plan follow-up research, if necessary	• Brief mission, MOH • Plan follow-up research	• Develop action plan and/or M&E plan • Plan follow-up research

(Blank page intentional)

General Timeline for Conducting a KPC Survey

K DAY 1	DAY 2	DAY 3	DAY 4
▪ Consult with local experts/officials to assess needs, plan survey, form KPC Core Team ▪ Identify possible field supervisors	▪ Conduct formative research ▪ Identify survey targets & indicators ▪ Design questions with stakeholders ▪ Recruit supervisors	▪ Conduct formative research ▪ Design questionnaire ▪ Develop sampling strategy, analysis plan ▪ Recruit field personnel	▪ Design questionnaire with stakeholders ▪ Develop sampling strategy, analysis plan ▪ Prepare training materials ▪ Recruit field personnel
P DAY 5	**DAY 6**	**DAY 7**	**DAY 8**
▪ Design questionnaire; translate into local language ▪ Prepare for training ▪ Recruit field personnel ▪ Finalize sampling strategy	▪ Design/translate questionnaire ▪ Prepare training, hand tabulation materials ▪ Recruit field personnel	▪ Design/translate questionnaire ▪ Recruit field personnel ▪ Prepare training materials ▪ Select sample areas	▪ Prepare for training: materials, logistics ▪ Select sample areas ▪ Prepare hand tabulation tables
C DAY 9	**DAY 10**	**DAY 11**	**DAY 12**
▪ Meet w/ supervisors for general training/ overview ▪ Conduct pre-test with supervisors; modify questionnaire based on pre-test	▪ Supervisors visit community leaders to map/identify households for survey ▪ Modify/reproduce questionnaires for training	▪ Prepare for training & field implementation ▪ Create data entry template; analysis plan ▪ Meet with community leaders	▪ Finalize preparations for training & field implementation ▪ Prepare data entry/analysis programs
E DAY 13	**DAY 14**	**DAY 15**	**DAY 16**
▪ Prepare data entry & analysis programs ▪ Begin drafting survey report (sections on objectives, methods, questionnaire)	▪ Reproduce questionnaires & materials for training workshop ▪ Prepare data entry & analysis programs	▪ Train supervisors/ interviewers ▪ Prepare data entry/analysis programs	▪ Train supervisors/ interviewers ▪ Practice interviews ▪ Prepare data entry program ▪ Finalize logistics for field implementation
X DAY 17	**DAY 18**	**DAY 19**	**DAY 20**
▪ Train supervisors/interviewers ▪ Practice interviews ▪ Reproduce questionnaires ▪ Finalize logistics for field implementation	▪ Identify survey teams ▪ Review protocols ▪ Finalize logistics for implementation ▪ Identify starting households ▪ Finalize entry program	▪ Data collection ▪ Data entry/cleaning ▪ Finalize analysis program ▪ Finalize hand tabulation tables for workshops	▪ Data collection ▪ Data entry/cleaning ▪ Finalize analysis program ▪ Finalize hand tabulation tables for workshops
A DAY 21	**DAY 22**	**DAY 23**	**DAY 24**
▪ Data collection ▪ Data entry/cleaning ▪ Finalize analysis program ▪ Finalize hand tabulation tables for workshops	▪ Data collection ▪ Data entry/cleaning ▪ Run analysis program ▪ Finish tabulation tables	▪ Hand tabulation with field personnel and other individuals ▪ Draft survey report ▪ Run analysis program	▪ Analysis workshop w/ stakeholders & experts ▪ Identify health priorities ▪ Draft survey report ▪ Prepare for feedback sessions
M DAY 25	**DAY 26**	**DAY 27**	**DAY 28**
▪ Finish first draft of survey report ▪ Refine action plan ▪ Designs ways to display KPC findings ▪ Prepare for feedback sessions	▪ Feedback at community/local level ▪ Develop action plan/M&E plan ▪ Plan follow-up research, if necessary	▪ Brief mission, MOH ▪ Plan follow-up research	▪ Develop action plan and/or M&E plan ▪ Plan follow-up research

3. Role of the Key Staff in the KPC Survey Process

Purpose:
To define the roles of the key staff in the KPC Survey process.

Objectives:
By the end of this learning session, participants will have:
1. Generated a list of tasks that the Core Team, Supervisors, Interviewers and the Post-Survey Team need to accomplish to complete the KPC survey.

Preparation/Materials:
Step 1:
- Flip chart with title: Typical KPC Survey Staffing Patterns
- **TR 1-9: Typical KPC Staffing Patterns**

Step 2:
- Four flip charts with titles: Core Team, Supervisors, Interviewers, and Post-Survey Team
- Blank cards and tape or large "post-it notes"
- Task Cards to use as four examples: Selects Supervisors and Interviewers, Interviews mothers, Meets with community leaders, and Writes survey report

Time:
75 minutes

Steps:
1. Share experiences about staffing needs in previous survey experiences – 10 minutes
2. Identify roles for the four principal teams – 45 minutes
3. Discuss the potential role of consultants – 20 minutes

Steps

1. Share experiences about staffing needs in previous survey experiences – 10 minutes

Introduce the purpose of the learning session:

It is important to define the roles of the key staff in the KPC survey process.

➤ **What types of staff are needed to conduct a KPC survey?**
   [Core Team or Leaders, Supervisors, Interviewers, Data Entry, etc.]

Note the responses on the flip chart:

Typical KPC Staffing Patterns

*Refer participants to **TR 1-9: Typical KPC Staffing Patterns**. Ask:*

1-9

> ➢ **How would you compare the typical KPC survey staffing pattern with the list of key staff you developed?**

Discuss and record on the flip chart the possible modifications in the staffing needs.

2. **Identify roles for the four principal teams** – 45 minutes

Post the four flip charts:

Core Team	Supervisors	Interviewers	Post Survey Team
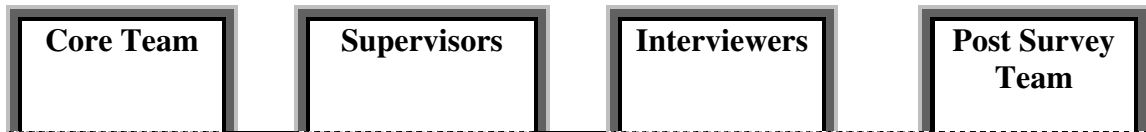
Ask the participants to form four groups. Assign a different flip chart to each of the groups. Distribute the blank cards. Say:

Develop a list of tasks or roles for which your assigned staff type is responsible. List one task or role on each card and post it on your flip chart.

Start the exercise by using the four Task Cards as examples of tasks. Ask the group to decide under which heading to place each card. Say:

Let us practice with some examples. As I read each card, tell me where I should place it. The first role is:

Selects Supervisors and Interviewers	*Place this card on the Core Team flip chart*

Interviews mothers	*Place this card on the Interviewers flip chart*

Meets with community leaders	*Place this card on the Supervisors flip chart*

Writes survey report	*Place this card on the Post-Survey Team flip chart*

Give the groups 10 minutes to develop and post their role cards. Then, as a full group, discuss the points of agreement or disagreement about the roles. Change the cards as needed. Remember to include roles involving analysis. Pay particular attention to the roles of the Core Team, making sure they include:

- Plans the survey
- Develops the timeline for KPC survey planning, implementation and analysis
- Designs the KPC Survey Questionnaire
- Selects the sampling method and write the sampling protocol
- Develops the Data Analysis Plan
- Develops the Logistics/Management Plan and Budget
- Selects and train survey personnel: Supervisors, Interviewers, Data Entry Team
- Manages data and quality control
- Oversees the survey

3. Discuss the potential role of consultants – 20 minutes

Ask participants:

➤ **Do you plan to use a consultant for any aspect of planning, implementing or analyzing the KPC survey?**

Depending on the responses of the Core Team, guide the discussion to include the need for a consultant throughout the entire process, or just using a consultant for specific tasks, i.e. use of computer software, analysis of data, design of the survey.

➤ **What are the important issues to keep in mind when hiring a consultant?**

Write the participants' ideas on a flip chart. Be sure the following issues are discussed: specify the exact tasks and final products, specify the number of days and cost per day or the total cost of completing the tasks, specify what steps will be taken if the consultant fails to complete the tasks, specify when the tasks need to be completed, specify who will supervise the consultant, and be sure that the consultant is qualified by checking references, reviewing previous work, etc.

Close the learning session by saying:

It is important that everyone, especially the Core Team, be 100% committed to the KPC survey process and role assignments that have been agreed upon. Your tentative ideas will be formalized in Finalizing Staffing Decisions in a later learning session when more information is available on the KPC survey design.

NOTE: The groups' ideas for tasks for each staff type should be typed up and distributed to all of the participants during Learning Session 23.

4. Identifying Information Needs and Gaps

Purpose:
To determine the information needs prior to beginning a KPC survey and to consider additional information sources and research methods to fill the gaps.

Objectives:
By the end of this learning session, participants will have:
1. Reviewed ways to determine information needs and gaps.
2. Reviewed their own information needs and gaps and completed a summary form.
3. Identified needs for formative research.

Preparation/Materials:
▪ Obtain a copy of a recent national DHS survey, past KPC surveys, other PVOs' KPC surveys, other quantitative studies, qualitative studies, MOH statistics, MICS National Reports (available online for some countries at: http://www.childinfo.org/MICS2/natlMICSrepz/MICSnatrep.htm)

Step 1:
  ▪ **TR 1-10: Determining Needs and Information Gaps**
Step 2:
  ▪ **TR 1-11: Information Needs Form**
Step 3:
  ▪ **TR 1-12: Examples of Qualitative Research Techniques**
  ▪ **TR 1-13: Use of Qualitative Research in KPC Surveys**
  ▪ **TR 1-5: Action Plan**

Time:
50 minutes

Steps:
1. Present the information needs concepts – 15 minutes
2. Complete the Information Needs Form – 10 minutes
3. Identify qualitative research needs – 25 minutes

Steps

1. Present the information needs concepts – 15 minutes

Explain that the purpose of the learning session is to present the pre-KPC survey information-gathering methods. Say:

In this learning session, the pre-KPC survey information needs are assessed and methods to fill the information gaps are reviewed. To begin, please read *TR 1-10: Determining Needs and Information Gaps*. Underline any points of special importance and/or items that need clarification.

1-10

After the participants read the pages, ask several volunteers to share what they highlighted and

involve the group in clarifying questions. Summarize with the following:

Designing the KPC Survey for the Local Context

Some critical information is necessary in order to design the KPC survey as effectively and efficiently as possible. Due to budgetary constraints, it is important to collect only information that is essential to project management and not available from other sources. Each project should be aware of other sources of information within the country or project zone.

Sometimes information becomes more useful if it can be compared to national sources. For example, you may want to compare vaccination rates within the project area with vaccination rates on a national or regional level. We will use some national sources after the KPC survey is completed to make comparisons with our results.

It is also important to adapt the KPC survey to local needs and to focus the survey on the correct target population. Formative research is helpful to adapt the KPC locally, using qualitative methods to obtain local information on common practices, vocabulary, cultural beliefs and care-seeking behavior.

2. **Complete the Information Needs Form** – 10 minutes

   *Refer participants to **TR 1-11: Information Needs Form.** Give the following instructions:*

   | **1-11** |

   The documents on the Resource Table have national health data. Use these and the documents that you brought (Project Summary: goals, objectives and indicators) to complete **TR 11: Information Needs Form.** If information is not available, decide what information you want to obtain and assign responsibility for obtaining it to various members of the Core Team. Record any pending tasks on **TR 5: ACTION PLAN.**

   | **1-5** |

   Give participants 10 minutes to work. Encourage them to share any problems that they experience while completing the form.

3. **Identify qualitative research needs** – 25 minutes

   *Refer to **TR 1-12: Examples of Qualitative Research Techniques.** Say:*

   | **1-12** |

   The KPC survey cannot provide rich descriptions of "WHY" certain behaviors are practiced, or of constraints to behavior change. Such information is better collected via qualitative data collection approaches. Qualitative research can be very helpful in filling information gaps. **TR 1-12: Examples of Qualitative Research Techniques** contains some examples of qualitative research techniques.

   Quickly review the list. Ask participants to make additions to the list. Then ask:

➢ **What experience have any of you had with any of these techniques?**

Refer participants to **TR 1-13: Use of Qualitative Research in KPC Surveys.** *Briefly summarize and discuss the information in* **TR 1-13.** *Ask for additions and clarifications, as needed. Ask:*

1-13

➢ **What formative research needs to be completed before you begin the KPC survey?**

Record the decisions of the Core Team on **TR 1-5: ACTION PLAN.**

1-5

Summarize the learning session by reminding participants that they will continue to work with project indicators and population during the rest of the Core Team learning sessions. Encourage participants to review the other available studies and compare them with the KPC they are planning. Tell participants that they will return to the topic of qualitative research during the training for the Post-Survey Team to look at the use of qualitative techniques to explain the "How" and "Why" of behavior.

5. Involving Stakeholders in KPC Survey Activities

Purpose:
To improve the value of the KPC survey process by making it participatory and to help participants understand how they can involve stakeholders in the KPC Survey.

Objectives:
By the end of this learning session, participants will have:
1. Defined the term "stakeholder."
2. Analyzed a story to determine how stakeholders can be involved in the KPC survey process.

Preparation/Materials:
Step 2:
  ▪ Ask a participant whom you think would be a good storyteller to read **TR 1-15: The Very Efficient FAST KPC.** Ask the participant to prepare to read the story to the other participants during the learning session. Remind the participant to read the story in a clear voice, with emotion, and to make changes in voice intonation, etc.
  ▪ **TR 1-14: Involvement of Local Stakeholders in the KPC Survey**
  ▪ Flip chart with title: Involvement of Local Stakeholders in the KPC Survey
  ▪ **TR 1-15: The Very Efficient FAST KPC**
Step 3:
  ▪ **TR 1-16: Ways to Involve Stakeholders in the KPC Survey Process**

  ▪ Extra Reading: KPC 2000+ Field Guide, pp. 19–21

Time:
45 minutes

Steps:
1. Define the term "stakeholder" – 2 minutes
2. Analyze a story – 18 minutes
3. Define opportunities to involve stakeholders – 25 minutes

Steps

1. Define the term "stakeholder" – 2 minutes

Explain the purpose of the learning session:

> We are going to discuss why it is important to involve stakeholders in the KPC Survey process. Let us begin by answering the question:

> ➤ **What is a "stakeholder?"** [Any person who is affected by or has an interest in the project. They have a "stake" in the process and progress.]

2. Analyze a story – 18 minutes

*Refer to **TR 1-14: Involvement of Local Stakeholders in the KPC Survey** and post the*

1-14

flip chart titled, Involvement of Local Stakeholders in the KPC Survey. Explain:

> ### Involvement of Local Stakeholders in the KPC Survey

A volunteer is going to read the story in ***TR 1-15: The Very Efficient FAST KPC.***
As you listen, record on your copy of ***TR 1-14*** all of the local stakeholders and
how they are involved in the process. We will review your answers after the story.

1-15

Ask the volunteer to read the story.

3. **Define opportunities to involve stakeholders** – 25 minutes

Ask participants the following question about the story:

> ➢ **How did the staff involve local stakeholders in the KPC survey process?**

*Write brief summaries of participants' answers in the appropriate categories on the Involvement of
Local Stakeholders in the KPC Survey flip chart. Probe for the ways in which stakeholders were
involved.*

*Refer participants to **TR 1-16: Ways to Involve Stakeholders in the KPC Survey
Process.** Briefly highlight any relevant points that were not mentioned in the analysis
of the story.*

1-16

Ask:

> ➢ **What consequences can result from failure to coordinate with stakeholders?**

After a few responses, ask:

> ➢ **How can we learn from the mistakes in the story and involve the stakeholders more
> appropriately in the KPC survey process?**

Ask the group to commit to the ideas they generated and, if necessary, add tasks to

TR 1-5: ACTION PLAN.

1-5

*Suggest that participants read the Field Guide, pp. 19–20 about making the KPC
survey process participatory.*

6. Identifying the Target Population for the KPC Survey

Purpose:
To identify the target group to interview for the KPC survey.

Objectives:
By the end of this learning session, participants will have:
1. Explored alternatives for target groups.
2. Selected the KPC survey target group and recorded the decision on their Critical Decision Points record sheet.

Preparation/Materials:
▪ Homework assignment: read the KPC 2000+ Field Guide, Chapter 5; pp.37–78

Time:
15 minutes

Steps:
1. Explore target group options for the KPC survey – 5 minutes
2. Determine the target group for the KPC survey – 10 minutes

---

Steps

1. **Explore target group options for the KPC survey** – 5 minutes

    *Explain that the focus of the next few learning sessions is on adapting the **KPC Survey Questionnaire** to the local situation. Say:*

    The next set of activities focuses on:

    ▪ "Who" should be targeted in the KPC survey
    ▪ "What" should specifically be included in the KPC Survey Questionnaire

    Though these are interrelated, we are going to first consider them separately. Then we will bring the "Who" and the "What" together as we finalize the questionnaire.

    Historically, the typical KPC survey targets mothers of children under two years of age. Recently, some PVOs have expanded the "who" of their surveys—e.g., projects with a tuberculosis or HIV/AIDS component. Much of the information we need from alternative groups can come from qualitative research and other information-gathering methods. Remember that for each additional group, a distinct questionnaire is usually needed. Later, we will discuss sampling methodologies that allow targeting of different respondent groups.

2. **Determine the target group for the KPC survey** – 10 minutes

    Ask participants if they are working in child health, maternal health, reproductive health, TB or HIV/AIDS. Target populations should be discussed for each of these interventions. For Child Health projects target the under 5 population for activities, but measure children under two years of

age because this is the group that will show the most change as a result of a four or five year project. In this case there is a difference in target population for project interventions and target population for measurement. If maternal health or reproductive health is included the project should interview women age 15-49. For TB adults are targeted. HIV/AIDS may require different target populations for interviews depending on the interventions. For example, if youth are targeted for HIV/AIDS interventions, they should be interviewed.

Give the instructions:

⚰ Critical Decision Point

Identify the target group(s) that you plan to interview as part of your KPC survey. Add this to **TR 1-4: Critical Decision Points** record sheet. Keep in mind that decisions can be changed in the future, but it is important to begin clarifying these critical points.

1-4

Give participants five minutes to work and then ask them to share their decision.

Thank the Core Team for their work. Close the learning session with a short summary:

In the next few days, we are going to discuss how to analyze the data from the KPC survey and how to compare the health outcomes of subgroups of the population to see if they differ. We could probably define many such subgroups but we should define only a very limited number of subgroups that we think are really important. These could be urban versus rural or younger versus older mothers.

Tomorrow we will begin working on the topic of Sampling, so please use your time this evening to read the KPC 2000+ Field Guide, Chapter 5, pp.37–78.

7. Overview of KPC 2000+ Tools

Purpose:
To orient participants to the KPC 2000+ Rapid CATCH and 15 Survey Modules and how to use them.

Objectives:
By the end of this learning session, participants will have:
1. Reviewed the KPC 2000+ Rapid CATCH and Survey Modules to determine their relevance to the project.
2. Identified the types of questions used in the Rapid CATCH and the process for asking the questions.
3. Matched project indicators with Rapid CATCH and optional survey modules.

Preparation/Materials:
- All participants should have received a copy of the KPC 2000+ Rapid CATCH and the 15 survey modules on Day 1.

Step 1:
  - **TR 1-17: KPC Survey Tools—Content Overview**

Step 2:
  - **TR 1-18: KPC Rapid CATCH Question Categories**
  - Flip chart of TR 1-18

Step 3:
  - **TR 1-19: Content of the 15 KPC 2000+ Modules**
  - Flip chart with title: KPC 2000+ Module Components
  - **TR 1-20: KPC 2000+ Module Selection Sheet**

- Extra Reading: KPC 2000+ Field Guide, pp. 10–13

Time:
120 minutes (2 hours)

Steps:
1. Introduce the KPC 2000+ tools – 20 minutes
2. Categorize the KPC Rapid CATCH questions – 35 minutes
3. Determine the extent to which the KPC 2000+ modules are used – 60 minutes
4. Summarize the learning session – 5 minutes

Steps

1. Introduce the KPC 2000+ tools – 20 minutes

Explain the purpose of the learning session:

This learning session focuses on preparing to design the ***KPC Survey Questionnaire*.** Before we look at the overall process for developing the questionnaire, let us review the kinds of questions that are typically included in ***KPC Survey Questionnaire*s.** This brings us back to the question of "what" will be in the survey. We are not going to talk about interviewing

techniques at this point, but rather concentrate on the types of questions used and the types of responses solicited by those questions.

*Refer to **TR 1-17: KPC Survey Tools—Content Overview**. Say:*

Quickly look over **TR 1-17: KPC Survey Tools—Content Overview**. It contains summary information about the Rapid CATCH and the KPC 2000+ tools. As you can see, the sets of questions are related and reinforce each other. We are going to examine them separately. First, let us review the Rapid CATCH materials.

