

A guide for exploring health worker/caregiver interactions on immunization

FINAL DRAFT

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I. Introduction

Health workers' attitudes towards clients, the manner in which they treat clients, their technical performance, and the quality of their communication with caregivers all have important impacts on treatment effectiveness as well as on clients' knowledge, satisfaction and willingness to use health services. For immunization, these health worker qualities are reflected in coverage and dropout rates, and therefore in individual and community protection from vaccine-preventable diseases.

This guide is intended primarily for district health management teams and any persons or organizations they may work with to carry out a mostly qualitative study of health workers' knowledge, attitudes, and practices (KAP), particularly their interactions with caregivers and infants.

It is hoped that this guide may also be useful at the health facility level or at the provincial or national level, although the primary audience is at the district level. To support the possibility of wide applicability, the authors have not been too prescriptive. Rather, this document describes the decision points and the pros and cons of various choices at different stages of planning, implementing, and using study findings. This is not a research manual, although there are references to many manuals available. There are also sample question guides, job descriptions, a training plan, and other tools, all of which need adaptation for any specific use.

There is a lot of current interest in health workers' respectful treatment of mothers in maternal health and other intervention areas. While this document addresses immunization issues specifically, it may also be useful, adapted of course, in clarifying similar issues and designing studies beyond immunization.

Box 1: Definitions

In this document, the term **health worker** refers to a professional health worker such as a physician (for example, a pediatrician or general practitioner), an auxiliary or professional nurse, a professional midwife, a vaccinator, or a trained community-based health worker, who is involved in vaccination.

The term **caregiver** usually refers to a child's mother or father, although it is recognized that any other family member may bring children for vaccination, particularly during the mother's period of post-partum isolation.

While use of this guide may lead to identification of problems in health workers' KAP that negatively affect immunization coverage, it should be acknowledged that most health workers work very hard, often in difficult circumstances, with insufficient support and compensation. Due to staff shortages, health workers may be doing their own job plus the job of others. They may receive their salary and daily payments late, receive little or no supportive supervision, have little opportunity for professional growth, and lack a sufficient supply of vaccine or other essential commodities.

Therefore, one objective of a study assessing health workers' KAP is to understand such conditions and the related sentiments of health workers. Although difficult in most circumstances, addressing human resource and other health system issues may be necessary to address the root causes of undesirable health worker KAP. Thus, it is hoped that improving health worker/caregiver interactions will lead to:

- health workers' gaining more satisfaction from their vaccination work,
- caregivers feeling more satisfied and better informed, and
- more children being fully vaccinated and protected.

II. Rationale for this focus

The quality of the interactions between health workers and caregivers at health facilities or outreach sites can either promote or hinder childhood vaccination. Health worker/caregiver interactions can affect vaccination coverage and dropout rates, because childhood vaccination requires multiple service contacts. A caregiver may feel that they were embarrassed or treated rudely, or they may become upset because the health worker did not explain the side-effects or adequately advise on the follow-up dose(s).

Such an experience during an initial or subsequent contact can lead to the children being brought back after the scheduled date (because the caregiver did not understand the date or its importance) or children not being brought back at all and thus not completing their basic series of recommended vaccinations. Either outcome leaves the child unnecessarily vulnerable to vaccine-preventable diseases.

Moreover, bad experiences may affect parents' willingness to vaccinate subsequent children (Demographic and Health Survey (DHS) data show that higher birth-order children tend to receive fewer vaccinations), and caregivers may discuss their negative experiences with others in their community. Thus, badly perceived service experiences can reduce caregivers' trust in the health system and lead to some not bringing their children for vaccinations (Box 2).

Box 2: Study findings

"One powerful finding from responses by caregivers with partial and un-immunized children was that they did not complete their children's vaccinations because of negative experiences from the previous health care services. Those who had a previous bad experience with one child would not take a new child for vaccination. A few mothers claimed that they were shocked at the tone health workers used to address them. They were shouted at when they came late or if they had lost their ... [child health book]. They were afraid to take their children if they had missed an appointment. They would rather avoid going back than face the verbal interrogation."

From Report of study: understanding the socio-cultural dynamics of urban communities and health system factors influencing childhood immunization in Dili, Timor-Leste. Dili: Imunizasaun Proteje Labarik; 2012: p.16 (http://pdf.usaid.gov/pdf_docs/PA00JNR2.pdf, accessed 13 April 2017).

In addition, DHS and other studies indicate that use of one health service is highly correlated with the likelihood of using others. Thus, a good or bad vaccination encounter with a health worker may affect not only subsequent vaccinations but also other appropriate service utilization. Similarly, a good or bad experience during antenatal care can affect mothers' willingness to bring their child for vaccination.

