DESIGN AND IMPLEMENTATION OF NUTRITION SURVEYS
(Excerpt from the MICAH Guide,
A Publication of World Vision Canada)
The MICAH Guide, *A Practical handbook for Micronutrient and Health Programmes*, has been prepared by the World Vision Canada MICronutrient And Health (MICAH) team to help standardize the monitoring and evaluation of micronutrient programmes in various countries in Africa. The guidelines have been developed in response to the Canadian International Development Agency’s (CIDA) requirements for showing programme effectiveness, as well as in response to the needs of both programmers and communities in the field to evaluate the effectiveness of their activities.

The MICAH Guide is based on UNICEF’s ‘*Practical Handbook for Multiple-Indicator Surveys*’ – from which several chapters have been included with modifications to make them appropriate for micronutrient surveys. These guidelines reflect contributions not only from UNICEF, but also from other institutions including World Health Organization (WHO), Food for the Hungry and Centre for Disease Control (CDC). Professor Rosalind Gibson from the University of Otago provided recommendations on monitoring and evaluating the effectiveness of micronutrient interventions. Professor George Beaton from the University of Toronto helped identify indicators for estimating changes in Vitamin A, iodine and iron status. Input from a variety of other professionals including Lisa Belzak (sampling methodology), Patricia David (mortality monitoring) and Dr. Zewdie Wolde-Gabriel (vitamin A and iodine modules) has been combined with the hard work of the World Vision Canada MICAH team, to produce a comprehensive first draft of the Guide.

Thanks go to Carolyn MacDonald, MICAH Nutrition Officer, who coordinated and produced this Guide; Joan Hildebrand, MICAH Nutrition Officer, who served as technical editor; and to Susan Bryce, MICAH Office Administrator, who edited, collated and polished the Guide. Thanks also go to other contributing members of the MICAH team – Beth Fellows, Senior Advisor for Programme Development and Special Initiatives, who envisioned the Guide and made it possible; Wilma Jakus, Finance Officer; Daryl Dolny, MICAH PC Analyst; Janet-Marie Huddle, Nutrition Officer, and Liz Stevens, who re-formatted the Guide for wider distribution.

Due to numerous requests for the MICAH Guide, it has been reformatted into two sections to meet specific programme needs and facilitate distribution: *Indicators to Monitor Impact of Nutrition Programmes* and *Design and Implementation of Nutrition Surveys*. The content remains unchanged from the original Guide.

This Guide is intended for the use of programme planners/implementers and for educational purposes. Parts of the Guide may be reproduced for these uses with acknowledgement.
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Chapter 1
Decisions to Make Before Starting the Survey*

Who Should Read This Chapter?
- Programme Directors and Their National Counterparts
- Technical Resource Persons
- Survey Coordinators

Why Read This? What Will You Learn?
- How to identify and contact a survey coordinator and senior resource person \( \rightarrow \) 1.1
- How to decide on the sample size \( \rightarrow \) 1.2
- How to determine how long the survey will take \( \rightarrow \) 1.3
- How to estimate how much the survey will cost \( \rightarrow \) 1.4
- How to monitor progress towards a Baseline Survey \( \rightarrow \) 1.5

1.1 Identify and Contact Potential Resource Persons

1.1.1 A Survey Coordinator

As soon as the intervention, target groups and indicators have been identified, you must identify a survey coordinator, in collaboration with NGO and government partners.

\( \Rightarrow \) Note

Do not attempt to do a survey unless you can identify a full-time survey coordinator. There is no substitute for this important person’s role.

* This chapter is based on UNICEF’s “Monitoring Progress Toward the Goals of the World Summit for Children - A practical handbook for multiple indicator surveys”, 1995, Chapter 2, and modified for the MICAH Programme.

Qualifications:
This person will preferably be a professional in a governmental institution or a NGO who is able to dedicate him/herself full-time for the duration of the project (about six months). The coordinator may also be an independent consultant, but should have the respect of national counterparts. Previous experience in survey implementation and a firm grounding in scientific methodology (e.g., a postgraduate degree in public health or a related field) are also required.

Role:

The coordinator ensures that the entire process runs smoothly and that basic protocols are followed. These include: carry out the first stages of sampling, select and train field workers, supervise overall field activities and process the data. The survey coordinator is also responsible to obtain the assistance of the resource person(s), as well as the cooperation of other government agencies.

1.1.2 A Senior Resource Person

A senior resource person or institution should collaborate closely with the survey coordinator, especially at the survey design stages. This person must have ample technical expertise in survey design, implementation and analysis.

Together, the survey coordinator and senior resource person will be responsible for the design, implementation and analysis of data.

1.2 Decide on the Level of Aggregation of the Indicators

Sample size depends on whether indicators will be measured at the national, subnational, regional or district levels. You must decide whether each ministry or NGO will acquire representative samples for their particular regions or whether there will be aggregation of regions. Non-government organizations or ministries which implement certain interventions in specific regions are responsible to measure indicators which demonstrate impact at their regional level. The level of measurement of indicators will also be defined by the finances you have available for monitoring and evaluation.

A sample of 500 to 1000 households allows for “estimation of coverage” goals with a margin of error of 5 percentage points or less. It will usually be adequate for baseline estimates for future comparisons of data from a repeat survey. In this way, changes can be measured. Chapter 3 discusses sample size requirements in greater detail.

Note

A typical sample for studying regional indicators will be around 500-1,000 households in at least 40 clusters spread across the region.
1.3 Determine How Long the Survey Will Take

Survey planning activities should start as soon as possible, due to the urgency of reporting. Early planning is crucial because the full survey cycle, from inception to publication of results, may take several months. A good planner specifies clearly at the outset what should be learned from the survey and how the information will be used. The report format and plans for dissemination should be set out in advance. Experience has shown that without such planning, questionnaires may be too lengthy and include poorly conceived questions without a clear purpose. Unless the final phase of the survey is planned in detail before the outset, data processing, data analysis and report writing will inevitably be delayed, leading to obsolete results.

To help you with planning your baseline survey, a checklist containing the summary information is included in Section 1.5. This checklist must be submitted to WV Canada prior to release of funds for the baseline survey.

The model timetable presented in Table 1.1 shows the minimum estimated time to complete the full survey cycle for a sample of 40 clusters of 24 households each. This table is provided for general guidance only, since local characteristics may greatly affect the duration of the study. Important factors include the geography of the country, road conditions and previous experience of the survey team.

1.4 Calculate the Survey Cost

Costs will vary widely from country to country. This variability depends not only on currency exchange and labour costs, but also on the degree to which costs can be reduced by using existing facilities. For example, you can achieve important savings by using NGO or government personnel to carry out interviews, employing public or government-provided transportation, obtaining free accommodations and meals for the survey team from local institutions, and so forth.

Table 1.2 contains a comprehensive checklist of expenditure items. As discussed above, many of the items may not be applicable for particular countries. When applicable, the expenditure is described for a survey with five teams - each team consisting of four interviewers and two medical personnel, a supervisor and a driver - spending four weeks in the field. An additional week for training for all supervisors and interviewers at a central location is also budgeted. Their accommodation costs include the field work as well as the recommended training period.
Table 1.1  Typical Timetable for a Regional Survey Covering 900 Households

<table>
<thead>
<tr>
<th>Weeks</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20</th>
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</thead>
<tbody>
<tr>
<td>Tasks</td>
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<tr>
<td>Identify resource person and coordinator, plan survey.</td>
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<tr>
<td>Carry out sampling, adapt/pre-test questionnaire and training materials.</td>
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<tr>
<td>Complete logistic arrangements.</td>
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<tr>
<td>Select and train interviewers.</td>
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<tr>
<td>Conduct pilot study and collect data.</td>
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<tr>
<td>Enter and clean data.</td>
<td></td>
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<tr>
<td>Complete data processing.</td>
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<tr>
<td>Prepare report.</td>
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</tbody>
</table>

**Assumptions:** 40 clusters of 24 households; one cluster a day with two interviewing teams. (One team equals 2 interviewers and one medical person). This equals 240 interviewer-days of data collection, or 4 weeks for 12 interviewers allowing travel time and a safety margin.

**Note**

Seasonality is a very important issue which may affect the timing of your survey. Field work may not be feasible during the rainy season due to poor road conditions, or during special religious holidays, such as Ramadan. Also, some indicators may show seasonal variations, such as the prevalence of malnutrition. These influences must be taken into account, particularly if the survey results will be compared with earlier findings.
Table 1.2  Common Survey Budget Items and Approximate Estimates for a Survey of 960 Households

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Basis for Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personnel (Salaries Plus Indirect Costs)</strong></td>
<td></td>
</tr>
<tr>
<td>Consultants</td>
<td>Variable</td>
</tr>
<tr>
<td>Team leaders</td>
<td>5 Supervisors X 5 Weeks</td>
</tr>
<tr>
<td>Interviewers</td>
<td>20 Interviewers X 5 Weeks</td>
</tr>
<tr>
<td>Medical Personnel</td>
<td>10 Medical X 5 Weeks</td>
</tr>
<tr>
<td>Drivers</td>
<td>5 Drivers X 4 Weeks</td>
</tr>
<tr>
<td>Translators</td>
<td>Variable</td>
</tr>
<tr>
<td>Local Guides</td>
<td>5 Guides X 4 Weeks</td>
</tr>
<tr>
<td>Data Entry Clerks</td>
<td>2 Clerks X 5 Weeks</td>
</tr>
<tr>
<td>Computer Programmers</td>
<td>1 Programmer X 8 Weeks</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td></td>
</tr>
<tr>
<td>Vehicle Rental</td>
<td>5 Cars X 4 Weeks</td>
</tr>
<tr>
<td>Public Transportation Allowance (Urban Areas)</td>
<td>Variable</td>
</tr>
<tr>
<td>Fuel</td>
<td>Provision for 5 Cars X 4 Weeks</td>
</tr>
<tr>
<td>Eventual Costs (Repairs, Ferries, etc.)</td>
<td>Variable</td>
</tr>
<tr>
<td>Consultant’s Visit</td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Per Diem (Room and Board)</strong></td>
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</tr>
<tr>
<td>Team leaders</td>
<td>5 Supervisors X 5 Weeks</td>
</tr>
<tr>
<td>Interviewers</td>
<td>20 Interviewers X 5 Weeks</td>
</tr>
<tr>
<td><strong>Budget Item</strong></td>
<td><strong>Basis for Calculation</strong></td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Drivers</td>
<td>5 Drivers X 4 Weeks</td>
</tr>
<tr>
<td>Translators</td>
<td>Variable</td>
</tr>
<tr>
<td>Local Guides (Meal Allowance)</td>
<td>Variable</td>
</tr>
</tbody>
</table>

**Consumables**

- Stationery (Paper, Pencils, Pens, etc.) Variable
- Identification Cards Variable
- Envelopes for Filing 120 Envelopes
- Computing Supplies (Paper, Diskettes, Ribbons, Cartridges) Variable

**Other Costs**

- Questionnaire and Form Printing 1,000 Sets
- Photocopies of Maps, Listings and Instruction Manuals 100 Maps, etc.
- **Anthropometric Equipment** (Weighing Scales, Length Metres, etc.) 10 Sets (1 per team)

**Laboratory Equipment**

- Urine collection containers Variable
- Stool collection containers
- Hemocue 1000
- Cuvettes 10 (1 per team)
- Protective Gloves 1000
- Breast milk Collection Containers 1000 pair
- Cool boxes 1000
- Glass slides for malaria smears 10 (1 per team)
- Cool boxes 1000

**Analysis of Biological samples**

- Urinary Iodine Variable
- Parasites Variable
- Breast milk vitamin A 10 per sample

- Communications (Phone, Fax, Postage, etc.) Variable
<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Basis for Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Writing and Printing</td>
<td>Variable</td>
</tr>
</tbody>
</table>
1.5 Check List For Baseline Surveys

The following information is a checklist to assist you in planning for the baseline survey.

Coordination:

- A time-frame for the baseline survey (preparation, purchasing, training, implementing data collection, data entry, data analyses, return of information to communities, report completed).

- Coordination of responsibilities - who is the full-time person overall responsible for coordinating the survey, or who is responsible for what aspects?

Indicators to be Monitored:

- List of indicators to be monitored for specific interventions and target groups.

- Geographic areas to be surveyed for these target groups.

- Method of data collection identified for each of the indicators - eg., household survey, school survey.

- Method chosen to analyse each biochemical parameters, who/where they will be analysed, and specify quality control measures.

- Equipment list that will be provided for each team, where it will be obtained from and who will be responsible for the equipment.

Purchasing of Equipment:

- Equipment and supplies needed for baseline survey detailed, when ordered and the expected receipt date noted.

Sampling Methodology:

- If an existing or planned survey frame is to be used or if one will be developed.

- The smallest geographic unit for which estimates are needed, eg, region, district.

- Sample size to be surveyed. If some indicators are going to be sampled at different intervals, what those intervals will be.

- Number of clusters and number of households per day to be covered. Sampling methodology for
identifying households and/or schools.

☐ Number of teams and team composition needed to complete survey in time frame noted above.

**Questionnaire:**

☐ Survey questionnaire pre-tested and translated into local language.

☐ From pre-test experience, length of time needed to interview one household (for administration of questionnaire and biochemical/clinical sampling).

☐ Data entry form must correspond to the final questionnaire.

**Training:**

☐ Personnel trained both in interview techniques for questionnaire (including mortality monitoring, if this is one of the indicators to be monitored). Experts in the field identified and hired for the training.

☐ Personnel trained in clinical and biochemical examination, and dietary evaluation, if appropriate. Experts in the respective fields identified and hired for the training period.

**Sensitization of Communities:**

☐ Who is responsible for and how have communities been sensitized to baseline survey, possible interventions.

**Data Collection:**

☐ Standardisation of all data collection procedures.

☐ Arrangements for transportation, accommodations, and collection and transport of biological samples.

☐ Computer equipment and personnel identified as per following list.

**Timetable and Issue/Checks for Baseline Data Processing** (MICAH-specific criteria)

Steps, issues, procedures to check when setting up computers, data entry, analysis and data transmission.

I. Computer/supplies/setup check list
all computers should be 486s or higher processor types
minimum of 2 megs of ram
UPS (uninterruptible power supply) is recommended
Windows 3.1, DOS 6.22, Excel vers. 5 is minimum software requirement
EPI INFO version 6 is also a minimum requirement
Lotus CC-MAIL with modem (28800 preferred) is a requirement
printer(s) set up
backup diskettes (1.44 MB), printer consumables and paper stocked
office area should be secure from theft, noise, interruptions, glare on computer screen (can be reduced with anti-glare screen overlay) and diffuse and modest intensity lighting around the computer (this will decrease eyestrain on data entry personnel resulting in minimal error and increased productivity)
test all hardware and software to confirm functionality; make any adjustments as required (e.g. re-installing software, re-placing faulty video card)

II. Training Setup
  ◯ data entry supervisor
    ◦ training on data entry, merging and backing up of data files
    ◦ training/learning on EPI INFO version 6
  ◯ hiring at least 2 data entry clerks
  ◯ training data entry clerks on DATA ENTRY program

III. Data Entry
  ◯ loading of DATA ENTRY program (prior to Training Setup)
  ◯ additional questionnaires set up for data entry
  ◯ changes to any country specific questions in DATA ENTRY program modules
  ◯ entry of data
    ◦ initial data entry
    ◦ double-entry of data
  ◯ data checking and editing
  ◯ storing/archiving of interview forms
  ◯ merging of data entry files
  ◯ backup schedule

IV. Analysis
  ◯ installing EPI INFO version 6
  ◯ determine analysis and data requirements depending on indicators
  ◯ create data files with data required for analysis
  ◯ grooming/massaging/cleaning of data
run analysis on data using EPI INFO version 6 to produce frequency distributions
run ANTHRO.XLS on IMMUN.REC file to create ANTHRO.REC
run anthropometric analysis using EPINUT on ANTHRO.REC
print results; export results for other presentation development by spreadsheet or wordprocessor

A Final Note...

Although you may be eager to begin your survey as soon as possible, taking the time to make some important decisions is a valuable investment to make. Once you have the resource people needed, the sample size and survey time lines determined, and the survey costs estimated, you are well on your way to moving ahead with the next stages of the programme. The following chapter will guide you through the process of designing your survey questionnaire.
Chapter 2
Designing the Questionnaire*

Who Should Read This Chapter?

- Survey Coordinators
- Technical Resource Persons (nutritionists)

Why Read This? What Will You Learn?

- How to understand the requirements of a good questionnaire \( \Rightarrow 2.1 \)
- How to understand the concept of a module-based questionnaire \( \Rightarrow 2.2 \)
- How to adapt and translate the questionnaire as needed \( \Rightarrow 2.3 \)
- How to pretest the questionnaire \( \Rightarrow 2.4 \)
- How to decide which objectives the survey will measure \( \Rightarrow 2.5 \)
- How to conduct interviews \( \Rightarrow 2.6 \) and \( \Rightarrow 2.7 \)

2.1 What Are the Requirements of A Good Questionnaire?

- Complete and Concise

A good questionnaire seeks to obtain the information required to meet all survey objectives with as few questions as possible.

- Reliable

A good questionnaire will provide interviewers with reliable data.

* This chapter is based on UNICEF’s “Monitoring Progress Toward the Goals of the World Summit for Children
Reliability: the same answer will be provided by the same respondent regardless of:

- WHO asks the question
- WHERE the question is asked

Note

In a good questionnaire, the same question is asked in the same way by different interviewers - differences between interviewers are few.

Valid

A good questionnaire provides valid data by ensuring that the respondent understands what information is being sought.

Validity: The question elicits a true and accurate response that measures what you are interested in measuring.

Reliability and validity considerations are especially important for the MICAH survey, because our purpose is to measure changes in the indicators over time, and to compare indicators internationally.

Consistent

A verbatim questionnaire, such as the Model questionnaire in this chapter (Section 2.6), outlines questions exactly as they are to be asked. The questions must be translated in a way that ensures both the interviewer and respondent interpret their meaning in the same way, and thus have the same understanding about what information is asked for. In this way, variability between interviewers is reduced.

Good training in the use of the questionnaire is also essential. Instructions for administering the questionnaire are found in Section 2.7.
2.2 A Module-based Questionnaire

The model questionnaire for measuring the MICAH goals asks for the minimum information necessary to measure the chosen indicators. Short, specific questions using simple, everyday words are asked. One question is asked at a time.

The model questionnaire is set up as a series of modules. District/regional programmes can choose those modules that measure selected indicators they intend to monitor with a household survey.

The questionnaire includes the following modules:

① Household Characteristics

Section A (List of Household Members)

A listing of all members living in the household is obtained with relevant information about each member. The mother or in the mother’s absence, the principal adult caretaker of the children, is interviewed.

Section B

The standard format of the questionnaire begins by collecting a few basic items of information about the household.

② Water and Sanitation Module

A questionnaire containing questions about water and sanitation, and salt iodization is administered, even in households where no mothers or young children reside. These questions are to be answered only once for every household in the survey, and can be answered by any adult in the household.

③ Agriculture and Food Module

This module is administered each household and asks questions regarding what type of produce is grown, as well the type of animals owned and their uses.

④ Anthropometry, Breastfeeding and Weaning Food Module

This applies to all children younger than five years of age. A measurer and assistant should be
included in the team used for the anthropometry measurements. If possible, the interviewer or the medical person makes up the third member of the interviewing team. They, in turn, are free to record the measurements or go on to the next child.

5 Vitamin A/Iodine/Iron Modules

This module is administered to all mothers in the household. The medical member of the team examines the mothers and/or children for the clinical and biological indices of any of the above micronutrient deficiencies.

6 Morbidity and Immunization Module

This module is administered to all caretakers of children under 5 in the household to determine the immunization history of each child, as well as any presenting illnesses.

7 Mortality Module

This module is administered to all mothers in the household to determine whether any of their children who were live-born have since died.

8 Biochemical Assessment Module

This module applies to all areas with vitamin A and/or iron interventions, and requires the expertise of a female technician who is able to take breast milk and blood samples.

9 Dietary Intake Module

This module will utilize the 24 hour interactive recall method, a tool used to look at the type and amount of food eaten in a typical day.

2.3 Adapt and Translate the Questionnaire

2.3.1 Adapting the Questionnaire

Since country settings and needs vary, the response categories for certain questions will need to be adjusted accordingly.

Any change to the format of the model questionnaire will in turn require changes to the data entry and calculation programmes provided with this handbook. Such changes require the expertise of a programmer familiar with EPI INFO to make the necessary changes.
2.3.2 Translating the Questionnaire

The modules should be translated into the respondents’ local language prior to the survey. Interviewers should NOT translate the questions as they ask them. Different interpretations of the questions will produce invalid, useless data.

The following steps should be taken:

- **ONE** person translates the questionnaire into the local language.
- Another translator **independently** translates the questionnaire back into the original language (without reference to the original module).
- The two versions are compared, discussing any ambiguous/confusing words. If this second English translation matches the original version, an accurate translation is ensured.
- Agree on the final correct translation.

When more than one local language is to be used in the survey area, use the above translation procedure for all questions and instructions, for each language used. Be sure to give the translators very clear definitions of all the terms used in the questions. The correct definitions are given in the Instructions for Interviewers (Section 2.7).

**Example**

Make sure the order of the questions is not changed during the translation process. Ensure clear translation of phrases such as “continue feeding or eating” and “since this time yesterday”. Also, be careful when referring to answers from previous questions (e.g. “During this last episode of diarrhoea”).

2.4 Pretest the Questionnaire

The translated questionnaire should be pre-tested in the community, with respondents similar to the respondents in the survey sample. The results of the pre-test should be incorporated into a final questionnaire.

**WHERE** is the pretest performed?

You must pretest the translated questionnaire in the field.

**WHEN** is the pretest done?
The pretest should be done before the training session for interviewers. Copies of the questionnaire for the survey should be made after the pretest.

WHO is interviewed during the pretest?

Respondents similar to those who will be interviewed during the survey.

WHO performs the pretest?

The survey coordinator, along with one or two future supervisors or interviewers.

WHY is the pretest necessary?