1-17

Make the following presentation:

KPC Survey and Rapid CATCH

The answers to the KPC survey questions allow the project implementers to:

- gather information about current <u>knowledge</u> levels
- understand what portion of respondents are exhibiting the desired key behaviors/<u>practices</u>
- gather information about <u>coverage</u> rates (e.g., for vaccines and vitamin A)

The Rapid CATCH should be the starting point for a **KPC Survey Questionnaire**. It is a subset of 26 important questions taken from the KPC 2000+ modules. It yields 13 key child health indicators. It is strongly suggested that <u>all</u> Rapid CATCH questions—even those related to issues not addressed in a specific project—be included in your **KPC Survey Questionnaire**. They provide critical information on life-saving household behaviors and care-seeking patterns that affect the health and survival of children worldwide.

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*Ask the participants to open their **KPC 2000+ Tools to the Rapid CATCH** document. Read the first box on p. 1. Have participants take turns reading aloud the questions and information in the gray boxes. After each section (1–5, 6–7, 8–10, 11–13, 14–16, 17–19, 20–23, 24–25, 26) make sure that everyone understands the rationale for the questions. Clarify any questions.*

2. **Categorize the KPC Rapid CATCH questions** – 35 minutes

*Post the flip chart of **TR 1-18: KPC Rapid CATCH Question Categories** and refer participants to their copy of **TR 1-18**. Ask participants to work in pairs. Explain the task:*

Read through the Rapid CATCH questions. Write on your **TR 1-18** worksheet the numbers of the questions that correspond to the question categories. When you finish, say: "Rapid CATCH!" The team that finishes in the top three with the most "correct" answers "wins." Ready, GO!

1-18

Rapidly review the "correct" answers as shown below.

KPC Rapid CATCH Question Categories	
Question Category	**Numbers of the Questions**
Measures Knowledge (K)	16, 20, 24, 25
Measures Practice (P)	8, 10, 11, 12, 13, 14, 17, 18, 19, 22, 23, 26
Measures Coverage (C)	8, 9, 15, 21
Measures Socio-Economic Status	None (Education indirectly)
Has a "skip" or "jump"	6, 8, 11, 14, 17, 21, 24
Measures Attitude	None
Has a multiple-choice answer	9, 10, 12, 18, 20, 21, 22, 23, 25, 26
Has a "Yes" or "No" answer	6, 8, 11, 16, 17, 19, 24
Corresponds to a project indicator	Depends on project

Ask participants the following questions:

➢ **What did you notice about the types of questions used in the Rapid CATCH questionnaire**? *[All of the questions can be answered rapidly. There are no long, descriptive answers solicited. This is a quantitative survey. The data can be analyzed relatively quickly in order to write the Detailed Implementation Plan (DIP) and make programmatic decisions. The questionnaire is structured to be completed quickly and efficiently. The interview should take about 20 to 30 minutes, and no more than 45 minutes.]*

➢ **Would an interviewer ask <u>all</u> of the questions listed in the questionnaire? Why or Why not?** *[No, there are "jumps" or "skips" in this questionnaire so that parts are skipped depending on the respondent's answers. A key part of the Supervisor's role is assuring that this skipping is performed properly.]*

➢ **What do you notice about questions that have multiple-choice answers?** *[Some questions allow for multiple choices, and others expect one answer only. For some multiple-choice questions, the respondent hears the possible answers (e.g., "more than usual, the same amount, or less than usual"). For other questions, no possible responses are provided and the interviewer has to mark down the answer that was given, in a category or under "other."]*

Tell participants the following:

Notice that there are no questions about the respondents' socioeconomic status. KPC surveys are intended to measure things that are expected to change measurably over the life of a project. Socioeconomic status usually does not change very rapidly and change in status is usually not a health objective. Very little information is included on socioeconomic status (e.g., type of roof, floors, etc.). The KPC survey is primarily for measuring changes in results, not for describing a situation.]

> ➢ **What can you say about questions related to measuring knowledge?** *[There are few questions that measure knowledge. The questionnaire focuses on behaviors and practices and, to a lesser extent, on knowledge. This is because there is more interest in how people's practices change than in how their knowledge changes.]*

Tell participants:

Notice there are no questions about attitudes here. Questions about attitudes are best answered using qualitative methods such as focus group discussions. Also, the ***KPC Survey Questionnaire*** is not intended to fully answer "why" type questions (e.g., "why don't mothers use family planning"). Qualitative methods also do this better.

> ➢ **How well does this questionnaire meet the need to evaluate project indicators?**
> *[Only in part—which is why the KPC 2000+ modules were developed. The Rapid CATCH only serves as the skeleton of a good KPC Survey Questionnaire.]*

Remind participants:

In this step, the focus was on the process of building the questionnaire by looking at potential content. In the next step, the focus is more on actual content, to assure that your draft questionnaires capture the "what" specified by project indicators/objectives and the "who" targeted by those indicators.

3. Determine the extent to which the KPC 2000+ modules are used – 60 minutes

*Ask participants to open their binder to the KPC 2000+ 15 Modules. Refer to **TR 1-19: Content of the 15 KPC 2000+ Modules.** Explain:*

1-19

The KPC 2000+ survey questions are categorized into 15 modules that each cover a different Child Survival intervention area. **TR 1-19** gives a general overview of the topics and the number of questions devoted to each.

Ask participants to review the modules and write down the main components (sections not topics) of each module. After all of the participants review the modules, list their ideas on the flip chart:

KPC 2000+ Module Components

Add any of the following points that are not mentioned:

- Interviewer instructions (purpose, skip patterns)
- Basic tabulation plan with key indicators
- Examples of questions/themes that can be explored using qualitative research
- References on other quantitative research questions
- Occasional footnotes also contain useful information for adapting the survey

Discuss and clarify any questions. Mention that tabulating will be discussed in a later learning session about manual tabulation and the section on qualitative research will be covered during the Post-Survey Team training.

*Refer participants to **TR 1-20: KPC 2000+ Module Selection Sheet.** Explain:*

<div style="float:right; border:1px solid black;">**1-20**</div>

The Module Selection Sheet is a list of all 15 of the KPC 2000+ modules. Notice the "Yes," "No" and "Maybe" columns. Your assignment is to review the **TR 1-20** list and decide if the main topic from each module should be included in your **KPC Survey Questionnaire.** "Tick" (or "X") the "Yes," "No" or "Maybe" column to record your answers.

Wait until participants have reached consensus on the categorization and ask the Core Team to report their results.

,Divide the modules in the "YES" category among the participants. Have them individually review their assigned module and report on the following questions:

  ➢ **Which questions in the module correspond directly to a project indicator?**

  ➢ **Which questions in the module will be directly changed by project activities?**

  ➢ **What, if any, questions in the module would be "nice to know" but are not essential?**

Allow 10 minutes for report preparation. Then invite reports on the assigned modules. Ask participants to add any other information that may be relevant to their project.

4. Summarize the learning session – 5 minutes

To close the learning session, review the following points:

Tips on Adapting the KPC Survey Questions

- Organizations are advised to use only those questions from the modules that reflect the activities, objectives and context in which they are working.
- Questions can and should be modified to fit the local culture and environment, but do not reword questions unless it is necessary.
- Always BALANCE the desire to add questions with the need to keep the interview short. Remember that adding 5 minutes to the questionnaire x 300 questionnaires = 25 extra hours of work. Mothers tend to lose interest when interviews become too long. The entire KPC survey interview should take (on average) less than 45 minutes; however, 20 to 30 minutes is best.
- Answers given to questions should help to make useful program design and management decisions, not answer all of your questions about your target population.

Respond to questions or points that need clarification. Encourage participants to read pp. 10–13 of the Field Guide about the KPC 2000+ tools.

8. Adapting the Generic KPC 2000+

Purpose:
To adapt the generic KPC 2000+ tools, learn the steps in the adaptation process and develop the draft questionnaire.

Objectives:
By the end of this learning session, participants will have:
1. Explained the steps needed to design a questionnaire using the KPC 2000+ Rapid CATCH and modules.
2. Compared project indicators to Rapid CATCH indicators and modules.
3. Completed a data collection chart.
4. Carefully considered adding new questions.
5. Developed (modified) the survey questions.

Preparation/Materials:
▪ Review Sampling: Survey Trainer's Notes Regarding Sampling, last page of this learning session

Step 1:
- ▪ **TR 1-21: Building the KPC Survey Questionnaire**
- ▪ **TR 1-22: Project Indicators Compared with KPC 2000+ Tools**—Add the project indicators into **TR 1-22** before beginning the learning session

Step 2:
- ▪ **TR 1-23: KPC 2000+** *Rapid CATCH* **Indicators**
- ▪ **TR 1-20: KPC 2000+ Module Selection Sheet** (from Learning Session 7)

Step 4:
- ▪ **TR 1-24: So You Want to Add a Question?**

▪ Extra Reading: KPC 2000+ Field Guide, pp. 34–36

Time:
120 minutes (2 hours)

Steps:
1. Explain the steps used to develop questionnaires – 5 minutes
2. Match project indicators with Rapid CATCH indicators – 25 minutes
3. Review the project indicators – 20 minutes
4. Add additional questions – 15 minutes
5. Match 'who' to project indicators – 5 minutes
6. Specify numerators and denominators for all indicators – 35 minutes
7. Finalize the draft questionnaire – 15 minutes
▪ Optional 1-hour session: Role Play and Modification

NOTE: In some cases, organizations will have already prepared draft questionnaires. If this is the case, the objective is to reinforce what they have already accomplished and/or help them modify/improve their draft questionnaires. Prior to using this lesson plan, ask the participants how they developed the draft questionnaire. (When you developed your draft questionnaires for this KPC survey, how did you decide what to include? How did you decide whom to target and with what specific questions?) Depending on how closely they followed the recommended protocol of starting with the Rapid CATCH and then adding relevant questions from the other modules, this learning session can be abbreviated and used instead to reinforce what they have already accomplished.

Steps

1. **Explain the steps used to develop questionnaires** – 5 minutes

*Explain that the purpose of this learning session is to draft the KPC Survey Questionnaire. Refer participants to **TR 1-21: Building the KPC Survey Questionnaire.** Explain the basic steps of questionnaire design using background information from pp. 34–36 of the Field Guide.*

1-21

*Invite comments and questions from the participants. Refer to **TR 1-22: Project Indicators Compared with KPC 2000+ Tools.** Explain:*

1-22

We are going to use **TR 1-22: Project Indicators Compared with KPC 2000+ Tools** for the next few steps.

2. **Match project indicators with Rapid CATCH indicators** – 25 minutes

*Refer participants to **TR 1-23: KPC 2000+ Rapid CATCH Indicators.** Review the features of **TR 1-23,** including the calculation of the [numerators divided by the denominators] x 100 to get the percentage for each indicator. Ask:*

1-23

Look at your current indicator list on TR 1-22 and decide:

➢ **Which of the project indicators can be measured by Rapid CATCH indicators?**

As participants respond to this question, have them place a checkmark in the "Rapid CATCH" column on the comparison sheet for those project indicators that can be measured by Rapid CATCH indicators.

Look at **TR 1-20: KPC 2000+ Module Selection Sheet** from the previous learning session and decide:

1-20

➢ **Which of the project indicators can be measured by questions from the modules selected as "YES" in the previous learning session?**

Write the number of the module in the "Module Number" column on the **TR 1-22** for those indicators.

Look again at **TR 1-20** and decide:

➢ **Can any of the project indicators be measured by questions from the modules selected as "MAYBE" in the previous learning session?**

Write the number of the module in the "Module Number" column on **TR 1-22** for those indicators.

Try to use the standard wording of the indicators listed in the Rapid CATCH and the KPC 2000+ modules. These have been intensively reviewed and tested, are promoted by CSTS and CORE and have been used by many organizations successfully. Common use of indicators promotes comparison of information among organizations.

3. **Review the project indicators** – 20 minutes

   This step helps determine if your current project indicators are clear and reflect well the objectives and work of the organization. Decide if your project objectives focus on the most important health problems that the project is able to change. Project objectives should be clear and achievement of the objectives should be measured by the project's indicators. Make sure that all indicators are essential to the management of the project. Determine what you really need to know and limit the number of indicators you collect using the KPC. There are many other tools—other than the KPC survey—for monitoring project accomplishment,. Using 10 to 15 indicators is usually enough for most projects. If you have over 20 indicators, think seriously about how best to focus your project on fewer activities. As a team, decide:

   ➢ **Do your indicators need to be changed?**

   After the team has an opportunity to discuss the question, ask the team members to share their decision. Help them to modify indicators where necessary.

4. **Add additional questions** – 15 minutes

   Tell the participants:

   Review any of the project indicators that are not yet checked off on **TR 1-22**. As a team, discuss and decide:

   ➢ **Do we need to add any additional questions?**

   ➢ **Should this indicator be measured by the KPC survey or by some other method?**

   Ask the participants to suggest additional questions and decide which, if any, questions to include.

   Optional Presentation 1: If participants are having a difficult time deciding if and how to add other questions, help them by presenting the following:

What to Include in Your KPC Survey Questionnaire

Consider:
- Which indicator/objective does this question answer?
- Why is this question important?
- Are there differentials that can be explored with this question?
- How will the information gained benefit the project?
- Is there a better way to get this information?
- To whom will this question be addressed?

What to Include in Your KPC Survey Questionnaire (continued)

There may be other questions to include because they are indirectly related to your project indicators and/or because they provide information of general interest to the project. Possible reasons to include other questions are:
- MOH or other local NGOs/organizations have requested their inclusion, and using them would help promote interagency collaboration
- Investigation of areas for future intervention
- Local protocol or custom
- Part of Rapid CATCH that does not directly address project interventions/indicators but that should be included at baseline and optionally in the final KPC survey
- Some questions can later be used for cross-tabulations by dividing respondents into subgroups that are not already in the Rapid CATCH or identification module, e.g., cultural groups

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➢ **What other reasons can you suggest?**

*Optional Presentation 2: If participants are adding many new questions, suggest that each additional question be considered carefully as to whether it must be included in the KPC Survey Questionnaire. Refer participants to **TR 1-24: So, You Want to Add a Question?***

| **1-24** |

NOTE TO THE TRAINER: KPC Survey Trainers should advise organizations strongly against adding extra questions to a questionnaire. It is not uncommon for organizations to use a very long baseline survey questionnaire or huge sample size the first time they do a KPC Survey, only to learn that they have collected a lot more data than they will ever have time to analyze. Encourage them to be smart and realistic when putting together their ***KPC Survey Questionnaire***.

The important thing is to prioritize information that can (and will) be used by the project to improve and track results, while keeping the list of objectives and indicators concise and manageable. Major excursions into complex data collection are beyond the resources and scope of most Child Survival projects, but projects should not just automatically use a generic questionnaire focusing only on mothers of children <2 years of age if they can benefit from going beyond that in some ways.

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5. Match the 'who' to project indicators – 5 minutes

*Refer participants back to Learning Session 6: Identifying the Target Population for the KPC Survey when the "who" was discussed. Have them refer back to **TR 1-4: Critical Decision Points.** Ask:*

| **1-4** |

➢ **What, if any, target group or groups included in the KPC survey need to be modified?**

*If only one group will be interviewed, i.e. mothers of children under 2 years of age, you can skip this step. If multiple groups are targeted, discuss who and what the survey covers, based on the project indicators. Identify which questions will be asked to which groups and add to **TR 1-22.***

6. **Specify numerators and denominators for all indicators** – 35 minutes

   *Have participants review **TR 1-23: KPC2000+ Rapid CATCH Indicators** again to understand the numerator/denominator for each Rapid CATCH indicator. Then continue completing **TR 1-22** by determining where the information will come from for each indicator. If the indicator came from Rapid CATCH or the modules, write the number of the question that will be used in the columns "Numerator" and "Denominator." If the indicator is being measured by a question added by the Core Team, write out the question that will be used for each numerator/denominator. If an indicator is not being measured by the KPC survey, write in the column "NOT KPC."*

   1-22

   Review the group's work and provide feedback as appropriate.

7. **Finalize the draft questionnaire** – 15 minutes

   Depending on how far the team got on finalizing the questionnaire, assign additional work on completing the questionnaire as a homework assignment. Ask the group to select one person to type up the draft questionnaire for distribution to all Core Team members.

   Summarize the learning session:

   We now have a draft questionnaire for use in the KPC survey. The questionnaire uses all of the questions from Rapid CATCH which forms the backbone of the **KPC Survey Questionnaire**. It is complemented by questions from selected KPC 2000+ modules to be sure that we are able to measure all project indicators.

   We are going to leave the questionnaire for a while and begin the topic of sampling. We have several more important steps in adapting the questionnaire that include: Pre-testing, Translation, and Using an Events Calendar & Cultural Lexicon. These concepts will be discussed later in the Core Team training and during the training for the Supervisors/Interviewers. These issues will also be discussed further during logistics planning.

   During your free time, please read pp. 34–36 of the Field Guide about adapting and translating the **KPC Survey Questionnaire**.

   *If the questionnaire needs to be reviewed by other stakeholders, include this task in the **TR 5: ACTION PLAN.***

   1-5

Optional 1-hour learning session: Role Play and Modification

Ask two participants to role play an interview using the draft questionnaire. Ask the other participants to take notes concerning skip patterns, approximate length of the interview, questions that can be omitted, wording that should be changed. Form a committee of two or three people to incorporate changes and finalize the draft questionnaire.

Sampling: Survey Trainer's Notes Regarding Sampling

The following six learning sessions cover the topic of sampling. This portion of the workshop is probably the most challenging for participants. Reassure participants that they are not expected to be statisticians, but only to have a general idea about sampling concepts and calculations. Each Core Team training will be distinct, based on organizational priorities, team members' abilities and experience, and other factors. To aid the Survey Trainer, the following algorithm is offered to help tailor the sampling section to the needs of the Core Team.

Session	Content
9.	Sampling Basics—Why Sample?
10.	Sampling Options for KPC Surveys
11.	Bias, Confidence Intervals, and Design Effect
12.	Lot Quality Assurance Sampling
13.	Selection of Sampling Methodology
14.	Community/Household/Informant Selection

Core Team/PVO has already chosen sampling method?

No — Present all six learning sessions (9 through 14)

Yes

Cluster Sampling
Present Session 9; Session 10, Steps 1 & 2; Session 11; Session 13, Step 3; and Session 14.

LQAS
Present Session 9; Session 10, Steps 1 & 3; Session 11; Session 12; Session 13, Step 3, and Session 14.

Core Team/PVO will use traditional sample size? (300 or 19)

NO — Use Optional Session 26 Determining Sample Size
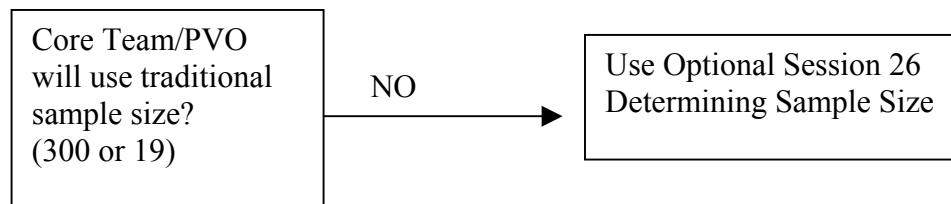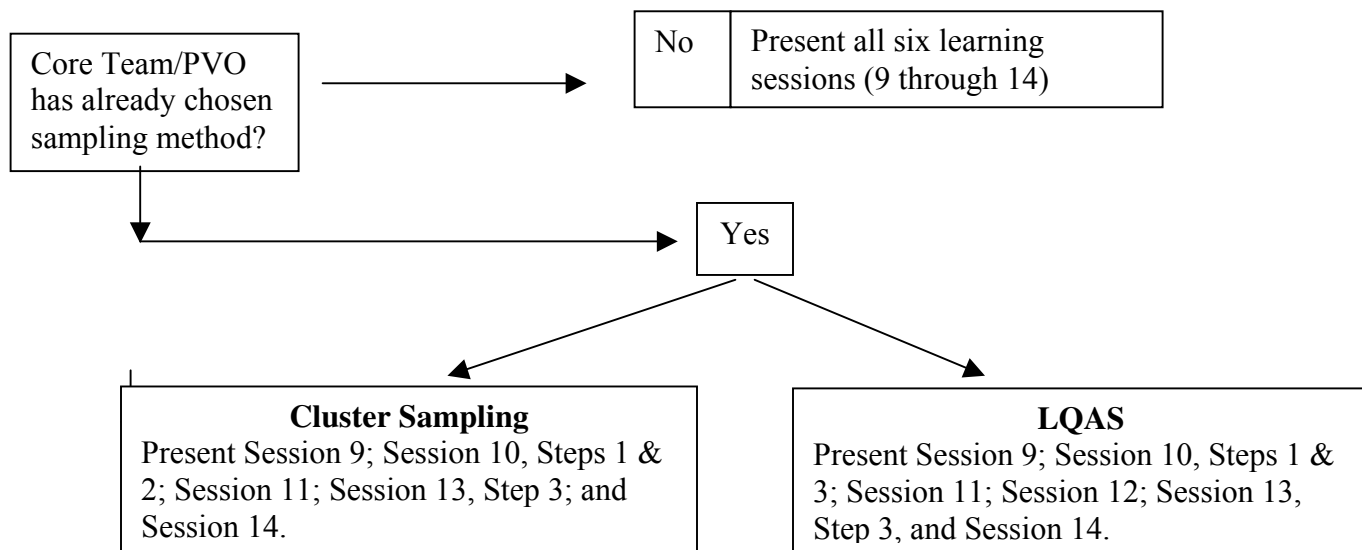
For additional reading on sampling, see the KPC 2000+ Field Guide, Chapter 5, and *Methodology and Sampling Issues for KPC Surveys,* Eric Sarriot, et al., available at: http://www.childsurvival.com/kpc2000/method.doc.