III. General findings on health worker/caregiver interactions

The KAP of health staff are one of the most important and frequently cited factors that discourage complete vaccination of children.¹ A systematic review of 202 peer-reviewed articles found that the combination of “limited availability and knowledge of health workers” and “inaccurate or insensitive delivery of information from health workers,” along with poor access to services, were major reasons for under-vaccination.² Numerous studies have indicated that some health workers treat caregivers in an unfriendly, disrespectful or even abusive manner. Caregivers can feel humiliated, which often discourages them from returning to the health centre for further vaccinations (Boxes 3 and 4).

The main issues in health worker/caregiver interactions that can affect caregivers’ willingness to return are:

- health workers’ rude behaviour, as described below;
- health workers asking for small, illicit payments, arriving late to start vaccinations session, and ending sessions several hours early;
- health workers’ poor communication; and
- health workers’ bad decisions (resulting in children not receiving all the vaccinations for which they are eligible).

Other aspects of the service experience, which are mostly outside the individual health worker’s responsibility, contribute to negative service experiences: e.g., long waits, stock-outs, and facilities that don’t offer all antigens every day.

Box 3: Examples of negative caregiver perceptions

When I bring my child for vaccination:

- I come early in the morning, then have to wait a long time for the vaccinator to arrive and give a health talk before beginning the vaccinations.
- Some caregivers and their children are friends with the vaccinator or more educated and wealthy, and so they jump the line while I have to wait.
- Sometimes my child cannot be vaccinated because the required vaccine or syringe is not available.
- Health workers yell at me for not bringing a vaccination card that I never received in the first place.
- The health worker criticizes me in front of others for not having returned exactly four weeks after the previous dose.
- The health worker ridicules me for my child’s torn or unclean clothing.
- The vaccinator treats me very rudely because I am a young mother ... or because of my ethnic group ... or my inability to speak the national language.
- I can’t completely understand what the health worker is trying to say to me, and I am afraid to ask.

¹ This discussion is based primarily on the findings on health worker/caregiver interactions for vaccination from a review of 126 documents from the grey literature: Sawhney M, Favin, M. Epidemiology of the unimmunized child. Findings from the grey literature. Arlington, VA: IMMUNIZATIONbasics Project (WHO); 2009

(http://www.who.int/immunization/sage/ImmBasics_Epid_unimm_Final_v2.pdf, accessed 13 April 2017). An open-access article based on this study is: Favin M, Steinglass R, Fields R, Banerjee K, Sawhney M. Why children are not vaccinated: a review of the grey literature. International Health 2012;4:229–38.

² Rainey JJ, Watkins M, Ryman TK, Sandhu P, Bo A, Banerjee K. Reasons related to non-vaccination and under-vaccination of children in low and middle-income countries: findings from a systematic review of the published literature, 1999–2009. Vaccine 2011;29:8215–21. Other major reasons for non-vaccination included: missed opportunities to vaccinate, costs (direct and indirect), low caregiver education or literacy levels, low socioeconomic status, and parental lack of knowledge of vaccinations and disease prevention.

- Health workers make me feel ignorant for asking them to explain the purpose of the vaccination or why my child needs to return for another dose.
- The health worker doesn't tell me when to bring the child back for more vaccinations.
- Sometimes the health worker asks me for money (which I don't have).
- I have to wait in the hot sun without any explanation, without seats, and without water.

Note: These are common findings based on mothers' testimonies reported in various studies.

Box 4: Description of a vaccination session

"The first women arrived at the dispensary at 8 o'clock in the morning. The vaccinator came later and on his own by 9 o'clock. By 9:30 there were over 80 women with babies waiting. The vaccinator, who was extremely busy entering names in two different registers and filling the vaccination cards, received minimal help from the dispensary staff, which is composed of two lady doctors, one pharmacist, a peon and an ayah. The pharmacist showed no interest whatsoever. Immunization had nothing to do with them. The senior lady doctor did not even know that the vaccinator came from EPI. She believed he came from ... [an NGO]. By 10 o'clock vaccination had not begun yet. Mothers were getting impatient and babies even more so. It was extremely hot and people were fasting as it was Ramadan. The pharmacist fell asleep on his table. The senior lady doctor was bargaining the price of a sari with a burqa-clad woman peddler. She was not interested in talking about immunization. Rather she voiced her frustrations with her job and complained about the kind of medicine she practiced at the dispensary. She was totally unconcerned with the 80 mothers and crying babies in the room....Mothers who arrived after 10 o'clock were turned away and one woman complained that was the third time it happened to her and said she would not come back ... In theory, the clinic is opened till noon."