The pretest should identify potential problem areas, such as:

- dates of birth or of vaccinations
- unanticipated, unclear interpretations
- cultural objections to the questions

Specifically, the pretest should answer the following questions:

4 Are respondents willing to answer questions in the way you have asked them?
4 Are any of the questions particularly difficult to answer?
4 Do any of the questions address sensitive issues?
4 Are the questions well understood by the respondents?
4 Can the interviewers follow the instructions easily, or do they misinterpret them?
4 Is the questionnaire designed with adequate space and is the coding of answers clear?
4 Is it necessary to create new codes for common answers which were not included in the original questionnaire?
4 How long does an interview take? (This will help you to decide how many interviewers you will need.)
Discuss the results of the pretest with experienced colleagues and with the interviewers. Make any changes necessary to the Instructions to Interviewers (Section 2.7.). During the pretest, you may find that respondents refuse to answer the questions in the form on the current questionnaire. If this is the case, consult an experienced survey worker in your country. Such an expert can help you decide whether it is advisable to make changes to the questionnaire. If a significant number of respondents refuse to answer the questions, the survey will not provide the information required, and essentially be less useful.

After the questionnaire has been translated and pretested, you will need to make copies of it. When making copies, remember the following:

4 Ensure that space for the identification codes appears on each page if your questionnaire is more than one page long. This will prevent any part of a household’s questionnaire being lost.

4 Use good quality paper. This will help you to write clearly and will prevent the questionnaires from tearing.

4 Do not change the layout of the questionnaire. If there are too many questions on a page, the questionnaire will be harder to read. A good layout helps to reduce interviewer error in the field. If the layout given for the questionnaires is used, data can be entered directly into the computer, saving time and effort.

4 Ensure that extra copies of modules which may be asked to more than one person per household are made (e.g., Mortality Module)

4 Print more copies than you need. There will always be wastage, and extra copies are needed for training. Allow a separate questionnaire for each household in your sample.

Check that your questionnaire contains sections for:

4 Interview data.

4 Interviewer’s name (or number).

4 A unique identifying number for cluster (e.g., 01), household (e.g., 02), household member (e.g., 1-0).
4 An introductory paragraph written for your survey which:

• explains the purpose of the survey
• asks for permission to do the interview
• states that the information obtained during the survey is confidential.

4 Introductory paragraphs to the different modules - for example: “I would now like to ask you a few questions about diarrhoea.”

The interviewer guide should be translated with the same care as the questionnaire. Pretest it by giving it to potential interviewers. Ask them to read it and discuss it with them to identify any unclear instructions.

2.5 Which Objectives Will the Survey Monitor?

The set of objectives that will be monitored in your survey is dependent on the

• micronutrient problem(s) you are addressing
• type of intervention(s)
• target group(s)

Consider which will be outlined in your logframe and using the table below, select which of the following are appropriate for your situation.

.Formatting

Note

As described earlier, progress towards objectives can be measured by indicators specific to each objective. The information necessary to measure the chosen indicators for each objective is summarized in the table. The Standard Questionnaire has been developed so that countries may select only the modules applicable to their specific objectives/indicators. The complete set of standard questionnaire modules follows in the next section.

 formato
### 2.6 The MICAH Standard Questionnaire

**IDENTIFICATION SECTION**

**INTERVIEWER:** Begin by introducing yourself - for example, ‘We are from________ and would like some information that will help us improve the health of mothers and children. The questions will take a short time and we would like to speak with the women of the household. We would also like to measure you children’s size, and measure your blood strength. The measurements of your blood strength and child’s weight and length will help to find mothers and children who are healthy and those who are not. The information will not be given to other people.’

<table>
<thead>
<tr>
<th>NGO no.</th>
<th>Cluster no.</th>
<th>Household no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region:</th>
<th>Zone:</th>
<th>District:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Area:</th>
<th>Village:</th>
<th>Call-back necessary? Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Time: | |
|-------||

|               |       | |
|----------------|-------| |

---

EXEMPLARY FROM THE MICAH GUIDE

WORLD VISION CANADA
Interviewer:  Date of interview (day/mo/yr)  Name of Interviewee:

Data entry clerk no.:  All forms completed?  1 yes  2 refusal  3 not at home  9 other __________

Supervisor ____________________  Checked (signature) ____________________  Date ________

HOUSEHOLD CHARACTERISTICS (Section A)

NGO no. ________  Cluster no. ________  Household no. ________

**Interviewer**: Fill in the following information about each person in the household, listing the first person’s name in column 01 and so on. Can you tell me the names and ages of all members of the household who stayed in the household last night?

**Household Member Listing Form**

<table>
<thead>
<tr>
<th>Household member No.</th>
<th>First name of household member</th>
<th>Relation to household head (A)</th>
<th>Sex M=1 F=2</th>
<th>Age (yr)</th>
<th>Marital Status (B)</th>
<th>Work Status (C)</th>
<th>Highest level of Education (D)</th>
<th>Read/Write (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
<td>(E)</td>
<td></td>
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<td>----------</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>head</td>
<td>1 head</td>
<td>0 none</td>
<td>1 Read</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>spouse</td>
<td>2 single</td>
<td>1 farmer</td>
<td>2 Write</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>child</td>
<td>3 married mono</td>
<td>2 pastoralist</td>
<td>3 Both</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>other relative</td>
<td>4 married poly</td>
<td>3 regular wage earner</td>
<td>4 Neither</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>no relation</td>
<td>5 divorced/parated</td>
<td>4 casual employee</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>5 business/trade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>6 fisherman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>7 domestic/house work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>8 student/pupil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HOUSEHOLD CHARACTERISTICS (Section B)

NGO no. ___________  Cluster no. ___________  Household no. ___________

1. What is your tribe or ethnicity? ______________________ (country specific)

2. What is the religion of your household? ______
   1 orthodox
   2 catholic
   3 muslim
   4 protestant
   5 no church
   9 other ________________

3. What kind of fuel do you use? ______
   1 wood collected  ⇒ GO TO QUESTION 4
   2 wood purchased  ⇒ GO TO QUESTION 4
   3 cow dung        ⇒ GO TO QUESTION 4
   4 kerosene        ⇒ GO TO QUESTION 7
   9 other ___________ ⇒ GO TO QUESTION 7
4. How long do you travel to get to the place where you collect fuel? ________ (to the nearest ½ hour)

5. How often do you collect fuel? ________
   1 daily
   2 weekly
   3 fortnightly
   9 other ________

6. Who collected the fuel that you are now using? ____
   1 wife
   2 husband
   3 daughter
   4 son
   9 other ________

7. Material of roof of dwelling: ____________
   1 reeds/grass
   2 tin/metal
   3 tile
   4 wood
   9 other ________

8. No of rooms in dwelling: ______________

HOUSEHOLD CHARACTERISTICS (Section B)

NGO no. ________  Cluster no. ________  Household no. ____________

9. Do you have any of the following items (1 Yes 0 No)?
   Radio ______  Bed with mattress ______
   TV ______  Paraffin lamp with glass ______
   Taperecorder ______  Chair ______
   Bicycle ______  Table ______
AGRICULTURE AND FOOD MODULE

NGO no. ________  Cluster no. __________  Household no. ___________

1. What is the holding size of your land? ___ (to the nearest 0.25 hectare)  
   999 Don’t know

2. Who owns the land? ___
   1 self
   2 government
   3 landowner/estate
   4 village chief
   9 other (describe) ______

3. Do you have a vegetable and/or fruit garden? ________
   1 Yes
   0 No  ⇒ If no, GO TO QUESTION 5

4. If yes, what do you do with the (a) fruits?   _______   (b) vegetables?   _______
   1 mainly consume
   2 mainly sell
   3 consume and sell equally
   9 other (specify)___________________

5. What animals do you have? (More than one answer can be noted.)
   1 cattle  ___
   2 chickens  ___
   3 goats  ___
   4 sheep  ___
   9 other (specify)  ___ ____________
6. If you have cattle (or any of the above-noted animals), how do you use the products?
(Fill in the table below with uses as they correspond to each animal)

1 mainly consume
2 mainly sell
3 about equally consume and sell
9 other use of products(specify)_____________________

<table>
<thead>
<tr>
<th></th>
<th>Meat</th>
<th>Milk</th>
<th>Cheese</th>
<th>Butter</th>
<th>Eggs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goats</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WATER AND SANITATION MODULE

NGO no. _______     Cluster no. ___     Household no.____

INTERVIEWER: Ask the questions in this module once for each household visited. Record the number for only one answer in the space at right. If a respondent gives more than one answer, enter the most usual source/facility:

1. What is the main source of drinking water for members of your household?
   During the wet season? ____     If other (99), specify_________________
   During the dry season? ____     If other (99), specify_________________
   1 river
   2 lake/dam
   3 pond
   4 unprotected dug well
   5 unprotected spring
   6 roof catchment
   7 protected dug well
   8 protected spring
   9 piped water
   10 tube well/borehole
   99 other (describe) _________

   If answer to either (wet or dry season) is any of 7-10, ⇒ GO TO QUESTION 2
   Otherwise, GO TO QUESTION 3

2. Who maintains the water source? ______
   1 government
   2 local authority
   3 NGO/church
   4 community leaders
   5 village committee
   6 natural
   7 owner/self
   9 other _____________

3. How long does it take to get there, get water and come back?
   Wet season? _____
   Dry season? _____
   1 on premises
   2 0-30 minutes
   3 30 minutes to 1 hour
   4 1 to 2 hours
   5 2 to 3 hours
   6 more than 3 hours
   7 don’t know
WATER AND SANITATION MODULE (cont’)

NGO no. _______  Cluster no. ___  Household no.____

4. Who usually fetches the water? ____

1 wife  
2 husband  
3 son  
4 daughter  
9 other

5. How did you fetch this water? ____

1 human  
2 cart/wheel barrow  
3 animals  
4 bicycle  
9 other (describe) _________

6. How do you dispose of excreta? _____

1 bush/open field  
2 communal pit latrine  
3 VIP  
4 private toilet/latrine  
5 flush toilet  
9 other _______________
MORTALITY MODULE

INTERVIEWER: For this module, women should be the interviewers whenever possible. Fill in the following information for each woman in the household between 15 and 49 years of age who has ever had a child.

- **Fill out a separate Birth Listing Form for each woman.**
- Copy each woman’s household number and name from the Household Member Listing Form (Household Characteristics - Section A).
- Then, go to each mother and ask her the following questions, recording the answers on the corresponding table.
- Each mother should be interviewed **alone** in order to avoid “group” answers to questions.

I would like to ask you some questions about any children you have had who were born alive, even if they have died. **What is the name of your last child born alive?** (Copy the child’s number from the Household Member Listing Form if the child is still living at home).

**Was [name of child] born a boy or girl?** Ask if the child has a birth certificate and copy down the date of birth, noting the source. Ask the mother directly, if no birth certificate is available, for the month and year that the child was born.

**When was the child born? Is the child still alive?** If the child is not alive, ask the mother about the child’s age at death (in months). Continue to ask for the **next last live birth and the live birth previous to that**. The form should be completed for the **three** most recent live births of the mother. There is one space provided for a twin.

Make sure that the mother understands that these questions all refer to her own biological children who were live-born.

- **Only include babies who have ever breathed or cried, even if only for a short time.**
- **Do NOT include stillbirths or abortions.**
- **Do NOT include adopted children or children of her husband by another wife.**

If you cannot obtain the answer to a question, **do not leave a blank space** - put a 99 in the space provided for the answer.
MORTALITY MODULE

NGO no. _______  Cluster no. _______  Household no. _______

INTERVIEWER: If neither the mother of the child nor any of the above-mentioned people are at home, you must visit the household again.

Birth Listing Form

<table>
<thead>
<tr>
<th>Household Member No.</th>
<th>FOR LIVE BIRTHS ONLY:</th>
<th>Age at Death? (Mos.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Child’s Name:</td>
<td>Child’s HMNo:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>99 if not in house</td>
</tr>
<tr>
<td>Woman’s Name:</td>
<td>1 Male</td>
<td>2 Female</td>
</tr>
<tr>
<td></td>
<td>9 Don’t Know</td>
<td></td>
</tr>
</tbody>
</table>

Last Live Birth

Next Last Live Birth

Second to Last Live Birth

Twin Live Birth

Who answered the above questions? __________

1 mother of child
2 mother’s own mother
3 sister living in same household
4 mother-in-law
5 husband
9 other
BREASTFEEDING and WEANING PATTERNS MODULE

NGO no. _________ Cluster no. _________ Household no. _________

INTERVIEWER:
• Ask the questions in this module only if there is a child under age 5 in the dwelling.
• Ask the questions of the mother or child caretaker
• Ask the questions about the youngest child.

1. What is the name of your last child? ____________________________

2. Household Member Number of Child (from Household Module): _________

3. Is this child still breastfeeding? ______
   1 yes ⇒ GO TO QUESTION 5
   0 no

4. If no, at what age did this child stop breastfeeding? ______ (months)

5. How many months was this child exclusively breastfed, without water, pop, phala or any other foods besides mother’s milk? ______ (months)

6. If this child has been fed breast milk or commercial formula, what was the first supplementary food you gave to your child? (Describe) ________________________________
   __________________________________________________________________________

7. How many times per day did you give this food to this child? _________
VITAMIN A KNOWLEDGE, ATTITUDE AND PRACTICES MODULE

INTERVIEWER: The questions in this module should be asked of one mother or caretaker with at least one child under age 5 in the dwelling. If there is more than one child under age 5, ask the following questions about the oldest child under 5 years. I am going to ask you about foods that you and your child frequently eat and illnesses that you sometimes see in this area.

Module A
(for all countries with/planning dietary education programme)

(A) In the past 7 days, how many days did [name of child under five] eat the following foods?
(List country/region/season-specific target vitamin A food source (example below.)

(B) In the past 7 days, how many days did you eat the following foods?

<table>
<thead>
<tr>
<th>Food</th>
<th>No. of days/week you / your child eat these foods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) Child (under five)</td>
</tr>
<tr>
<td>Household Member No.</td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td></td>
</tr>
<tr>
<td>Eggs</td>
<td></td>
</tr>
<tr>
<td>Meat</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
</tr>
<tr>
<td>Fortified dry skimmed milk</td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td></td>
</tr>
<tr>
<td>Kale</td>
<td></td>
</tr>
<tr>
<td>Swiss chard/spinach</td>
<td></td>
</tr>
<tr>
<td>Carrot</td>
<td></td>
</tr>
<tr>
<td>Pumpkin</td>
<td></td>
</tr>
<tr>
<td>Sweet potato</td>
<td></td>
</tr>
<tr>
<td>Papaya</td>
<td></td>
</tr>
</tbody>
</table>
VITAMIN A KNOWLEDGE, ATTITUDE AND PRACTICES MODULE (cont')

NGO no. _________  Cluster no. _______  Household no. _________

A2. Have you ever heard of night blindness (use local term)? ____________

  1 yes
  0 no  ⇒ If no, GO TO NEXT MODULE

A3. How is night blindness (local term) caused? __________________________

  1 food related
  2 water related
  3 don’t know
  9 other (describe)______________________________

A4. Can you tell me 3 foods that prevent night blindness?
(Prompt for foods from the following 3 categories.)

  Animal foods _________________________
  Fruits ________________________________
  Vegetables _____________________________
  99 don’t know _____

A5. How do you treat night blindness? ________________________________

  1 animal liver
  2 other foods (specify)
  3 medical
  4 don’t know
  9 other
VITAMIN A KNOWLEDGE, ATTITUDE AND PRACTICES MODULE

NGO no. ________  Cluster no. ________  Household no. ________
Child HM no._______  Mother HM no. __________

Module B
(For countries with/planning supplementation programmes)

B1. Have you ever received a vitamin A capsule like this one for your

(a) last child? ________
(b) yourself? ________

1 yes
0 no  If no, ⇒ GO TO NEXT MODULE
9 don’t know  ⇒ GO TO NEXT MODULE

B2. If yes, how many months ago did

(a) your child take the last capsule? __________ (99 don’t know)
(b) you take the last capsule? __________ (99 don’t know)
INTERVIEWER:

- Please fill out module C for EACH fortified food that applies to your programme.
- If the fortified food is targeted towards the child (ex. weaning food), ask the questions in this module to the mother, about her child (under 5 years).
- If the fortified food is targeted towards the mother (for ex. flour), ask the questions in this module to the mother, about herself.

C1. We would like to know if some food products are used in your household.
   Do you have the [fortified food product] in the house?
   Would you show us?___________________

1 Yes (seen)
2 Yes (not seen)
0 No ⇒ **If no, GO TO NEXT MODULE**

C2. In the last week, did [your child/you] eat [name of fortified food]?
   *(Show product and prompt: used in cooking, etc?)* ____________

1 Yes
0 No
9 Don’t know
IODINE KNOWLEDGE, ATTITUDE AND PRACTICES MODULE

NGO no. _______   Cluster no. _______   Household no. _______   HM no. ______

INTERVIEWER: This module should be asked to a woman in the dwelling between 15 and 49 years of age.

MODULE A

A1. Have you ever seen someone with goitre? _________
   1 yes
   0 no

A2. What is the cause of goitre? _____________________________
   1 iodine deficiency
   2 food related
   3 contamination of food/water
   4 pregnancy
   5 hereditary
   6 don’t know
   9 other (specify)

A3. How do you treat goitre? _____________________________
   1 tatoo
   2 branding
   3 medical
   4 special salt
   5 don’t know
   9 other (specify)
IODINE KNOWLEDGE, ATTITUDE AND PRACTICES MODULE

NGO no. _______  Cluster no. _______  Household no. _______  HM no. ______

MODULE B
(For countries with/planning supplementation programme)

INTERVIEWER: Show the woman a sample of an iodine capsule/oil.

B1. Have you ever received a capsule or oil like this? ________________
   1 yes
   0 no ⇒ If no, GO TO NEXT MODULE

B2. How many months ago did you take the last capsule/oil? ______________
   99 Don’t know
IODINE KNOWLEDGE, ATTITUDE AND PRACTICES MODULE

NGO no. _______  Cluster no. _______  Household no. _______  HM no. _____

MODULE C
(For countries with salt iodization programme)

INTERVIEWER: We would like to check whether the salt used in your household is iodized. May we see a sample of the salt used to cook the main meal eaten by members of your household last night?  Once you have examined the salt, complete the questions below.

C1. Record the test outcome: _______

1  Iodized
2  Not iodized
3  No salt in home
9  Not tested

C2. Record type of salt: _______

1  Granular (loose)
2  Salt in bag with seal
3  Salt in blocks
4  Not seen
9  Other ____________
IRON KNOWLEDGE, ATTITUDE AND PRACTICES MODULE

NGO no. _________ Cluster no. _______ Household no. ________ HM No. ________

INTERVIEWER: This module should be asked to the mother or caretaker with at least one child under age 5 in the dwelling. I am going to ask you about illnesses that you sometimes see in this area.

MODULE A

A1. Have you ever heard of anaemia/shortage of blood? _________________
   1 Yes
   0 No ⇒ If no, GO TO QUESTION A4

A2. Can you tell me how you get shortage of blood? (Prompt for 3 answers)

________________________________________________________________
________________________________________________________________
________________________________________________________________

1 lack of food
2 illness/disease
3 bleeding
4 heavy work
5 don’t know
9 other (specify) _________________

A3. Can you tell me 3 foods that are good for a pregnant woman to eat to prevent shortage of blood/pregnancy anaemia?

________________________________________________________________
________________________________________________________________
________________________________________________________________

1 meat/fish
2 eggs
3 leafy green vegetables
4 bones
5 legumes and vitamin C rich foods
6 don’t know
9 other (specify) _________________

A4. If you are pregnant, or when you were last pregnant, did you attend an antenatal clinic (ANC)?
   1 Yes⇒ if yes, GO TO QUESTION A6
IRON KNOWLEDGE, ATTITUDE AND PRACTICES MODULE (continued)

NGO no. _________ Cluster no. ________ Household no. _________ HM No. _________

A5. Why did you not attend an (ANC)? ____________ ⇒ GO TO QUESTION A7

1  Too far to service
2  Don’t think I needed to attend
3  Don’t like the trained staff
4  Inadequate service (no drugs, no staff, or no delivery equipment/specify) __________

A6. For how many months did you attend an ANC during your last pregnancy? __________

A7. If you are pregnant, or when you were last pregnant, do/did you see a trained birth attendant (TBA)? ______

1  Yes
0  No

A8. At which month of a pregnancy should women first go to an ANC, or see a TBA? __________

A9. Do you want to have another child in the next two years? ______

1  Yes
0  No
9  Don’t Know

A10. Does your husband want to have another child in the next two years? __________

1  Yes
0  No
9  Don’t Know

A11. Are you or your husband currently using any method to avoid or postpone getting pregnant? __________

1  Yes
0  No  ⇒ If no, GO TO NEXT MODULE

A12. If yes, specify method ____________

1  traditional
2  modern pills
3  modern injection
4 modern other
5 don’t know
9 other
IRON KNOWLEDGE, ATTITUDE AND PRACTICES MODULE (continued)

NGO no. ______  Cluster no. ______  Household no. ______  HM no. ______

MODULE B
(For areas with supplementation programme)

B1. Have you ever taken drugs or tablets (like this one - if standard drug distributed in area) for strengthening blood? ________________
   1 Yes
   0 No ⇒ If no, GO TO B5

B2. During which pregnancy did you take the last tablets? ___________
   1 most recent pregnancy
   2 previous pregnancy
   9 other (specify) ___________

B3. When you were taking these tablets during your pregnancy, for how many months did you take the tablets daily as prescribed? ______
   0 none
   1 1 to 4 months
   2 5 to 9 months ⇒ If 2, GO TO QUESTION B5
   9 don’t know

B4. Why were the pills not taken every day as prescribed? ____________________________
(Do NOT prompt for answers)
   1 clinic or TBA did not give pills on regular basis
   2 pills make her feel sick
   3 she missed appointments at clinic
   4 pills have a bad taste and/or smell
   5 instructions given by TBA or ANC worker were not understood
   9 other (specify) ___________

B5. Why do you think that a pregnant woman should take iron/folic pills? ______________
   1 increase strength
   2 reduce anaemia/iron deficiency
   3 help baby to be healthy
   4 don’t know
   9 other (specify) ___________
IRON KNOWLEDGE, ATTITUDE AND PRACTICES MODULE (continued)

MODULE C
(For areas with fortification programmes)

INTERVIEWER:
• Please fill out module C for EACH fortified food that applies to your programme.
• If the fortified food is targeted towards the child (ex. weaning food), ask the questions in this module to the mother, about her child (under 5 years).
• If the fortified food is targeted towards the mother (for ex. flour), ask the questions in this module to the mother, about herself.