9. Sampling Basics—Why Sample?

Purpose:
To understand the importance of random sampling and key terminology and concepts.

Objectives:
By the end of this learning session, participants will have:
1. Reviewed the concepts of sampling.
2. Matched key sampling terms with the correct definition.

Preparation/Materials:
Step 2:
  - Create two (2) sets of Sampling Terminology Exercise "Cards" using the terms and definitions at the end of this learning session—write or photocopy the "terms" on paper/cards of one color and the "definitions" on paper/cards of another color, then cut them apart, keeping the two sets of "terms" <u>separate from each other</u> and from the two <u>separate</u> sets of "definitions."
  - **TR 1-25: Sampling Terminology**

Time:
30 minutes

Steps:
1. Introduce sampling concepts – 5 minutes
2. Match sampling terms with definitions – 20 minutes
3. Apply the terms to an example – 5 minutes

Steps

1. Introduce sampling concepts – 5 minutes

Explain:

During the next several learning sessions we will be looking at sampling options and their application for KPC surveys. Most projects do not have the resources to collect information on every member of their beneficiary population. Sampling is a good way to save time and money. A sample is defined as a subset of a population about which information is needed. To be a good substitute for the entire population, the sample must be randomly chosen.

➢ **Based on your understanding of the word, what do we mean by "random" sampling?**
[Any person has a known chance of being selected.]

Before beginning a discussion about the issues involved in sampling, let us review some terminology related to sampling.

2. **Match sampling terms with definitions** – 20 minutes

   Ask participants to form two teams and close their Participant Manuals and Workbooks. Mix up both sets of "terms" cards and both sets of "definition" cards. Distribute one set of terms cards and one set of definition cards to each team. Say:

   ➢ **Work in your teams to match the terms with the definitions.**

   *When the teams have matched all of the cards, refer participants to **TR 1-25: Sampling Terminology,** which contains the correct definitions. Together, review the teams' work for accuracy. Then ask:*

1-25

   ➢ **Which terms are new to you or need clarification?**

   Ask other participants to explain the confusing concepts to their peers. If no one knows the concept, provide additional clarification.

   Explain:

   This learning session is intended as an introduction to sampling. You are not expected to understand all of the concepts well at this point. They are explained more clearly in later learning sessions.

3. **Apply the terms to an example** – 5 minutes

   Let us apply some of these terms to the population of workshop participants in this room. Imagine that we are going to conduct a survey among ourselves to find out how many participants *{"like to eat ugali"} (substitute a fun, culturally applicable concept).*

   Go through some of the basic, applicable terms, such as:

   ➢ **What would be our sampling frame?** *[a list of workshop participants]*

   ➢ **What is our sampling area?** *[the workshop venue]*

   ➢ **What is our sampling unit?** *[individuals]*

   Imagine that we need a sample size of two.

   ➢ **Can we take a random sample?** *[Yes]*

   ➢ **If so, how can we do it?** *[write each participant's name on a separate paper, fold the papers so the names are not visible and choose the names.]*

   ➢ **Can we use systematic sampling?** *[Yes]*

> ➢ **If so, how can we do it and what is our sampling interval if we need a sample size of two?** *[total population (all workshop participants) divided by sample size (2).]*

[NOTE: Do not try to apply more advanced concepts, such as cluster sampling, PPS, multi-stage, LQAS, etc. These are covered later.]

Matching Exercise: TERMS

Photocopy the following terms on colored paper and cut them apart.
*(Answers are provided in **TR 1-25**)*

Bias	Sample area	Cluster sampling
Sample	Random sample	Multi-stage sampling
Cluster	Sampling unit	Systematic sampling
Cumulative	Standard error	Confidence interval
Sample size	Random number	Sampling frame
Sampling Interval	Lot Quality Assurance Sampling (LQAS)	Probability proportion to size (PPS)
Design Effect	Supervision Area	

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Matching Exercise: DEFINITIONS

Photocopy the following definitions on different colored paper and cut into strips
*(Answers are provided in **TR 1-25**)*

An error that consistently results in an over- or under-estimation of a value of measurement.

A naturally occurring group of individuals that is likely to include a specified number of individuals from a population group of interest.

A method of sampling population clusters rather than individuals, then interviewing a certain number of individuals within each cluster to achieve the desired sample size.

Indicates the range of possible values that the sample estimate will fall within a certain percentage of the time.

Increasing a sum by continuing to add to it.

A special form of stratified sampling that allows projects to identify areas with levels of coverage that are at or above expectation, versus those that are below expectation.

A process involving more than one step of sampling before reaching the ultimate unit of interest.

A sampling principle that ensures that the sample's distribution mirrors the population's distribution.

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A method of selecting a sample that ensures that each unit in the population has an equal chance of being selected.

A number that is selected (by chance) from many numbers. Each number has an equal chance of being selected.

A group of units (such as individuals or households) selected from the general population.

Community (cluster, lot) selected from the general population for a study.

A subset of the population managed by specific health staff sampled by LQAS methodology to identify staff performance, and for project management.

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Number of units (individuals, households) selected from the population for inclusion in a study.

Usually the same as the unit of analysis. It is the unit from which information is collected in a survey.

List of every possible sampling unit within the target population from which a sample will be drawn.

The total population size (N) divided by the sample size (n). Used as part of systematic sampling to select units from a sampling frame.

It is a statistical measure that indicates the precision of a sample estimate and is used to calculate the confidence limits of that estimate. This is the expression $\sqrt{(pq/n)}$ in the confidence interval calculation.

A sampling approach that involves calculating a *sampling interval* based on the required sample size. A random starting point is chosen, then cases are selected from the sampling frame at a sampling interval.

Measures the efficiency of the survey design compared to Simple Random Sampling.

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10. Sampling Options for KPC Surveys

Purpose:
To understand the basic types of sampling options (simple random sampling, stratified sampling, and cluster sampling) available for KPC surveys and the benefits and limitations of each.

Objectives:
By the end of this learning session, participants will have:
1. Learned about and discussed applications for various types of sampling methods.
2. Stated the benefits and limitations of each sampling method.
3. Considered factors that determine the choice of sampling method.

Preparation/Materials:
Step 1:
  ▪ **TR 1-26: Sampling for Chickens**
  ▪ **TR 1-27: Steps for Selecting a Simple Random Sample**
  ▪ Flip chart with title: Sources for a Simple Random Sampling Frame
  ▪ **TR 1-28: Simple Random Sample Algorithm**
Step 2:
  ▪ **TR 1-29: Steps for Cluster Sampling**

  ▪ Extra Reading KPC 2000+ Field Guide, pp. 37–78

Time:
50 minutes

Steps:
1. Present simple random sampling using chickens as an example – 20 minutes
2. Discuss cluster sampling – 20 minutes
3. Apply stratified sampling – 10 minutes

Steps

1. Present simple random sampling using chickens as an example – 20 minutes

  Explain:

  Due to our limited time, this learning session is a very brief overview of three different sampling techniques. For a more detailed understanding of each of the various methods, use some free time to read pgs. 37 – 78 of the Field Guide. This gives very helpful background information that will be useful to you as Core Team members.

  ➢ **Who wants to share their experiences with random sampling in previous surveys?**

  Ask 2 or 3 volunteers to share. Summarize the discussion with the following definition:

  A random sample is one where every sampling unit has a known chance of being selected for the survey.

*Refer participants to **TR 1-26: Sampling for Chickens**. Tell the story of the farmer who wanted to measure the weight of his chickens.*

This type of sampling is often thought to be random, since the farmer was not specifically targeting particular chickens.

➢ **Why was this not a random sample?** *[Not all chickens had a known (and in this case equal) chance of getting caught; i.e., of being included in the sample.]*

➢ **What potential problems might exist in getting the true percentage of chickens weighing more than 1.5 kilograms using this method?** *[Fat chickens move more slowly and are more easily caught. This is a type of "selection bias" which we discuss later.]*

➢ **How is the farmer's estimate of percent skewed as a result?** *[Because he is able to catch more of the slower, fatter chickens, he thinks his chickens weigh more than they actually do.]*

➢ **How can the farmer take a true random sample?** *[Use a simple random sample: tag all of the chickens, randomly pick 100 numbers and weigh those chickens. It would be more time-consuming, of course, but would be necessary to get an unbiased sample estimate.]*

Be sure the following points are made:

This was not a random sampling method. It was what we call "convenience sampling." There would be a natural bias in his sampling method, since it would probably be easiest to catch the slow-moving chickens. The slow chickens would have a greater chance of being fat (heavy) and more likely to be included in his sample than the thinner, fast ones. This sampling method would give a higher sample percentage than the true percent. (Or, some participants might suggest that any sickly chickens would also be more likely to be caught, and they might be malnourished, lowering the percentage.) In any event, his sample would not be random and, if running speed is related to weight, the sample would not be representative of the population's weight.

*Refer to **TR 1-27: Steps for Selecting a Simple Random Sample** and discuss the proper method to conduct a Simple Random Sample.*

Post the flip chart titled, Sources for a Simple Random Sampling Frame, to record the answers. Ask:

➢ **How can a sampling frame be developed or used in a survey?**

Sources for a Simple Random Sampling Frame
▪
▪

Write the suggestions on the flip chart. Add any of the following that are not mentioned:

A good simple random sampling frame can be taken from:

- a census (either pre-existing or conducted by the PVO)
- voter registration lists
- tax lists
- community health worker registers
- surveillance records
- maps of the area showing each dwelling

Remind the participants:

Caution is required. If the sampling frame is not complete or up-to-date, then not every unit has an equal chance to be selected.

➢ **What methods can be used to randomly select from a sampling frame?** *[Use currency notes, random number tables, flipping coins, spinning bottles, sub-dividing communities, etc.]*

These random methods are covered further when we discuss specific cluster sampling and LQAS methods.

A disadvantage of the Simple Random Sample (SRS) is that, although it requires a smaller sample, it can be very difficult to locate and interview all of the selected households. Imagine if a project had an SRS strategy and a sample size of 100 children selected randomly. Those 100 children might be scattered over a very large geographic area, and their actual households might be very difficult to locate without good addresses. This would be very time-consuming and would require large transportation resources to travel to at least 100 points scattered around the project area.

*Refer to **TR 1-28: Simple Random Sample Algorithm.** Review the decision points of the algorithm (decision chart). Ask participants to think about whether SRS is the best method for them.*

| **1-28** |

2. **Discuss cluster sampling** – 20 minutes

Explain:

A common situation for projects is that their target population is scattered over a large geographic area. For this reason, many organizations choose to use cluster sampling which is usually quicker, and therefore cheaper, than other types of sampling. It involves going to 30 or so groups of households, rather than tracking down dozens or hundreds of individuals around the project area.

Cluster sampling uses random selection for the cluster sites where the households are located, and also for the selection of the first household within the cluster. The remaining households in each cluster are not chosen randomly.

*Refer participants to **TR 1-29: Steps for Cluster Sampling.** Ask participants to silently read the material and underline what they think are the most important points. Review the most important points.*

> **1-29**

Ask:

> ➢ **What questions do you have about cluster sampling?**

3. Apply stratified sampling – 10 minutes

Give the following presentation to explain stratified sampling:

Stratified Sampling

There is always a chance that a sample is not fully representative of the general population. This is especially true if the general population contains a small number of people from a particular group (for example, a certain religious or ethnic group). If there is only a small chance that people from a small group will be sampled, there is a possibility that a simple random or cluster sample might not include any (or very few) respondents who are members of that particular group. If your sample does not include key population groups, or if the proportion of certain groups in your sample differs from their proportion in the larger population, there is a chance that your survey's estimates will be inaccurate. In other words, the estimates based on the sample differ from the actual values that exist in the general population.

Stratified sampling can yield results (estimates) that are more precise than those gathered from Simple Random Sampling. By making each stratum more homogeneous, the sampling error is actually reduced. (In stratified random sampling each element has a known chance of being selected whereas in simple random sampling each element as a known AND equal chance of being selected)

Let us continue with the chicken example and take it one step further. Imagine that there are three varieties of chickens among the farmer's 1000 chickens, and that he wants to be sure that the average weight takes into account all three varieties. Let us imagine 600 are white chickens, 320 are brown chickens, and only 80 are yellow chickens.

Demonstrate the following by writing the numbers on blank flip chart paper as you speak:

If the farmer takes a 10% sample (100 chickens) completely randomly—completely by chance—there is a chance that none of the yellow chickens will get sampled. If yellow chickens are known to weigh much less than white chickens, the average weight might not truly represent all of his chickens. To solve this problem, the farmer can group the chickens into varieties (white, brown, yellow) before he samples them—this is known as "stratifying" them. Stratifying ensures that the farmer chooses chickens from each group. In fact, if the farmer

wants to be very precise, he can now do PPS—probability proportional to size. To do this, he samples from each stratum, based on its population. In this case, if he were taking a 10% sample, he would take 10% from each stratum:

600 white chickens	–	select	60	chickens
320 brown chickens	–	select	32	chickens
80 yellow chickens	–	select	8	chickens

The farmer's TOTAL sample would then be 100 chickens, and the average weight would proportionately represent each variety of chicken he owns.

Mention that this a simplified example of stratified sampling; many times you would need to over-sample a group that makes up a small proportion of the population, e.g., yellow chickens—otherwise, the sample size would be too small to be able to make significant comparisons between groups. Lot Quality Assurance Sampling (LQAS) is a type of stratified sampling and will be examined in depth later. Ask:

➢ **What types of groups might you encounter that need to be stratified?** *[ethnic groups, urban vs. rural, age, income levels]*

Summarize the learning session by saying:

Next, we are going to look at how large a sample you will need for various types of sampling and the elements that affect sample size and sampling options. In a later learning session, we will return again to the issue of the type of sampling to use.

11. Bias, Confidence Intervals and Design Effect

Purpose:
To understand how various elements can affect sampling issues such as sample size, bias, confidence intervals, and survey design.

Objectives:
By the end of this learning session, participants will have:
1. Discussed the concepts of sample size, bias, confidence intervals and design effect.
2. Practiced calculating confidence intervals for both cluster and LQAS designs.
3. Discussed causes for differences in the size of confidence intervals.

Preparation/Materials:
Step 2:
- ▪ **TR 1-30: Types of Bias That May Affect a KPC Survey**
- ▪ **TR 1-31: Ways to Minimize Bias in a KPC Survey**
Step 3:
- ▪ **TR 1-32: Confidence Interval Formula**
- ▪ Flip chart with title: Confidence Interval Formula
Step 5:
- ▪ Calculators for participants who did not bring them
- ▪ **TR 1-33: Confidence Interval Worksheet**

Time:
90 minutes

Steps:
1. Review sample size standards – 5 minutes
2. Demonstrate different types of bias and discuss ways to prevent bias – 15 minutes
3. Discuss confidence intervals – 20 minutes
4. Increase awareness of design effect – 5 minutes
5. Use the confidence interval formula – 45 minutes

Steps

1. Review sample size standards – 5 minutes

As we have just seen, drawing a sample from a population gives us estimates of the true values in that population. We need to strive for precision in those estimates, because they may play a big role in program decisions and in the eventual evaluation of program impact.

It is very important, then, to assure that you have sampled enough people to get the precision you need in the estimate. To ensure that the sample is large enough, there are different mathematical equations to use, depending on the type of sampling used. We are not going to review the mathematical calculations for different types of sampling. Not everyone wants or needs to understand in detail how to calculate the formulas. For standard sampling methodologies, the size is already set. Traditionally, KPC surveys that use cluster sampling use

a sample size of 300 (30 cluster of 10 respondents each) and LQAS surveys use a sample size of 19 (using 5 to 10 Supervision Areas of 19 respondents each).

If you would like more information, there are a number of options:

1. Read pp. 37–78 of the Field Guide
2. Refer to the Resource List (TR 1-3) and p. 78 of the Field Guide
3. Talk with the KPC Survey Trainer for additional assistance
4. See the optional Learning Session 26: Determining Sample Size for answers to your questions
5. Explore your local resources, other Core Team members and statisticians within your organization, other organizations, or the MOH

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2. **Demonstrate different types of bias and discuss ways to prevent bias** – 15 minutes

    Explain:

    As we discussed previously, "bias" refers to a systematic error that consistently causes an under- or over-estimation of what we are trying to measure. We talked briefly about "bias" when we discussed the issue of sampling chickens with a "convenience sample" approach.

    ➢ **What volunteer would like to summarize what type of bias was involved in that sampling?** *[selection bias]*

    There are several types of bias to consider when conducting research and surveys, but for our purposes there are three primary types of bias affecting KPC surveys: selection bias, information bias, and recall bias.

    *Refer participants to **TR 1-30: Types of Bias That May Affect a KPC Survey.** Explain:*

    Selection bias results from a faulty method of sampling that does not allow a truly representative sample to be taken, such as we saw with the chicken sampling example.

    > **1-30**

    ➢ **How can this type of bias be present in KPC surveys?** *[Examples: through an incomplete sampling frame (e.g., not including mothers of newborns), through haphazardly picking an "easy" house near the center of the cluster site, through interviewing more than one mother per household, etc.]*

    Information bias occurs when faulty data is collected through poorly worded questions or consistent interviewer mistakes or misunderstanding.

    ➢ **Who can suggest an example of information bias?**
    [Example 1: An interviewer consistently re-phrases questions or makes assumptions with certain respondents—for example, not asking exclusive breastfeeding questions to mothers of infants less than 2 months old because the interviewer is certain that the mothers would not be giving anything other than breast milk.

Example 2: A poorly worded question is not field-tested and results in a question that certain groups of respondents do not understand and therefore answer incorrectly.]

Recall bias is a specific type of information bias that can also affect KPC surveys, because interviewers usually ask several questions about previous behaviors that may be difficult for respondents to remember well.

➢ **Who can suggest an example of recall bias that might affect a KPC survey?**
   [Examples: questions regarding previous stoppage of breastfeeding, foods/drinks given to the child the previous day or week, even the age of the child.]

➢ **How can we minimize bias in our surveys?**

*Allow several responses. Refer to **TR 1-31: Ways to Minimize Bias in a KPC Survey** to add to and summarize the discussion.*

1-31

3. **Discuss confidence intervals** – 20 minutes

    Bias is one of the factors we can control for with proper planning. However, there are other factors that influence an estimate yet are out of our control.

    Explain:

- Even when sampling and survey protocol are conducted properly, the results you get are still only an estimate of the true value. In other words, the result you get is probably pretty close to the real value, but probably not exactly the same as the real value. The results of a survey using sampling should never be considered an exact reflection of the true population level.
- There is always some degree of random error in sampling, called "sampling error" or "standard error." This should not be confused with bias. Random error is unavoidable when sampling is used, because you are not getting data from all possible values in the population. There is almost certainly some difference in the results of a sample from what you would have gotten if you had interviewed every person in the population.
- Each estimate from a sample, therefore, always has a margin of error around it, which we also call a "confidence interval." You can calculate the size of the confidence interval using a few variables that we will discuss next.

Ask:

When I take a sample of 300 respondents from an entire target population of 20,000 served by my project,

➢ **Can I be confident that the results of my survey really represent the true population?**
   [only within certain limits]

In my survey, if 30% of mothers gave ORS to their child with diarrhea,

> ➢ **Can I be pretty sure that 30% of ALL of the mothers in my project area are giving ORS?** *[Being a result from a sample rather than from an entire population, it is an estimate only, with a degree of variability.]*

These limits of confidence are represented by a range of values called the confidence interval. Let us see how a confidence interval is calculated. Then you will have a chance to use the formula yourself to calculate a confidence interval.

*Refer participants to **TR 1-32: Confidence Interval Formula**. Also post the flip chart with the formula. Explain the formula:*

1-32

Confidence Interval Formula

$$P = p +/- z * SQRT((p*q)/[n/D.E.])$$

where P = the actual rate/proportion in the general population
p = the survey estimate
$q = 1 - p$
z = the confidence level (with a 95% confidence level, $z = 1.96$)
n = sample size
D.E. = design effect

The formula for the confidence interval is based on a several variables:

▪ how large a sample you take ("n")

▪ the proportion that you get from sampling ("p")

It also includes a constant value (from a table) for the level of precision you choose. Often in research and in KPC surveys, 95% is the level of precision chosen. This means that you wish to be <u>95%</u> certain that your confidence interval captures the true value, based on your sample estimate, in that 95% of the intervals calculated from multiple samples (if you could take that many!) would contain the true population value.

The design of your sampling method is D.E. or "design effect." Let us look more closely at design effect.