C1. We would like to know if some of the following food products are used in your household. Do you have [fortified food product] in the house? Would you show us?____________

1 Yes (seen)
2 Yes (not seen)
0 No ⇒ If no, GO TO NEXT MODULE

C2. In the past week, did (your child/you) eat [name of fortified food]? (Show product and prompt: used in cooking, etc?) ________________

1 Yes
0 No
9 Don’t know
IMMUNIZATION, MORBIDITY AND ANTHROPOMETRY MODULE

INTERVIEWER: This module is directed to the mothers or caretakers of all children under age 5 in the dwelling. The questions below correspond to the Child Immunization Table.

- Complete the table for all children under 5 years in the dwelling.
- Fill in the child’s member number, name, and sex from the Household Member Listing Form.
- Then ask the mother the following questions, filling in the answers on the Child Immunization Table.
- Weigh and measure the child at the end of the interview, after asking all questions and completing all modules.

4. When was [name of child] born? Day/month/year

5. What is the source of the birthdate information?
   1 mother
   2 other relative
   3 birth card

6. What is the birth weight (kg) of your child on the birth card? None

7. Is there a vaccination record card for [name of child]?
   1 Yes
   0 No
   9 Don’t Know

If an immunization card is available, copy the dates for each type of immunization on the table (No. 8, 10, 11 and 12):

- Copy the dates for only the third dose of DPT and OPV.
- If no date for vaccination is recorded on the card, or if no card is available, use probing questions below to find out if the child received that vaccination, and if so, how many doses.
- Record the mother’s response for each vaccine in the space provided in the table.

8. Has [name] ever been given a BCG vaccination against tuberculosis - that is, an injection in the left shoulder that caused a scar?
   1 Yes
   0 No

10. Has [name] ever been given ‘vaccination injections’ - that is, an injection in the thigh or buttocks - to prevent him/her from getting tetanus, whooping cough, diphtheria? How many times?
    1 3 times(Yes)
11. Has [name] ever been given any ‘vaccination drops’ to protect him/her from getting diseases - that is, polio? How many times has he/she been given these drops?
   1 3 times(Yes)
   0 0, 1 or 2 times (No)
   9 Don’t Know

12. Has [name] ever been given ‘vaccination injections’ - that is, a shot in the arm or in the clavicle, at the age of 9 months or older - to prevent him/her from getting measles?
   1 Yes
   0 No
   9 Don’t Know

13. Is [name of child] sick today, or was she/he sick in the previous two days?
   1 Yes
   0 No ⇨ If no, GO TO QUESTION 15

14. If [name of child] is sick, what is she/he sick with?
   1 fever
   2 diarrhea (3 or more watery stools per day)
   3 upper respiratory tract infection (common cold, nasal discharge, cough, oral inflammation)
   4 lower respiratory tract infection (cough, fast breathing, chest indrawing)
   5 malaria
   9 other (oral thrush, ear discharge skin rash infection, dehydration, eye infections, scabies, measles)

   If the child is not present, ask the mother about the presenting features of the illness so that a diagnosis can be made. If the child is present, have the medical staff member note the presenting features.
## IMMUNIZATION, MORBIDITY AND ANTHROPOMETRY MODULE
(For Children Under 5 Years of Age)

**NGO No. __________  Cluster No. __________  Household No. __________**

**Interview Date: __________ (dd/mm/yy)**

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<td>2 Female</td>
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<td>4. Birthdate</td>
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<td>6. Birth Weight (kg)</td>
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<td>7. Vaccination Card</td>
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<td>9. BCG Scar</td>
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<td>1 Yes</td>
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<td>10. DPT3</td>
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<td>11. OPV3</td>
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<td>12. Measles</td>
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<td>14. Illness</td>
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**VITAMIN A CLINICAL EXAMINATION MODULE**

(For all areas with vitamin A interventions)

**INTERVIEWER:** This module is to be filled by an interviewer who is trained to identify xerophthalmia. The following questions are probing questions to be asked to all mothers or caretakers with children between 24 and 71 months of age to determine night blindness for each child. These questions are prompt questions, and do not need to be recorded.

Does your child have any problem seeing in the daytime?
Does your child have any problem seeing at nighttime?
  - Yes ⇒ **GO TO QUESTION 3**
  - No ⇒ **GO TO CLINICAL EXAMINATION SECTION (BITOT'S SPOTS)**

Is this problem any different from other children in your community?

Does your child have night blindness? *(Use local term)* Record answer on table below.

<table>
<thead>
<tr>
<th>Vitamin A status</th>
<th>1 Yes</th>
<th>0 No</th>
<th>9 Undetermined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Night blindness</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1 Yes</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>0 No</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>9 Don’t know</td>
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</tbody>
</table>

For Bitot’s spots, corneal dryness, keratomalacia, and corneal scar, examine all children 6 to 71 months and all women of child-bearing ages (15 to 49 years) in the household.

<table>
<thead>
<tr>
<th>Household Member No.</th>
<th>Name</th>
<th>Vitamin A status</th>
<th>Bitot’s spots</th>
<th>Corneal dryness</th>
<th>Keratomalacia</th>
<th>Corneal scar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
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<td>9 Don’t know</td>
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</table>
**BIOCHEMICAL ASSESSMENT MODULE**  
(For all areas with iron and/or vitamin A interventions)

NGO no. _______  Cluster no. ___       Household no.____

**INTERVIEWER:**  This module is to be filled by a female technician who is trained to collect breast milk samples, take finger prick samples for haemoglobin determination, and prepare slides for malaria determination.

*For all areas with vitamin A interventions,* collect breast milk samples of all lactating women, 1 to 8 months postpartum, in the household. Put the breast milk in a container labelled with date, person number, NGO, cluster and household number. The samples must be stored on ice, under tin foil, transported to the designated laboratory, aliquoted and stored at -20 degrees Celsius until analyzed. Let the mother know that: *we would like to examine the nutrients in your breast milk to see if your child is getting enough food.*

*For all areas with iron interventions,* collect haemoglobin and malaria samples from women of child bearing age (15 to 49 years) and/or for children under 5 years of age (depending on the target group).  *We would like to find the strength of each mother’s blood and see if you have malaria, by taking a finger prick sample. We will give you the results of the test and iron capsules today if you or your child need them.*

<table>
<thead>
<tr>
<th>Household Member No.</th>
<th>Name</th>
<th>Pregnant</th>
<th>Breast Milk Retinol (9 N/A-Child)</th>
<th>Finger Prick</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0 no 1 Yes 9 DK</td>
<td>1 Sample obtained 2 No milk 3 Refused 4 Absent (µmol/l) .25-5.0</td>
<td>1 Sample obtained 2 Refused 3 Absent Hb (g/dl) 3-20 MPS 0 neg 1 pos</td>
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EXCERPT FROM THE MICAH GUIDE  
WORLD VISION CANADA  
PAGE 47
This module is for regions where dietary modification is the primary intervention. The diet monitored will depend on the target group. However, pregnant mothers are an important group, and much easier to collect accurate information for than children age 6 months to 24 months.

The detailed instructions and forms for this module are found in Appendix F-2.
SCHOOL SURVEY
SCHOOL CHARACTERISTICS

NGO no. ______  School no. _____

INTERVIEWER: Ask the following questions of the teacher, once for each school surveyed.

1. Name of the school ________________________________

2. Address of the school ____________________________
   Region __________________
   Province/Zone _____________________________
   District/Woreda ____________________________

3. Type of the school ______
   1 Elementary
   2 Junior high school
   3 High school

4. Total number of students:
   Male ____________
   Female __________
   Total _______________

5. Is there demonstration garden in the school? ______
   1 Yes
   0 No

6. If yes, size of the garden:___________________(hectare)

7. Are vegetable or fruits grown in the garden? ______
   1 Yes
   0 No

8. If yes, what type of vegetables & fruits are grown? (more than one answer is allowed)
   ___  ___  ___  ___  ___  ___ (Country Specific)
   1 Green vegetables
   2 Carrot
   3 Tomato
   4 Beet root
   5 Fruits
   9 Others (specify)________________________

9. What are the vegetables and fruits used for? ___ ___ ___ ___
   (More than one answer is allowed.)
1. Home consumption for the students/teachers
2. Sold for income generation
9. Other purpose (specify)________________________

SCHOOL SURVEY
SCHOOL CHARACTERISTICS

NGO no. _______ School no. _______

10. What is the source of drinking water for the school children at school?

1 river
2 lake/dam
3 pond
4 protected dug well
5 unprotected dug well
6 protected spring
7 unprotected spring
8 roof catchment
9 piped water
10 tube well/borehole
99 other (describe) ___________

11. What is the distance to the source of drinking water and back? _______________ (km)
**INTERVIEWER:** This table is to be completed by a technician trained to identify goitre grade, xerophthalmia and to collect specimens. It is to include children in the school that is surveyed. Complete the table below as follows:

- If Vitamin A, iodine and iron interventions target school children, the entire table is to be completed.
- If Vitamin A interventions do not target school children, do not include the xerophthalmia section.
- If parasites, such as shistosomians and hook worm, are not prevalent in the area, do not include this section in your survey.

<table>
<thead>
<tr>
<th>Child No.</th>
<th>Name</th>
<th>Sex</th>
<th>Age</th>
<th>Goitre Grade</th>
<th>Xerophthalmia</th>
<th>Stool Hook Worm</th>
<th>Urine</th>
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(A) 1 Male  
2 Female

(B) **Grade 0:** No palpable or visible goitre.

Grade 1: A mass in the neck that is consistent with an enlarged thyroid that is *palpable but not visible* when the neck is in the normal position. It moves upward in the neck as the subject swallows. Nodular alteration(s) can occur even when the thyroid is not visibly enlarged.

Grade 2: A swelling in the neck that is *visible when the neck is in a normal position* and is consistent with an enlarged thyroid when the neck is palpated.

(C) 1 Yes  
X1B Conjunctival Xerosis/with Bitot’s spots
VILLAGE SURVEY

NGO no. _____  Cluster No. _____  Village no. _____

INTERVIEWER:  Ask the following questions once of the village chief or traditional head of village for each new village surveyed.

1. What is the pattern of the houses in the village?  __________
   1 Scattered
   2 Dense
   3 Villagized (through resettlement programme)

2. Ecological zone: __________

3. What is the size of your village?
   Number of Households
   Number of people

Agriculture

4. Is there agriculture extension service? _________
   1 Yes
   0 No

5. What is the main crop that is farmed by people in the village? ________
   (country specific)
   1 Pastoral area
   2 Cereal
   3 Cash crop
   4 Ensete
   5 Mixed

6. What month(s) are the months of harvest season(s)? __________
   (country specific - following example from Ethiopia)
   1 Meher
   2 Belg
   3 Meher + Belg
   4 Meher + Belg + other

7. Do you practice irrigation? __________
   1 Yes
   0 No
8. Do you use chemical fertilizer? 

1 Yes
0 No


VILLAGE SURVEY (Cont’)

<table>
<thead>
<tr>
<th>NGO no.</th>
<th>Cluster No.</th>
<th>Village no.</th>
</tr>
</thead>
</table>

9. Is there a veterinary clinic in your village? ________
   1 Yes  ⇒ If yes, **GO TO QUESTION 11**
   0 No

10. How far is it from your village to the nearest veterinary clinic?
    __________ Kms. OR __________ Hours Walk (to nearest .5 hr)

Health

11. Is there a health facility in your village? ________
    1 Yes
    0 No  ⇒ If no, **GO TO QUESTION 13**

12. What type of health facilities are in the village? ________  ⇒ **GO TO QUESTION 14**
   1 Community health service
   2 Health station
   3 Health centre
   4 Hospital
   9 Other (specify):______________________

13. If there is no health facility,
    a) How far is it from your village to the nearest Health Facility?
       __________ Kms. OR __________ Hours Walk (to nearest .5 hr)
    b) What is the type of health facility nearest to the village? ________
       1 Community health service
       2 Health station
       3 Health centre
       4 Hospital
       5 Other (specify):______________________

Education

14. Is there a school in your village? ________
    1 Yes
    0 No  ⇒ If no, **GO TO QUESTION 16**

15. What type(s) of school is in your village? ________  ⇒ **GO TO QUESTION 18**
    (More than one answer is possible)
    1 Elementary school
16. If there is no school, how far is from your village to the nearest school?
   __________ Kms. OR
   __________ Hours Walk (to nearest .5 hr)

17. What is the type of school in the village nearest you? __________ (more than one answer can be noted)
   1 Elementary school
   2 Junior high school
   3 High school
   9 Other (specify) __________

Other

18. Is there a flour mill in the village? __________
   1 Yes  ⇔If yes, GO TO QUESTION 20
   0 No

19. How far is it from your village to the nearest mill?
   __________ Kms. OR
   __________ Hours Walk (to nearest .5 hr)

20. What is the main source of water for the village? __________
   1 River
   2 Well (s) (protected)
   3 Well (s) (unprotected)
   4 Protected spring
   5 Unprotected spring
   6 Pond
   7 Pipe
   8 Lake
   9 Other (specify) ______

21. Is there a road passing through the village? __________
   1 Yes
   0 No  ⇔If no, GO TO QUESTION 23

22. What type of road passes through your village? ______
   1 All weather road
   2 Dry weather road  ⇔GO TO QUESTION 24

23. How far is it to the nearest road from your village?
a) All weather road:
   __________ Kms. OR
____________ Hours Walk (to nearest .5 hr)

b) Dry weather road:

____________ Kms. OR
____________ Hours Walk (to nearest .5 hr)

VILLAGE SURVEY (Cont’)

NGO no. _____    Cluster No. _____    Village no. _____

24. Is there a market place in your village? _________
   1 Yes  ⇔If yes, GO TO NEXT MODULE
   0 No

25. How far is it from your village to the nearest marketplace?

____________ Kms. OR
____________ Hours Walk (to nearest .5 hr)
2.7 Instructions for Interviewers

The principal aim of this survey is to monitor the progress of the MICAH programme in your country. This will be accomplished by speaking to mothers or other caretakers of young children about the health of the children they care for. Detailed information will also be collected about the household and the mothers' own immunizations and knowledge of health matters.

Your supervisor will give you a list of households to visit, or will tell you how to find the households. You must visit all these households, even if it means returning repeatedly until you find somebody at home. In each household, you should interview all the mothers or principal adult caretakers of children under age 15 years. If you visit a household with no children under age 15, you must still ask questions about the household. You may ask these questions of any adult who is present.

What if nobody is at home?

Ask the neighbors whether the house is inhabited. If it is, inquire when the household members will return. Arrange with your supervisor to go back to the dwelling when it will be occupied, or at the end of the day. Note your plans to call back on the "Identification Section" of the questionnaire. Do not substitute another household.

What if no adult is at home?

Arrange to come back at another time, when the caretaker of the household will be home. Do not interview a temporary caretaker of the children, such as a babysitter.

What if nobody is at home on a return visit?

Mark this household on your form as "missing". Your supervisor may ask you to revisit these households, or to visit another household.

What if more than one family is living together in one house?

In areas where separate households are difficult to identify, such as multi-household dwellings, treat the entire dwelling as one household, and interview all the women and children within that dwelling.

Example

If the house or dwelling chosen is an apartment house and contains several households, all the households should be interviewed.

Ask your supervisor if you are in doubt about what to do when you cannot locate a household, or you cannot complete an interview. Always keep a record of the households you visited where nobody was at home.
2.7.1 How to Handle An Interview

The following include some practical guidelines which will help you through the interview process. You will find that with each successive interview, your skills will improve, and you will grow more comfortable. Familiarize yourselves with the following, and try to incorporate them into your interviews.

- Conduct yourself in a relaxed, informal way, but be thorough. Follow the questionnaire carefully.
- Make sure that you understand the exact purpose of each question. This will help you to know if the responses you are receiving are adequate. The detailed instructions that follow will help you to identify these purposes.
- Ask the questions exactly as they are written. Even small changes in wording can alter the meaning of the question.
- Ask the questions in the same order as they are given on the questionnaire.
- Ask all the questions, even if the respondent answers two questions at once. You can explain that you must ask each question individually, or say "Just so that I am sure..." or "Just to refresh my memory..." and then ask the question.
- Help your respondents to feel comfortable, but make sure you do not suggest answers to your questions (unless the instructions ask you to). For example, do not "help" a woman to remember the age of her child by mentioning specific numbers, but rather use events or seasons of the year to spark her memory so that she can identify the age herself.
- Do not leave a question blank unless you have been instructed to skip the question. Questions left blank are difficult to deal with later. It may appear as if you forgot to ask the question. Always write in 0 when a zero answer is given. Write in the code number (usually 9 or 99) for responses such as "not applicable" or "don't know", when necessary to indicate that you asked the question but were not given a proper answer.
- Record answers immediately. Write down any pertinent remarks made by other people present, and mention who they are. Check the whole questionnaire before you leave the household to be sure it is completed correctly.
- Thank the respondent for her cooperation. Try to maintain the survey schedule, and do not stay and talk for too long.

2.7.2 General Points for Interviewers

Dress Neatly

The respondent's first impression of you is based upon your appearance. The way you dress will influence
whether you have a successful interview or not. Dress neatly and simply.

Gain Rapport with the Respondent

- Avoid inconvenient times for interviewing, such as meal times. Try to arrive when the respondent will not be too busy to answer questions.

- Introduce yourself by name and show your identification. Explain the study and why you wish to interview the women in the household (see Identification Section of the survey).

- Be prepared to explain what confidentiality means, and try to persuade respondents to participate if they are reluctant, assuring them the information they provide will remain confidential.

- If the respondent refuses to be interviewed, note the reasons on the questionnaire, if possible.

- Remain calm and polite at all times.

Probe for Adequate Responses

- Pause and wait if the respondent is trying to remember difficult items.

- Ask the respondent to clarify answers as necessary, to ensure you understand her.

- Check for consistency between answers given.

2.7.3 How to Fill in the Questionnaire

The questionnaire consists of a series of modules. The following instructions refer to the questions that appear in each Module of the Standard Questionnaire. These instructions should be translated into the language of the interviewer. The questions in each module should be directed to the mothers or those who care for the children in the household. If a mother is not at home, direct the questions to the person caring for the children. If no mother or adult caretaker is at home, tell your supervisor, and decide what to do about re-visiting the household.

Identification Section

1. Enter the NGO no., cluster no., and household no. as instructed by your supervisor (this information must be entered at the top of each page of the questionnaire).

2. Enter the region, zone, district, project area and village of the household you are interviewing in the boxes provided.

3. If the household is unoccupied, circle whether or not a call-back is necessary as instructed by your supervisor. If you plan to call back, enter the time to re-visit.

4. Enter your own name or identifying number in the “interviewer” box.
5. Enter the date of the interview: day/month/year.
6. Enter the name of the interviewee.
7. At the time of data entry, the data entry clerk identifies him/herself.
8. Identify whether or not all the modules have been completed when you are finished the interview. If you are unable to complete the interview, identify the reason (refusal, not at home, other).
9. At the bottom of this section, identify the name of your supervisor and have your supervisor sign the bottom of the Identification Section, as well as the date.

**Household Characteristics (Section A)**

**Intended Use:** All areas.

**Intended Respondents:** The mother of each household.

This form is intended to provide information regarding each member of the household you are interviewing. The first column provides a list of numbers, each of which will correspond with the name of a household member as entered into the second column. The following columns provide detailed information about each member, including: first name, relation to household head, sex, age, marital status, work status, highest level of education, and literacy. **Note that you are interested in information about the members of the household who slept in the household the night prior to your interview.** This does NOT include members who usually sleep in the household, but were absent last night. However, it **DOES** include individuals who did sleep in the household last night, however are not usual household members. Fill out the table as follows:

1. Enter the NGO no., cluster no., and household number at the top of the page.
2. Fill out the Household Member Listing Form. This form provides information about each member of the household in which you are performing the interview.

**Household Member No:**

Each member of the household is assigned a specific number which will be used to identify them throughout the questionnaire. You will find yourself referring back to this page frequently to obtain the household member number when recording information in other modules about specific individuals.

**First name of household member:**

List the names of each person who stayed in the household **last night**. Do not include individuals who did not sleep in the household last night, even if they usually do live there. List the name of the mother/caregiver first, followed by each child she cares for, starting with the youngest. If multiple families live together, list the name of the next mother, followed by the names of her children, starting with the youngest.

**Relation to household head (A):** Choose one of the 5 options listed below the table under **(A)** which best describes the household member's relationship to the head of the household. The head of the household would, of course, be option 1, “head”.

**Sex:** In this column, record 1 if the household member is a male, 2 if female.
Age: Record the age of the household member to the nearest completed year. If a child has not yet reached his/her first birthday, write "00" - for example, if a child is 9 months old. Remember, the ages must reflect the last birthday: That is, the child/caregiver must have already celebrated his/her birthday. If the mother does not know the current age of her child, try asking "How many years ago was [name] born?" You can help her by relating the child's age to that of other children or to some important event or to the season of birth. For example, "How many wet seasons ago was [name] born?" You must record an age for each child. Do not leave this column blank for any child. Stop listing when the woman reaches a child who is over the age of 15 years.

Marital Status (B): Choose one of the 5 options listed below the table under (B) which best describes the household member's marital status. Record the appropriate number corresponding to the option of choice, in this column.

Work Status (C): Choose one of the 9 options listed below the table under © which best describes the household member's work status. If “other” is selected, be sure to specify what kind of work is referred to. Record the appropriate number which matches the option you have chosen in this column.

Highest Level of Education (D): For this question, we are interested in finding out about the education level of the people surveyed. Choose one of the options listed below the table under (D) which best describes the household member's highest level of education. That is, the last year of schooling that was completed. Note the varying ranges of grades which correspond with different options (elementary, junior, high school). If the individual has completed any university/college education, select this option (that is, they need not have completed a degree).

Read/Write (E): Choose one of the options listed below the table under (E) which best describes the household member's literacy level.

Household Characteristics (Section B):

Intended Use: All areas.
Intended Respondents: The mother of each household.

In the module, Household Characteristics (Section A), you recorded information specific to each household member. This section asks questions regarding the household which are more general, about certain aspects of the household as a whole.

- Enter the NGO no., cluster no., and household number at the top of both pages of this module.

1. This question seeks to find out the tribe or ethnicity of the household, specific to your country. Specify the answer which describes the tribe of the person you are interviewing.
2. This question is used to find out the religion of the household. If there are different religions represented, record the answer that reflects the religion of the respondent.

Questions 3 to 6 aim to find out information regarding the fuel used by the household. If "other" is answered for any question, be sure to ask the respondent to provide a specific answer to clarify what is referred to.

3. Be sure to follow the appropriate "go to" commands which correspond to the answer provided to this question. For example, if the kind of fuel used is something other than wood or cow dung, questions 5 and 6 will not apply, therefore you can skip over them to question 7, as indicated on the questionnaire.