4. **Increase awareness of design effect** – 5 minutes

Summarize the following:

We have already discussed that cluster sampling is often chosen because it is quicker and easier, once the starting household is chosen. But by gaining those benefits, we also give up something in the precision of the resulting estimate. Since groups of neighboring households

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are selected that probably share similar behaviors and knowledge, there is some built-in bias. This bias is measured by something called the "design effect." It is computed, for a given statistic, as the ratio of its variance under the actual design, to what that variance would have been under a simple random sample (SRS) of the same size. In this manner, it provides a measure of the efficiency of the design. Design effects are specific to the variable or statistic concerned. There is no single design effect describing the sampling efficiency of "the" design. For the same design, different types of variables and statistics may (and often do) have very different values of design effect, as do different estimates of the same variable over different sub-populations. The formula to calculate a confidence interval becomes quite complicated when considering a design effect, but Epi-Info and other data analysis packages offer ways to calculate it.

When planning a survey, one cannot be sure what the design effect will be. A conservative estimate, however, for cluster sampling is 2. (It is often much less than that, but using 2 assures that the sample size is adequate for even the highest design effects.) SRS and stratified sampling have no design effect; i.e., D.E. = 1. By using a computer, we can more accurately calculate the design effect, but with our manual calculations we will use 2 as the design effect for cluster sampling and 1 (or no design effect) for LQAS or SRS. One way to counteract the larger D.E. of cluster sampling is to increase the sample size because the design effect is also used in calculating sample size. Now we will look at how the design effect changes the confidence intervals.

5. **Use the confidence interval formula** – 45 minutes

*Distribute calculators to those who do not have them. Calculate the example given on **TR 1-32**. Work through the handout, writing the calculations on a flip chart. Be sure to mention the importance of correctly expressing the confidence interval. Then ask:*

➢ **What questions do you have about calculating confidence intervals (CI)?**

Remember that in surveys it is important to always strive for precision.

➢ **If we want better precision, is it better to have a smaller or a larger confidence interval?** *[A smaller (tighter) CI means the estimate is more precise.]*

➢ **What can we do to increase the precision, or narrow the confidence intervals?** *[Use a larger sample size.]*

Let us look at the CI equation:

➢ **What effect does increasing the sample size (the "n") have on the size of our confidence intervals?** *[Increasing the sample size decreases the size of the confidence interval and increases the precision.]*

*Ask the participants to recalculate the example on **TR 1-32**, with only 20 women exclusively breastfeeding, out of a sample of 50. Reiterate the effect of sample size on CI. Say:*

Increasing sample size is actually about the only thing we can consciously do to get a more precise estimate, assuming we are already using a valid and appropriate sampling protocol. That is why sample size is so essential in planning a KPC survey.

Ask the participants to work in pairs:

Calculate the confidence intervals if we use a Simple Random Sample survey of 300 women and find that 108 women interviewed have two or more TT vaccinations.

Give participants about 5 minutes to work through the equation on their own, using the result of 36% for the TT indicator. Ask a volunteer to share the answer and show the calculations on a flip chart.

[ANSWER KEY: .36 +/- 1.96*(sqrt ((.36*.64)/300))
= .36 +/- (1.96 * .0277)
= .36 +/- .0543
= (.31 - .41) or (31% - 41%]

Ask participants to tell you what the confidence interval would be if we used cluster sampling. Give them about 5 minutes to recalculate it. Say:

Remember that we do not know the true design effect, but a conservative estimate for cluster survey design is 2.0.

[ANSWER KEY: .36 +/- 1.96*(sqrt((.36*.64)/(300/2))
= .36 +/- 1.96 * sqrt(.001536)
= .36 +/- 1.96*.03919
= .36 +/- .0768
= (.28 - .44) or (28% - 44%]

Summarize by asking:

➢ **What was the difference in the point spread with and without the design effect?**
 [16-point spread vs. 10-point spread]

Think about what is important in the long run. It can make a difference, especially when looking for statistical significance. That is why it is important to try to minimize the design effect as much as possible and to use the exact design effect calculated from Epi-Info, if possible, since it may actually be lower than 2.0.

➢ **Based on what you have seen and done, what are some factors that can cause differences in the size of the CI?** *[sample size, design effect, desired precision]*

*Distribute and show **TR 1-33: Confidence Interval Worksheet** as an optional homework assignment. Assure participants that this worksheet is optional, but*

1-33

encourage them to complete it to solidify what was discussed. Go over the first example together. Ask the participants to work in pairs, with one person explaining to the partner what a confidence interval is and then how to calculate it. Then have them switch roles—have the other partner explain the concept and the process. Remind the group that precision of speech is very important in explaining results.

*NOTE: Remember to review the answers for **TR 1-33** the following day to evaluate whether the majority of participants successfully completed the calculations.*

TR 1-33: CONFIDENCE INTERVAL WORKSHEET: ANSWER <u>KEY</u>

Example #1:

In a baseline survey, the surveyor asks mothers of children 0–23 months of age, "Who assisted you with (NAME's) delivery?" 240 women mentioned a skilled health provider; 60 women mentioned another (unskilled) person. (Assume a design effect of 2.0 if calculating manually.)

■

What proportion of births was attended by a skilled provider? [80%]
What is the confidence interval? [73.6% to 86.4%]

At the final survey, the question is repeated:
276 women mentioned a skilled provider
24 women mentioned someone else
(Assume a design effect of 2.0 if calculating manually.)

What proportion of births was attended by a skilled provider at final? [92%]
What is the confidence interval? [87.7% to 96.3%]
Was there a statistically significant change in the proportion of births attended by a skilled health provider? ⊗ YES (No overlap of CIs)   NO

Example #2:

At baseline, you find that 111 mothers out of 300 say that their child slept under an insecticide-treated bednet the previous night and 189 say no. (Assume a design effect of 1.0 if calculating manually.)

What proportion of children slept under an insecticide-treated bednet? [37%]
What is the confidence interval? [31.5% to 42.5%]

At the final survey, the question is repeated: 85 women say yes; 215 women say no (Assume a design effect of 1.0 if calculating manually.)

What proportion of children slept under an insecticide-treated bednet at the final survey? [28.3%]
What is the confidence interval? [23.2% to 33.4%]

Was there a statistically significant change in the proportion of children who slept under an insecticide-treated bednet the previous night?   YES   ⊗ NO (Overlap of CIs)

12. Lot Quality Assurance Sampling (LQAS)

Purpose:
To introduce the LQAS technique and to demonstrate how to use LQAS for a KPC survey.

Objectives:
By the end of this learning session, participants will have:
1. Practiced LQAS sampling on their own.
2. Described how a sample size of 19 is adequate to distinguish between high and low coverage in a Supervision Area.
3. Compared how using LQAS for baseline surveys is different from using LQAS for program monitoring or final surveys.
4. Calculated coverage.
5. Compared indicators across Supervision Areas.
6. Used coverage data to help make program decisions.

Preparation/Materials:
Step 1:
- Flip chart with title: Indicator for Preventing HIV/AIDS Transmission

Step 2:
- Prepare two (2) bags of 100 marbles each:
  - Bag 1: 50 green + 50 red
  - Bag 2: 80 green + 20 red

  (Practice the marble exercise before actually using it in Step 2. You may use an alternative to marbles, such as colored stones, but the alternative item must come in two distinct colors and each piece must be of the exact same size and shape as the other pieces, in short, being indistinguishable by touch from the other pieces.)
- Two (2) clear jars or some other receptacle to hold the "sample" marbles
- **TR 1-34: LQAS Sampling Results**
- **TR 1-35: Decision Rules**
- **TR 1-36: What a Sample of 19 Can Tell Us**
- **TR 1-37: What a Sample of 19 Cannot Tell Us**

Step 3:
- **TR 1-38: Five Supervision Areas and One Indicator**
- **TR 1-39: Five Supervision Areas and One Indicator Worksheet**
- **TR 1-40: Supervision Area A and Five Indicators**
- **TR 1-41: Comparing Supervision Areas A, B, C, D & E**

Step 4:
- **TR 1-42: LQAS in Monitoring and Final Surveys**

Time:
130 minutes

Steps:
1. Present the general principles of LQAS – 10 minutes
2. Practice using samples of 19 – 55 minutes
3. Practice using LQAS for project decisions – 55 minutes
4. Use of LQAS in final surveys – 10 minutes

Steps

1. **Present the general principles of LQAS** – 10 minutes

   Explain the purpose of the learning session:

   We are going to introduce a special type of stratified sampling called LQAS (Lot Quality Assurance Sampling). We have seen how stratified sampling can help us make estimates of subsets of a population. For purposes of project management, a meaningful subset may be people living in different project zones: areas managed by different health or project units. You may want to sample from these zones, or Supervision Areas (SA), to identify strong staff performance and those needing more help. For this purpose, you may not need to estimate exact levels but have an indication (based on data) of which SAs are performing adequately and which are not.

   At the same time, you may want to combine estimates from different SAs into a single estimate (with CIs) for the entire project. There is a simple method, built on SRS, which allows you to do both. Depending on some factors we will review later, you may want to use LQAS. LQAS uses sample sizes of 19 in each Supervision Area to make statements about the SA. When LQAS data for all SAs is combined, it can provide estimates of overall coverage of the project. In order to reach the minimum "n," at least five (5) SAs need to be included (19 x 5 = 95). As you may recall in SRS, a sample size of 96 provides 10% precision and 95% confidence limits.

   Let us look at an example of LQAS:

   Imagine a fictitious NGO Program Area that is divided into five (5) SAs. We do not know coverage for two of the five SAs, Area A and Area C, for the indicator "percent of women (15 to 49) who know at least two ways to prevent transmission of HIVAIDS."

   Post the flip chart.

Indicator for Preventing HIV/AIDS Transmission
% of women who know at least two ways to prevent HIV/AIDS transmission
Area A   Area C

   Because we want to make decisions about the use of our program resources, we need to conduct a survey of Areas A and C to see whether or not they need special attention. Remember that this sampling approach uses small samples of 19—randomly selected to assess progress towards goals in each SA.

   We are going to conduct our survey by interviewing only 19 women from each area, which, as we will demonstrate, is adequate for our purposes of identifying priority areas.

2. **Practice using samples of 19** – 55 minutes

Use the bagged marbles. Show participants Bag 1 and tell them that the marbles in Bag 1 represent all of the women (ages 15 to 49) in Supervision Area <u>A</u>. The green marbles represent all of the women who know at least two ways to prevent HIV/AIDS transmission; the red marbles represent those women who do not know at least two ways.

Tell participants that the marbles in Bag 2 represent all of the women (ages 15 to 49) in Supervision Area <u>C</u>. The green marbles represent all of the women who know at least two ways to prevent HIV/AIDS transmission; the red marbles represent those women who do not know at least two ways.

Begin by shaking the marbles in Bag 1 to ensure that they are randomly mixed. Be sure to comment again on the importance of random sampling.

*Refer participants to **TR 1-34: LQAS Sampling Results**. Explain that five samples of 19 are going to be taken from Bag 1, SA–A, and then five samples of 19 are going to be taken from Bag 2, SA–C. Participants are going to record the results from each sample on **TR 1-34**.*

1-34

*Demonstrate by taking the first sample from Bag 1, SA–A: Remove 19 marbles, a few at a time, and place them in one of the clear jars (or some other receptacle). Count the green marbles in the jar (women who know at least two ways to prevent HIV/AIDS transmission). Write the number on **TR 1-34** under the "# Correct" column, Area A, on the line for Sample 1. **<u>Then return the 19 marbles to Bag 1</u>**.*

Divide the participants into two groups. Give one group a receptacle and Bag 1, SA–A (50 green and 50 red marbles). Give the other group a receptacle and Bag 2, SA–C (80 green and 20 red marbles).

*Ask each group to repeat this same process, taking a sample of 19 marbles from the bag, counting the number of green marbles in the sample and recording the "# Correct" on the handout. **Remind participants to return the 19 marbles to the bag after each sample is recorded.** Repeat the process until all five samples have been recorded.*

After the groups finish taking five samples of 19 marbles and recording the number of green marbles, ask each group to report their results. As the groups report, record all of the results on the flip chart.

*Next, ask each group to count the <u>total number of green marbles</u> in the entire bag. Enter these numbers as the numerator in the "Verify" space for SA–A or SA–C on **TR 1-34**. Also ask the groups to count the <u>total number of green plus red</u> marbles in the bag. Enter these numbers as the denominator in the "Verify" space for SA–A or SA–C and then calculate the percentage of marbles that are green (50% in SA–A, 80% in SA–C).*

*Show **TR 1-35: Decision Rules** and demonstrate how to find the decision rule for the Area A samples.*

Now let us use this table to find a decision rule. Let me explain how this table works. The first column on the far left is the size of the sample. Samples 12 through 30 are displayed. The percentages across the top of the page represent coverage targets, or average coverage (which is used only for baseline surveys and is explained later.)

The decision rule is the minimum number of people who must have received an intervention or know the correct answer (in this case 2 or more ways to prevent HIV/AIDS) in order to safely conclude that a Supervision Area has reached average or target coverage. To find the decision rule, we are going to select the percentage column that is your target (we are using 50% for Area A) and go down that column until we come to the row with your sample size (in this case 19); the number that appears at the spot where these two lines intersect (<u>7 in this example</u>) is the decision rule (or minimum number for decision-making purposes).

*Using **TR 1-34: LQAS Sampling Results** for both SA–A and SA–C, ask the participants to see if the number of correct responses for each of the samples from <u>Area A</u> is 7 or more. Circle the cases that are <u>less than 7</u> (if there are any). In almost all of the samples, the number correct will be at least 7 green marbles.*

Ask the group to find the decision rule for SA–C. Repeat the same process with the SA–C samples. Since 80% of the marbles are green, the target coverage is 80%. Using **TR 1-35**, the group should find that the decision rule is 13 green marbles. Now, reviewing the group's sampling of the SA–C bag, the participants should find that for almost all of the samples, at least 13 marbles were green in each of their samples of 19. This is because the decision rule is 13. Have them circle all cases (if there are any) where the sample was <u>less than 13 correct</u> in the SA–C bag.

1. How many times in Area A did they have 13 or more green marbles?
    [Never or almost never]

Area A would never or almost never be mistakenly classified as an area with high coverage like Area C.

2. How many times did Area C have fewer than 13 green marbles?
    [Never or almost never]

Area C, therefore, would almost never be classified as having low coverage. Once a target coverage has been selected, you can easily determine whether the target has or has not been reached by using a sample size of 19.

*Refer participants to **TR 1-36: What a Sample of 19 Can Tell Us**, **TR-37: What a Sample of 19 Cannot Tell Us**. Review the points with the participants. Emphasize that 19 is the smallest number that we can use that allows us to confidently determine if a SA is doing*

well, with less than a 10% chance of misclassifying.

3. **Practice using LQAS for project decisions** – 55 minutes

   Explain:

   This activity allows us to practice three of the principal ways to use LQAS to learn:

   1. whether a Supervision Area has above- or below-average coverage for a particular indicator
   2. which indicators <u>within</u> a Supervision Area are doing well and which are not, and
   3. how Supervision Areas within a program area compare with each other

   Let us now look at an example using LQAS to assess whether at the baseline a Supervision Area has above- or below-average coverage for a particular indicator.

   *Refer to **TR 1-38: Five Supervision Areas and One Indicator** and explain that **TR 1-38** contains data for this particular indicator for all five SAs (collected through LQAS sampling).*

   The average coverage shown on **TR 1-38** is the number of people in the sample who responded <u>correctly</u> to a question, divided by the <u>total</u> number of people who responded to the question. Using the decision rule again tells whether a specific SA reached the average coverage or is below the average coverage.

   *Explain how the average coverage is calculated by referring to item 1 on **TR 1-38** that is calculated as 65.3%. Explain that this is the reason 65.3% is written in the space provided for the coverage estimate.*

   ➢ **How was the decision rule of 11 reached?**

   *Ask a participant to respond and show how to use **TR 1-35** to reach the correct answer of 11.*

   Explain that for purposes of using the Decision Rules chart, we always round up the coverage figure—65.3% in this case—to the next highest 5% increment—70% in this example. Put your finger on the top row and find 70% and move your finger down the 70% column until it meets the horizontal row for the sample size of 19. Where the column and the row cross, your finger will be on number 11. This means that as long as there were 11 or more correct answers to the indicator, there is no evidence that coverage is not below average.

   ➢ **What is the answer to Question 3: "Is coverage generally below average?"**
      [No—for four of the five SAs the "# Correct" was 11 or above.]

   ➢ **What is the answer to Question 4: "Can you identify which of the SAs will be your priority?"** *[Yes]*

   ➢ **Which are they?** *[B]*

*Refer to **TR 1-39: Five Supervision Areas and One Indicator Worksheet.** Ask participants to work out this example on their own. Then go over the example with them to see if they completed it correctly or if they have any questions.*

1-39

TR 1-39: Five Supervision Areas and One Indicator Worksheet (ANSWER KEY)

Indicator: Women who used condoms each time with intercourse	# Correct	Coverage Estimate =	Equal to or Above? Yes or No
Supervision Area A	7	**45%**	YES
Supervision Area B	3		NO
Supervision Area C	2	Decision Rule (Using the LQAS Table) =	NO
Supervision Area D	13		YES
Supervision Area E	14	**6**	YES

1. **39/95 = 41.05% = 45%**
2. **Decision Rule 6**
3. **YES or somewhere in the middle**
4. **YES**
5. **SAs B & C**

Let us now look at how to use LQAS to assess the values of various indicators within the same Supervision Area. After information is gathered for a number of indicators, it is possible to use LQAS to determine which indicators within a particular Supervision Area are reaching average coverage and which are not, thus making it possible for a supervisor to know which indicators to focus on in the project area.

*Refer to **TR 1-40: Supervision Area A and Five Indicators** and work through it with the participants. Point out that this chart deals with Supervision Area A only.*

1-40

Indicator 1 of Area A: The average coverage was calculated in the last example and the number 6 was determined to be the decision rule using the decision rule table in **TR 1-35** and rounding the average upward to 45%.

➢ **Does the "# Correct" (i.e., 7 in this case) reach the decision rule for the first indicator?** *[Yes]*

➢ **Is Area A of at least average coverage?** *[Yes]*

Ask the group to vote: How many think "yes"—How many think "no." If there is a difference of opinion, ask someone who thinks "yes" to explain why.

*Ask the participants to put "Y" in the last column. Now ask the participants to work through the other four indicators, filling in the boxes. They need to keep the Decision Rules table (**TR 1-35**) handy. Review the questions below the chart.*

[Answers:

Indicator	Decision Rule	Yes or No
1	6	Yes
2	1	Yes
3	6	No
4	10	Yes
5	3	Yes

1. Indicator 3 is below average
2. Yes
3. Indicator 3]

Let us now look at how to use LQAS results to compare the baseline conditions of all of the Supervision Areas within one program area. By bringing together results from the previous steps, we can now take a look at our entire program area and see which Supervision Areas are doing well overall and which need support.

*Refer to **TR 1-41: Comparing Supervision Areas A, B, C, D & E.** Explain that **TR 1-41** combines information gathered previously. Ask participants to begin by filling in the three empty boxes for Indicator 1 using information from the previous exercise for Areas A, B, and C. When the chart on **TR 1-41** is complete, ask participants to answer the five questions at the bottom.*

1-41

Indicators		Supervision Area				
		A	**B**	**C**	**D**	**E**
1	Women who used condoms each time with intercourse	Y	N	N	Y	Y
2	▪ Men who used condoms each time with intercourse	Y	Y	Y	N	Y
3	Women who know how HIV/AIDS is transmitted	N	N	Y	N	Y
4	Men who know how HIV/AIDS is transmitted	Y	Y	N	N	Y
5	Women who know where to get tested for HIV/AIDS	Y	Y	Y	N	Y

Answers:
1. E and maybe A
2. D and maybe B and C
3. Indicator 3
4. Indicator 1 and 4 (2 weak SAs); Indicator 2 and 5 (1 weak SA)
5. For these weaker indicators:
   – Which SA(s) needs special attention? D and maybe B
   – Which SA(s) would you visit to learn possible ways to improve this indicator? E & C

Close the step by asking the participants to reflect on the following questions:

➢ **How can LQAS information help you make decisions in your project area?**

➢ **Can you calculate confidence intervals for LQAS? How?** *[Repeat the CI formula and ask a volunteer to work through an example of: sample size 95, precision 10%, CI of 95%, finding that 37 of the 95 infants 0–5 months of age were exclusively breastfed. Remember that the D.E. is 1.]*

4. **Use of LQAS in final surveys** – 10 minutes

Tell participants:

The previous steps show how LQAS can be used in a baseline survey to compare supervision area performance for a given indicator or how a particular indicator performs across supervision areas. To end the discussion on LQAS, we will look briefly at an example of how results for a given indicator can be monitored over the life of a project and then during a final evaluation.

TR 1-42: LQAS in Monitoring and Final Surveys shows the results of one indicator at baseline and then over 3 years. Year 4 is the final evaluation. There are always 2 ways to look at how SAs did: comparing them to a pre-set target (except for in the baseline) and then comparing them to the average—as we saw previously.

1-42

The results circled show SAs that did not reach the mean (compare the results to the "Decision Rule") in a given year.

The results with an asterisk (*) show the SAs that did not reach the target (compare to the target decision rule) in a given year.

Name the SAs that met the target BUT NOT the mean. *[SA 4 in Year 3, SA 1 in Year 4, SA 2 in Year 4]*

Name the SAs that met the mean BUT NOT the target. *[SA 2 in Year 2]*

Name the SAs that met neither the mean nor the target in a given year. *[SA 5 and 6 in Year 1 and SA 2 in Year 2]*

➢ **What are your questions about LQAS sampling?**

Allow participants to reflect on the LQAS sampling option for the KPC survey. Answer any questions.

13. Selection of Sampling Methodology

Purpose:
To synthesize information about various sampling approaches and to choose the most appropriate method based on their own sampling needs.

Objectives:
By the end of this learning session, participants will have:
1. Discussed comparative aspects of LQAS and cluster sampling by using a chart contrasting and comparing the two methods.
2. Developed a sampling protocol that includes sampling methodology to be used, sample size, and sampling frame.

Preparation/Materials:
Step 1:
   ▪ Flip chart with title: Factors to Determine the Type of Sampling Method to Use
Step 2:
   ▪ **TR 1-43: Cluster Sampling versus LQAS: Issues to Consider**

Time:
45 minutes

Steps:
1. Identify issues to consider – 10 minutes
2. Compare LQAS and cluster sampling – 15 minutes
3. Write a sampling protocol -– 20 minutes

Steps

1. Identify issues to consider – 10 minutes

Post the flip chart.

> **Factors to Determine
> the Type of Sampling Method to Use**

Explain:

This learning session pulls together much of the previous information to clarify the decision-making process for choosing a sampling design. From all that we have discussed:

➢ **What are the main factors to consider when determining what type of sampling method to use?**

List the suggested factors on the flip chart. Assure that the list includes the following factors, and put stars next to these to highlight them among other factors the participants may have mentioned.

1. Time available
2. Budget
3. How dispersed is the population (urban vs. rural)?
4. Is population data available?
5. Purpose of the survey (need to monitor performance by supervision area?)
6. Rigor desired (donor requirements, research, etc?)
7. Type of respondents needed (parallel sampling?)

2. **Compare LQAS and cluster sampling** – 15 minutes

Ask if participants know, at this point, which sampling method they are going to use for their survey. Ask a representative to explain the method chosen and give the rationale for selecting that particular method. **If a decision has been made, proceed to Step 3.** *If a decision has not been made, continue by saying:*

Now that we have discussed cluster sampling and LQAS, let us compare them and summarize some of the similarities and differences.

Refer to **TR 1-43: Cluster Sampling versus LQAS: Issues to Consider.** *Say:*

Read through **TR 1-43,** marking those points you think are the most important.

1-43

Review each category and ask participants to comment on cluster sampling and LQAS, relative to the particular category. Allow participants to contribute their thoughts and then summarize. If any valid points are made that are not included in **TR 1-43,** *be sure to acknowledge their merit.*

3. **Write a sampling protocol** – 20 minutes

Ask participants to write a sampling protocol that includes:

- the sampling methodology to be used and why
- the sample size
- the sampling frame

Review the protocol to see if, given the nature of the project, an appropriate sampling method and sample size was chosen and if the sampling frame was selected properly. Add to their work as needed. Ensure that decisions are recorded on **TR 1-4: Critical Decision Points** *record sheet.*

1-4

⚱ Critical Decision Point

14. Community/Household/Informant Selection

Purpose:
To select communities/clusters where the KPC survey will be carried out and to give the Core Team a general idea of the steps used in for household and informant selection. (Note: The selection process is covered somewhat superficially here, to give an overview, and in more depth during the training for Supervisors and Interviewers.)

Objectives:
By the end of this learning session, participants will have:
1. Worked collaboratively to produce a sampling framework that identifies randomly chosen locations for either 30 clusters or 19 interviews in each Supervision Area.
2. Prepared a decision algorithm to use in training field staff.
3. Evaluated case examples about selecting households and practiced selecting households.

Preparation/Materials:
Step 1:
   ▪ **TR 1-44: Steps for Sampling Clusters with PPS**
   ▪ **TR 1-45: Sampling Frame for Survey Using Cluster Sampling**
   ▪ **TR 1-46: Random Number Table**
Step 2:
   ▪ **TR 1-47: Project Sampling Frame**
   ▪ Prepare and photocopy a table showing project communities/neighborhoods with population and cumulative population as shown in **TR 1-47.** If using LQAS, divide the communities into Supervision Areas and prepare a separate table for each.
   ▪ Obtain a map of the project area suitable for marking selected communities (brought to the workshop by Core Teams/participants, see "How to Use This Curriculum—Prior to Training")
Step 3 and 4:
   ▪ **TR 1-48: Village with Population Over 30 Households**
   ▪ **TR 1-49: Village with Population Under 30 Households**
   ▪ It is suggested that TR 1-48 and 1-49 be used as overheads or slides if possible
Step 5:
   ▪ **TR 1-50: Principles of Parallel Sampling**
   ▪ **TR 1-51: Example of Parallel Sampling**
Step 6:
   ▪ **TR 1-52: Selecting the First Household in a Sample Area**
   ▪ **TR 1-53: Choosing Respondents Based on the Type of Dwelling**
   ▪ **TR 1-54: Conducting the Remaining Interviews in the Sample Area**
   ▪ Make one additional copy of **TR 1-52**, **TR 1-53**, and **TR 1-54** for each participant to cut into pieces during this step
   ▪ Scissors to cut up algorithms

   ▪ Extra Reading: KPC 2000+ Field Guide, pp. 46–59 and 75–77

Time:
150 minutes (2-½ hours)

Steps:
1. Select cluster or interview locations for 30 clusters or 19 samples – 20 minutes
2. Select actual locations for the KPC survey – 30 minutes
3. Understand the selection of households using three methods – 20 minutes
4. Define which respondents to select – 10 minutes
5. Discuss and practice an example of parallel sampling – 20 minutes
6. Develop an algorithm to use to train supervisors and interviewers – 50 minutes

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Steps

1. Select cluster or interview locations for 30 clusters or 19 samples – 20 minutes

To ensure that our sample is truly random, during this learning session we will go through three basic steps and describe how to assure randomness at each step:

1) Select the community/urban sector for either 30 clusters or 19 samples
2) Select households
3) Select respondents

The sampling frame for the KPC survey is the designated project area. Recent and accurate population figures for the sampling frame are needed (or use number of households as a substitute). Every area and household must be included within one of the units listed in the sampling frame. Population figures should ideally be very recent and accurate.

Listing units by geographic area or ethnic group (depending on project interests/priorities) helps ensure that the entire project region or all ethnic groups will probably be covered. (This is an informal way of stratifying.)

The selection of sites is conducted in a <u>probability sampling</u> manner, known as Probability Proportional to Size (PPS). This means that larger communities have a greater chance of being selected than smaller communities.

Refer participants to **TR 1-44: Steps for Sampling Clusters with PPS** *and* **TR 1-45: Sampling Frame for Survey Using Cluster Sampling.** *Review with the participants. Read aloud the first four points on* **TR 1-44.** *Ask:*

| 1-44 | 1-45 |

➢ **How many households are we going to choose?**
[Cluster – 300 per SA; LQAS – 19 per SA.]

First, we are going to use an example of a cluster survey. Then, to select the clusters or interview locations, we are going to use actual population figures for the project.

Read Steps 5 and 6 on **TR 1-44.** *Say:*

Remember that this sampling frame includes the entire project area and the data can be for separate communities or, in the case of an urban area, for various neighborhoods.

Refer participants to **TR 1-46: Random Number Table.** *Say:*

Choosing random numbers is a common task when conducting a survey using a random process. You can use any randomizing process you wish, but using a random number table is recommended. The random number we select must be between 1 and the sampling interval: 10,039.

1-46

➤ **How many digits does our sampling interval have?** *[Five]*

Notice that each row of random numbers has five digits. You always need to use the same number of digits as your sampling interval.

➤ **What can you do if your sampling interval has only four digits?** *[You can use just the first four digits and draw a line through the fifth column.]*

Ask participants to close their eyes and hold a pencil in the air over the random number table. Then ask them to bring the pencil down on the table while keeping their eyes closed. The pencil should strike on or near a row of random numbers near one of the columns of numbers. Ask participants whether the number is in the range of 1 and 10,039. If it is not, ask them to raise and drop their pencils again and again with eyes closed until they find a number in this range. When they find it, that number is a random number that can be used in this example.

Read Step 7 on **TR 1-44**. *Let us assume the random number selected is 9679.*

➤ **How do you determine where the first cluster should fall?** *[The first community with a cumulative population larger than the number selected from the random number table = 9679 = Village #1.]*

➤ **Where should the second cluster fall?** *[random number of 9679 + sampling interval of 10039 = 19718 = Village #3.]*

➤ **Where should the third cluster fall?** *[previous sum of 19718 + sampling interval of 10039 = 29757 = Village #6.]*

Read Steps 8 through 10 on **TR 1-44** *and point out the community of Hilandia #14.*

➤ **Why does this community have so many clusters?** *[Because of PPS—this makes sense for conducting a survey because we want to go to those places where most of the people we serve are living.]*

Note: If the project is going to use LQAS, the steps are the same, except for the differences noted below. Optional Overheads for LQAS can be found in the LQAS Manual, Participant's Workbook, Module 2, Learning Session 1:

> **How does this process differ if you use LQAS?**
>   - First divide the project area into five to eight Supervision Areas
>   - Set up a table with the cumulative population for each Supervision Area
>   - The sampling interval should be the total population divided by 19
>   - Select 19 interviews, not 30 clusters

2. Select actual locations for the KPC survey – 30 minutes

*Distribute the prepared table(s) **TR 1-47: Project Sampling Frame** with the actual project communities and population. Instruct the Core Team to again follow the steps on **TR 1-44** and select the 30 clusters or 19 interview sites. If using LQAS, divide the participants into pairs and have them work on separate Supervision Areas. As they work through the calculations, observe their progress and ask pertinent questions to guide them, if needed.*

1-47

Once they have chosen the locations, they should then mark each location on the map they brought of the project area and develop a travel plan for visiting each location. This map should be finalized when the calendar for the KPC survey is developed in Learning Session 25. Participants should review their calculations and their travel plans with the Trainer.

3. Understand how to selecti households using three methods – 20 minutes

Now that you have identified the locations of the clusters/interviews, we need to proceed to the next step in the process of selecting the actual household(s) the Interviewers will visit at each location. Another random process is used to select a household within each location. The difference is that, in LQAS, that household is the only one selected at that site, but in cluster sampling, it is the first of (usually) 10 households at that site.

Selecting the First Household

There are some very important principles to keep in mind when selecting this first household:

a. The sampling process has some inherent bias but requires that the selection of the first household be RANDOM for the method to be valid. Otherwise, it becomes nothing more than convenience sampling.

b. Supervisors should always be in charge of this process, as it is time-consuming and requires a full understanding of sampling and a commitment to integrity. Without these factors, there is often a temptation to take short-cuts with this process. If left to Interviewers with less training and understanding, the protocol may not be followed as closely as is necessary.

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c. After selecting the sites, it is important to visit and/or map them out before the day of the survey. The selection of the starting household can sometimes be conducted in advance through this process. This must be balanced, however, with the need to not publicize the survey widely in advance thus increasing the likelihood that health workers might conduct extra training to prepare the mothers in those communities for the survey. Local protocol should determine whether specific village chiefs/ elders need to be notified in advance. Community leaders can be very helpful in mapping the villages. Mapping can also be carried out upon arrival prior to conducting the interviews.

d. A household is defined as a group of persons who share the same kitchen or hearth, or a group of persons who eat from the same cooking pot.

There are three main methods often used to choose a starting household in LQAS and cluster sampling:

Method 1: Sub-divide the village
Method 2: Choose the starting household from a census list or map
Method 3: "Spin the bottle"

Method 1. Sub-divide the village

Show **TR 1-48: Village with Population Over 30 Households.** *Say:*

Let us assume that there are 700 households in this village. The first step is to subdivide the community into two or more equal sections of roughly 30 households each. Number each section. Then select one of these sections at random.

1-48

➤ **How can you randomly select a sector?** *[Write numbers of the sections on slips of paper and draw one out of a hat, choose a number from a currency note (demonstrate this technique if participants are not familiar with it)]*

Ask a participant to show on the visual how to sub-divide.

If the selected area is still too large, sub-divide it again into two or more equal sections, number each section, and select one section at random. Continue until you have one small section with less than 30 households. You can then either use Method 2 to draw a map of only the selected section with the help of an informant and number the households on this map; or Method 3 to select one of the households at random.

➤ **What are your questions about the sub-dividing method?**

Method 2. Choose the starting household from a census list or map

➢ **How can you obtain a list of households or a map?**

If there is any way of choosing households randomly from that village by using a recent list of all households, or a map showing households that can be numbered, choose the starting household (or even all 10 households per cluster) that way. If a map or list is available, review it with an informant to make sure it is accurate. Then assign numbers to each household and randomly choose a household (using a random number table or pulling numbers randomly from a hat).

*Refer to **TR 1-49: Village with Population Under 30 Households***

➢ **How can you randomly select a household?**

Ask a participant to show on the visual how to randomly choose households.

Consider that if the project will eventually conduct a census of every household with children in the target range, you can conduct that census now in the selected sites, and use that census list to randomly choose the households. (This would, of course, delay the survey.) If the village is small (<30 households), you can work with a community member to draw a map or make a list.

Method 3. "Spin the bottle"

This is the most common method used to choose a starting household in traditional cluster sampling. Imagine a village chosen as cluster site #1, which has fewer than 1,000 people, or about 200 households.

*Use **TR 1-49**. Demonstrate the following steps on the visual as you explain them:*

Spin the Bottle Method

1. Clearly identify the village boundaries.

2. Go to the population center (not necessarily the geographic center) of the village, as best as you can locate it—with the help of the village leader, if possible. This allows a more equal chance for any household to be chosen.

3. Using a flat surface, spin a pen or a bottle. The direction it points is the direction you will use to choose the first household.

4. Walk along the chosen line and count all of the households along that line (e.g., three meters on either side of the line) until you reach the boundary of the village.

5. Choose a random number from 1 through the 'x' number of households you counted, using folded slips of paper, a currency note, etc. Return to the household represented by that number. That is your starting household.

If the selected village or community is larger than about 200 households, you should first sub-divide it before choosing the starting household. For this, follow the same process we discussed in the sub-dividing method.

➢ **What questions do you have about the "spin the bottle" method?**

4. **Define which respondents to select** – 10 minutes

Now that we have selected the first household, pretend that no one is available to interview at the selected household.

➢ **What do you do now?**

Listen to the participants' ideas and then explain that when this happens they should continue to the next nearest household.

If an acceptable respondent is not there, the method for choosing the next household is the same technique that is used in cluster sampling to select a total of ten houses.

After the first household, the next household is the household in any direction whose <u>front door</u> is closest to the front door of the first household. If two households seem equi-distant, flip a coin to choose between them. If in doubt, always be <u>random</u>. If you reach the boundary of the village, turn to the right or left (randomly) and continue <u>within</u> the boundary. If all of the households in the selected village/cluster site are visited and the team has not fulfilled its quota, it may continue on to the next closest village site but should assure that these households have not been interviewed by other teams. If they have, continue to the next closest community site after that.

*Discuss several examples on the **TR 1-49** map in which no one who can be sampled lives in a house that has been selected. Show how it is possible to go to other locations in the community by following the rule of going "to the household with the door nearest to the front entrance of the household where you are standing."*

Some projects may choose to minimize the design effect by skipping houses and choosing every third or even every fifth household for an interview. This, of course, takes more time but may be especially appropriate in an urban area where households are close together. For more information, see page 54 of the Field Guide.

5. **Discuss and practice an example of parallel sampling** – 20 minutes

(Note: If the group decided in Learning Session 6 to include only one target group, this step can be omitted. Tailor this learning session on the decisions already made. Give the group the option of changing its decisions, if necessary.)

Let us take just a minute to look at another important type of sampling: Parallel Sampling. Child Survival Projects have historically targeted mothers of children under 2 years of age as their primary respondents. However, as we mentioned earlier, some projects are beginning to expand their survey target groups as they work to reach a broader population in their program activities and interventions.

If during Learning Session 6 the participants decided to target people other than mothers of young children, use their target groups as an example of parallel sampling; otherwise, use the following example:

Suppose a project targets community adolescents with HIV/AIDS prevention messages as their intervention. Suppose, also, that they use as an indicator an increase in knowledge of at least two ways to prevent HIV/AIDS in the 12- to 17-year-old age group.

> ➢ **How can they collect that information while collecting data on mother/young child indicators?**

One way is to conduct parallel sampling. A select group of HIV/AIDS questions is developed into a small, separate questionnaire. These questions are then administered to teens 12 to 17 years old at the households normally visited (or the interviewers can continue to other households) until they find enough teens (e.g., 10 per cluster) in addition to the specified number of mothers of children less than 2 years old (e.g., also 10 per cluster).

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*Refer to **TR 1-50: Principles of Parallel Sampling** and review the points. Expand on the last point by emphasizing the following:*

1-50

A Very Important Note About Sampling

There are usually questions that are asked of all mothers, regardless of the child's age (e.g., treatment and care-seeking practices for sick children; hand-washing behavior; child spacing). If this is the case, you do not want to over-represent the practices and behaviors of a particular household in your study by interviewing more than one mother in the same household. Interviewing two mothers who live in the same household can give a biased assessment because they may share many of the same behaviors.

---

*Refer participants to **TR 1-51: Example of Parallel Sampling.** Instruct each person to take this example and complete the following steps:*

1-51

1. Choose the center of the community.
2. Use the "Spin the Bottle" method for selecting the first household (or spin the pen).
3. Have participants choose a cluster of 10 households with children under 2 for the complete child survival questionnaire. In each household that has a mother of a child under 2 years and also has a youth (12-17), administer two questionnaires (child health and youth HIV/AIDS).
4. After interviewing 10 households of mothers of children less that 2, count the number of household where the youth questionnaire was also applied. Record the number.
5. If the number is less than 10, then continue, in the same cluster, selecting households with youth until a total of 10 youth interviews have been completed.
6. Remember that you can only interview one youth in each household.
7. Remember that you can only interview one mother of a child less than 2 in each household.

When the participants have completed the exercise, ask 2 or 3 to share their results. Emphasize the points that only one mother per household should be interviewed and each questionnaire must be analyzed separately.

For additional information on parallel sampling, refer participants to pages 56–59 of the Field Guide.

6. **Develop an algorithm to use to train supervisors and interviewers** – 50 minutes

*Distribute to participants the additional photocopies of **TR 1-52: Selecting the First Household in a Sample Area**, **TR 1-53: Choosing Respondents Based on the Type of Dwelling**, and **TR 1-54: Conducting the Remaining Interviews in the Sample Area.** Say:*

1-52

1-53

1-54

The Core Team is now going to tailor these decision charts into one algorithm for choosing households and respondents during the actual KPC survey. This algorithm will be used to train Supervisors and Interviewers. You should follow these seven steps:

1. Review the charts in **TR 1-52, TR 1-53,** and **TR 1-54** and cross out any aspects that do not apply to your project (urban, multi-story buildings, etc.).

2. Discuss the method (or mixture of methods) that is most appropriate in your project to select households: map or census list, sub-dividing, or "spin the bottle."

3. Define exactly which respondents are going to be used *(this should have been defined previously, but solidify the decision).*

4. Cut sections out of the photocopies that correspond to the various decisions that need to be made.

5. Working on a large table, or on the floor on a piece of flip chart paper, place the various decision points in a logical order.

6. Add any additional decision points and arrows that are missing.

7. Assign someone to type up the results for the training of Supervisors and Interviewers.

Summarize the learning session by mentioning that this concludes the work on sampling. The conclusions made during these last few learning sessions will form the basis for much of the work ahead. If there are any concerns about the decisions, they should be discussed during the next few days. During the next two learning sessions, the topic of anthropometrics will be discussed.

15. Purpose of Anthropometry within the KPC Survey

Purpose:
To appreciate the reasons why using anthropometric data as part of a KPC survey can be helpful and to understand the correlation between nutritional status and child survival.

Objectives:
By the end of this learning session, participants will have:
1. Discussed why anthropometry should be part of the KPC survey process.
2. Identified which of the factors identified are measured as part of the generic KPC 2000+ *Rapid CATCH* and the 15 survey modules.
3. Discussed why having nutritional status data is useful.