4. Encourage the respondent to provide an accurate estimate of travel time to the nearest half hour. For example, if the answer given is one hour and 20 minutes, you would record 1.5 hours; if 50 minutes, you would record 1 hour.

5. This question is aimed to find out how long a supply of fuel lasts. If the answer is different than those provided (daily, weekly, fortnightly), record specifically the answer under the “other” option.

6. This question is directed to find out who collects the fuel of the household. There may be different individuals involved in this task, therefore note that the question asks who last collected the fuel - that is, the fuel that is currently being used.

7. Enter the answer that reflects the material that comprises the majority of the roof. If more than one kind of material was used to make the roof, record the main roofing material.

8. Enter the total number of rooms in the dwelling. You may wish to walk through the dwelling yourself to get an accurate number, if the respondent is comfortable with this.

9. This question asks what type of items are present in the household. Your supervisor may wish to change the items which are listed, according to what is most common in your country. For example, if a something other than a bicycle is typically used for transportation, you would replace “bicycle” in your questionnaire with an alternate option. To ensure an accurate response, you may wish to walk through the household with the respondent in order to see which items are present and which are not.

**Water and Sanitation Module**

**Intended Use:** All areas.

**Intended Respondents:** The mother of each household.

- Enter the NGO no., cluster no., and household number at the top of both pages of this module.

1. The purpose of this question is to find out how safe the household drinking water is. Please note that 2 answers are asked for: the source of water during the wet season, and the source during the dry season. If several sources are mentioned, probe to determine the most usual source (for each season), and enter this code in the space provided after the questions. The questionnaire indicates whether to ask question 2
or 3 next, depending on the answers received for question 1: if any of options 7-10 are selected for either answer (wet/dry season), go to question 2; otherwise you may skip question 2 and go on to question 3. Be sure to specify the source in the space provided, if “other” is selected.

2. This question seeks to find out how the water source is maintained and by whom. As mentioned above, you need not ask this question if none of options 7-10 were selected in question 1, since these are the only sources that would be intentionally maintained as a water source.

3. This question aims to find out how convenient the water source is. Fill in the estimated time it takes by the usual mode of transport to get to the water source, wait to get the water, and get back to the dwelling. Once again, 2 answers are required for this question:

An estimate of the travel time in both the wet and dry seasons.

4 & 5. These questions are concerned with who usually gets the water, and how it is carried from the source to the dwelling. Record the answers which most closely reflect this.

6. The purpose of this question is to obtain a measure of the cleanliness of the sanitary facility used by the household members. If the answer is "other" than those listed, be sure to ask for and record an explanation of what is used.

Agriculture and Food Module

Intended Use: All areas.
Intended Respondents: The mother of each household.

- Enter the NGO no., cluster no., and household number at the top of both sheets of the module.

1. This question seeks to find out how much land is held by the respondent's household. Help them to estimate this to the nearest 0.25 hectare. This means that the decimal point for this answer will always be followed by either .00, .25, .50, or .75. For example, if the answer given is 1.7 hectares, you would record an answer of 1.75, since 1.7 is closer to 1.75 than 1.5.

2. This question is directed to find out who owns the land of the household. Remember to obtain a specific answer if the “other” response is selected.

3, 4. The purpose of these questions is to determine availability and use of both fruits and vegetables. If the respondent has a garden, try to find out what the fruits/vegetables are primarily used for (question 4). Please note that an answer is needed for the uses of both fruit and vegetables.

5, 6. These questions revolve around the animals that are owned by the respondent's household, and how the products of these animals are used. Please note that in question 5, “other” refers to animals which the
respondent may have, which are not listed. If this is the case, be sure to specify what they are.

In question 6 however, "other" refers to other uses of the products from the animals, beyond those listed (consume, sell, equally consume & sell). Question 6 is answered by filling out the table - for example, if the respondent uses the milk from cattle mostly to sell, you would put a "2" in the box which corresponds to both milk and cattle (third column, second row). You need not fill in every box in the table, as not every box will be applicable to every situation.

**Mortality Module**

**Intended Use:** All areas.

**Intended Respondents:** Every woman in the household between 15 and 49 years of age who has ever had a child.

Because of the nature of the information contained in this module, women should be the interviewers whenever possible. Be sure to have multiple copies of the Birth Listing Form on hand, since the form must be filled out for each woman in the household. If you cannot obtain the answer to a question, do not leave a blank space - put a 99 in the answer space provided.

- Enter the NGO no., cluster no., and household no. at the top of the page.
- Fill out a separate Birth Listing Form for each woman.
- Each mother should be interviewed alone in order to avoid “group” answers to questions.
- Copy each woman’s household number and name from the Household Member Listing Form (Household Characteristics - Section A) onto column 1 of the Birth Listing Form in the spaces provided.
- Then, go to each mother and ask her the following questions (in bold), recording the answers on the corresponding table (Birth Listing Form).

**I would like to ask you some questions about any children you have had who were born alive, even if they have since died. What is the name of your last child born alive?** (If the child is still living at home, copy the child’s name and number from the Household Member Listing Form to columns 2 and 3, “Child’s Name”, and “Child’s HM No.”

**Was [name of child] born a boy or girl? When was the child born?** Ask if the child has a birth certificate and copy down the sex and date of birth (columns 4 and 5), noting the source. Ask the mother directly, if no birth certificate is available, for the month and year that the child was born. You may have to ask probing questions to help her identify this information.

**Is the child still alive?** Record the answer in column 6. If the child is not alive, ask the mother if she can recall how old the child was at death (in months). Record this answer in column 7.

You will note that there is room on the table for the three most recent live births of the mother. Continue to ask for the next last live birth and the live birth previous to that. Complete the form for these three, if applicable. There is also a row provided for a twin. Ensure the mother understands that these questions...
all refer to her own biological children who were live-born.

- Include ALL babies who have ever breathed or cried, even if only for a short time.
- Do NOT include stillbirths or abortions.
- Do NOT include adopted children or children of her husband by another wife.

Finally, be sure to specify who provided the answers, in the final question below the table. **Do not make assumptions about the identity of the person you are interviewing.**

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**Breastfeeding and Weaning Patterns Module**

**Intended Use:** Households with a child under the age of 5; questions directed towards the youngest child in the household.

**Intended Respondents:** Every woman in the household who has a child under 5 years. If there is more than one, refer the questions to the youngest child.

This module should be used **only** if there is a child under the age of 5 in the dwelling. The questions should be asked to the mother or child caretaker, about the youngest child (if there is more than one child under 5 years).

- Enter the NGO no., cluster no., and household no. at the top of the module.

1. This question asks for the name of the youngest child in the household, as this is the child whom the rest of the questions will refer to.

2. You can find the household member number (HEN) from the **Household Member Listing Form** (Household Characteristics - Section A).

3. Ask the mother/caretaker if the child is still breastfeeding. If yes, go to question 5.

4. This question asks when breastfeeding for this child ended. If the child is **no longer** breastfeeding, find out the age (in months) at which the mother stopped nursing the child. Try to help the mother estimate the age by using local calendar events. Record "99" if the mother does not know or cannot provide an answer.

The next 3 questions seek to find out information about any supplementary food that has been given to the child.

5. The purpose of this question is to find out the number of months the child was exclusively breastfed. That means no additional soda, water, porridge etc. Make sure the mother understands that you are asking for the number of **months** that the child consumed only milk from the mother. Again, you may need to help her estimate this. Enter this number in the space provided.

6. The purpose of this question is to determine what food was first introduced to the child, after breast milk. Be specific in your description of this food.
7. This question is an extension of the question 6, to find out how frequently this first supplementary food was given to the child each day. Fill in the number of times per day that this food was given to the child.
Vitamin A Module - Module A

Intended Use: Countries who are undertaking dietary education programmes.
Intended Respondents: All mothers/caretakers with a child under the age of 5 years.

The questions in this module relate specifically to foods consumed, and Vitamin A related diseases. The questions apply to the mother/caretaker, and a child under the age of 5 years. If there is more than one child under 5 years, ask the questions about the oldest child (under 5 years).

- Enter the NGO no., cluster no., and household no. at the top of both pages.

The first part of the Module is a table which summarizes the frequency of consumption of certain foods by both the mother and child. First fill in the Household Member Number for each person. Then ask the mother questions (A) and (B) above the table. It is very important that you use the exact words given in this question each time you ask it. Question/column A refers to the eating patterns of the child, while question/column B asks the same question in regards to the mother. The answer for any food in the table cannot exceed 7, since the question is directed towards the frequency of consumption in the past seven days. Note that it does not matter how many times per day the food was consumed; rather, we are interested in the number of days in the past week that the food was eaten. The foods that are included in the table should be vitamin A food sources specific to both your country/region, and the season in which you are conducting the survey.

Questions A2-A5

These questions are related to the topic of night blindness, a vitamin A deficiency disease.

A2 Ask if the respondent has ever heard of night blindness (use the familiar local term). If not, you may move on to Module B, as the succeeding questions will not apply.

A3 This question aims at finding out what the respondent perceives as the cause of night blindness. Allow the respondent to express any answer, and describe any responses not listed in the “other” category.

A4 This question aims at finding out how the respondent perceives night blindness might be prevented. Ask the respondent for a specific food from each of the 3 categories (animal foods, fruits, vegetables) that might prevent night blindness. For this question, you may prompt the respondent for answers by mentioning each of the three categories of foods.

A5 This question is to find out how the respondent thinks that night blindness might be treated. Only one choice is possible for this answer. If the respondent lists more than one, ask for the answer that would be the best treatment for night blindness.
**Vitamin A Module - Module B**

**Intended Use:** Countries who are undertaking *supplementation* programmes.

**Intended Respondents:** Mothers/caretakers and **all** children under the age of 5 years. (Be sure to have extra copies of the module on hand).

- Enter the NGO no., cluster no., and household no. at the top of the page
- Enter the household member number of the child, and the mother.

**B1** Note the 2 parts to this question. Part (a) is directed towards the youngest child, and asks if he/she has ever received a vitamin A capsule. When you ask the question, be sure to have a vitamin A capsule with you to show the respondent, to help them answer the question. It should be a capsule that resembles those that might have been distributed in your country. Part (b) is directed towards the respondent, and asks if they have ever received a vitamin A capsule.

**B2** This question is only asked if the previous question is answered “yes”. Again, there are 2 parts to the question, both of which refer to the length of time that has passed since the last Vitamin A capsule was taken: part (a) refers to the child; part (b) refers to the respondent. Record the number of **months** that have passed since the last capsule was taken. You may need to refer to local calendar events to help the respondent identify how much time has passed. If the answer is within the last month, answer “1”. If they don’t remember, answer “99”.

**Vitamin A Module - Module C**

**Intended Use:** Countries who are undertaking *food fortification* programmes.

**Intended Respondents:** Those to whom the food fortification programme is directed at.

Module C should be filled out for **each fortified food** included in your programme. The questions in this module are directed to either the child, or the mother, depending upon the target of your specific programme. For example, if the fortified food is a weaning food, targeted at the child, ask the questions to the mother, about her child. If the fortified food is flour, targeted at the mother, ask the questions to the mother, about herself. You should be equipped with a sample of each fortified food to show the respondent.

- Enter the NGO no., cluster no., and household no.
- Enter the household member number of the child, and the mother.

**C1** Ask the respondent if they have any of the fortified food in their home (refer specifically to whatever fortified foods apply to your programme). Sometimes respondents may answer yes, when they actually do not have any of the food in their home. If they do answer yes, ask if it would be possible to see the food. Note that when you record the answer, there are two “yes” responses: 1 - if you were able to see a sample of the food; 2 - if the respondent answered yes, but a sample of the food was not seen. If the answer is “no”, you may go on to the next module.

**C2** This question assumes that the fortified food is in the **possession** of the household. The aim of this question is to get an idea of whether the fortified food is actually being **consumed** by the household. Ask
the respondent if she/her child (depending on the fortified food) have eaten the fortified product in the last week. Show the product as you ask the question and refer to various ways the product might be used. This may help them to remember whether or not they have used it.

**Iodine Module  - Module A**

**Intended Use:** Countries who are undertaking dietary education programmes.

**Intended Respondents:** All women in the dwelling between 15 and 49 years of age.

The questions in this module relate specifically to goitre, the most common iodine deficiency disease. It addresses the causes and treatment of goitre.

- Enter the NGO no., cluster no., and household no.
- Enter the household member number of the respondent.

A1 Ask the respondent if they have ever seen anybody with goitre. Make sure that they know what goitre is, when you refer to it.

A2 Ask the respondent what they think the cause of goitre is. If they give multiple answers, ask them what they think the main cause is, and record that answer. Be sure to specify what “other” refers to, if they specify a cause that is not listed.

A3 Ask the respondent how they think goitre should be treated. Once again, if multiple answers are given, ask them what the main treatment should be, and record this answer. As well, specify what “other” refers to, if this is the answer selected.

**Iodine Module  - Module B**

**Intended Use:** Countries who are undertaking supplementation programmes.

**Intended Respondents:** All women in the dwelling between 15 and 49 years of age.

When you ask the questions in this module, be sure to have a sample of an iodine capsule/oil with you to show the respondent.

- Enter the NGO no., cluster no., and household no.
- Enter the household member number of the respondent.

B1 Ask the respondent if they have ever received an iodine capsule, as you show them what it looks like. If they answer “no”, you may go on to module C.

B2 If they have received an iodine capsule, try to get an idea of how many months ago they took the last capsule. You may need to refer to local calendar events to help the respondent identify how much time has passed. If the answer is within the last month, answer “1”. If they don’t remember, answer “99”.

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EXCERPT FROM THE MICAH GUIDE
WORLD VISION CANADA
**Iodine Module  - Module C**

**Intended Use:** Countries who are undertaking salt iodization programmes.

**Intended Respondents:** A woman in the dwelling between 15 and 49 years of age.

- Enter the NGO no., cluster no., and household no.
- Enter the household member number of the respondent.

Begin by explaining to the respondent that you would like to determine whether or not the salt used in their household is iodized or not. Ask if you could see a sample of the salt that was used to cook the main meal for the household last night. After you have examined the salt and determined whether it is iodized or not, proceed with the questions.

C1 **Record the outcome of the test.** If you were unable to carry out the salt iodization test, note if there was no salt in the home to be tested, or if you were unable to test the salt for some other reason.

C2 **Record what type of salt is present in the home.** This could be granular, salt sealed in a bag, or block salt. If it is another type of salt, remember to describe what it is under the “other” option.

**Iron Module  - Module A**

**Intended Use:** Countries who are undertaking dietary education programmes.

**Intended Respondents:** Mothers/caretakers with at least one child under age 5 in the household.

This module seeks to find out the respondent’s understanding of iron-related illnesses, as well as perceptions of pregnancy-related issues. Explain to the respondent before you begin, that the questions you will be asking, are related to illnesses they may have observed in their area.

- Enter the NGO no., cluster no., and household no.
- Enter the household member number of the mother.

A1 **Ask the respondent if they have ever heard of anaemia/shortage of blood (use the word specific to your country/language).** If they are unfamiliar with it, move ahead to question A4, as the questions that follow will not be applicable.

A2 **This question aims to gain an understanding of what the respondent perceives the causes of anaemia to be.** You may need to prompt for answers by giving the respondent a few hints as to what some possible causes might be.

A3 **This question asks the respondent what foods might prevent anaemia from occurring.** They may specify “other” foods in addition to those listed. Be sure to obtain 3 possible answers.

Questions A4-A8 relate to the use of antenatal clinics (ANC) and trained birth attendants (TBA) by the mothers.
you are talking with. Be careful in your verbal and non-verbal responses to the answers they provide, to ensure that they feel comfortable being truthful with you, regardless of their answer.

A4 Ask the respondent if she attended an ANC during her last pregnancy (If she is currently pregnant, the question would refer to the present). If she answers yes, go to question A6.

A5 This question is asked if the respondent did NOT attend an ANC during her last pregnancy. We would like to find out why she did not attend. Select the answer that best fits the response of the mother. Ask this question carefully, so that the mother does not feel uncomfortable for her answer.

A6 If the respondent did attend an ANC, ask this question, to try to find out how long she attended the clinic - record the answer to the nearest month. For example, if she attended a clinic for one month and ten days, you would record one month.

A7 This question asks whether the mother has seen a TBA during past pregnancies, or is currently seeing a TBA (if pregnant). If the mother has ever had any contact with a TBA, answer yes.

A8 This question asks the mother about when she saw a TBA, or attended an ANC. If she does not think it is necessary at all, answer 0. Otherwise, answer according to the month of pregnancy.

Questions A9 - A12 are directed towards the topic of family planning.

A9 and A10 are directed towards the wife and husband respectively, to find out whether each of them as individuals, wish to have another child in the next 2 years.

A11 and A12 are directed to determine whether any birth control measures are being used. If so, ask A12 to determine specifically which method is being used. Otherwise, move on to Module B.

**Iron Module - Module B**

**Intended Use:** Countries who are undertaking iron supplementation programmes.

**Intended Respondents:** All mothers/caretakers with at least one child under age 5 in the household (Be sure to have extra copies on hand).

If a standard supplement has been distributed, be sure to have a sample with you to show the respondent when you ask these questions regarding iron supplementation.

- Enter the NGO no., cluster no., and household no.
- Enter the household member number of the mother.

B1 This question seeks to find out if the respondent has ever take iron supplements. Show the respondent a sample of the iron supplement in your area, and ask her if she has ever taken such a supplement. **If not, move ahead to question B5.**
B2 This question asks how long ago the respondent took iron supplements. Supplements are typically provided during pregnancy, therefore the answer will likely be related to a past pregnancy. If they were not taken during a pregnancy, answer “other”, and specify when.

B3 This question aims to determine the length of time during which the respondent took iron supplements every day. Emphasize the fact that you are interested in finding out how long she took iron supplements regularly on a daily basis. Try to help the respondent provide as accurate an estimate as possible (ex. 3-4 months is the length of a season), and select the best answer.

B4 This question is asked if the answer in B3 implies that the supplements were not taken regularly. Again, this question must be asked in a non-threatening manner, in order for you to understand why the respondent was unable to take the pills daily. In this case, do not prompt for answers. Allow the respondent time to think it through, and answer on her own.

B5 This question seeks to find out if the respondent has any ideas as to the purpose of iron supplements. Do not push the mother to provide an answer. If she does not know, select “don’t know”.

**Iron Module – Module C**

**Intended Use:** Countries who are undertaking **iron fortification** programmes.

**Intended Respondents:** Those to whom the food fortification programme is directed at.

- Enter the NGO no., cluster no., and household no.
- Enter the household member number of the mother.

Module C should be filled out for each fortified food that applies to your programme. The questions in this module are directed to either the child, or the mother, depending upon the target of your specific programme. For example, if the fortified food is a weaning food, targeted at the child, ask the questions to the mother, about her child. If the fortified food is flour, targeted at the mother, ask the questions to the mother, about herself.

C1 Ask the respondent if they have any of the fortified food in their home (refer specifically to whatever fortified foods apply to your programme). Sometimes respondents may answer yes, when they actually do not have any of the food in their home. If they do answer yes, ask if it would be possible to see the food. Note that when you record the answer, there are two “yes” responses: 1 - if you were able to see a sample of the food; 2 - if the respondent answered yes, but a sample of the food was not seen. If the answer is “no”, you may go on to the next module.

C2 This question assumes that the fortified food is in the **possession** of the household. The aim of this question is to get an idea of whether the fortified food is actually being **consumed** by the household. Ask the respondent if either she or her child have eaten the fortified product in the last week. Show the product as you ask the question and refer to various ways the product might be used. This may help them to remember whether or not they have used it.
Immunization Morbidity and Anthropometry Module

**Intended Use:** All areas.

**Intended Respondents:** All children in the dwelling under 5 years.

This module is used to find out whether children under age 5 have obtained BCG, DPT3, OPV3 and measles immunization, and at what age. All of the information required is to be recorded on the Child Immunization Table, which is to be completed for all children in the dwelling under the age of 5 years. There is room on the table for four children. Be sure to have extra copies on hand, in case you need them in situations where there are more than four children. The following instructions correspond with the numbered rows on the Child Immunization Table.

- Enter the NGO no., cluster no., and household no.
- Enter the interview date (day/month/year)

1. Fill in the Child’s Household Member Number (See Household Member Listing Form).
2. Fill in the child’s name.
3. Fill in whether the child is a boy (1) or girl (2).
4. Ask the mother when her child (use the child’s name) was born. Record the date according to (dd/mm/yy) format.
5. There are many possible sources of information the respondent may have. Ask how the respondent knew the date of her child’s birth, asked for in the previous question? The possible answers include mother(1), another relative(2), or birthcard (3).
6. This question asks for the birth weight of the child. A birth card is the only reliable source of this information. Be sure to record the weight in kilograms. If there is no birth card, record “99”.
7. A vaccination record card is the key source of information for the questions that follow. Ask the mother whether or not she has a vaccination record card for her child.

If an immunization card is **available**: the answer for questions 8, 10, 11 & 12 will be a date (dd/mm/yy).

Simply copy the dates for each type of immunization onto the table.

If an immunization card is **not available**: the answer for questions 8, 10, 11, 12 will be yes, no, or don’t know, as dates will be unavailable. Use the probing questions below (these are also on the sheet accompanying the module) to determine the appropriate answer (yes, no, or don’t know).

8. If an immunization card is available: copy the date for BCG.
   If an immunization card is **not** available, ask the mother whether the child has ever been given a BCG vaccination against tuberculosis ie. An injection in the left shoulder causing a scar. Answer yes or no.
9. This question is answered by examining the child to see if in fact there is a BCG scar on the left shoulder. The intent of the question is to confirm the answer in the previous question. Answer yes or no.

10. If an immunization card is available: copy the date for the third dose of DPT only. If an immunization card is not available: ask question 10 (on the sheet accompanying the module) to determine whether the child has ever been given ‘vaccination injections’. Try to find out how many times the mother recalls such an injection being given. Note that the child must have received an injection 3 times to indicate a “yes” answer. Anything less than that signifies “no”. Answer yes, no or don’t know.

11. If an immunization card is available: copy the date for the third dose of OPV only. If an immunization card is not available: ask question 11 (on the sheet accompanying the module) to determine whether the child has ever been given ‘vaccination drops’ against polio. Try to find out how many times the mother recalls such drops being given. Note that the child must have received these drops 3 times to indicate a “yes” answer. Anything less than that signifies “no”. Answer yes, no or don’t know.