Preparation/Materials:
Step 1:
  ▪ **TR 1-55: Interrelationship Between Health Interventions and Malnutrition**
Step 2:
  ▪ Flip chart with title: Reasons Anthropometry Is Useful

Time:
30 minutes

Steps:
1. Review handout and identify pertinent factors – 10 minutes
2. Discuss why anthropometry is useful – 20 minutes

Steps

1. Review handout and identify pertinent factors – 10 minutes

*Refer participants to **TR 1-55: Interrelationship Between Health Interventions and Malnutrition.** Say:*

> The purpose of this learning session is to better understand the correlation between nutritional status and child survival interventions. Look at **TR 1-55** to help you recall the many ways that child survival activities relate to malnutrition.

```
1-55
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> ➢ **What activities will your project implement that may have an effect on malnutrition rates?**

> ➢ **What indicators in the 15 survey modules or the Rapid CATCH Questionnaire correspond to activities related to malnutrition?** *[Percent Underweight: Percent of children aged 0 to 23 months who are less than 2 standard deviations below the median weight-for-age of the reference population. Maternal Undernutrition: Percent of mothers with a mid-upper arm circumference (MUAC) of <22.5 cm.]*

2. Discuss why anthropometry is useful – 20 minutes

Use the following questions to stimulate discussion:

■

  ➢ **What experience do you have in weighing or measuring children or women as part of a survey?**

  ➢ **How can you use anthropometric data to make project decisions?**

Post the flip chart and note the important points made by the participants.

■

Reasons Anthropometry Is Useful

Add the following points if not mentioned:

- Anthropometry gives you an accurate measure of nutritional status. It enables you to speculate who is healthy and, therefore, how many children are healthy. Malnutrition is a "summary" measure of child health. Children who are growing normally are usually healthy children.

- You can examine the pattern of child growth at different ages to gather information about how nutritional status may change during different stages of childhood. Anthropometry is a "snapshot" of a situation because you are not following a cohort of children and seeing how they grow. For example, if food availability has dramatically changed in an area from one year to another, differences by age group may reflect the local food availability rather than how children typically grow in the area.

- Anthropometry provides information that enables practices and coverage levels of children who are well nourished to be compared with those of children who are malnourished. It is possible to identify statistically significant or suggestive "positive deviant" (e.g. a child of a poor mother who, despite the poverty, is healthy) behaviors that can be given priority for promotion during the project. Factors such as wealth may "confound" or confuse the data analysis. It is wise to control for this and other "confusing" factors during analysis or to explore using additional research methods.

- Having nutritional status and additional information about household behaviors, illnesses, etc., can be useful to generate hypotheses about which practices are most associated with nutritional status. However, caution is needed. It is sometimes difficult to know if the practice is causing the malnutrition, or if the malnutrition is causing the practice. For example: Is diarrhea from poor food preparation leading to malnutrition? Or is malnutrition (for example a lack of Vitamin A) contributing to diarrhea?

Say:

We are going to look at anthropometry in greater detail during the next two learning sessions.

16. Requirements for Conducting Anthropometric Assessments

Purpose:
To understand what data need to be collected and what materials are needed for anthropometry during a KPC survey.

Objectives:
By the end of the learning session, participants will have:
1. Listed nutritional indices.
2. Matched indices with descriptions.
3. Reviewed data to be collected and materials and personnel needed for each index.
4. Discussed ways in which using anthropometry as part of a KPC survey can be challenging.

Preparation/Materials:
Step 1:
- Create four (4) Nutrition Indices Title Cards and one (1) set of Nutrition Indices Description Cards—write each index/description on a separate card (indices and descriptions are provided at the end of this learning session)

Step 2:
- **TR 1-56: Data Needs, Materials and Personnel for Index Measurements**

Step 3:
- **TR 1-57: Anthropometry Training Tips**

Time:
40 minutes

Steps:
1. Identify and describe indices – 5 minutes
2. Determine data needs, material and personnel for each index – 10 minutes
3. Share past experiences with using anthropometry – 15 minutes
4. Make decisions about anthropometry – 10 minutes

Steps

1. Identify and describe indices – 5 minutes

Explain:

The purpose of this learning session is to understand what data need to be collected and what materials are needed for anthropometry during a KPC survey.

➢ **What are four nutritional indices that can be used during a survey?**

Add the following to their list, if needed:

- Weight-for-Age
- Height-for-Age
- Weight-for-Height

- MUAC (Mid-Upper Arm Circumference) used for women and children

Post the Nutrition Indices Title Cards. Ask participants to form two groups. Give each group half of the Nutrition Indices Description Cards. Ask the groups to match the description with the index by posting the description cards below the title cards.

After the groups place their cards, engage the participants in a discussion to make adjustments as needed. The final outcome should be:

Weight-for-Age	**Height-for-Age**	**Weight-for-Height**
■ Is the most commonly used measurement during anthropometry studies ■ Identifies global malnutrition ■ Identifies a combination of children who are stunted and wasted	■ Is used to identify chronic malnutrition ■ Identifies problems from receiving too little food over a long period of time ■ Is not measured very often as part of KPC Surveys	■ Is a measure that identifies acute malnutrition—children who have been growing well, but have a problem that causes weight to falter in relationship to height ■ Is not measured very often as part of KPC Surveys ■ Does not require that the child's age be known in order to do the calculation

MUAC
■ Is used on women and on children 1 to 5 years of age ■ Is another measure of wasting ■ Is a good indicator of mortality risk ■ Provides categorical data

2. **Determine data needs, material and personnel for each index** – 10 minutes

*Refer to **TR 1-56: Data Needs, Materials and Personnel for Index Measurements.** Ask participants to read **TR 1-56** silently, underlining those points with which they have previous experience.*

1-56

3. Share past experiences using anthropometry – 15 minutes

Ask:

➢ **What volunteer has had experience with (Weight-for-Age) would like to share your experience in using this index?**   *(Repeat this question for each index)*

➢ **How would using anthropometry during a KPC survey be challenging for your organization?**

Write their responses on flip chart paper.

Challenging Aspects of Anthropometry

Add any of the following challenges not mentioned:

- Finding people to assist with weighing during the KPC survey
- Having the time to take the height, weight and/or circumference measurements
- Difficult in obtaining good quality height measurements
- The requirement of additional training for those taking the measurements
- Assembling accurate results (rounding of weights is common)
- Getting the materials required for anthropometry (weighing scales, height boards, insertion tapes for MUAC, etc.)
- Carrying measurement equipment due to the weight
- Getting mothers to cooperate in undressing the child (especially in colder climates)
- The requirement of additional training for those who analyze the nutritional data

4. Make decisions about anthropometry – 10 minutes

*Refer participants to **TR 1-57: Anthropometry Training Tips.** Ask one volunteer to read Decision 1 and another to read Decision 2.*

1-57

➢ **Which alternative in Decision 1 do you think would be best for your project? In Decision 2?**

Let the participants exchange ideas for a few minutes. Summarize the discussion and reiterate the recommended training time and clarify any questions.

The recommended training time estimates are:

weighing only:	1 day
weight, height, MUAC:	2 to 3 days

Instruct the participants to make decisions concerning the following points:

- if anthropometry will be included in the KPC survey
- what indices to utilize
- what supplies or equipment are needed
- who should be trained and for how long

*Remind participants to record the decisions on **TR 1-4: Critical Decision Points.***

| 1-4 |

⚰ Critical Decision Point

*If information is pending or if decision-making is dependent upon someone outside the Core Team, add follow-up actions to the **TR 1-5: ACTION PLAN.***

| 1-5 |

Nutrition Indices

WEIGHT-FOR-AGE

HEIGHT-FOR-AGE

WEIGHT-FOR HEIGHT

MUAC

NUTRITION INDICES DESCRIPTION CARDS

Is the most commonly used measurement during anthropometry studies

Identifies global malnutrition

(cut along the dotted lines)

(Blank page intentional)

Identifies a combination of children who are stunted and wasted

---

Is used to identify chronic malnutrition

Identifies problems from receiving too little food over a long period of time

Is not measured very often as part of KPC Surveys

(Blank page intentional)

Is a measure that identifies acute malnutrition—children who have been growing well, but have a problem that causes weight to falter in relationship to height

Is not measured very often as part of KPC surveys

(Blank page intentional)

Does not require that the child's age be known in order to do the calculation

Is used on women and on children 1 to 5 years of age

(Blank page intentional)

Is another measure of wasting

Is a good indicator of mortality risk

(Blank page intentional)

Provides categorical data

(Blank page intentional)

17. Anthropometric Data

(Note: If the Core Team has decided NOT to include anthropometry in the KPC survey then this learning session should be skipped)

Purpose:
To introduce participants to common ways to summarize anthropometric data

Objectives:
By the end of this learning session, participants will have:
1. Examined the concept of a "z-score" as applied to anthropometric data
2. Reviewed common ways of presenting anthropometric results

Preparation/Materials:
Step 1:
- **TR 1-58: What Is a "Z-score"?**

Step 2:
- **TR 1-59: Graphing Z-scores Compared to the Standard Population**
- **TR 1-60: Malnutrition and Z-scores**
- **TR 1-61: Displaying Malnutrition by Sex**

Time:
50 minutes

Steps:
1. Anthropometric data—defining malnutrition – 25 minutes
2. Displaying anthropometric data – 25 minutes

Steps

1. Anthropometric data—defining malnutrition – 25 minutes

Tell participants:

> During the next two learning sessions we will discuss issues around presenting data from the KPC survey. However, since we are on the topic of anthropometry, we will deal with how to present this kind of data in this learning session.

> The most important thing to realize about anthropometric data is that we want to use it to describe malnutrition in the population with which we propose to work. Unlike the use of this information in growth monitoring programs (that you may have seen), we are NOT collecting data to counsel mothers about the nutritional status of their children. Rather, we are trying to say something about the overall state of malnutrition in the population.

> In either case, we can only talk about malnutrition in relation to some standard or to a healthy population of children. We saw in the previous learning session the different indices we use in anthropometry. Let us take the case of weight for age: In order to say that our population

appears to have a high level of malnutrition (for example) we must have some "standard" in mind to which we can compare the population in order to conclude that it is malnourished.

WHO has developed standard populations of healthy, well-fed children to which any population can be compared by age. NOTE: children under age 5 in all populations have similar growth characteristics despite genetic differences that might make one population overall "smaller" than another in adulthood. Using the standard population, we can compare our population to determine its overall level of malnutrition.

Stop here and ask:

> **What questions do you have about the standard population?**

After you have clarified the idea of a standard population continue by saying:

The preferred way of comparing our population to the standard is by using something called "z-scores. Please read **TR 1-58: What Is a Z-score?** Underline any concepts that are new or unclear. We will discuss it when you are finished.

1-58

*After participants have read **TR 1-58,** ask what questions or comments they have. Clarify any points that are unclear before moving on to show how such data can be displayed.*

2. **Displaying anthropometric data** – 25 minutes

Tell participants:

The concept of z-scores can help us not only interpret but present data on our population that will enable us to draw conclusions about the nutritional status of the children in it. The simplest way to think about presenting the information is simply to graph the z-scores for our population compared to the reference population.

*Ask participants to turn to **TR 1-59: Graphing Z-scores Compared to the Standard Population** and tell them:*

1-59

This graph is data from a child health program and allows a rapid visual comparison of a population with the reference population.

> **What do you notice about the population compared to the reference population?**
> *[Overall, the curve is shifted to the left indicating a population with overall lower nutritional status than the reference population.]*

If participants cannot see this point, remind them about how, in any population, some children will have a higher or lower weight-for-age index but that the study population has, overall, a lower index.

Continue the discussion by saying the following:

Rather than look at the whole population, overall, we may want to have a simpler measure that gives us an idea of the proportion of children who are classified as malnourished. While it is difficult in a strict biologically meaningful way to say what z-score indicates malnutrition, studies have shown an increased risk of death for children with z-scores of < -1. Obviously, this does not mean that a given child with a z-score of < -1 is at higher risk (about 16% of all children in a healthy population will have such scores), but if many children have scores below -1 it may indicate a problem. In general, scores below -1 are referred to as having mild malnutrition, those below -2 are referred to as having moderate malnutrition and those below -3 are referred to as having severe malnutrition.

With this in mind, one way to present data is to show a table like the one in
*TR 1-60: Malnutrition and z-scores***.**

1-60

➢ **What questions do you have about this table?**

Finally, one other way that uses z-scores to present information on malnutrition would be to compare subgroups like male and female according to z-score.
*TR 1-61: Displaying Malnutrition by Sex***,** does just that.

1-61

➢ **What questions do you have about any of these ways of displaying the data?**

Keep these approaches in mind as we talk about creating "dummy tables" to show how we plan to display data in the next two learning sessions.

18. Results Tables Design: Frequencies

Purpose:
To help participants develop a set of "dummy tables"—tables that show how they will present (for analysis) data—with simple frequencies that will go in the data analysis plan.

Objectives:
By the end of this learning session, participants will have:
▪ Developed a set of frequency "dummy tables" for all the indicators upon which they plan to report in the KPC survey.

Preparation/Materials:
Step 1:
   ▪ **TR 1-62: Frequency Tables**
Step 2:
   ▪ Use the table that the group developed in **TR 1-22** to create a small number of indicators for each person to work on to design dummy tables

Time:
30 minutes

Steps:
1. What is a frequency table? – 5 minutes
2. Developing frequency tables – 25 minutes

Steps

1. **What is a frequency table?** – 5 minutes

   Tell the participants:

   Even before going out to collect data and, therefore, before analysis, you should be clear on how results will be presented to enable analysis. Before any observations can be used, they must be summarized or described. There are many ways to summarize or describe data—from simple tables or using graphs of various kinds to more complex statistical analyses of correlation. In this learning session we are gong to examine the "simplest" way to present data in a simple frequency table and then you will examine your indicators and decide how you will display results for each one.

   TR 1-62: Frequency Tables shows an example of two frequency tables that are linked to a single indicator. Examine it and then turn to a partner and discuss quickly the questions in *TR 1-62.* We will listen to a few examples of what you discussed.

   | **1-62** |

   After a few minutes, ask participants to share what they discussed. Clarify any areas of confusion.

2. **Developing frequency tables** – 25 minutes

*Give each participant 2 or 3 indicators from **TR 1-22** and ask them to create the "final" table to display the data for that indicator. Refer them to the example in **TR 1-62** as an example, but point out that there may be several ways to present the data. Circulate around the room to answer questions. Tell the participants that they can think about tables that will provide more general results directly from the questions and those that provide information directly on the indicator, as in **TR 1-62**.*

| 1-22 |
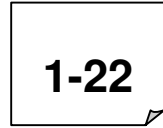
Ask each participant to summarize his/her tables on a flip chart. When everyone is finished, quickly go around and examine them.

19. Results Tables Design: Cross-Tabulations
(Trainers should determine whether this section is absolutely necessary and may consider omitting it)

Purpose:
To help participants develop a set of "dummy tables"—tables that show how they will present (for analysis) data—with cross-tabulations that will go in the data analysis plan.

Objectives:
By the end of this learning session, participants will have:
1. Named important subgroups (sex, age of mother, ethnicity) that they want to analyze for specific indicators.
2. Developed a limited set of cross-tabulation tables based on subgroups they identify as important.

Preparation/Materials:
Step 1:
- ▪ **TR 1-63: 2x2 Table and Odds Ratios**
- ▪ **TR 1-64: Tetanus Toxoid Immunization and Mother's Age**
- ▪ **TR 1-65: Malnutrition and Feeding Practices**

Step 2:
- ▪ Flip chart with the title: Subgroups for KPC Survey Data Analysis
- ▪ For steps 2 and 3, you will need the project indicators from **TR 1-22**

Time:
60 minutes

Steps:
1. Introduction to cross-tabulations – 10 minutes
2. Identification of key subgroups to consider – 20 minutes
3. Developing cross-tab tables – 30 minutes

Steps

1. Introduction to cross-tabulations – 10 minutes

Tell the participants:

> In the previous learning session we saw how to present data using simple frequency tables. In this learning session we are going to go one step further and consider how to present and assess indicators by looking at subgroups of interest for our analysis. In a few minutes you will identify subgroups that are important for your analysis. First, let us look at how such data might be presented in cross-tabulations—especially a common cross-tabulation called a 2x2 table.

> The purpose of cross-tabulating data is to compare results for different subgroups. This enables us to explore if there is an association between being in a particular subgroup (children of younger mothers versus children of older mothers, different behaviors of mothers related to hand washing and nutritional status of children, etc.).

Epidemiologists often use such tables to explore the association between EXPOSURE to certain risk factors and DIESEASES or other outcomes. We can borrow from this idea to analyze our own data. ***TR 1-63: 2x2 Table and Odds Ratios*** shows how such tables are often set up and how we might use the same idea. Please read ***TR 1-63*** carefully and note any questions or comments you have.

1-63

*Before moving on, be sure that everyone understands the **TR 1-63** and what an odds ratio can tell you. Be sure to specifically examine the caveats together.*

*Ask participants to quickly examine **TR 1-64: Tetanus Toxoid Immunization and Mother's Age** and **TR 1-65: Malnutrition and Feeding Practices.** Ask them to quickly analyze each and share what they might conclude (keep in mind the caveats). [In both cases the confidence interval does NOT include 1, so one might conclude that the association is significant in a statistical sense. In the first case, there is a suggestion that being younger is associated with getting at least 2 TT shots. In the second case, there is a suggestion that children who are encouraged to eat while sick may be less likely to become malnourished. In neither case should we talk about causality but the directions of the association may be what we expect and suggest some important programmatic priorities.]*

1-64

1-65

2. **Identification of key subgroups to consider** – 20 minutes

Post the flip chart. Say:

Now that we have looked at cross-tabulations and how they might be useful, spend a few minutes looking at your indicators and identify important subgroups within them. You can think about important subgroups of respondents (like older or younger mothers) or subgroups within the data (like nourished versus malnourished children). Think about what subgroups you would propose looking at and then we will note your ideas on a large chart.

> **Subgroups for KPC Survey Data Analysis**

Thank the participants for their ideas.

3. **Developing cross-tab tables** – 30 minutes

Conclude the learning session by telling the participants:

In the previous learning session you created final frequency tables (without data) that you will use during the analysis phase. Let us do the same thing now, except we will prepare cross-tabulation tables.

Conduct this activity in a large group and encourage participants to limit the tables they produce and not try to create too many.

20. Hand Tabulation

Purpose:
To understand the importance and the process of hand tabulation in fostering project and partner staff participation and ownership of the data that results from analysis and interpretation of results.

Objectives:
By the end of this learning session, participants will have:
1. Discussed the importance and purpose of hand tabulation.
2. Suggested how they might structure their own hand tabulation session.
3. Reviewed a synopsis of the hand tabulation process.
4. Practiced hand tabulation examples.
5. Explored associations (differentials) using hand tabulation.

Preparation/Materials:
Step 1:
- **TR 1-66: Why Tabulate Data <u>BY HAND</u>?**
- **TR 1-67: What to Look for When Tabulating/Analyzing KPC Data**
- **TR 1-68: Who Should Be Involved?**

Step 2:
- 3 folders labeled "Cluster 1," "Cluster 2," "S.A. 1"
- **TR 1-69: % Mothers w/2 TT Doses Before Birth of Youngest Child**
- **TR 1-70: % Mothers w/2 TT Doses Before Birth of Youngest Child with (Data) Marks**
- **TR 1-71: % Mothers w/2 TT Doses Before Birth of Youngest Child with Answers**
- **TR 1-72: Sample KPC Survey Questionnaire** (20 copies completed by hand with varied responses—place the 20 completed questionnaires in 2 folders; Cluster 1 and Cluster 2, 10 in each folder)
- **TR 1-73: Who Assisted You with Delivery?**
- **TR 1-74: What Are the Signs of Illness that Would Indicate Your Child Needs Treatment?**

Step 3:
- **TR 1-75: Younger Mothers Question: Who Assisted You with Delivery?**
- **TR 1-76: Older Mothers Question: Who Assisted You with Delivery?**
- **TR 1-77: Association between Mother's Age and Skilled Personnel Attending Births**
- It is recommended that **TR 1-75, TR 1-76 & TR 1-77** be presented as overheads

Step 4:
- **TR 1-78: LQAS Hand Tabulation Table for a Supervision Area**
- **TR 1-79: LQAS Summary Tabulation Table**
- **TR 1-80: Planning a Hand Tabulation Workshop**

- Extra Reading: KPC 2000+ Field Guide, pp. 91–94

Time:
120 minutes

Steps:
1. Discuss the importance of hand tabulation – 5 minutes
2. Present an example of cluster sampling – 45 minutes
3. Discuss dividing subgroups for cross-tabs using hand tabulation – 15 minutes
4. Practice hand tabulation with LQAS – 45 minutes
5. Summarize decisions about how to use hand tabulation – 10 minutes

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Steps

1. Discuss the importance of hand tabulation – 5 minutes

Explain that the purpose of this learning session is to understand the importance of hand tabulation. Ask:

> **What is the purpose of tabulation in general?** *[Tabulation is bringing together the information collected during the interviews in a logical format so you can analyze it and use it to make program decisions. This information is called "data."]*

> **Why might you want to tabulate your survey data <u>by hand</u>, even if you have the capability to do it on the computer?**

*After their responses, refer to **TR 1- 66: Why Tabulate Data <u>BY HAND</u>?** to summarize. Say:*

1-66

Hand Tabulation

Hand tabulation does not need to be an "all or nothing" proposition. Many projects use computer analysis as their principal method, but still use hand tabulation as an effective way to involve communities and stakeholders in the analysis process. For example, they enter the data on computer but include 1 or 2 examples of indicators produced by hand as part of the analysis workshop.

---

*Refer to **TR 1-67: What to Look for When Tabulating/Analyzing KPC Data.** Encourage discussion and additions to the list.*

1-67

*Ask participants to brainstorm about whom they suggest inviting to participate in the hand tabulation workshop. Refer to **TR 1-68: Who Should be Involved?** to summarize. Acknowledge any additional suggestions made by the participants.*

1-68

If there are participants who have experience with hand tabulation, ask:

> **What is the most challenging aspect of hand tabulation for you/your organization?**

Additional information on hand tabulation is available in the LQAS Manual Module 5, Session 2.

2. **Present an example of cluster sampling** – 45 minutes

Say:

The purpose of the next exercise is to give a brief overview of the tabulation process. Let us start with an example using a 300-respondent cluster sample survey.

The three essential elements in the tabulation process are:

- The 300 questionnaires are divided by clusters and filed in a separate folder (30 folders of 10 questionnaires each).
- Teams of two people are formed; each team works on one question at a time.
- Tables for tabulation are prepared ahead of time. The tables differ slightly for each question, depending on whether the answers are Yes/No, multiple, only include a certain population or subgroup, etc. Manual tabulation tables are included in each KPC 2000+ Module.

*Show **TR 1-69: % Mothers w/2 TT Doses Before Birth of Youngest Child**. Say:*

TR 1-69 gives an example to demonstrate tabulating information. It shows tabulating responses for the Rapid CATCH indicator "Percent of mothers with at least 2 tetanus toxoid vaccines before the birth of their youngest child."

1-69

Review the various parts of the table to ensure that participants understand how to read it. Then explain and demonstrate how the hand tabulation process works.

Note the box with heavy lines drawn around Option 2 (Twice) and Option 3 (> Two Times).

➢ **Why do you think those options are marked?** [*They represent the correct responses.*]

Hand tabulation of a data set is usually performed by teams of two people. One takes the questionnaires from the first folder *(show the Cluster #1 folder)* and reads the answers for the same question on each questionnaire. The other person makes a mark in the box that corresponds to: Once, Twice, More than 2 Times, Don't Know, or Skipped. The team moves through all 300 questionnaires in all of the folders and completes the summary before they move on to the next question.

After completing all 300 questionnaires, the table might look like this: *Show TR 1-70: % Mothers w/2 TT Doses Before Birth of Youngest Child with (Data) Marks.*

1-70

By knowing the number of "Yes" responses, one can get the "No" responses by subtracting from the total number of responses—in this case, 300. However, it is always a good idea to manually count the "no" responses to confirm that the counts are accurate.

Ask participants to work in pairs to complete the columns for frequency, percent, cumulative frequency and cumulative percent in the example. When they are ready, have one team give their answers. Reach consensus on the correct responses.

*Ask the teams to complete the calculations of the indicator. Ensure that it is clear why the category "Yes" includes both the responses "Twice" and "> Two Times." Refer to **TR 1-71: % Mothers w/2 TT Doses Before Birth of Youngest Child with Answers.** Review any differences between the teams.*

1-71

*Divide participants into two groups and use a sample of twenty (20) TR **1-72: Sample KPC Survey Questionnaire** (two folders with ten questionnaires each). Ask one team to complete **TR 1-73: Who Assisted You with Delivery?** Ask the other team to complete **TR 1-74: What Are the Signs of Illness that Would Indicate Your Child Needs Treatment?** Give one team Folder 1 and the other Folder 2 to begin the exercise. Instruct the teams to exchange folders when they finish with the cluster. After they complete the table, ask each team to read the results of the calculation of the indicator (bottom section) of the table.*

1-72 **1-73**

1-74

Ask each team to share their observations on the process.

3. **Discuss dividing subgroups for cross-tabs with hand tabulation** – 15 minutes
   (Note: if the project is not including cross-tabulation analysis, this step can be omitted)

   Tell the participants:

   Now let us consider how to use "cross-tabs." Let us use our previous example of comparing younger and older mothers who are attended by skilled personnel during delivery.

   ➢ **How can we organize the questionnaires to look at this potential association?**
   [Confirm that the questionnaires must first be separated into appropriate age groups.]

   We previously decided to classify "younger" mothers as less than XX (*from Learning Session 19*) years and "older" mothers as equal to or more then XX years. Let us examine the question "Who Attended the Delivery?" This time, let us record the tabulations separately for the two different groups of mothers. We are going to use the same table format, but create two separate tables, each clearly marked for the appropriate group.

   *Show **TR 1-75: Younger Mothers Question: Who Assisted You with Delivery?** and **TR 1-76: Older Mothers Question: Who Assisted You with Delivery?** Ask the group to separate the same 20 sample KPC Survey Questionnaires into the two age groups. Then ask two volunteers to assist in a quick tabulation demonstration using the 20 questionnaires. They should first tabulate the younger mothers and then the older mothers, marking responses on the visual and being sure to fill in the second (summary) table at the bottom of each visual in addition to the top table.*

   1-75 **1-76**

Show **TR 1-77: Association Between Mother's Age and Skilled Personnel Attending Births.** *Have participants fill out the summary indicator tables with percentages and calculate the confidence interval. Ask them what they can conclude from the data.*

Explain that:

With complex indicators, the many possible associations are difficult to calculate using hand tabulation and are, therefore, better left to computer tabulation. However, mother's age is a variable that has potential meaningful associations with other variables, and it can be used to demonstrate cross-tabulation by hand.

4. **Practice hand tabulation with LQAS** – 45 minutes

(Note: If cluster sampling is to be used, this step can be omitted)

The process of hand tabulation is very similar in an LQAS Survey. Some important differences include:

- exploring the associations is conducted with a similar approach but uses the LQAS tables format
- confidence intervals are calculated without design effect
- the tabulation involves stating "correct" or "incorrect" responses, not multiple responses
- The LQAS Manual suggests a slightly different process for hand tabulation: Using a team of 3 people, the 19 questionnaires from each Supervision Area are kept in a separate folder (for a total of 5 or 6 folders) and the table collects a "correct" or "incorrect" answer for each question.

Refer to **TR 1-78: LQAS Hand Tabulation Table for a Supervision Area.** *Explain that the tables differ in format, but the process is similar to hand tabulation for cluster sampling. Remove 1 questionnaire from the 20 previously prepared 30 cluster surveys and number the remainder 1 to 19, to represent the questionnaires from one Supervision Area. Show the folder they go into—Supervision Area 1.*

Give the following instructions:

In using LQAS, you would normally work in teams of three. The first person reads the correct answer on the tabulation sheet. The second person looks at the answer on the questionnaire, determines if the answer is a correct answer ("1") or an incorrect answer ("0"). Mark "Don't Know" as an incorrect answer. Mark an "S" for an intentionally skipped question that can<u>not</u> be judged as either correct or incorrect. Mark an "X" for a question that should have a response but for which the response is missing. Any "X" or "S" should be removed from the denominator. The first person records the answer on the tabulation sheet. The third person confirms that the second person correctly determined whether the answer should be coded "1" or "0" or "S" or "X" and that the first person recorded it properly.

For purposes of this example, we are going to divide the 19 questionnaires between two groups (1 team with Questionnaires 1 through 9, the other team with Questionnaires 10 through 19). However, standard practice is for one team to start with all 19 questionnaires from one Supervision Area.

*Refer participants to **TR 1-79: LQAS Summary Tabulation Table.** When the teams finish, ask each team to share its answers with the other and together determine the "total correct" and "total sample size." Ask each person to fill in the three indicators on **TR 1-79** using the total 19 questionnaires.*

1-79

*Ask them how they could use **TR 1-79** to compare Supervision Areas.*

➢ **How does the LQAS process compare with the cluster sample process?**
[easier, harder, faster, etc.]

*For more information about using the LQAS methodology, suggest that the participants consult the LQAS Manual. For more information on hand tabulation, ask participants to read pp. 91–94 of the Field Guide. Depending on participant interest, briefly refer to **TR 1-80: Planning a Hand Tabulation Workshop.***

1-80

5. **Summarize decisions about how to use hand tabulation** – 10 minutes

Summarize:

Based on the information and experience in this learning session,

➢ **Who now commits to using hand tabulation either completely or as a part of an Analysis Workshop?**

The group needs to formalize the decision about whether to use hand tabulation or not. Add the decision to **TR 1-4: Critical Decision Points**.

1-4

✒ Critical Decision Point

*Tell participants that Learning Session 25 is about developing a logistics plan and budget. Assign as homework **TR 92: KPC 2000+ Field Guide Chapter 2** in preparation for Learning Session 25.*

21. Quality Control of Data

Purpose:
To understand the need for controlling the quality of data and the various levels of quality control.

Objectives:
By the end of this learning session, participants will have:
1. Reviewed the importance of data quality control in the field.
2. Discussed how to control the quality of data at three levels.

Preparation/Materials:
Step 1:
- Flip charts with titles: In the Field, During Data Entry, During Final Cleaning
- 30 colored papers cut in 7" circles with a tail of string attached to each (like a balloon)
- Flip chart with GIGO Principle: Garbage In, Garbage Out
- Balloons—filled with air and on a string, approximately two for each participant
- **TR 1-81: General Principles for Supervising Data Entry**
- **TR 1-82: Quality Data Entry with Epi-Info**

Step 2:
- **TR 1-83: Levels of Data Quality Control**

Time:
45 minutes

Steps:
1. Brainstorm ways to ensure quality – 35 minutes
2. Formalize decisions on quality control – 10 minutes

Steps

1. Brainstorm ways to ensure quality – 35 minutes

Explain:

We are going to explore together the need for taking certain steps to ensure that the information we receive in the field is of the highest quality and that a high level of quality is maintained throughout the KPC Survey process. We will look at the process from three different levels; in the field, during data entry and during the final cleaning. It is critical to ensure that all data is accurate and complete.

Post the three flip charts, side by side:

In the Field	During Data Entry	During Final Cleaning

Give each person two or three paper balloons. Ask them to write on each balloon one concrete step to take at each level to ensure quality. After they finish, have them place their balloons on the appropriate flip chart. If necessary, add balloons for any of the following key points if they are not included. Review each level and discuss the ideas presented on each flip chart and <u>who</u> should do the data quality control at each level. Be sure the following ideas are presented:

FIELD LEVEL:
- Adequate training of Supervisors and Interviewers
- Practice, practice, practice
- Ratio of one Supervisor to every two Interviewers
- Close inspection of all questionnaires <u>before leaving the community</u>
- Observation by supervisor of one interview by each Interviewer every day
- Additional review of all questionnaires by Core Team each evening

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Checking the Questionnaires

Many mistakes cannot be corrected once they reach the data entry people—correct answers that were skipped or written incorrectly can only come from the mother/interviewer and <u>can only be corrected in the community</u> while the mother and/or interviewer are still available. Look for:

1. Blanks where responses should have been recorded
2. Wrong codes
3. Incorrect skip patterns (going to the wrong question after the respondent gives a particular answer)
4. Response in incorrect locations
5. Unreadable marks/words

DATA ENTRY LEVEL:
- Good training of the data entry staff
- Use of double-entry or entry-validation processes
- Random checking of a sample of entered records
- MINIMAL DISTRACTIONS for data entry people—freeing them from other work for the duration of data entry
- Good working conditions for data entry people (good lighting, comfort, organized work space)
- Use of software packages such as Epi-Info that have built-in methods to help ensure the accuracy of data entry after the questionnaires have been cleaned
- Development of clear coding sheets

Post the GIGO "Garbage In/Garbage Out" flip chart. Say:

GIGO: Garbage In/Garbage Out

Remember that a computer program can do nothing to correct data that is originally written incorrectly by the Interviewer. Do not forget the GIGO principle: Garbage In, Garbage Out. Good data quality MUST start in the field!

Refer participants to **TR 1-81: General Principles for Supervising Data Entry** *and* **TR 1-82: Quality Data Entry with Epi-Info.** *Review and discuss the information.*

FINAL CLEANING LEVEL:
- Put one person in charge of data management
- Use a Data Coordinator with experience
- Have the data entry people enter the data not the Data Coordinator
- Check the data records frequently to ensure that data is being entered properly
- Run frequencies and look for outliers—results that are very high or very low or unexpected that may indicate a possible error
- Visually scan all records in the data base to identify errors
- Check denominators for all indicators—use of incorrect denominators is the most common error

One would think that by the time you reach this level, if the previous levels of quality control have been conducted well, the data would be "sparkling" clean. Unfortunately, that is sometimes not the case. The important point regarding catching errors at this stage is that they are often difficult to correct, since going back to the original questionnaires may not always give a clear answer, and Interviewers may no longer be available to return to clusters.

Sometimes, missing or contradictory data at this stage require that an entire record—meaning all of a mother's answers—be dropped from the database. This is always very frustrating since you worked so hard to collect the data and to have a sample size that gives you enough power to detect statistical significance. If you have to drop many records due to bad data, it may affect the conclusions you are able to make from your analysis.

Congratulate the group on a job well done and give each participant two balloons.

2. **Formalize decisions on quality control** – 10 minutes

To summarize the learning session, emphasize who *will do the quality control. Reiterate the need for having various people with separate functions or a division of labor so that there are checks and balances. For example, Interviewers should not also enter data. The importance of integrity should be re-emphasized as vital at every step of quality control.*

Refer participants to **TR 1-83: Levels of Data Quality Control.** *Have them discuss the critical decisions that need to be made to ensure data quality. Remind them to record the decisions on* **TR 1-4: Critical Decision Points.**

✒ Critical Decision Point

22. Developing a Data Analysis Plan

Purpose:
To finalize decisions about how to analyze the data and which aspects to analyze.

Objectives:
By the end of this learning session, participants will have:
1. Developed a written plan for data analysis.

Preparation/Materials:
Step 2:
- ▪ **TR 1-84: Data Analysis Plan**

- ▪ Extra Reading: KPC 2000+ Field Guide, pp. 95–100

Time:
60 minutes

Steps:
1. Present the essential points – 10 minutes
2. Teams work together to complete the data analysis plan – 50 minutes

Steps

1. **Present the essential points** – 10 minutes

   Explain:

   The purpose of this learning session is to finalize decisions about how to conduct the analysis of data and what will be analyzed in your KPC survey.

   ➢ **Why do you need to develop an analysis plan?** *[1) Which data is analyzed and how data is analyzed needs to be based on your project hypothesis, not just a random check of everything; 2) An analysis plan results in a more efficient use of time and resources and enables staff to focus only on what the project is really going to affect; and 3) The information can be used to complete a logistics plan and budget.]*

2. **Teams work together to complete the data analysis plan** – 50 minutes

   Remind the participants of the work they previously completed—setting up tables for frequencies and cross-tabs in Learning Sessions 18 and 19. This work should be finalized so that the Core Team has a complete set of tables that will be produced from the data. Also refer to TR 1-4: Critical Decision Points record sheet for the points they previously determined.

   | 1-4 |

   | 1-84 |

   *Refer participants to **TR 1-84: Data Analysis Plan**. Explain:*

   Together, review each point to determine if any questions or points need further clarification.

Data Entry

Most experienced computer users can input at least 20 questionnaires each day. Less experienced users may only be able to enter five to ten questionnaires. If 300 questionnaires need to be entered, and experienced computer users are used, it takes 15 person-days (e.g., five people working three days or three people working five days). Are you going to use double entry? It is best to begin entering the data on the day after the first day of interviewing (rather than waiting until all questionnaires have been completed). This allows you to detect data errors early and provide further training so that the remaining data entry is of higher quality.

If the decision is to use hand tabulation, it is recommended that two days of staff time be added for a Tabulation Workshop. You must also locate a site with enough room for all of the tabulators to work, as well as arranging for food and lodging.

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*Ask the participants to work together to fill out **TR 1-84** and to complete any necessary tables for analysis. The Trainer should answer questions as needed and review and provide feedback on the final products. Encourage them to read the KPC 2000+ Field Guide, pp. 95–100 for more information.*

23. Finalizing Staffing Decisions

Purpose:
To identify desirable qualifications and finalize the roles and responsibilities of Supervisors and Interviewers.

Objectives:
By the end of this learning session, participants will have:
1. Reviewed and finalized roles and responsibilities comparing work from Learning Session 3 and handouts **TR 1-85** and **TR 1-86.**
2. Generated a list of desirable qualifications for Interviewers and Supervisors.
3. Identified sources for and numbers of needed personnel.

Preparation/Materials:
Step 1:
  ▪ Be prepared to distribute as a handout the conclusions reached during Learning Session 3: Role of the Key Staff in the KPC Survey Process
  ▪ **TR 1-85: KPC Survey Supervisor's Role and Responsibilities**
  ▪ **TR 1-86: KPC Survey Interviewer's Role and Responsibilities**
Step 2:
  ▪ Flip chart with title: Qualifications of KPC Survey Supervisors
  ▪ Flip chart with title: Qualifications of KPC Survey Interviewers
  ▪ **TR 1-9: Typical Staffing Patterns** (from Learning Session 3)

Time:
40 minutes

Steps:
1. Review and finalize roles and responsibilities – 20 minutes
2. Define qualifications of and sources for needed personnel – 20 minutes

Steps

1. Review and finalize roles and responsibilities – 20 minutes

*Distribute copies of the handout prepared with conclusions reached during Learning Session 3: Role of the Key Staff in the KPC Survey Process. Refer participants to **TR 1-85: KPC Survey Supervisor's Role and Responsibilities** and **TR 1-86: KPC Survey Interviewer's Role and Responsibilities.** Explain:*

> 1-85   1-86
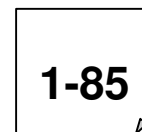
The purpose of this learning session is to identify desirable qualifications for KPC Survey Supervisors and Interviewers and to finalize the description of their roles and responsibilities. Please review the tasks for Supervisors and Interviewers on the handout "Tasks for Principal Staff of a KPC Survey," which you developed at the start of the workshop. Compare this list with those proposed in **TR 1-85** and **TR 1-86**. Be prepared to answer the question:

> ➢ **What changes need to be made to the proposed lists of roles and responsibilities?**

*If, in Learning Session 3, participants listed tasks that are helpful but different from those represented by **TR 1-85** and **TR 1-86**, discuss whether the group wants to modify the lists of roles on **TR 1-85** and **TR 1-86**. If so, and if much more work is needed, ask for 1 or 2 volunteers to finalize the list(s) after hours.*

> It is VERY IMPORTANT that every individual is clear about his or her role and responsibilities. To minimize bias, the roles and responsibilities need to be the same for every Supervisor and Interviewer. The finalized lists of roles and responsibilities will be used to train the Supervisors and Interviewers.

2. **Define qualifications of and sources for needed personnel** – 20 minutes

Explain:

Look at the roles and responsibilities identified for Supervisors and Interviewers. Let us define:

> ➢ **What qualifications or skills are needed to fulfill these roles and responsibilities?**

Write their ideas on the two flip charts:

Qualifications of KPC Survey Supervisors	**Qualifications of KPC Survey Interviewers**

Now that we have identified needed qualifications and skills,

> ➢ **Where can we find people with these qualifications and skills?**

*Ask the group to brainstorm about possible sources of personnel. If specific tasks are identified to locate appropriate personnel, remind the Core Team to add the tasks to **TR 1-5: ACTION PLAN.***

1-5

Say:

Let us review again **TR 1-9: Typical Staffing Patterns** that we used in Learning Session 3. Considering the scope of your survey, decide:

1-9

> ➢ **How many Supervisors and how many Interviewers are needed?**

> ➢ **What additional staff are needed?**

Write your decisions on **TR 1-4: Critical Decision Points** record sheet.

1-4

⚜ Critical Decision Point

24. Preparations for Training Supervisors and Interviewers

Purpose:
To prepare draft materials to be used during the training of Supervisors and Interviewers.

Objectives:
By the end of this learning session, participants will have:
1. Developed a plan for translating and back-translating the **KPC Survey Questionnaire** from English, French or Spanish to a local language.
2. Prepared a draft lexicon based on the draft questionnaire to standardize local language for the collection of accurate data.
3. Developed a draft Events Calendar to be used for determining the age of children.
4. Discussed the importance of an Informed Consent Form and adapted the draft Informed Consent Form to local needs.
5. Reviewed the training agenda for Supervisors and Interviewers to determine training needs.

Preparation/Materials:
Step 2:
  ▪ **TR 1-87: Translating and Back-Translating the KPC Survey Questionnaire**
Step 3:
  ▪ Flip chart with title: Local Lexicon
  ▪ Prepare copies of the draft **KPC Survey Questionnaire** developed earlier in the workshop.
Step 4:
  ▪ **TR 1-88: Events Calendar** (sample)
  ▪ Flip chart with title: Events Calendar for Estimating Age in Children
  ▪ **TR 1-89: Tips on Making and Using an Events Calendar**
Step 5:
  ▪ **TR 1-90: Informed Consent Form**
  ▪ Flip chart with title: Why Seek Informed Consent?