12. If an immunization card is available: copy the date for the measles injection. If an immunization card is not available: ask question 12 (on the sheet accompanying the module) to determine whether the child has ever been given a ‘vaccination injection’ against measles. Record the answer as yes, no or don’t know.

13. Ask the mother whether her child has been sick in the previous 2 days, including today. If not, go to question 15.

14. If the child has been sick, try to find out what the illness is, and record the answer. If the child is present, have the medical staff member make a diagnosis. If the child is not present, ask the mother about the presenting features of the illness so that a possible diagnosis can be made.

15. Weigh the child, and record to the nearest kilogram.

16. Measure the child’s height and record to the nearest centimetre.

**Vitamin A Clinical Examination Module**

**Intended Use:** Areas with Vitamin A interventions.

**Intended Respondents:** All children between 6 and 59 months of age, Women 15-49 years of age in the household.

The interviewer for this module must be accompanied by somebody who is trained to identify xerophthalmia. The questions included at the top of the page are for probing only, as the information for this module is to be summarized on table below. Fill out the form as follows.
- Enter the NGO no., cluster no., and household no.
- Enter the household member number and name of all children in the household between 6 and 59 months, and all women 15-49 years of age in columns 1 and 2.

Following the “name” column, there are 5 successive columns, each of which reflects Vitamin A status. These 5 indices include night blindness, bitot’s spots, corneal dryness, keratomalacia, and corneal scar. The possible answers for each of these 5 indices are listed under “Vitamin A Status” (see the row above the 5 columns) and include yes (1), no (0), and undetermined (9).

**Night Blindness**

This section applies only to the children 24-59 months of age in the household. Use probing questions to determine whether or not the child has night blindness. Such questions are listed above the table and are as follows:

- Does your child have any problem seeing in the daytime?
- Does your child have any problem seeing in the nighttime?
- Is this problem any different from other children in your community?
- Does your child have night blindness? (Use local term)

Based on the answers to the above, answer yes, no or undetermined on the table under this column.

**Bitot’s Spots, Corneal dryness, Keratomalacia, Corneal Scar.**

The indices in the remaining columns of the table apply both to women and children in the household. For each of the above indices, examine the left and right eyes of all children between 6 and 59 months and all women 15-49 years in the household. For each of the columns on the table, answer yes (1), no(0) or undetermined (9).

**Biochemical Assessment Module**

**Intended Use:**
Areas with Iron and/or Vitamin A interventions.

**Intended Respondents:**
For areas with **Vitamin A interventions**: all lactating women, 1-8 months postpartum.
For areas with **Iron interventions**: women of child bearing age (15-49 years) and/or children under 5 years of age (depending on the target group).

The interviewer for this module must be a female technician, trained to:

- collect breast milk samples
- take finger prick samples for haemoglobin determination
prepare slides for malaria determination.

The information for this module is to be summarized on table provided. Remember to enter the NGO no., cluster no., and household no (at the top of the page) first. Now let’s walk through the table...

1. Enter the household member number and name of each of the intended respondents as defined above.

2. For women, ask if they are pregnant or not, and record the answer in the third column.

3. **Vitamin A Interventions:** Collect breast milk samples of all lactating women, 1-8 months postpartum in the household. Explain to the mother that you wish to examine the nutrients in her breast milk to see if her child is receiving enough nutrients. Put the sample in a container and label with date, person number, NGO, cluster and household number. The samples must be stored on ice, under tin foil, transported to the designated laboratory, aliquoted and stored at -20 degrees Celsius until analysis. On the table under **Breast Milk Retinol,** record whether or not you were able to obtain a sample, according to the options provided within the table: sample obtained (1), no milk (2), refused (3), absent (4). After the sample has been analyzed, the value for breast milk retinol should also be recorded.

4. **Iron Interventions:** Collect finger prick blood samples from the intended respondents (women and children - see above) for haemoglobin and malaria analysis. Explain to the mothers that you would like to find out the strength of her blood and will provide her with iron capsules if she or her child need them, based upon the results. On the table under **Finger Prick,** record whether or not you were able to obtain a sample. After the sample has been analyzed, the value for haemoglobin (Hb) and the MPS result (positive or negative) should also be recorded.

**Dietary Intake Module**

**Intended Use:** Regions where dietary modification is the primary intervention.

**Intended Respondents:** The target group (mothers and/or children). When selecting your respondents, remember that it is much easier to collect accurate data from mothers, than from young children.

**School Survey - School Characteristics Module**

**Intended Use:** Schools in the area being surveyed.

**Intended Respondents:** Teachers of the schools.

- Enter the NGO no. and School no. first

Questions 1 to 4 are intended to collect information about specific school characteristics. Record the information as follows:

1. School name.
2. School address, region, zone, and district.

3. The level of education provided at the school: elementary, junior high or high school. If more than one level is represented, select the answer which applies to most of the students at the school.

4. This question asks for an estimated number of students attending the school, as well as the number of male and female represented. Please note that the number of male and female students recorded should equal the total number of students estimated. If the teacher is unable to give you an estimate, count the number of students at school that day, and use this as an estimate.

Questions 5 to 9 are about the use of a demonstration garden at the school, and the type and use of the foods that are grown in the garden.

5. Is there currently a demonstration garden at the school? Answer yes if a garden exists on the school grounds for school-related purposes.

6. Estimate the size of the garden. If the teacher is unable to give you an answer, ask to see the garden and estimate the size to the nearest hectare.

7. Ask the teacher whether the garden is used to grow vegetables and/or fruits.

8. If the garden is used, find out what specific vegetables and fruits are grown. The list specific to the questionnaire for your country should reflect the fruits and vegetables that are most commonly grown. Use the “other” option to record answers that are not included in this list. This question assumes that a variety of vegetables and fruits may be grown in the garden, thus you can include up to 6 different answers to this question.

9. This question is directed towards the use of the fruits and vegetables that are grown in the garden. Again, more than one answer can be recorded, and the “other” option is available to record answers that are not listed.

Questions surrounding drinking water include Questions 10 and 11.

10. Ask the teacher what the source of drinking water for the children is while they are at school. If more than one source is answered, ask for the source that is used most often, that is, the MAIN source of drinking water for MOST of the school children while they are at school. Record this answer. If it is an answer other than those listed, specify what it is under the “other” option.

11. Ask the teacher how far the children must travel to go from the school to the source of drinking water and then back to the school. Try to get an accurate estimate to the nearest kilometre. Remember that the distance you are interested in, is the TOTAL distance to the source of water and back again.

School Survey - Iodine, Vitamin A and Parasite Module
Intended Use: Schools within the survey area.
Intended Respondents: Children in the school that is being surveyed.

The information for this module is to be recorded on the table provided. There are different sections of information included in the table (as indicated by the various columns), and the specific interventions in the survey area will determine how much of the table you will need to fill out.

- Vitamin A, Iodine & Iron Interventions: complete entire table
- Iodine & Iron Interventions only: omit Xerophthalmia section
- Parasites are common in the area: include stool and shistosomians section

You will need the help of a trained technician to obtain the information you need. This person should be trained to:

- Identify goitre grade
- Identify Xerophthalmia
- Collect stool and urine specimens

Fill out the table as follows:

- List the child number (this is NOT the household member number, but a number assigned to each child in the school included in the survey) and name of each child included in the school survey.
- Identify the sex of the child as male or female (column A).
- Record the age of the child (as of their last birthday).
- Record the goitre grade (column B). Definitions of Grade 0, 1 and 2 goitre are provided below the table, and should be familiar to the technician.
- Record the results of the Xerophthalmia examination under column C. The technician will understand what is asked for in the table, and be able to provide the appropriate results. If there are no Vitamin A interventions targeting the school children, this section need not be filled out.
- The technician should take a stool and urine sample from each child. The stool sample is used to detect hook worm, and the urine is used to detect shistosomians, as well as urinary iodine. These results should be recorded after analysis of the samples. If parasites are NOT prevalent in the area, you need not include the hook worm and shisto sections.

Village Survey Module

Intended Use: Each village being surveyed.
Intended Respondents: The village chief or traditional head of the village being surveyed.

This module contains questions related to agriculture, health, education, and accessibility of the village surveyed. A number of questions ask for an estimate of distance between the village and another location. For each of these questions (10,13,16,19,23, 25), you may record the answer either to the nearest kilometre (distance) OR to the nearest half hour (walking time).
Questions 1-3 are general questions regarding the size, location and pattern of **houses** in the village.

1. Ask the chief to describe the pattern of the houses in the village as scattered (well-spaced), dense (close together), or villagized (through resettlement programme).

2. Define the ecological zone of the village.

3. Ask the chief for an estimate of the approximate number of households in the village, as well as the total number of people in the village.

Questions 4-10 are related to the **agricultural practices** of the village.

4. Find out if there is an agriculture extension service in the village.

5. Ask the chief what main crop would represent most of the farming done in the village. The optional answers to this question should reflect the specific crops common to your country. If more than one answer is given, be sure to find out which one would be the **most common** crop among all of the households.

6. Find out what months represent the harvest season for this village.

7. This question aims to find out if the villagers rely solely on rain to water their crops, or if they practice any form of irrigation. If any irrigation methods are used, answer yes.

8. This question aims to find out if the crops of the village are grown with the aid of any chemical fertilizer.

9, 10. Ask the chief if there is a veterinary clinic in the village, and if not, find out how far away the nearest clinic is. The answer may be given according to distance (kilometres) or time (how many hours walk, to the nearest half hour). For example, if it took 2 hours and 10 minutes to walk to the nearest clinic, you would record 2 hours. If it took 2 hours and 50 minutes, you would record 3 hours.

Questions 11-13 are related to **health facilities** in the village.

11. Ask the chief if there is a health facility of any sort in the village. If not, skip ahead to question 13.

12. If yes, find out what type of health facilities exist - if an answer other than those provided is given, specify this under “Other”.

13. This question has two parts, and is asked if there is no health facility in the village. Part (a) asks out how far away the nearest health facility is (again, estimate in either kilometres or hours walk). Part (b) asks what type of facility is nearest to the village.

Questions 14-17 relate to **education** in the village.

14. Ask the chief if there is a school in the village.
15. If there is a school, record what type of school exists. If more than one level of school exists in the village, record each level, and skip ahead to question 18.

16. If not, find out how far away the nearest school is (kilometres or hours walk).

17. If there is no village in the school, find out what kind of school is closest to the village.

Questions 18-25 aim to find out how accessible certain things are to the village.

18, 19. Find out if there is a flour mill in the village. If not, again record the distance (kilometres or hours walk) to the nearest flour mill.

20. Ask the chief what the main source of water for the village is. If more than one source is mentioned, ask which of the sources would be used the most by villagers. Record this answer.

21. Ask the chief if there is a road passing through his village. Answer yes or no.

22. If there is a road, find out if it is a road that can be used all year around (all weather road), or only in the dry season (dry weather road). Skip ahead to question 24.

23. If there is not a road, find out how far it is to the nearest all weather road, as well as to the nearest dry weather road (the distance can be expressed in kilometres or hours walk).

24. Ask the chief if there is a market place in the village. If yes, you have completed this module.

25. If there is no market place in the village, find out how far it is to the nearest market (kilometres or hours walk).

**Filling in the Cluster Control Sheet**

This section is written for the supervisors and interviewers.

Select households to be included in the clusters as you have been instructed by the survey coordinator.

Instructions for filling in the cluster control sheet:

1. Record the number of eligible mothers and children in the household from the Household Member Listing Form in the Household Module.

2. Record the number of completed interviews (household modules). Note on the control sheet times for re-visits to empty households, and time to interview mothers who could not be interviewed on the first visit. Keep a record of where these households are located by drawing a sketch map on the back of the
3. **Supervisors:** Begin to check the completed questionnaires, inserting numerical codes where necessary. Look for incomplete identifications, or gaps where there should be a number. Send back questionnaires which are clearly in error.

4. When all the interviews have been completed, check that the questionnaires and the control sheet have been filled in correctly and as many mothers as possible have been interviewed. Add up the number of eligible women and children and the number of completed interviews on the control sheet. Add any comments in the “Notes” section (problems encountered, etc.).

5. Check that you have the number of questionnaires as indicated by the total completed interviews in (4) above.

6. Ensure that all the forms carry complete identification of the cluster, households, mothers and children.

7. Note any problems and discuss them with interviewers, if possible, before leaving the community.

8. Collect all completed questionnaires for one cluster together, folded in the Control Sheet.

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*This section is adapted from “A Manual for Measurement of Childhood Mortality with Simple Surveys,” developed for WHO in conjunction with UNICEF, by the Centre for Population Studies, London School of Hygiene and Tropical Medicine, June, 1990.*
Cluster Control Sheet

District [name]: _____________________________
Interviewer number: _________________________
Date: (dd/mm/yy) ____________________________
Cluster Number: _____________________________
Notes: ______________________________________

<table>
<thead>
<tr>
<th>Household Code No.</th>
<th>Name of household head</th>
<th>No. Eligible mothers</th>
<th>No. Eligible children</th>
<th>Interviews completed</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

Total:
### Intended Use and Respondents of Questionnaire Modules

This table is a summary of how each module is to be used, and who the intended respondents are. Use it to keep track of which modules you intend to use.

<table>
<thead>
<tr>
<th>Module</th>
<th>Intended Use</th>
<th>Intended Respondents</th>
<th>Check if used</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Household Characteristics A &amp; B</strong></td>
<td>All Areas</td>
<td>The mother of each household</td>
<td></td>
</tr>
<tr>
<td><strong>Water &amp; Sanitation</strong></td>
<td>All Areas</td>
<td>The mother of each household</td>
<td></td>
</tr>
<tr>
<td><strong>Agriculture &amp; Food</strong></td>
<td>All Areas</td>
<td>The mother of each household</td>
<td></td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
<td>All Areas</td>
<td>All women 15-49 yrs who ever had a child</td>
<td></td>
</tr>
<tr>
<td><strong>Breastfeeding and Weaning</strong></td>
<td>Households with a child &lt; 5 yrs</td>
<td>All women with a child &lt; 5 yrs</td>
<td></td>
</tr>
<tr>
<td><strong>Vit A KAP Module A</strong></td>
<td>Countries with a dietary education programme</td>
<td>One woman in the household with at least one child &lt; 5 years</td>
<td></td>
</tr>
<tr>
<td><strong>Vit A KAP Module B</strong></td>
<td>Countries with a supplementation programme</td>
<td>One woman in the household with at least one child &lt; 5 years</td>
<td></td>
</tr>
<tr>
<td><strong>Vit A KAP Module C</strong></td>
<td>Countries with a food fortification programme</td>
<td>Target group of the programme - mothers or children</td>
<td></td>
</tr>
<tr>
<td><strong>Iodine KAP Module A</strong></td>
<td>Countries with a dietary education programme</td>
<td>One woman in the household between 15-49 years</td>
<td></td>
</tr>
<tr>
<td><strong>Iodine KAP Module B</strong></td>
<td>Countries with a supplementation programme</td>
<td>One woman in the household between 15-49 years</td>
<td></td>
</tr>
<tr>
<td><strong>Iodine KAP Module C</strong></td>
<td>Countries with salt iodization programme</td>
<td>One woman in the household between 15-49 years</td>
<td></td>
</tr>
<tr>
<td><strong>Iron KAP Module A</strong></td>
<td>Countries with a dietary education programme</td>
<td>One woman in the household with at least one child &lt; 5</td>
<td></td>
</tr>
<tr>
<td>Iron KAP Module B</td>
<td>Countries with a supplementation programme</td>
<td>One woman in the household with at least one child &lt; 5 years</td>
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</tr>
<tr>
<td>Iron KAP Module C</td>
<td>Countries with a food fortification programme</td>
<td>Target group of the programme - mothers or children</td>
<td></td>
</tr>
<tr>
<td>Immunization, Morbidity &amp; Anthropometry</td>
<td>All areas</td>
<td>All children in the household under 5 years</td>
<td></td>
</tr>
<tr>
<td>Vitamin A Clinical Exam</td>
<td>Areas with Vitamin A Interventions</td>
<td>All women 15-49 years &amp; all children 6-71 months in the household</td>
<td></td>
</tr>
<tr>
<td>Biochemical Assessment</td>
<td>Areas with iron and/or vitamin A interventions</td>
<td>All women 15-49 years &amp; all children &lt; 5 yrs in the household</td>
<td></td>
</tr>
<tr>
<td>Dietary Assessment</td>
<td>Areas where dietary modification is the major intervention</td>
<td>The target group of the intervention: mothers &amp;/or children</td>
<td></td>
</tr>
<tr>
<td>School Survey</td>
<td>Schools within survey area</td>
<td>Children in the school</td>
<td></td>
</tr>
<tr>
<td>Village Survey</td>
<td>Villages in the survey area</td>
<td>Village chief/traditional head of the village</td>
<td></td>
</tr>
</tbody>
</table>
A Final Note...

Since the household survey is the method of choice to obtain data, the design of the questionnaire to secure this data must be carefully considered. A good questionnaire is complete, concise, consistent, and provides both reliable and valid data. It is important for you to adapt and translate the questionnaire to meet your specific needs, and then pre-test it in advance, to identify potential problem areas. Once you have determined which indicators your survey will measure, choose the questionnaire modules which will help you to measure those indicators.
Chapter 3
Choosing A Sample*

Who Should Read This Chapter?

- Survey Coordinators
- Technical Resource Persons

Why Read This? What Will You Learn?

- To understand basic concepts of sampling  3.1
- To understand the difference between different sampling techniques  3.2
- To calculate the sample size  3.3
- To classify population demographics of survey participants by age group  3.4
- To determine critical Z-scores for a standard normal distribution  3.5

In any survey, adequate sample size is one of the most important parameters of the study or survey design. It will enable you to determine whether or not your programme to combat micronutrient deficiencies has really made a difference to the people it reached.

Ideally, you would measure your indicators in the entire population. However, due to financial, logistical and geographical limitations, small portions or samples of the intervention population or group are normally studied by necessity. An adequate sample reflects most of the important characteristics of the population from which it was drawn and is large enough to detect changes in the indicators you are measuring. This chapter will present basic survey concepts such as precision, power and acceptable error that are important when selecting an adequate sample size. As well, different techniques of sample selection and methods for the calculation of an adequate sample size will be discussed.

* This chapter is based on UNICEF’s “Monitoring Progress Toward the Goals of the World Summit for Children - A practical handbook for multiple indicator surveys”, 1995, Chapter 4 with modifications by Lisa Belzak and Joanne
3.1 Basic Sampling Concepts

A sample is defined by answering the questions as listed in Box 3.1.

Box 3.1 Defining a Sample

- What is the group of people or study population from which we want to draw a sample?
- How will these people be selected?
- How many people do we need in our sample?
- What is the acceptable error?

3.1.1 Sampling Error

To be able to draw conclusions that are valid for the whole study population (i.e. the whole population that participated in the intervention, the sample estimate), the sample must be selected to represent the entire population. To ensure this, the difference between the sample estimate and the measure of the actual population indicator must be minimal. This difference is called the sampling error. For example, the difference in the percentage of anaemic, pregnant mothers that you sampled and the percentage of anaemic pregnant women in the entire intervention population is the sampling error.

Definition of Sampling Error

The difference between the sample estimate and the actual population measure.

Note

Sampling error can be minimized by taking certain precautions:

- Choose your sample of respondents in an unbiased way (Box 3.2)
- Select a large enough sample for your estimates to be precise.

Sampling errors will always occur when a sample--and not the entire population--is surveyed.
Sampling errors bias the estimate by shifting it in one direction away from the true population value. **Probability sampling** selection minimizes this type of systematic error by giving an equal probability of being selected to the entire population. This results in the smallest sampling error.

### Box 3.2 How to Avoid Selecting a Biased Sample

- Do not choose samples exclusively from particular groups, such as children coming to clinics.
- Do not ask mothers to bring their children to a central point in the community, because some of them will not come; you will not be able to find out how many failed to appear and how different they may be from those who came.
- Do not use samples chosen at will by the interviewer, field supervisor or field director.
- Do not restrict your sample to families living in easily accessible households, such as those close to a main road or near a village centre; families living in less accessible areas may be poorer and less healthy.
- Do not omit households where no one is at home the first time called. Find out if the household is inhabited, and revisit later.

### 3.1.2 Sampling Frame and Sampling Unit

A sampling frame must be created to take a probability sample. A **sampling frame** is a comprehensive list of all states or provinces, districts, communities, households or individuals in the population from which you will choose your sample. Virtually no country has updated listings of all individuals and only very few have household listings. Your sampling frame, therefore, will typically include listings of larger population units such as states or provinces, districts, towns, villages or census enumeration areas. The sampling unit is selected from the sampling frame. The **sampling unit** could be states or provinces, districts, communities, households or individuals, depending on the type of survey.

The **basic sampling unit** is the smallest unit to be sampled. For example, in a household study the basic sampling unit is the household, or as in many health surveys, children less than five years of age are the basic sampling unit.
Figure 3.1 shows an example of a sampling frame and sampling units. Sampling frames require current and complete listings. Unfortunately, these do not exist for many rural and peri-urban areas. Constructing these lists is time and financially intensive.

When up-to-date lists are not available, several options to acquire suitable lists exist (Box 3.3).

**Box 3.3 Suggestions to Create Suitable Lists**

- Use listings of larger population units such as states or provinces, districts, towns, villages or census enumeration areas.

- If your population is small then carry out a quick census.

- Contact community leaders, religious and political organisations for current lists.

- If these are not possible, estimate the population or at least the number of households in each of these communities and employ the suggested sampling techniques; probability proportional to size and cluster sampling (see below).
3.2 Probability Sampling Techniques

The recommended method to obtain a representative sample with minimum bias (sampling error) is probability sampling, where each individual unit has a known probability of being sampled. By using random selection whenever possible, we reduce the possible introduction of systematic error or bias into the sample estimates. In this section we will discuss five types of probability sampling techniques: random, systematic, probability proportional to size, stratified and cluster sampling.

Definition of Probability Sampling:
Each sampling unit has an equal probability of being sampled.

3.2.1 Simple Random Sampling

Simple random sampling is the simplest form of probability sampling. Random numbers are chosen using a calculator, a computer programme or a random number table. Alternatively, you could write the names or identification numbers of all communities, households or individuals on pieces of paper and select the desired sample by picking the required number of papers. Each community, person or household corresponding to the numbers chosen is then included in the sample. In simple random sampling, the selection of one individual is independent of the selection of another individual.