  ▪ Flip chart with title: Suggested Changes to the Informed Consent Form
Step 6:
  ▪ **TR 1-91: Sample Agenda for Training Supervisors and Interviewers**

  ▪ Extra Reading: KPC 2000+ Field Guide, pp. 32–36 and 79–84

Time:
120 minutes (2 hours)

Steps:
1. Introduction –5 minutes
2. Determine a plan for translation – 20 minutes
3. Develop a local lexicon – 30 minutes
4. Create a draft Events Calendar – 30 minutes
5. Adapt and Finalize the Informed Consent Form – 20 minutes
6. Determine training needs for personnel – 15 minutes

Steps

1. **Introduction** – 5 minutes

   Explain to the participants that now that we have decided how many and who the Supervisors and Interviewers will be, we need to decide how and when to train them. The first step is to prepare certain draft documents for use in the training workshop for Supervisors and Interviewers; the next step is to look at the agenda for their training.

2. **Determine a plan for translation** – 20 minutes

   *(Note: If the **KPC Survey Questionnaire** is going to be used directly in English, French or Spanish, omit this step.)*

   Discuss the importance of using a translation/back-translation technique Ask participants to share their previous experience with translating documents. Say:

   > Describe any experiences you have had with both translating AND back-translating a questionnaire.

   > ➤ **What have been your successes and challenges?**

   Discuss the importance and flow of translation/back-translation by referring to **TR 1-87: Translating and Back-Translating the KPC Survey Questionnaire.**

   > **1-87**

   *Keeping the points from **TR 1-87** in mind, ask the group what would be the best way to translate the questionnaire. An ideal option would be to have two Supervisors or members of the Core Team translate, another person not involved in the KPC survey to back-translate, and the Core Team to review the back-translation.*

   *When a decision is made concerning who will translate the **KPC Survey Questionnaire,** ask the group to set a deadline to ensure that the questionnaire is ready for the field test. Add any planned activities to **TR 1-5: Action Plan** ✎*

   > **1-5**

3. **Develop a local lexicon** – 30 minutes

   Say:

   > To make the **KPC Survey Questionnaire** completely understandable to the respondents, it is critical to develop a local lexicon to standardize the translation and the meaning of the questions. Local areas always have local ways of expressing concepts and locally available foods and customs. We will now review the draft questionnaire to identify those words or concepts which need to be modified according to local usage.

**KPC Training Module 1: Training the CORE Team
Trainer's Guide**

*Provide participants with a typed copy of the draft **KPC Survey Questionnaire** developed earlier in the workshop. Take turns reading each question aloud, <u>pause</u> to identify words in that question for which standardization of understanding is essential. Explain to participants:*

As a group, list on a flip chart the number of the question, words or phrases that need to be modified and the appropriate local vocabulary. Review both the questions and the multiple choice answers. Note that this includes the identification of local foods and drink (vitamin A sources, first foods, treatments for diarrhea, etc.), local folk remedies, alternative sources of care, and local disease terminology. This list will be used to modify the KPC Survey Questionnaire so that wording in questions will be posed in a standard way that is easily understood in the local area. It can also be used to develop alternative ways the questions can be asked when a respondent does not understand a question that the Interviewer is asking. The local adaptation will also be reviewed by Supervisors and Interviewers and field tested, which may reveal alternate phrasings that can be used after repeating a question word-for-word.

	Local Lexicon	
Question #	**KPC survey wording that needs modification**	**Proposed wording, using local vocabulary**

After finishing the revision of the questions, ask for 1 or 2 volunteers to retype the questionnaire, making modifications where necessary. Any extensive lists of local vocabulary—e.g., vitamin A foods—should be typed and given to Interviewers as additional information for the survey to help them remember the specific terms.

4. **Create a draft Events Calendar** – 30 minutes

   Ask:

   > **Does anyone have experience making or using an events calendar for estimating age?** *[If there are experienced people, ask them to explain how an events calendar is used and how it is constructed.]*

   1-88 **1-89**

   *Refer to **TR 1-88: Events Calendar** and **TR 1-89: Tips on Making an Events Calendar**. Ask participants to silently read the materials and give them the following directions:*

   We will develop a calendar on the flip chart for age estimation for children. Be sure to include examples of both national events and regional/local events.

   | **Events Calendar for Estimating Children's Ages** |
   | |

Ask for a volunteer to type up the results of the discussion into the Events Calendar format in ***TR 1-88.***

5. **Adapt and finalize the draft Informed Consent Form** – 20 minutes

   Ask:

   > **Why should we request the consent of the respondents before beginning the KPC Survey Questionnaire?**

   Brainstorm the reasons and write them on the flip chart.

   ```
   ┌─────────────────────────────────────────┐
   │                                         │
   │        Why Seek Informed Consent?       │
   │                                         │
   └─────────────────────────────────────────┘
   ```

   *Explain to participants that a generic consent form is included as part of the materials for the KPC 2000+ Survey. Refer participants to **TR 1-90: Informed Consent Form**. Ask participants to take a few moments to carefully read through the Informed Consent Form. Review the form together and ensure that participants understand the importance of this consent.*

   1-90

   Discuss the procedure to use if potential respondents decline to participant in the survey. After the discussion, say:

   Now take a few moments to identify any areas on the Informed Consent Form that need modification in language, style or comprehension. When you are ready, let us record your suggested changes on flip chart paper.

   ```
   ┌─────────────────────────────────────────┐
   │                                         │
   │   Suggested Changes to the Informed Consent Form   │
   │                                         │
   └─────────────────────────────────────────┘
   ```

   After recording and agreeing on the suggested changes, ask for a volunteer to be responsible for making the changes and preparing the Informed Consent Form for final photocopying.

6. **Determine training needs for personnel** – 15 minutes

   *Refer to **TR 1-91: Sample Agenda for Training Supervisors and Interviewers.** Ask participants to review the agendas. Explain:*

   1-91

   The purpose of this activity is to review the sample training agenda for Supervisors and Interviewers and to determine the amount of time that will be required to train them. The normal pattern is to train Supervisors and Interviewers together for three days, plus one day for

a field test. The length of training is determined by the level of previous experience of the Supervisors and Interviewers and what anthropometric indices will be used.

➢ **What changes will be needed in this sample agenda?**

➢ **How many days will be needed to train Supervisors and Interviewers?**

Instruct the Core Team to record their decisions on their **TR 1-4: Critical Decision Points** *record sheet.*

1-4

⚱ Critical Decision Point

Refer participants to pp. 32–36 and 79–84 of the Field Guide for additional information.

Ensure that the products from this learning session (the revised **KPC Survey Questionnaire,** *consent form, local lexicon and events calendar) are typed and distributed to participants. Explain that all of the participants will receive photocopies and that the group will continue revising the local lexicon and the events calendar during the field test and the training for Supervisors/Interviewers.*

25. Develop a Logistics Plan and Budget

Purpose:
To prepare a logistics/management plan for implementing a KPC survey.

Objectives:
By the end of this learning session, participants will have:
1. Reviewed the different parts of a logistics/management plan and the criteria for each part.
2. Developed a logistics/management plan and budget.

Preparation/Materials:
If possible, assign the review of TR 96 as a homework assignment before beginning this session.
Step 1:
   - ▪ **TR 1-92: KPC 2000+ Field Guide Chapter 2**
   - ▪ **TR 1-4: Critical Decision Points** (completed during the workshop)
   - ▪ **TR 1-93: KPC Logistics and Management Planning Form**
   - ▪ Flip chart with title: Things to Consider When Setting Dates for a KPC Survey
   - ▪ Calendar for checking dates for at least six months into the future
   - ▪ **TR 1-8: General Timeline for Conducting a KPC Survey** (from Learning Session 2)

Time:
90 minutes

Steps:
1. Review the planning tools – 30 minutes
2. Develop a logistics/management plan and budget – 60 minutes

Steps

1. **Review the planning tools** – 30 minutes

*Ask participants to use **TR 1-92: KPC 2000+ Field Guide Chapter 2** and **TR 1-4: Critical Decision Points,** completed during the workshop, as guides. Refer participants to **TR 1-93: KPC Logistics and Management Planning Form.** Review the criteria for each part of the logistics/management plan and budget.*

1-92   **1-93**

Conducting a KPC survey represents a major effort on the part of the organization, the MOH, and partners, plus the time required of community members. In order to efficiently complete an activity of this magnitude, it is critical to have a systematic plan for logistics and overall management. In fact, it is as critical as having adequate funds to pay for this important activity.

Timing

Ask:

➢ **What might affect the dates that you choose for your KPC survey?**

Write the responses on flip chart paper.

> **Things to Consider When Setting Dates for a KPC Survey**

Ensure that the following are included (use the calendar as needed):

- ▪ Holidays
- ▪ Weather conditions
- ▪ Potential availability of the respondents
- ▪ Other scheduled project activities
- ▪ Migration patterns
- ▪ Disease-prevalence patterns
- ▪ Food security and eating patterns (hungry season)

The last two items—disease and food security patterns—can affect how representative the survey findings are, and they should also be taken into account when analyzing the data.

Ask for and respond to any questions.

*Review the previously discussed **TR 1-8: General Timeline for Conducting a KPC Survey** from Learning Session 2 to remind participants of the amount of time required to implement a participatory KPC survey.*

1-8

Personnel

KPC Survey Trainer: If a member of the Core Team has received the KPC TOST training, that person can serve as the Survey Trainer. If this is not an option, hire a Survey Trainer (consultant) to work with the Core Team. These consultants are often contracted for about 15 to 20 days (for preparation, KPC survey training, data analysis and the KPC Survey report). A consultant also could be contracted only for specific tasks that cannot be completed by project staff (e.g. data analysis).

Ask the Core Team:

➢ **How has your organization staffed KPC surveys in the past?**

➢ **What were your experiences with that staffing pattern?**

Share experiences and respond to questions.

Transportation

*Ask a participant to read the transportation section of **TR 1-92: KPC 2000+ Field Guide Chapter 2**. Then ask:*

> ➢ **How has your organization handled transportation in past KPC surveys?**

> ➢ **What were your experiences with this system?**

Ask participants to use (and complete) the map they developed in Learning Session 14. Share experiences and respond to questions.

Printing

*Ask a participant to read the section of **TR 1-92: KPC 2000+ Field Guide Chapter 2** about how to develop a plan for editing, printing, and photocopying/reproducing forms and materials. Add the following information:*

- You need a computer and a good printer to edit and print the questionnaire file.
- You need photocopies of the questionnaire for pre-testing and training.
- You need to make photocopies of the (modified) questionnaire shortly before the survey.
- You need to decide <u>who</u> will make changes on the computer and <u>where</u> and <u>when</u> the final product can be photocopied.
- You may need to adjust your survey schedule as necessary to ensure that photocopies are available for training, pre-testing, and conducting the survey.

> ➢ **How has your organization handled printing needs in past surveys?**

> ➢ **What problems can you anticipate?**

Share experiences and respond to questions.

Other Administrative and Logistical Issues

Ask a participant to read the section of **TR 1-92: KPC 2000+ Field Guide Chapter 2** about administrative and logistical issues. Say:

Remember:

- It is important for the local people to know that a survey is going to be conducted. Some communities refuse to be interviewed if they are not properly informed in advance.
- If possible, ask the data entry people to attend part of the training for Interviewers. This helps them to understand the KPC survey process and to appreciate the importance of good data.

- Realize that translation of the *KPC Survey Questionnaire* can be a time-intensive activity.
- A well thought out pre-test eliminates many problems with KPC survey implementation.

Budget

Ask:

➢ **How much does your organization usually budget for a KPC survey?**

➢ **How much does your organization usually budget for an entire baseline evaluation?**

➢ **How much does your organization usually budget for a final evaluation?**

*Use **TR 1-92: KPC 2000+ Field Guide Chapter 2** to discuss how to develop a budget. Remind participants to keep some commonly overlooked items in mind, such as:*

- Translation costs
- Pre-testing
- Double entry of data
- Analysis
- Feedback activities: how, who, when and where

2. **Develop a logistics/management plan and budget** – 60 minutes

   Give these instructions to the Core Team:

   As you plan your KPC survey, answer the questions on **TR 1-93: KPC Logistics and Management Planning Form** to develop your logistics and management plan for the survey. Refer to **TR 1-92: KPC 2000+ Field Guide Chapter 2** as you complete the form. We are going to take 60 minutes right now to complete the form. Try to finish the form now, but do not worry about filling in all of the details if you have not yet finalized some of your decisions. More investigation may be necessary before you can finalize the plan and budget. Remember to work as a team.

   | **1-93** |

   *Have the Core Team work together to fill out **TR 1-93: KPC Logistics and Management Planning Form**. Answer questions as needed and review and provide feedback of the final product. As the team is working on the plan, remind them to include all necessary future action, with particular emphasis on dates, on **TR 1-5: ACTION PLAN**.*

   | **1-5** |

   *This learning session ends the workshop, so be sure to discuss any pending logistical issues and future activities. Review **TR 1-5: Action Plan** to make sure all activities are assigned to a specific person, with a specific date for completion. Thank the participants for their hard work and congratulate them on the results of their efforts.*

Optional

Learning Session 26:

Determining Sample Size

26. Determining Sample Size

Purpose:
To learn to calculate sample size for basic SRS and cluster survey samples and to understand the factors that influence sample size, such as the precision desired, estimated proportion, and design effect.

Objectives:
By the end of this learning session, participants will have:
1. Discussed the importance of calculating the sample size before undertaking a survey.
2. Practiced calculating the required sample size for a single proportion (SRS).
3. Practiced calculating the required sample size with a design effect (cluster sampling).

Preparation/Materials:
Step 1:
   ▪ **TR 1-94: To Calculate Sample Size, You Will Need to Know . . .**
Step 2:
   ▪ **TR 1-95: Calculating the Size of a Simple Random Sample**
Step 3:
   ▪ **TR 1-96: Calculating the Size of a Cluster Sample**
   ▪ **TR 1-97: What Happens to "n" If …**
Step 4:
   ▪ **TR 1-98: (Optional) Homework on Sample Size: One Proportion**

   ▪ Extra Reading KPC 2000+ Field Guide, pp. 37–73

Time:
45 minutes

Steps:
1. Review general principles – 10 minutes
2. Practice SRS sample size calculation – 20 minutes
3. Calculate sample size differences for cluster surveys – 15 minutes

Steps

1. Review general principles – 10 minutes

As we have just seen, drawing a sample from a population gives us estimates of the true values in that population. We need to strive for precision in those estimates, because they may play a big role in program decisions and in the eventual evaluation of program impact.

It is very important, then, to verify that you have sampled enough people to get the precision you need in the estimate. To ensure that the sample is large enough, there are different mathematical equations to use, depending on the type of sampling used. Sample size equations consist of the basic elements that are in *TR 1-94: To Calculate Sample Size, You Will Need to Know . . . .*

1-94

Explain:

To determine sample size, you need to know:
- z = the Z-value from a table for the level of confidence you want
- p = the approximate proportion you expect to find in the population
- q = 1 – p
- d = the level of precision you can tolerate (plus or minus 5%, 10%, etc.)

2. **Practice SRS sample size calculation** – 20 minutes

Let us begin with the simplest of the formulas: calculating the sample size needed for a simple random sample with one proportion.

*Refer to **TR 1-95: Calculating the Size of a Simple Random Sample.***

1-95

> ➢ **Who would like to volunteer to explain the components of this formula?**

Present the calculation:

Calculating the Size of a Simple Random Sample

The sample size formula for a simple random sample is as follows:

$$n = z^2(pq)/d^2$$

where n = sample size
z = statistical certainty chosen
p = estimated level/coverage to be investigated
q = 1 – p
d = precision desired (for precision of 10%, d=0.10)

Demonstrate the following on flip chart paper:

Using the above values, the sample size needed for a random sample survey with a precision of 10% is as follows:

$n = z^2(pq)/d^2$
$n = (1.96)^2 (.5 \times .5) / (.1)^2$
$n = (3.84) (.25)/(.01)$
$n = 96$

Therefore, we can say we need 96 completed surveys from our target group to estimate the percentage of this particular factor in our population with random sampling.

Let us try another example. We know from a recent UNICEF survey in a nearby area that the rate of underweight in 2- to 5-year-olds is 35%. You need to survey your own target population and feel that this is a good estimate of the underweight in your own area.

> ➤ **How many children in that age range must you survey, with a precision of 10% and a confidence level of 95%?**

Encourage participants to work with a partner to solve this. After about 5 minutes, ask one participant to present the answer and explain the steps involved. [Answer: 87.4 = 88 people]

> ➤ **Why is this sample size slightly less than the previous example?** *[Because 35% is less than the 50% used in the numerator of the previous equation.]*

> ➤ **Using the 50% estimate from the first example, what sample size is needed if you want to have a more stringent 5% precision?** *[Answer: 384]*

Point out:

The sample size does not just double from the original 96, it increases by a factor of 4 to cut the margin of error in half.

3. **Calculate sample size differences for cluster surveys** – 15 minutes

> ➤ **How do we have to change the Simple Random Sample size formula to adjust it for a cluster sample?** *[Add the design effect]*

The design of your sampling method is D.E. or "design effect." When you use cluster sampling, the D.E. is estimated as 2. With LQAS, SRS and stratified sampling, the D.E. is 1. The design effect that we mentioned previously applies in a calculation of sample size for a cluster sample. You cannot know what the design effect will be before the analysis, so you must estimate it. The design effects found through several years of collected Child Survival baseline data have usually ranged between 1.0 and 2.0. It is wise to make a conservative assumption (allowing for the biggest required sample size), so using a D.E. of 2.0 is usually preferred. The SRS sample size result is simply multiplied by that number.

*Refer participants to **TR 1-96: Calculating the Size of a Cluster Sample** with the revised formula:*

$$n = (z^2(pq)/d^2) \times D.E.$$

1-96

Because households tend to be more similar within a cluster, we need to take this into account and use the design effect of 2 for cluster sampling.

Demonstrate the following on flip chart paper:

Let us use the same numbers from our earlier example of SRS to compare sizes needed for cluster sampling. We used 50% for the expected proportion, a precision of 10%, and a confidence level of 95%, and we got 96 for the required number. Now, for cluster sampling, we know we can simply multiply our first result by 2, the estimated design effect (D.E.), which gives us 192.

The World Health Organization developed a simple strategy for conducting cluster surveys for immunization coverage many years ago. They found that if you round 192 up to a number that can be divided in whole numbers by 30, this provides a convenient and statistically valid approach. It is therefore rounded up to 210, allowing for 30 clusters of 7 per cluster. This is the minimum needed with a design effect of 2. For KPC surveys, the sample size is further increased to 300 (10 interviews in each cluster) because KPC surveys look at the estimated coverage of a number of interventions and sub-samples, such as children 0 to 4 months, or just children with diarrhea.

The reality, however, is that this number is often too low to yield precise estimates for factors that have few children in the subgroup, such as those mentioned above (diarrhea, exclusive breastfeeding). We estimate 2 for a design effect before the survey, but the actual design effect can be later calculated with Epi-Info software, assuming the cluster numbers for each record are included in the data set. We sometimes find that the design effect was less than 2, giving us tighter (smaller) CIs than expected.

*Ask participants to look at **TR 1-97: What Happens to "n" If...**. Review the following concepts and ask them the effect on "n."*

1-97

➢ **What happens to my required sample size if:**

- The proportion of the factor in the population is <50%? *[Decreases]*
- You want a tighter precision (like +/– 2% instead of 10%)? *[Increases]*
- You use cluster sampling instead of SRS? *[Increases]*
- You want to be very, very sure of your estimate—such as 99% confident *[Increases]*

*If desired give participants the optional homework assignment: **TR 1-98: (Optional) Homework on Sample Size: One Proportion.** If time permits, work through the first example together. NOTE: Be sure to review the answers the following morning to ensure that participants calculated sample sizes correctly.*

1-98

TR 1-98: Homework on Sample Size: One Proportion <u>ANSWER KEY</u>

<u>Exercise #1</u>

You know from a recent MICS that the prevalence of diarrhea in a similar, nearby population is 21% among preschool children. You need to survey your own target population, and you feel that this is a good estimate of the diarrhea in your own area.

> ➤ **How many children 0–23 months must you survey if you want to use a SRS with a precision of 2% and a confidence level of 95%?** *[1,593]*

Exercise #2

You do not know what proportion of mothers in your area know two ways to prevent HIV/AIDS. *(Hint: If you do not know the proportion, be conservative and use 50%.)*

> ➤ **How many mothers of children 0–23 months must you survey if you want to use cluster sampling with a precision of 5% and a confidence level of 95%?** *[768]*

> ➤ **What would the sample size be for the same situation with a precision of 10%?** *[192]*

Exercise #3

You are doing a reproductive health study. You want to measure who received at least two tetanus toxoid injections before the birth of the youngest child less than 24 months of age. However, you do not know what proportion of mothers in your area have received the TT2 vaccine. You do know, however, that mothers living in a similar area that has had the same type of vaccine services were recently found to have a coverage rate of 10%.

You will *also* be measuring the proportion of women whose deliveries were attended by skilled health personnel in the project area in your study. You do not have a good estimate of who attends most births.

> ➤ **How many women must you include in your sample if you want to use LQAS sampling with a precision of 5% and a confidence level of 95%?** (*Hint: Use the more conservative 50% if you do not know the proportion.*) *[384]*