3.2.2 Systematic Sampling

Systematic sampling is a modification of simple random sampling. It consists of picking every $n^{th}$ (5th, or 10th, or 50th and so on) household from a complete list of households. When employing systematic sampling, you must ensure that the list is not ordered in any regular way that would bias the sample.

Example

If the list is ordered as follows: village head, subhead, other households, then another village head, subhead, other households, and so on, systematic sampling may bias the results. For instance, if the interviews always start at the fifth household in each village, they will never include any village heads or subheads.
3.2.3 Stratified Sampling (Stratification)

Stratification solves the problem of having small samples for groups representing a small proportion of the overall population (as would occur with Probability Proportional to Size - see next section). For example, you may want to measure indicators for special sub-groups within your study population such as urban/rural, female headed households, different ethnic groups, etc. To ensure that special sub-groups are adequately represented in your sample, create one stratum for each sub-group and sample each stratum separately. Stratification is commonly used to produce sub-national data—for example, at the state or province level. If stratification is not performed, large states or provinces will have samples many times larger than the small states or provinces. To achieve equal precision for all states (see discussion below), select the same number of households in each state, and later weight the results according to the actual proportion of the national population in each state.

In addition to providing sub-national indicators, stratification can be used to generate data for sub-groups living under specific conditions.

**Example**

Urban slum dwellers present special needs, although they may constitute only a small fraction of the population. Therefore, at the beginning of the sampling procedure one might list urban slum areas separately and ensure that a sufficient number of slum dwellings are included in the sample by giving them a higher probability of selection. This sample would then have 2 strata: slum dwellers and all others.

When stratification is used, the sample size in each stratum is not usually proportional to its actual population. This imbalance must be corrected when the data is analyzed by weighting. For example, if slum dwellers constitute 5 per cent of a country’s population but your stratification procedure results in a sample with 10 per cent belonging to that category, the sample data will have to be weighted to produce national results.

Stratification requires a large population base because each stratum will be considered an independent sample. A detailed sampling frame is also needed. For these reasons, stratification is not recommended for this survey.

**Proportional Stratification (Probability Proportional to Size)**

Communities may vary considerably in population size. If simple random or systematic sampling is used for sampling villages, both large and small communities will have the same probability of being included, which is incorrect. One way of compensating for these differences is to choose clusters from the sampling frame with probability proportional to size (PPS).
The procedure for PPS is described in the following section. PPS selection can be used at most stages of a sampling scheme (See section on Multi-stage sampling). For example, use PPS sampling to select states or provinces in a country, municipalities within a state, or communities/villages within a district. PPS sampling ensures that communities with larger populations have a proportionately greater chance of containing a selected cluster than smaller communities. This type of sample is self-weighting, which will simplify the analysis, improving the representativeness of the sample.

The example below deals with selecting communities from a district. However, the procedure is exactly the same if other sampling units are chosen.

### Example (Procedure for Sampling with Probability Proportional to Size)

To select the communities to be used in the survey, the following are needed:

- a list of all communities in the district to be surveyed (in this example, every household in the district belongs to one--and only one--community)
- an estimate of population size (or the number of households) in each community
- the number of clusters to have in the district (discussed later)

To sample the communities with PPS, complete the following seven steps:

1. **Make a table with three columns, as shown in the illustrative Table 3.1 below.**

   - **Column (1):** Assign a number to each community/village.
   - **Column (2):** List the population of each community/village.
   - **Column (3):** List the cumulative population of each community--that is, the sum of the population of that community plus the populations of all the communities above it in the table.

   When listing the communities, try to use a logical order, such as a geographical pattern. See the discussion about implicit stratification, which follows.
Calculate the sampling interval using the following formula:

\[
\text{Sampling interval} = \frac{\text{cumulative population total}}{\text{number of clusters required}}
\]

Using the example equation, and supposing we need to select three clusters from a total population of 6,700, this would give:

\[
\text{Sampling interval} = \frac{6,700}{3} = 2,233
\]

ILLUSTRATIVE TABLE 3.1
Cumulating Community Populations

<table>
<thead>
<tr>
<th>Village</th>
<th>Population Size</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>2</td>
<td>400</td>
<td>1400</td>
</tr>
<tr>
<td>3</td>
<td>200</td>
<td>1600</td>
</tr>
<tr>
<td>4</td>
<td>300</td>
<td>1900</td>
</tr>
<tr>
<td>5</td>
<td>1200</td>
<td>3100</td>
</tr>
<tr>
<td>6</td>
<td>1000</td>
<td>4100</td>
</tr>
<tr>
<td>7</td>
<td>1600</td>
<td>5700</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>5900</td>
</tr>
<tr>
<td>9</td>
<td>350</td>
<td>6250</td>
</tr>
<tr>
<td>10</td>
<td>450</td>
<td>6700</td>
</tr>
</tbody>
</table>

Select a random number which is equal or less than the sampling interval. For the above example, we need to choose a random number between 1 and 2,233. You can select the above example, by using a table of random numbers. Let us suppose that the chosen number is 1,814.

Look back at the table. Locate the first cluster by finding the community whose cumulative population exceeds this random number. In the example, the first cluster would be located in village 4, where the cumulative population is 1,900.

Add the sampling interval to the random number.
In the example, 2,233 + 1,814 = 4,047.

Choose the community whose cumulative population just exceeds this number. The second cluster will be located in this community. In the example, the second cluster will be located in village 6.
Identify the location of each subsequent cluster by adding the sampling interval to the number which located the previous cluster. Stop when you have located as many clusters as you need. If a community has a population which is larger than the sampling interval, it may be selected twice. Two independent clusters must then be selected from that same community. This is valid.

Note

Disproportional Stratification

The PPS approach is valuable when constructing national estimates but may present bias when small communities (which may differ greatly from larger communities) are not sampled in sufficient numbers to identify their differences. This is especially the case if you want to carry out sub-population analyses. For example, a mainly rural area may have only 2% of the total population and would therefore contribute only 8 subjects out of a sample of 400 compared to another area which includes a large urban centre and may contribute 40% (or 160 subjects) to the sample. This does not allow enough responses from the small area for sub-population analyses.

An alternate approach would be to sample each area equally and then adjust by weighting to the population during the analysis phase, when necessary. This allows you to use the sample, weighted proportionate to the population, for national estimates, but also allows you to use the un-weighted sample for sub-population analyses. This approach is also useful if the standard deviation of the full sample is large. Generally, the standard deviation for sub-populations will be less.

In summary, you can weight prior to sampling by using the PPS method or you can weight after sampling during data analysis.

Implicit Stratification

Implicit stratification is a special form of stratification. It consists of listing the units to be sampled (for example, clusters) according to a logical order and then sampling systematically or with PPS from that listing.

Example

You could follow a geographical pattern from north to south or west to east, or you could start from the district capital and move outward from it.

This ensures that the units will be more or less evenly distributed within the listing and avoids the possibility that, due to chance, one type of community ends up being under-represented.

This logical order may be geographical or may follow the distribution of a relevant variable, such as proximity.
to health services or socio-economic indicators.

Stratification methods are suggested for national and sub-national surveys. In addition to helping produce reliable results at the sub-national level, stratification is a useful tool to improve the overall precision of your national estimate.

### 3.2.4 Cluster Sampling

Cluster sampling refers to the selection of groups of households which are geographically close to one another. In developing countries where surveys are necessary to measure goal indicators, lists of households or individuals are not usually available. It is usually too expensive and time-consuming to construct such a list and then to locate the households. For this reason, cluster sampling is a more appropriate sampling technique, and is used for the MICAH survey, as well as other multiple-indicator surveys.

#### Definition of Cluster Sampling

The selection of groups of households which are geographically close together.

#### How are the clusters selected?

A list and an approximate measure of the number of households in each community is necessary to select the clusters. If we can assume that the mean size of a household does not vary greatly from one community to another, we can calculate the relative sizes of the communities by comparing the number of households within each. This is satisfactory since the relative size of the communities is more important than their absolute size (see section on probability proportional to size). Communities whose populations are too small may be combined with neighbouring communities to create a large enough subset from which to select the cluster.

A community is defined as a grouping within a population, such as a town, village or census enumeration area. In this guide, the term cluster means a randomly selected sample from the community. This is the EPI usage of the term; in statistical literature, the cluster is the community, and the other publications might refer to it in that way.

Cluster sampling usually involves at least two stages of selection. For example, a number of communities may be initially selected from a sampling frame (list of communities). A cluster (or clusters) is (are) then randomly chosen within each of these communities. Within each cluster, you may interview all households or you may select only a sample - either by random selection or by another method, such as EPI.

#### What if a list of households is unavailable?

If lists are not available and cannot be created by carrying out a quick census, or by consulting community
leaders, then a two-stage method is required: select one household as the starting point and then select successive households to ensure that the sample is as representative as possible.

1. **Selection of households within each cluster**

The basic sampling unit (i.e. the smallest unit to be sampled) is typically a household, but could be children under the age of five or some other basic unit that fits your target population. Alternatively, a child under age five could be used. However, households are much easier to identify and to list than children. The final choice of households is made in the community, where local conditions and factors are known.

Several methods of household selection are listed in **Box 3.4**. Any method which achieves a random/near random selection of households (preferably widely spread over the community) is acceptable. The sampling technique must be clearly defined so that field workers will be unable to make personal choices which may introduce bias into the sample.

**Box 3.4 Household Selection Methods**

- The EPI survey technique recommends finding a central point in the community, such as the market. Then randomly select a direction from the central point and count the number of households between the central point and the edge of town in that direction. Randomly select one of these houses to be the starting point of the survey. The remaining households in the sample should then be selected to give as widespread coverage as possible of the community that is consistent with practicality. EPI recommends going to the household whose door is nearest to the current household. To improve the representativeness of the sample, choose another random number, n, and visit the nth closest household, or select all the households at random. Each household selection process is continued until the required cluster sample size has been surveyed.

- In villages containing dwellings of several households a specific procedure is required. If these are infrequent, it is best to select all the households within the selected dwelling as this prevents multiple-household dwellings from being under-represented in the sample. If they are a rare occurrence, they should be treated as a cluster.

- In large communities, several central locations in different parts of the community should be identified as starting points from which to perform separate cluster surveys.

The exact technique for the selection of the households will depend upon field conditions. However, all of the above methods are appropriate.

**Design Effect**
Advantages of cluster sampling include reduced time and travel costs, simplified field work and ease of both field supervision and survey administration. This is important since better supervision of interviewers will result in improved data quality. However, cluster sampling implies that each respondent is not chosen independently of the other respondents. After all, they are neighbours, and this may increase the sampling error.

The mathematical expression of this implicit clustering error is called the design effect.

$$\text{Design Effect} = \frac{\text{Variance within a cluster}}{\text{Variance of a simple random survey}}$$
This effect depends both on the degree of similarity among respondents within a cluster and on the size of the clusters. Large clusters will lead to a greater design effect than small ones.

To compensate for this error, sample size calculations normally based on simple random sample calculations are multiplied by the design effect to increase the power and precision of the study.

A design effect of 2.0 is allowed for most variables, based upon the experience of previously performed or published cluster surveys. **Box 3.5** highlights several known quantified exceptions.

**Box 3.5  Design Effect**

- For water and sanitation variables  \( \text{design effect} = 10.0 \).
- Goitre  \( \text{design effect} = 3.0 \).
- Other indicators strongly affected by clustering are; vaccine coverage which is associated with distance from health centres and by local immunisation campaigns. Homogeneity is particularly severe for indicators of incidence of infectious diseases such as measles (which is spread from child to child).

2  **Decide on the Size and the total Number of Clusters**

Once the sample size has been calculated the size and number of clusters can be determined. A basic consideration in determining the size of clusters, is the estimated number of households which your team of interviewers can cover in one day. This depends on the estimated length of the interview. Field workers should not spend more than a day in a given cluster.

Training of field workers can greatly reduce the duration of the interview, as they become more familiar with the questionnaire. This training should take place before the pre-test of the survey, at which time the length of time required for each interview should be estimated. Due to distance, field work in rural areas is always much slower than in urban areas.

**Remember:** Larger clusters will introduce high design effects, while small clusters will increase the cost and time spent travelling during the survey. Do not use a cluster greater than 100 households. Following these guidelines will minimise the design effect.
Example

Assume that the questionnaire takes 50 minutes per household to administer. Include 5 more minutes to move from house to house.

Considering a 6-hour working day (to allow for transportation to and from the selected area and for a mid-day break), one interview team could cover about 6 households per day.

\[
(6 \text{ hours/day} \times 60 \text{ minutes/hour}) / 55 \text{ minutes/household} = 6 \text{ households/day}
\]

Therefore, 2 teams of 2 interviewers and 1 assistant will be able to cover 24 households a day,

\[
2 \text{ teams} \times 2 \text{ interviewers/team} \times 6 \text{ households/interviewer/day} = 24 \text{ households/day}
\]

This will become the cluster size. The literature suggests between 20-40 households/cluster.

Note

It is always better to use more small clusters than fewer, large clusters.

The total number of clusters is given by the formula:

\[
\text{Total number of clusters} = \frac{\text{Total number of households in sample}}{\text{cluster size}}
\]

Example

Assume that the interviewing teams can cope with 24 households in a day, and a sample of 900 households is desired. You would need:

\[
900 / 24 = 38 \text{ clusters}
\]

3.2.5 Multi-stage Sampling

This complete sampling strategy may be used to obtain national-level indicators. Different sampling techniques may be employed at each stage. Selection should be performed randomly at each stage.
For a national estimate, start by randomly selecting:

- a number of provinces (first stage)
- a number of districts in each of the chosen provinces (second-stage)
- a number of communities in each selected district (third-stage)
- a number of households in each chosen community (fourth-stage).

**Note**

You can be sure you have selected an appropriate sampling technique when all sampling units within a population have an equal probability of being sampled. This is the goal of each sampling technique introduced in this section. Ideally, everyone in the population would be surveyed. However, since this is not feasible, look for the most appropriate technique given the physical, environmental, financial and time constraints within the population under study.

Since current census lists and demographic data are not usually available in many rural and peri-urban areas, techniques involving the construction of complex sampling frames, stratification and simple random selection are not appropriate for field survey in developing countries. **The recommended sampling technique for the MICAH household survey is a cluster-sample design.** Cluster selection should be accomplished using the PPS technique. You should use the household as the basic sampling unit to improve the representativeness of the sample.

**Important Note Regarding Repeat Surveys**

Using the same clusters in repeated surveys has advantages and disadvantages (**Box 3.6**)

Be sure to weigh these, when considering repeated surveys.

**Box 3.6 Advantages & Disadvantages of Repeat Surveys**

<table>
<thead>
<tr>
<th>Advantages:</th>
<th>Disadvantages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeat surveys reduce sample size</td>
<td>Repeat surveys may include educational messages or raise the community's awareness of health problems and therefore lead to changes in health behaviour (the Hawthorne effect).</td>
</tr>
<tr>
<td>Repeat surveys simplify field work (because the areas will already have been mapped in the first survey).</td>
<td>Subsequent surveys in the same areas may be misleading because these communities may no longer represent the country’s knowledge.</td>
</tr>
</tbody>
</table>

The two most important details when selecting an appropriate sampling technique are:

1) Minimize bias when selecting a sample
2) Capture a representative sample.
**Special Case Iodine Deficiency Disorders**

The recommended sample size for initial school-based Goitre surveys is 1200 children (30 clusters x 40 children per cluster). This sample size is based on an assumed Goitre prevalence of 50% with 95% confidence intervals, design effect of 3 and a relative precision of 10%. As Goitre prevalence declines, the examination of more children is required to estimate the prevalence with the same relative precision. This is because Goitre is becoming more rare. As Goitre prevalence approaches 5%, a relative precision of 30% would require $3 \times 811 = 2400$ children. As Goitre prevalence drops, progressively reduce the precision of the sample to a minimum of 40%. These calculations are based on relative precision and recommended by WHO/UNICEF and ICCIDD in “Indicators for Assessing Iodine Deficiency Disorders and their control through iodized salt.” (1)

### 3.3 How To Calculate The Sample Size

Although sample size estimation may seem complex, it is a simple procedure. This section will lead you through the various steps required for this calculation. A spreadsheet programme which carries out these calculations has been developed by WV Canada, and is available along with documentation upon request. Understanding the basic principles of sample size estimation is essential for the proper use of the spreadsheet.

**Isn't a bigger sample size always better?**

The popular notion the-bigger-the-sample-the-better-the-estimate is not necessarily true. As discussed in the previous section, it is better to ensure that the sample is a good representative sample of the intervention population rather than just a very large sample of it. However, the sample size does need to be large enough to reflect important variations in the population. A study that is too large requires too much time to collect the data and does not leave sufficient time to analyse it.

#### 3.3.1 Power and Precision

The adequacy of any sample size is determined by the survey’s objectives and the desired levels precision (margin of error) and confidence. These are determined by the study’s levels of power and significance.

1. **Power**

   The power of the study is determined by its ability to detect a difference between 2 groups when one exists. The power should be maximised and is typically set at 80%.

2. **Precision/ Margin of Error / Confidence Interval**

   These terms are used interchangeably in many publications. An error of ± 0.10 or ± 10% with a level of significance of 95% means:
• If you performed 100 surveys you could be reasonably confident that of the 100 sample surveys performed, 95 would return a value that was within ± 10% points of the true value of the population being sampled.

• The level of confidence or margin of error is arbitrarily set by the study designer. However to be judged statistically significant, it should be normally within ± 5% points of the true value. For nutritional community based surveys ± 10% is acceptable.

The ultimate sample size is usually a compromise between what is desirable and what is economically feasible. This is because the sample size will increase as the power and level of significance are increased.

3.3.2 Sample Calculations

The formulas for calculating sample size are explained in the following section. They are divided into two categories depending upon the objective of the survey:

1. To measure a single proportion
2. To demonstrate whether a significant difference exists between two proportions

For sample size estimation, you must initially obtain or estimate some basic figures. Follow the steps below to calculate the required sample size for each indicator. An example will be given for each of the above objectives.

Example: Single Proportion (used to estimate baseline statistics):

Estimate the sample size required to determine the prevalence of iron deficiency in women.

① Guess/anticipate the proportion you are about to measure. (See List of Indicators)

If you expect to find 50 anaemic, pregnant women out of every 100 pregnant women, your anticipated proportion will be 0.50.

The normal level of confidence is set at ± 5%. However, for sub-national estimates you may be satisfied with ± 10%.

Using a confidence level of ± 5%, if the survey finds a prevalence of 47% anaemic, then between 42 - 53% of all pregnant women in the population is likely to be anaemic.

☞ Note
Calculations:

\[ n = \frac{1.96^2(1-P)P}{E^2} \]

\[ n = \frac{1.96^2(1-0.50) \times 0.50}{0.05^2} \]

\[ n = 384.16 = 385 \]

② Add 10% for non-responders.

\[ 385 + (385 \times 0.10) = 423.5 = 424 \]

When performing a household survey it is unlikely that there will always be someone at home. All efforts should be made to return to the vacant households as they may include under-represented individuals, such as single mothers.

③ Choose an appropriate design effect.

It is very difficult to predict what the design effect will be before carrying out the study. Use the figures suggested above in the list of indicators unless you have good reasons to do otherwise. After the survey is finished, the design effect can be calculated more accurately and used to calculate the actual margin of error.

Assume a design effect of 2 (unless the literature suggests otherwise).

\[ 2 \times 424 = 848 \]

Therefore to estimate within \( \pm 5\% \) and to be 95% sure that the true prevalence lies within 45% of 55%, 848 pregnant women should be screened for iron deficiency.

☞ Note
Estimate the number of households you must visit.

The above formula and the spreadsheet will help you to calculate how many members of the target population are required to measure the indicator. Note that target populations vary according to each indicator. For example, for vaccine coverage, children aged 12-23 months would be targeted; households would be targeted for water and sanitation; and so on. Therefore, a common denominator is necessary. By calculating the number of households that you must visit to find the required number in the target population, the sample size requirements for all indicators may be compared. The largest required number of households should then be chosen. This guarantees that all other indicators will also be measured with equal or smaller confidence intervals.

To estimate the number of households required for finding a given number of respondents, you must know the average household size (6 persons per household is the regional estimate) and the proportion of women of child bearing age (see demographic breakdown Section 3.5.) in the population.

If:

- the average household size is 6 persons
- 5.0 per cent of the population is made up of pregnant women
- 848 women should be screened

Then, you should visit

\[
\frac{848}{(6 \times 0.05)} = 2,827 \text{ households}
\]

Note: The large sample size results from the high level of confidence.

You can reduce the sample size by lowering the level of confidence to 90%. You would then require a sample size of 491 to detect a prevalence between 40 - 60%.

\[(z = 1.64 \quad \text{See Section 3.6.)}\]
Estimating the difference between two proportions:

**Example**

Estimate the sample size required to determine whether the prevalence of anaemia in pregnant women has decreased within the previous 12 month intervention period.

1) **Guess/anticipate the proportion you are about to measure.** (See List of Indicators)

Previously, 50 out of every 100 pregnant women were iron deficient. After 12 months of intervention, the expected decrease in prevalence of anaemia would be 30% resulting in a predicted new prevalence of 35%. Calculate the sample size required to demonstrate this difference between proportions.

The estimated prevalence $p_1 = 50/100 = 0.50$

The predicted new prevalence $p_2 = 35/100 = 0.35$

The difference $d = 0.50 - 0.35 = 0.15$

Accept a Power = 80%

$u = 0.842$ (one tailed) Z value for normal distribution corresponding to power = 80%

Level of significance = 95%

$v = 1.645$ (one tailed) Z value of a normal distribution corresponding to 95% significance

**Calculations:**

$$p_0 = \frac{p_1 + p_2}{2} = \frac{0.50 + 0.35}{2} = 0.425$$

$$u = \frac{0.842}{\sqrt{2(1-p_0)}}$$

$$v = \frac{1.645}{\sqrt{2(1-p_0)}}$$

$$n = \left[ v \sqrt{2p_0(1-p_0)} + u \sqrt{p_1(1-p_1) + p_2(1-p_2)} \right]^2$$

$$n = \left[ 1.645 \sqrt{2(0.425)(0.575)} + 0.842 \sqrt{0.50(0.50) + 0.35(0.65)} \right]^2$$

$$n = 1.645(0.6991) + 0.842(0.6910)$$

$$n = 133$$
② Add 10% for non responders.

\[ n = 133 + (133 \times 0.10) = 146 \]

③ Choose an appropriate design effect.

Assume a design effect of 2.

\[ n = 2 \times 146 = 292 \]

Therefore to detect a true difference of 5% with a confidence level of 95%, a survey would require 292 pregnant women.

④ Estimate the number of households you must visit.

\[ n = \frac{292}{6 \times 0.05} = 973 \text{ households.} \]

☞ Note

These calculations must be repeated for each of the indicators being measured in the survey. (This can be done with the help of a spreadsheet programme.)
3.4 Population Demographics of Survey Participants by Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Portion of Pop</th>
<th>Cumulative Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-11 mo.</td>
<td>0.033</td>
<td>0.033</td>
</tr>
<tr>
<td>12-23 mo.</td>
<td>0.033</td>
<td>0.066</td>
</tr>
<tr>
<td>24-35 mo.</td>
<td>0.033</td>
<td>0.099</td>
</tr>
<tr>
<td>36-47 mo.</td>
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<td>0.123</td>
</tr>
<tr>
<td>48-59 mo.</td>
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<td>0.156</td>
</tr>
<tr>
<td>60-71 mo.</td>
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<td>0.189</td>
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<tr>
<td>72 mo - 15 yrs</td>
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<tr>
<td>Mothers</td>
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</tr>
<tr>
<td>Preg. Women</td>
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<td></td>
</tr>
<tr>
<td>Total Popn.</td>
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<td>1.00</td>
</tr>
<tr>
<td>Excluded from the Survey</td>
<td>Included in Households</td>
<td>0.281</td>
</tr>
</tbody>
</table>


3.5 Critical Z Scores for A Standard Normal Distribution

<table>
<thead>
<tr>
<th>Level of Significance</th>
<th>One-sided</th>
<th>Two-sided</th>
<th>Z Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0005</td>
<td>0.001</td>
<td>3.09</td>
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<tr>
<td></td>
<td>0.10</td>
<td>0.20</td>
<td>1.28</td>
</tr>
</tbody>
</table>
References


Chapter 4
Preparing for Data Collection*

Who Should Read This Chapter?
- Survey Coordinators
- Technical Resource Persons

Why Read This? What Will You Learn?
- Make logistic arrangements  4.1
- Prepare the questionnaire and training materials  4.2
- Select the field workers  4.3
- Train the field workers  4.4
- Choose and prepare the equipment  4.5
- Carry out the pilot study  4.6
- Set up computers and hire data processing staff  4.7
- Make arrangements for returning the questionnaires to headquarters  4.8

4.1 Make Logistic Arrangements

4.1.1 Set Up Central and Local Headquarters

A central headquarters where the whole operation is coordinated should be located at/near your central/country office. Usually, two to three rooms are needed for general administrative activities. Make sure you have access to meeting rooms for training purposes. The headquarters office will store the computing equipment and the questionnaires. Radio or telephone facilities are necessary for keeping contact with the field teams. All participating NGOs and ministries need to be in contact with the central office.

* This Chapter is based on UNICEF’s “Monitoring Progress Toward the Goals of the World Summit for Children - A practical handbook for multiple indicator surveys”, 1995, Chapter 5, and modified for the MICAH Programme.
4.1.2 Contact Local Authorities

In some areas, the arrival of a team of strangers may be regarded with suspicion. Each NGO/ministry is responsible to contact local authorities and ensure that the community is sensitized to your programme and survey. Development workers are assumed to already be working with communities in a participatory fashion.

In the past, survey teams have failed to contact the local authorities in advance, and inform them of their intentions. This causes problems. In one extreme example in Latin America, the interviewers were arrested. You can avoid such problems by contacting local authorities and community leaders before beginning the study to request permission and advise them of the team members’ arrival dates. You can also ask them to identify suitable local guides and, if necessary, translators. Local authorities may also help to arrange accommodations and meals for the survey team. Potential problems may also be diminished by ensuring that each NGO trains local staff workers in the area to be surveyed.

4.1.3 Decide on Size and Composition of Field Teams

The number of interviewers required depends on:

- the sample size
- the number of days to be spent interviewing
- the number of respondents one interviewer can interview in a day.

You can estimate this number from the length of a working day divided by the amount of time needed to complete one interview. Include the anthropometric assessment, number of clinical and biological tests (determined when you pretest the questionnaire - see below), and some travel time in your estimated total time per interview.

\[\text{Note}\]

\[\text{Travel time will be substantially longer in rural areas than in urban areas.}\]

\[\text{Example}\]

Consider an average interview which lasts a total of 50 minutes as follows:

- 35 minutes interview time
- 5 minutes for anthros (2 people)
- 5 minutes for haemoglobin and Bitot’s spots (1 person)
- 5 minutes to move from house to house.
In a 6-hour working day (allowing for transportation to and from the selected area and a mid-day break), one interviewer would cover 7 households a day:

(6 hours X 60 minutes) = approximately 7 households/day

50 minutes/interview

An interviewer team will cover 14 households a day: the cluster size. If a dietary recall module is included, an extra 20 minutes is needed.

To estimate the total duration of your survey, you should also allow for travel time between towns.

**Example**

Consider an estimate that 20 interviewers would cover 4,800 households in 15 working days. Allow a further five days for travel from town to town and for unpredicted delays. You can then calculate the number of interviewers needed using this formula:

\[
\text{Number of Interviewers} = \frac{\text{Sample Size}}{\text{No. of Days Available} \times \text{Households Per Interviewer-Day}}
\]

If:
- the sample size is 4,800
- the work should be completed in 20 days
- each interviewer can do 15 interviews a day

Then, the required number of interviewers will be

\[4,800 \div (20 \times 15) = 16.\]

Arial

- Do not use more than 15-20 interviewers per region. A larger number will decrease the quality of training and supervision.

- Ensure consistent training for each team. Since each region/district will be surveyed by different teams, the survey coordinator must ensure that all members of each NGO’s survey team are trained together. Be sure to use the same trainers and training materials for ALL the survey field training.

**Note**

- Compose the teams. After deciding how many interviewers are required, work out the team compositions. Each team will need one supervisor, one driver (unless public transportation is used), interviewers, and medical staff.

When in doubt, be conservative. If you are not sure whether each interviewer can do 15 or 20 interviews a day, choose the smallest number. Allow plenty of time for travel and for rest because field work can be very tiring.
A common team composition includes:

- supervisor
- driver
- four interviewers
- two medical staff

Each team may work in threes (two interviewers and one medical staff), visiting alternate houses, assuming the vehicles are large enough to carry six persons plus equipment, questionnaires and personal luggage.

Ensure high team morale.

- Working in groups contributes to team morale and quality control: interviewers are close to each other and can make joint decisions regarding household selections and other interviewing concerns.
- Rotate team members to avoid monotony and contribute to team morale.

4.1.4 Arrange Transportation, Accommodations and Security

Transportation will be provided by the NGO, government, or arranged privately (ex. rental cars).

- Ensure that all vehicles are well maintained.
- Communicate clearly to avoid conflicting demands for vehicles during the field-work period.
- Allow funds in the study budget for fuel, maintenance and eventual repairs. Estimate fuel needs by calculating the typical distances to be travelled between towns and within each selected area.

Note

Accommodations may be arranged with local communities: teams may often sleep in church buildings, army quarters or even the mayor’s house. If private accommodations are arranged, ensure a daily allowance that is sufficient to cover interviewer’s costs.

Make plenty of allowance for extra mileage, since the actual distances to be travelled are often underestimated.

Meals may also be arranged with the local authorities. Many places have no commercial restaurants, so meal arrangements will have to be made in advance. If teams prefer to prepare their own meals, supplies must be planned in advance.

Security issues are critical. Field work may take place in urban slums or in rural areas where there may be security problems. Local guides may help to both identify and avoid security risks. These issues must be
considered in advance.

Finally, make careful arrangements to both pay the field workers and supervisors, and provide them with “pocket money” for meals, accommodations and other unexpected expenses. Timely payment is essential for maintaining the team’s morale.

\[ \text{Note} \]

Adequate arrangements for transportation, accommodations, meals and security are essential not only for ensuring high-quality and timely data collection but also for the psychological well-being of the interviewing team.

4.1.5 Obtain and Prepare Copies of Local Maps

Before beginning field work, be sure to obtain copies of maps indicating both the large areas (states, provinces, districts, towns, etc.) and small areas (villages, census enumeration areas, etc.) in which the survey will be conducted. These may be available from the Census Bureau or another government office. Army maps are often very useful, if accessible. Make sufficient copies of all maps in advance.

4.2 Prepare the Questionnaire

Chapter 2 contains the questionnaires for conducting your survey. It also describes in detail how to adapt, translate and pretest the questionnaire. Interviewers should NOT translate the questions as they ask them. Different interpretations of the questions will produce invalid, useless data. Consult Chapter 2 for specific ideas you can implement to adequately translate, adapt and pre-test your questionnaire.

4.3 Select the Field Workers

The quality of the information obtained from a survey depends on the quality of the work done in the field, which in turn depends upon the quality of the workers who perform the field work. A team of interviewers and their supervisors will do the field work. A detailed description of their tasks is given in Chapter 5, but a brief job description for each follows to help you identify potential candidates.

4.3.1 The team leader’s job

- Identify the clusters to be surveyed.
- Supervise six interviewers and medical staff as they perform the survey.
Ensure that the interviewers follow instructions.

Answer interviewers’ questions as they arise.

Control the data quality by checking:

- for errors during the interviewing
- that forms are completed fully and correctly
- that all the respondents are answering the questions

Identify problems and retrain interviewers who are doing their job incorrectly.

4.3.2 The interviewer’s job

- Identify the specific households to be surveyed.
- Gain the consent of respondents to be interviewed.
- Conduct interviews using the standard questionnaire.
- Maintain standard procedures in conducting the interviews and recording the answers.
- Weigh and measure the children under five.

4.3.3 The medical technician’s job

- Ensure that all necessary equipment (e.g., cold boxes, ice, foil, tubes and equipment) is available for survey.
- Examine the respondent (mother and/or child) for signs of xerophthalmia.
- Examine the child and/or mother for goitre.
- Take a breast milk sample.
- Take a finger prick blood sample for haemoglobin analysis.
- Take a finger prick blood sample for malaria, if relevant.
- Take a finger prick sample for retinol.
- If not done in school survey, take a urinary iodine sample and stool specimen.

4.3.4 Selection Criteria

You must select the interviewers, medical technicians and supervisors for their ability and motivation to
perform the tasks they are responsible for. Supervisors must understand the importance of adhering to
survey instructions, and be capable of ensuring that interviewers follow instructions.

The interviewers, technicians, and supervisors should be:

☐ Intelligent and literate - educated to secondary school level or more.

☐ Willing to follow instructions precisely and accurately.

☐ Polite and able to establish a good relationship with the respondents.

☐ Fluent in the language of the respondent.

☐ Employed by an institution or organization that will use their training for this survey in future; this training
will then be part of capacity-building for future surveys.

⇒ **Previous survey experience is not required.** While participation in well-conducted surveys is surely
an advantage, previous involvement in poorly planned and implemented surveys can lead to bad
interviewing habits which may be hard to correct.

<table>
<thead>
<tr>
<th>Example</th>
</tr>
</thead>
</table>
| In many countries, the standards of so-called market research are very poor. Interviewers with previous
experience in these surveys may actually require more training than totally inexperienced candidates. |

⇒ **Avoid over-qualified interviewers.** They may follow their own agenda and stray from the precise
technique developed for conducting the survey.

<table>
<thead>
<tr>
<th>Example</th>
</tr>
</thead>
</table>
| In some countries, medical doctors were involved in data collection, often with disastrous consequences.
This was a result of their inability or unwillingness to follow the questionnaire instructions precisely and their
tendency to make medical diagnoses during the interview. |

⇒ **Use female interviewers, technicians, and team leaders**, especially for the mortality module
questions, goitre examination and breast milk sampling.

⇒ **Ensure that the age of the interviewers is adequate** for the information you want.
In many societies, women may be reluctant to provide answers on sensitive issues such as pregnancy
outcomes or breastfeeding to male interviewers or to young interviewers. Since the target of the
MICAH Programme is women and children, women who understand the issues may be the best
qualified to request information from the participants. In addition to the above qualifications, supervisors should have previous field experience as interviewers in well-conducted surveys.

**Note**

Always select more potential interviewers than you will need. Train all of them and select the required number at the end of the course.

This will guarantee that only the best field workers will be involved in the study, and provide a few additional interviewers as replacements. Provide those who were excluded with a training certificate.

### 4.4 Choose and Prepare the Equipment

Equipment must be purchased well in advance of the survey. **Box 4.1** lists some of the main items of equipment that must be acquired. (Cluster forms and maps, discussed previously, are also needed.

**Box 4.1 Sample List of Equipment for Field Work**

| Notebooks for the Supervisors | Pencil sharpeners |
| Clipboards                   | Envelopes for filing questionnaires |
| Backpacks or other types of bags | Paper clips and staplers |
| Blank growth charts          | Weighing scales and accessories |
| Pencils and erasers          | Length/height boards |
| Hemocues and cuvettes        | Salt iodine testing kits |
| Urine collection bottles and labels | Breast milk collection bottles and labels |
| Transport ice boxes and accessories | Breast milk pumps and soap |
| Protective Gloves            | Lancets, alcohol and absorbent cotton |

In addition to the above-mentioned equipment, field workers should also carry letters of introduction to the families on official letterhead, and identification cards with photographs.

#### 4.4.1 Weighing Scales

The scale must be portable, resistant and capable of weighing children up to 25 kg. Ideally, each interviewer will have her own scale. Interviewers who work in pairs can share one scale, but this will slow down data collection. A few extra scales should be ordered in case of equipment breakdown, loss or theft.

Two basic scale models are available: **electronic scales** and **hanging scales**.

1. **Electronic Scales**

   The UNICEF **electronic solar scale** called UNISCALE (model manufactured after August 1995) is a floor scale for weighing children as well as adults (capacity 150 kg.). It has a precision of 100 g and a
digital display. The child may be weighed directly, if possible. Alternatively, if the child is frightened, the mother can first be weighed alone and then weighed while holding the child in her arms, and the scale will automatically compute the child’s weight by subtraction. Unlike hanging scales, there is no stress to the child and there are no trousers to wash (see next paragraph). The scale itself weighs 4 kg, contains a solar switch and is powered by a battery with a life of 10 years. It costs approximately U.S. $90. This is preferable for the MICAH study.

4 Hanging Scales

Hanging scales are widely used in many countries and are generally quite accurate. UNICEF distributed a Salter type spring scale (UNICEF catalogue no. 01 455 50) with a capacity of 25 kg and 100 g gradations. The use of this scale requires that the child be dressed in a set of plastic or nylon trousers before being weighed - a procedure that may make children anxious. (The same trousers can be used for more than one child, but they should be washed daily with water and soap. At least five sets of trousers per scale should be available.) The interviewers will need several pairs of these special trousers if they are going to use hanging scales. A hook for hanging the scale from a door or a ceiling beam may also be necessary. The scale, which costs about U.S. $30, should be checked periodically with standard 5- or 10-kg weights.

4.4.2 Length/Height Boards

Measuring length or height is important in the MICAH programme to determine changes over both the short and long term. Since children under two years will be measured lying down (length) while older children will be measured standing up (height), measuring boards should be adequate to both situations. As with scales, one measuring board per interviewer is desirable, but two interviewers working as a pair can share one board.

UNICEF distributes a wooden model (catalogue no. 01 145 00), adequate for children up to 130 cm, and appropriate for the purposes of multiple-indicator surveys. It weighs 6 kg, measures 75 cm when collapsed and includes a shoulder strap. It costs about U.S. $290. Alternatively, these boards may be manufactured locally at lower costs by skilled carpenters. However if you choose this option, you should allocate plenty of time for this process since several adjustments in the early prototypes may be required.

4.4.3 Salt Iodization Kits

Each field worker should carry a salt iodization kit. Each kit is sufficient for testing at least 100 samples of salt. Test kits for potassium iodate (catalogue no. 05 860 00), at a cost of U.S. $0.40 per kit, will be required for most countries. In a few countries, where salt is fortified with potassium iodide, a different kit (catalogue no. 05 860 02) is required, costing U.S. $0.60. These kits must be ordered well in advance of the planned start of the field work.
4.5 Train the Field Workers

High-quality data is essential, and dependent upon thorough training of the supervisors and interviewers.

**Note**

Before training starts, determine the field procedures to be followed during the survey. This involves planning for supervisors to:

- check completed forms
- fill out cluster control forms
- receive completed forms
- make transportation arrangements for teams
- make payments to field workers.

Remember to:

4. Plan ahead for the training courses.


4. Prepare interviewer guides

4. Make sure adequate space is available.

4. Provide facilities for drinks and snacks (a good working atmosphere during the training course can help to motivate interviewers to perform well in the field).

4. Use audiovisual aids, such as overhead projection, during the training.

Before you train the field workers, you should also:

4. Translate and pretest the questionnaire, the instructions for filling in the questionnaire and the field procedures.

4. Identify typical field locations for practising household selection and interviews.

**Table 4.1** provides an example of a five-day training course for interviewers, medical staff and supervisors. Supervisors will also need additional training (**Table 4.2**).
Table 4.1 Example of a Five-Day Training Course for Interviewers, Medical Staff and Supervisors

Day 1  Explain thoroughly the purpose of the survey.

4  Introduce all team members, participants from the Ministry of Health and other organizations.

4  Outline the whole survey procedure.

4  Motivate the field workers by explaining the importance of the data to be collected and what it will be used for.

4  Explain the administrative arrangements for the work.

4  Give details of the working hours and pay, the survey schedule, transportation arrangements and everyday procedures.

Days 2-3  Discuss the survey procedures and questionnaire.

4  Conduct a question-by-question discussion of the questionnaire.

4  Explain and discuss each question. There should be no unfamiliar terms. Give each field worker written instructions to take to the field.

4  Discuss interviewing technique. Explain how to gain the confidence of the respondent, how to avoid inducing answers, the importance of completing each assigned interview and of following standard procedures. Emphasize that the interviewers must ask the questions exactly as they are worded on the questionnaire.

4  Standardize anthropometric techniques. Spend at least half a day in a place with many small children (day care centre or nursery).

4  With medical staff, standardize clinical and biochemical techniques. Spend at least one day in the field or health centre practicing with supervisor. This can be done while the interviewers are reviewing the questionnaire.
- Xerophthalmia detection
- Goitre detection
- Hemocue use and recording
- Breast Milk collection and storage
- Urine collection, labelling and storage

4 Do a demonstration interview.

4 Make sure medical staff fill out their part of the questionnaire.

4 Outline and standardize protocol for treatment of anaemia, vitamin A deficiency and iodine deficiency.

4 Practice recording data, managing forms, making preliminary tabulations.

4 Role-play interviews, and have trainees interview each other. Use questionnaires completed in the pretest as examples.

4 Tape the practice sessions if possible, and provide constructive criticism of the different interviewers. Hold more demonstration interviews as the training proceeds.

Days 4-5 Conduct a field exercise and have further discussion of interviewing.

4 Practice reading maps.

4 Discuss how to handle empty buildings and refusals.

4 Organize practice in the field. Each trainee should complete at least five practice interviews in the field. Observe all the interviewers’ practice sessions and provide them with feedback.

4 Discuss the problem of the interviewer influencing the respondents’ answers and other interviewer mistakes. Agree upon solutions to these problems.

4 Go over field practice questionnaires with individuals who have particular problems, and discuss problems as a group.

4 Ask the participants to share their ideas and suggestions for dealing with difficulties.

Table 4.2 Example of a Two-Day Additional Training Course for Supervisors

Day 1 Household selection and map reading.
Explain the procedures to be followed, and the importance of random selection of households.

Provide practice and time for discussion.

(If sketch-mapping will be used for segmentation of the small area, as described in Chapter 7, then at least two additional days for training in the field will be required.)

---

**Day 2 Quality Control.**

- Explain the need to monitor interviews and check interview quality on the spot.
- Discuss how to deal with interviewer errors.
- Explain what to do with the completed questionnaire, and how to deal with unanticipated problems.
- Emphasize that the supervisor should keep field notes, and go through what should be recorded in these notes.
- Discuss the survey schedule and the need for liaison with the survey coordinator.

---

**Briefing the Drivers**

All persons involved in the survey should be briefed about its main purposes and the main methodological guidelines. Drivers who will work along with the team throughout the whole survey need special attention. Drivers often fail to understand random sampling and may even refuse to take secondary roads or paths to reach scattered households. This preference for certain roads is known as ‘**main road bias**’. Another common problem is the interference of drivers in the interviews, if they prompt or induce certain answers from the mothers. A special session at the beginning of the field work may help prevent these problems.

---

**4.6 Carry Out the Pilot Study**
The pilot study is the final rehearsal for the survey. It should be carried out soon after the training period is complete, and a few days before the actual field work begins. This will allow time for correcting any problems detected during the pilot study.

The pilot study should cover both urban and rural areas. These areas should be selected to represent the situations the interviewers might face during the survey. The pilot study should last for three to five days and include the daily routine in Box 4.2.

The pilot study is an extension of the training programme. Close supervision of the interviewers during this phase is essential.

**Box 4.2  Daily Routine for the Pilot Study**

<table>
<thead>
<tr>
<th>4</th>
<th>Briefing at headquarters</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Transportation to field sites</td>
</tr>
<tr>
<td>4</td>
<td>Locating clusters</td>
</tr>
<tr>
<td>4</td>
<td>Contacting local authorities and introducing yourself</td>
</tr>
<tr>
<td>4</td>
<td>Selecting the households</td>
</tr>
<tr>
<td>4</td>
<td>Interviewing and measuring</td>
</tr>
<tr>
<td>4</td>
<td>Recording data</td>
</tr>
<tr>
<td>4</td>
<td>Managing biological specimens</td>
</tr>
<tr>
<td>4</td>
<td>Managing data and tabulating preliminary results</td>
</tr>
</tbody>
</table>

### 4.7  Set Up Computers and Hire Data Processing Staff

#### 4.7.1  A Computer Programmer
The services of a computer programmer with experience in using the EPI INFO software package is essential. You will need this person for at least two to three months.

Standard EPI INFO programmes are used to enter, clean and analyze the data collected. However, these programmes may have to be adapted locally, particularly if any changes are made to the questionnaire modules. Before the main survey beings, make sure that the programmes have been properly adapted and are functional.

Use the questionnaires of the pilot study for testing the data entry and analysis programmes. Check the programmes for the production of tables. Sort out any problems and make any corrections that may be necessary.

### 4.7.2 Data Entry Staff

You will also need data-entry staff. Depending on the size of your survey, two or more data clerks will have to be recruited and trained to use the EPI INFO software. This training should require no more than two days.

Arrange for the necessary office equipment, including computers, printers, diskettes and paper, and make sure the power supply is adequate. At least two computers are required for the survey work.

#### Note

Remember - unless all arrangements for data entry and analysis are made before starting the field work, this process can lead to major delays in producing survey results.

### 4.8 Make Arrangements to Return the Questionnaires

Supervisors need instruction regarding the procedure to return completed questionnaires to the data-processing headquarters.

If possible, the questionnaires should be returned **daily** so that data can be processed quickly. In the early stages of the survey, this will also enable you to check for any systematic problems which may still be
occurring in the field. If possible, arrange for supervisors to photocopy completed questionnaires before sending them long distances, to prevent any losses. If this is not possible, arrange for small batches of questionnaires to be dispatched at any given time so that any losses will be minimized.

**Example**

In one survey, an arrangement was worked out with the local bus companies that drove to each settlement in the country. No batches were lost, and no more than a few days were lost sending the questionnaires from the field to the data processing centre.

### 4.8.1 Ethical Considerations

Household surveys typically raise a number of ethical questions, particularly surveys that pertain to the health of children and other household members. Such questions relate to individual rights to privacy, the need for informed consent, and responsibilities that arise upon uncovering potential health problems in a survey. It is important to consider such dictums as those enumerated in **Box 4.3** during the early stages of planning a survey.

### 4.8.2 Make Arrangements for Transporting Biological Specimens to Laboratory

You should instruct supervisors and technicians regarding the transport of blood, urine and/or breast milk samples to the laboratory for analysis. Samples should be stored appropriately and returned daily in order to avoid decomposition of materials. They need to be labelled clearly so that information can be tracked.

**Box 4.3 Ethical Aspects of Conducting A Survey**

<table>
<thead>
<tr>
<th>Ethical Approval:</th>
<th>The survey must abide by the laws of the country. If approval by an ethical committee is required, request it at an early stage to prevent delays.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidentiality:</td>
<td>All information provided to the interviewers is strictly confidential. Records should be securely stored. Computerized records should not include any names that might be used to identify the families, unless this is strictly necessary (for example, if follow-up visits are being planned).</td>
</tr>
<tr>
<td>Informed Consent:</td>
<td>Mothers and/or heads of families should be informed about the contents of the interviews and measurements to be carried out. They must understand the procedures and give their full approval. In some countries, written consent may be required.</td>
</tr>
<tr>
<td>Feedback to the Families:</td>
<td>Families have freely donated their time to the survey and are entitled to some feedback. Any important conditions discovered during the interview should be reported to the parents. For example, mothers should be</td>
</tr>
</tbody>
</table>
advised when their children’s vaccinations are overdue, when the child is malnourished, when non-iodized salt is being used or when their Hb level is low. In some countries, field workers carry Vitamin A capsules, iodized oil capsules and iron and folic acid supplements. Some also carry ORS packets, plastic spoons for preparing sugar-salt solution to distribute to children with diarrhea who are not being treated properly, iron and folic acid tablets and parasite treatments. All of these should be on hand for treatment.

**Feedback to Community:**

Before starting the survey, the coordinators should plan what type of feedback will be given to the communities. In most cases, the number of interviews per community will be too small for statistical validity, but even some general feedback is often appreciated by local authorities (for example, that 9 of the 40 children examined were found to be malnourished). If possible, this type of feedback should be given before the team departs to a new community. A date should be set for further discussions with the community prior to development of the country plan and after preliminary analysis of report.

**A Final Note...**

Before beginning to collect the data you require, adequate preparation is imperative. Each step taken in advance (beginning with logistical arrangements, through to arranging for the return of anticipated completed questionnaires), will ensure the succeeding phases of the programme can proceed as smoothly as possible. Chapter 5 provides some more specific ideas once you are ready to conduct the field work.
Chapter 5
Conducting The Field Work*

Who Should Read This Chapter?

- Technical Resource Persons
- Survey Coordinators
- Supervisors
- Interviewers

Why Read This? What Will You Learn?

- How to map and locate the households \( \Rightarrow 5.1 \)
- How to handle some special situations in the field \( \Rightarrow 5.2 \)
- What interviewers should do in the field \( \Rightarrow 5.3 \)
- What supervisors should do \( \Rightarrow 5.4 \)

5.1 How to Map and Locate the Households

In Chapter 3, you were asked to choose a sampling procedure for households within small areas such as villages or census enumeration areas. This chapter provides detailed guidelines on how to select households using three alternative methods:

- segmentation
- random walk based on a boundary map
- EPI-style random walk
Read carefully the option corresponding to your sampling design.

It is important for you to understand the difference between a household and a dwelling. A household refers to a group of people while a dwelling is a building or residential unit.

5.1.1 Use Segmentation to Identify Clusters

Segmentation must be done by a supervisor, usually one or more days before the field work. Follow the steps below for each small area selected:

1. **Compute the number of segments to be created** by dividing the total number of households in the small area (according to the last census) by the desired cluster size. **Table 5.1** gives the number of segments to create in an area when the cluster size is equal to 40.

<table>
<thead>
<tr>
<th>Example</th>
</tr>
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<tbody>
<tr>
<td>Suppose the census recorded 250 households in the village and the cluster size is 40.</td>
</tr>
<tr>
<td>➔ Divide 250 by 40 = 6.25.</td>
</tr>
<tr>
<td>➔ Round it to the nearest whole number, in this case 6.</td>
</tr>
<tr>
<td>➔ Exactly six segments are to be made in this village. You would have reached the same result by using <strong>Table 5.1</strong>.</td>
</tr>
</tbody>
</table>

In some cases, the area may be very populated - more than 1,000 households. First, you may divide these into four quadrants with approximately the same area. You may then select one of the quadrants at random before carrying out the segmentation. In this case, the census count must be divided by 4.0 before calculating the number of segments in a quadrant. A note must be made of these special cases so that the proper survey probabilities and weights can be calculated later at the analysis stage.
Example

A village with 1,400 households may be divided into four quadrants of about 350 households each. According to Table 5.1 above, nine segments would be created in the chosen quadrant and one of these segments selected at random.

Table 5.1 Determining the Number of Segments to Create in a Given Small Area (Cluster Size = 40)

<table>
<thead>
<tr>
<th>NUMBER OF HOUSEHOLDS</th>
<th>NUMBER OF SEGMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 60</td>
<td>1</td>
</tr>
<tr>
<td>61 - 100</td>
<td>2</td>
</tr>
<tr>
<td>101 - 140</td>
<td>3</td>
</tr>
<tr>
<td>141 - 180</td>
<td>4</td>
</tr>
<tr>
<td>181 - 220</td>
<td>5</td>
</tr>
<tr>
<td>221 - 260</td>
<td>6</td>
</tr>
<tr>
<td>261 - 300</td>
<td>7</td>
</tr>
<tr>
<td>301 - 340</td>
<td>8</td>
</tr>
<tr>
<td>341 - 380</td>
<td>9</td>
</tr>
<tr>
<td>381 - 420</td>
<td>10</td>
</tr>
</tbody>
</table>

② Prepare the sketch map: go to the field with the available boundary map and locate the outer boundaries of the small area. If a map is not available, get help from a local person and draw a map marking these boundaries. Identify the names of roads, lanes, streets and show physical boundaries such as streams, rivers, and so forth.

③ Draw internal markers, which will help identify locations and establish a path of travel. These
would include internal streets, paths and streams, for example.

4. **Draw a small square representing each dwelling unit in its appropriate location on the map.** For help in later locating the households, it is also useful to mark other prominent buildings - for example, schools, churches, mosques.

Note that the sketching should be a “quick count” operation for locating dwellings. It does not require knocking on doors to inquire about households or the names of occupants. An exception is multi-dwelling buildings that appear to include several households. An example would be a large compound or apartment building, where you should ask about the number of households and record it on your map.

**Note**

5. **Count the number of dwellings in the small area** and divide it by the desired number of segments calculated in step 1 above. This will give you the actual number of households in each segment.

6. Based on the sketch map, **divide the area into segments** with roughly the same number of dwellings. The size of the segments in terms of area is likely to vary considerably - densely populated areas will have geographically small segments and low-density segments will be large. Give each segment a number.

**Example**

You calculated that you needed six segments and, after mapping, your area was found to include 310 dwellings. You should then divide it into six segments of 51 dwellings each (Figure 5.1).

It is essential to create segments in such a way that segment boundaries can be easily identified. Boundaries must be readily identifiable on both the sketch map and the ground, since the segment may be visited later by some other field worker. In order to achieve this, equal-sized segments may not be possible.
After segmentation has been completed, the next step is to select one and only one segment at random in each of the small areas. Using a random number table or writing the numbers on pieces of paper, choose a random number between 1 and the number of segments created in the area to identify which segment is to be selected.

Example

If the small area has been divided into six segments, choose a random number between 1 and 6 to determine which is selected. Do this independently for each selected small area.
Box 5.1

**USING SEGMENTATION IN URBAN AREAS**

Segmenting urban areas is easier than segmenting rural areas. Cities and towns are usually organized into blocks or some similar units. When using census enumeration areas, maps are usually available showing streets and blocks. If unavailable, these maps can be easily drawn. A quick drive through the area will let you find out whether the number of dwellings appears to be about the same in every block. If so, the segmentation may be based on the blocks.

**Example**

Let us suppose that your urban census tract includes 18 blocks and that you require seven segments. Divide 18 by 7 to obtain 2.6 blocks per segment. Using the map, divide the area into seven segments of two and a half blocks (the last will have to include three blocks to complete 18) and choose one of these at random.

If the number of dwellings in the blocks are variable, use the guidelines for the rural areas, counting the total number of dwellings in the area and later dividing them into the required number of segments.

When sketch-mapping rural areas, you need not worry about separating dwellings from households. However, in urban areas you should ask how many households are present in tall buildings (for example, those with more than two floors).

5.1.2 The Random Walk Method

The random walk method includes two separate steps:

- Choose a starting point
- Select the households from that point onward
Whenever boundary maps are available they should be used to select the starting point. If these maps are not available, then the EPI-like method should be used. In both cases, the random walk method should be used for selecting subsequent households from the starting point.

Choose a starting point

Random Walk Based on the Boundary Map

Using a map of the outline of the small area (Figure 5.2), follow the steps below to select the starting point on the boundary map:

4 Allocate a number of starting points (usually four to seven) spread out on the map. Typically, these points are placed on easy-to-locate spots along the boundaries of the area, but at least one or two additional points are placed in the middle of the geographical area. Ensure that these points are linked to a landmark so that the field workers will find them without difficulty.

Figure 5.2  Map of Hypothetical Rural Area Showing Starting Points

4 Choose one of these numbers at random - for example, write them on pieces of paper and draw
It is not necessary to go to the field before completing the above steps. You do not have to know where the households are located when the starting points are allocated.

With this sampling scheme, it is possible that some households will have twice the chance of being selected (for example, those exactly in the middle of two of the numbers), while others will have a zero probability of selection (for example, those far from all numbers). Therefore, this sampling scheme does not produce a strict probability sample.

It may be argued that this method gives a greater chance of selecting an isolated household as the starting point. This is more likely to be true if there are great differences in household concentrations within the area, and less likely if households are more evenly scattered. One should note, however, that having selected this starting household, one would proceed within the area to find the subsequent ones. Any concentrations of households such as small villages located near that starting point may be fully included in the sample.

Despite these shortcomings, this method may result in a sample without important biases, being particularly applicable to scattered rural populations in low-density areas, where enumeration or segmentation would be costly and lengthy.

### Box 5.2

**USING THE STARTING POINT METHOD IN URBAN AREAS**

The starting point method can be easily adapted to urban areas. After numbering the blocks, select one of them at random. The corners of the chosen blocks are assigned letters, one of which is also selected at random. Moving in a clockwise direction from that corner, all houses up to the next corner are numbered and one of these is also randomly chosen. That will be the first household to be interviewed. From there onward, every third or fifth household, for example, would be included in the sample. If the selected block does not include sufficient households, the next block (in numerical order) would be selected for completing the cluster.
Figure 5.3 shows a map of an urban enumeration area composed of six blocks. Block 3 was selected at random, and then corner C was selected in that block. One house on that side of the block was chosen and subsequent houses were selected in a clockwise direction.
Figure 5.3  Example of the Random Starting Point Method in an Urban Area

2) Selecting the Starting Point using the EPI Method

EPI Style Random Walk is particularly useful if you have sampled small areas (for example, villages or rural communities) but no boundary maps are available to use segmentation or to choose a starting point on the map. Field workers should follow these steps for selecting the households:

4  Go to some central location within the community. This could be a market, a church, a health facility or the junction between two roads. If possible, find a local guide who can accompany you. He/she can introduce you to the families and help you find the households and the community boundaries.

4  Select a direction at random by spinning a bottle. Move in a straight line in this direction. Count all the houses you pass until you reach the edge of the community. If possible, number each house with chalk as you go.

4  Pick one of these numbered houses at random to form the starting point for the survey.

Like the previous method of selecting a starting point from a boundary map, the EPI method does not produce a strict probability sample. It also has an additional disadvantage of relying on vague definitions of “village boundaries”. Under some circumstances, however, when boundary maps are not available, it is an acceptable method.
Select the households

Whether the starting point was selected from the boundary map or through the EPI procedure, the random walk method may be used for selecting the next households.

Random Walk Guidelines

- Stop interviewing when the required number of households (not children) is reached.

  **Example**

  If the cluster size is 30 households, field work should be interrupted when this number is reached, even if only a few children were found in that particular cluster. Other clusters will have more children than expected so that in the end numbers will balance out.

- Take special caution to avoid bias when selecting households.

  **Example**

  Households should be selected in such a way that those far from the village centre, or those distant from a main road, have the same chance of being sampled as more accessible households. Isolated families may have a different health status and it is important that they are not excluded from the survey.

- Try to interview residents who are not at home when initially visited.

  **Example**

  Children whose parents are often away from home may differ in health status from the remaining children. Extra efforts, such as going back to the house at the end of the working day, are required for reaching these children and their parents. (This issue is discussed in greater detail later in the chapter.)
Follow these steps to select the households:

1. The household nearest to the starting point should be the first to be included.

2. Spin a bottle or flip a coin to decide in which direction you should move after that.

3. Follow a road or a path to identify the next households. Figure 5.4A shows that by choosing the next closest household you may leave out families living away from the main roads or paths. However, virtually every house will be connected to a road by an access path. By following these paths from the point where they join the main road (Figure 5.4B), you may avoid this type of bias.

In scattered areas, a local guide's assistance may help to save time. This person will help you follow the paths leading to households and avoid wasting time, following only those paths which lead to fields or empty houses.

If you are uncertain about which way to move, use a random selection process to decide which household to interview.

**Example**

If you are unsure about which household to interview next, flip a coin to make your decision.

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**Figure 5.4A** WRONG:
Selecting the nearest household will leave out the more isolated families.

**Figure 5.4B** RIGHT:
Following the access paths will also include the isolated households and avoid “main road bias.”
Continue in this way until you have reached the required number of households (not children) in your cluster.

In urban areas, a procedure like that described for the starting point method may be used.

**Using Different Sampling Schemes for Urban and Rural Areas**

You may use different schemes for sampling households in urban and rural areas. You may also use different sampling schemes in densely populated or less densely populated rural areas.

**Box 5.3**

**OPTIONS FOR IMPROVING THE RANDOM WALK METHOD**

You can improve your sample by spreading it out within the small area or community. Some suggestions are:

- Instead of selecting consecutive households, use systematic sampling. For example, interview one household and skip four; interview another one and skip another four; and so on.

- Divide the community or census tract into four sections (no mapping required) and select one-fourth of the required households from each quarter, using the same procedure for choosing the starting point within each section.

The above suggestions will improve your sampling, but you will need more time to complete the cluster since you will have to travel greater distances from house to house. In an area with low population density, spreading out the sample may not be feasible.

Any method which achieves a random selection of households, preferably spread widely, is acceptable.

**Example:**

You may interview every household in scattered rural areas and every third or fifth one in urban or dense rural areas (such as areas with many compounds).
5.2 How to Handle Special Situations in the Field

Some special situations in the field, described below, may require specific solutions:

1. The Small Area Cannot Be Reached.

   **Solution:**
   
   This is a rare event but in some cases, such as the rainy season, the area cannot be reached because of poor road conditions. When this happens, survey the closest area to the original one that can be reached. All replacements should be recorded in the field notebook and mentioned in the final survey report. Note that replacing the cluster that cannot be reached with another area does not completely solve the problem, since children living in areas of difficult access are likely to also differ in health status and in the utilization of services.

2. The Small Area Includes Fewer Households Than The Required Cluster Size.

   **Solution:**
   
   Survey all the households in the area. Then move to the area that is closest to the last household you did in the original area. Survey as many households in this second area as you need to complete the cluster.

3. Separate Households Are Difficult To Identify.

   **Solution:**
   
   If separate households are difficult to identify - for example, where there are a few related families living in the same dwelling and sharing some but not all meals - treat the entire dwelling as one household and interview all the women and children within that dwelling.

4. The Household Is Empty.

   **Solution:**
   
   If you call or knock a few times and there is no reply, ask the neighbours whether the house is inhabited. If it is not occupied, and you are working with a fixed-size cluster (for example, 40 households), select an additional household at the end of the day to compensate for the one which was empty.
If you are working with a variable number of households per cluster - as when using segmentation - just go on to interview all the other households in the segment.

If the neighbours tell you that the house is inhabited, come back at the end of the working day to see if the residents have returned. If they are still away, try to come back on another day. This may not be feasible in rural areas where the whole team is moving from place to place, but in urban areas it is often possible.

5. The Residents Refuse To Be Interviewed.

Solution:

Refusals are often a momentary reaction. Therefore, never accept a refusal as final. Ask one of your team colleagues to visit the house later in the day and try again. If another interviewer still does not succeed, ask the supervisor to try at the end of the day. Do not give up until three attempts have been made. If you still are unable to interview, make a note of the refusal on the cluster sheet, but do not replace the house. Report the refusal to the supervisor.

Prioritize returning to clusters where there were several losses than those with one or two losses. Why? Residents of the former are more likely to be atypical and their exclusion could bias the sample. For example, they may be of higher socioeconomic status or many mothers may be out at work.

Houses where residents are absent or refuse to be interviewed should be carefully recorded and counted as losses in the final report. Children and adults living in these houses may well be different from those interviewed, so that replacing them with another (compliant) household does not solve the problem.

5.3 What Each Interviewer Should Do

The daily routine of the interviewer should include the following:

- Read the cluster map and locate the segment or the starting household.
- Follow the instructions to select the next households in the cluster.
- Fill in a new cluster form for each cluster.
- Introduce him/herself to the household members and ask permission to carry out the interview.
- Apply the questionnaire to all members of the target population in the household.
If applicable, carry out the additional procedures for data collection, including anthropometry, testing salt iodine and observing water and sanitation facilities.

Fill in the responses to the questionnaire in a neat and legible form.

When in doubt about the coding of an answer, write it down in full at the margin of the questionnaire and check the correct coding with the supervisor at the end of the day.

5.4 What Each Supervisor Should Do

The supervisors will have many tasks during the survey. Tasks related to sampling have been described above, and will vary according to the method used. In addition to these tasks, all supervisors should perform the following tasks on a daily basis:

- Contact the local authorities/leaders in every community and hire local guides as needed.
- Supply the interviewers with questionnaires and other field work materials.
- Assign clusters or households to the interviewers.
- Observe about 5 per cent (that is, one in every 20) of each field worker’s interviews and correct any mistakes that may be noticed. For example:
  - Check that the interviewers are stating the questions exactly as instructed.
  - Explain questions and answers that are not being properly interpreted.
  - Check that the interviewers are not inducing particular responses.
- Repeat a few of the interviews and measurements separately from the interviewer, particularly in the early phase of the survey. Ensure that the answers are consistent with those obtained by the interviewer and, if not, take corrective action.
- Review questionnaires as they are completed. For example:
  - Check that answers are legible.
  - Verify the consistency of answers.
  - Investigate high levels of non-response (that is, if an interviewer reports many refusals or empty households).
  - Check totals - the number of children with completed health questionnaires should equal the total number of children under five years of age living in the household.
- When a return visit is necessary, note call-back times and household position or instruct interviewers about how this should be done.
Check that interviewers are not replacing households which are difficult to contact with other households.

Change interviewing times, if necessary, to prevent the need for too many return visits.

Answer questions, resolve problems, and give feedback to the interviewing team on the progress of the survey.

Keep the team on schedule. Allocate assignments to interviewers and re-deploy staff, when necessary.

With the team, make basic tabulations and feedback information to the community, as decided by the survey managers.

Carry a notebook at all times to keep a record of:

- Sampling procedure (details on the clusters selected).
- How households were allocated to the interviewers.
- The outcome of each interview transcribed from the interviewer’s records.
- Any difficulties in the field (also transcribed from interviewers’ notes).
- A tabulation sheet for recording questionnaires as they are completed (see cluster control sheet).
- Ad hoc decisions on how to code unexpected answers.
- The supervisor’s general observations about the survey.

Collect all the completed questionnaires and keep them clean and safe. Photocopy them, if necessary, and send them back to headquarters.

**Note**

The number of tasks requested of the supervisor is large. If sketch mapping is also being done, it may be wise to have more than one supervisor per team.
Final Note...

After the first two to three weeks of field work, it is important to keep team morale high. Interviewing can become a routine and standards may be relaxed. **Box 5.4** outlines some suggestions for maintaining your team’s spirits. The degree to which your team is motivated and excited will in turn be reflected in the quality of the data that is collected. The following chapter will show you just what is involved in processing the data, once it is collected.

**Box 5.4**

**MAINTAINING TEAM MORALE**

😊 If possible, avoid having the field workers away from their families for more than two consecutive weeks.

😊 Ensure that the field workers understand exactly how much and when they will get paid and avoid any delays in paying them. Ensure that money for expenses (for example, meal allowances) is paid before the expense is made.

😊 The interviewers should work in pairs whenever possible. They can carry out simultaneous interviews in neighbouring houses. This will increase their sense of security and enable them to help each other make decisions about locating the houses, and so forth.

😊 Special attention must be paid to drivers. You should brief them and explain the need for random sampling and for reaching households that are far away from the good roads. They must also be instructed about the need to avoid interfering with the interviews. Otherwise, they may try to influence the sampling and interviewing procedure.

😊 Within workload limitations, interviewers should have time to rest at mid-day and at the end of each working day. As well, they should have at least one full day off on weekends. Otherwise, they will become excessively tired, affecting the quality of their work.