Quoted in: Sawhney M, Favin, M. Epidemiology of the unimmunized child. Findings from the grey literature. Arlington, VA: IMMUNIZATIONbasics Project (WHO); 2009: p.13

(http://www.who.int/immunization/sage/ImmBasics_Epid_unimm_Final_v2.pdf, accessed 13 April 2017).

Even in settings where health workers treat caregivers respectfully, they may communicate little and poorly with caregivers, who therefore leave not knowing when to return and what side-effects might occur and how to deal with them. In one large study in Mozambique, three quarters of health workers said they always wrote the return dates on the child's card, but only one quarter of the cards actually had the return date written. Some studies report that caregivers complain about the lack of information on side-effects.

Why do some health workers sometimes fail to treat clients respectfully? Some explanatory factors appear to be as follows:

- In certain cultures, health workers appear to have a sense of superiority and little respect for caregivers who are poor, uneducated, from a minority group and/or do not speak the national language.
- In some cultures, verbal or physical abuse is an acceptable way to teach correct behaviour (such as bringing the immunization card or coming on time for appointments).
- Health workers may feel unhappy in their job and therefore less inclined to put in the maximum effort in dealing with caregivers. They may feel overwhelmed by their responsibilities and by so many people demanding services, and unsupported by the health system: they are not given sufficient resources, supervision and training; not given opportunities for advancement; and not paid well or on time (Box 5).

Box 5: Examples of negative health worker perceptions

It is impossible to generalize accurately about all health workers' perceptions and attitudes, but too often they feel:

- They have too many responsibilities.
- They deserve a higher salary.
- They have to attend to too many mothers and children, most of whom come early in the day.
- They have far too much to do to be able to explain everything carefully to caregivers.
- They have to spend too much time writing in registers and forms.
- They have to deal with too many caregivers who don't act responsibly: for example, not showing up for appointments, losing their children's health cards, and not following instructions.
- They need more training and opportunities for professional advancement.
- They need more supervision that is not just criticism, to help them do their job better.
- They need more resources, including cold chain equipment, vehicles and fuel for outreach.
- They need more vaccine so they can open a vial for one or a few children as they're supposed to do.
- They are not adequately supported by their supervisors, and want assurances that the Ministry of Health will defend them against undeserved criticism: for example, if a child gets sick after vaccination.

Reference: Sawhney M, Favin, M. Epidemiology of the unimmunized child. Findings from the grey literature. Arlington, VA: IMMUNIZATIONbasics Project (WHO); 2009:
http://www.who.int/immunization/sage/ImmBasics_Epid_unimm_Final_v2.pdf, accessed 13 April 2017.)

Many health workers miss opportunities to immunize. Although there are many causes of missed opportunities to vaccinate, including some beyond the individual health worker's control, some missed opportunities are caused by health workers' own fears and perceptions, sometimes influenced by their reaction to or perceptions of caregivers' preferences.

The following beliefs (or fears) of health workers may lead to under-vaccination of infants:

- vaccinating mildly or moderately sick, or underweight, children may lead to the health worker being blamed (by the parents and/or the health system) if the child's condition worsens;
- opening a 10-dose or 20-dose vial for one or two children, or vaccinating a child from another district or sub-district, will waste vaccine and lead to stock-outs; and
- giving multiple vaccinations on the same visit may lead to worse side-effects, which will upset parents.

Other missed opportunities to vaccinate result from poor programme guidance or health workers' inadequate technical understanding. Examples include:

- incorrect decisions on which vaccines a particular child is eligible to receive, particularly for children who have a delayed and/or minimal vaccination history;
- refusal to vaccinate a child whose caregiver forgot the vaccination card;
- refusal to vaccinate a child because of misconceptions (which are sometimes learned during training), for example, about the ages at which childhood vaccines can or cannot be given, that the birth dose of hepatitis B vaccine will overwhelm newborns' immune system, or that it is dangerous to vaccinate during epidemics; and
- refusal to give a measles vaccine if the caregiver claims the child has already had measles disease.

The most common false contraindication concerns vaccination of a sick or malnourished child, which is mentioned in numerous studies. Health workers express a logical reasoning for this: they fear that the vaccination (or vaccinator) will be blamed if the child's condition worsens, and they commonly claim they are only doing what the mother wants. However, many studies indicate that, in reality, few caregivers will question a health worker's recommendations on vaccinations.

Health workers' refusal to open a multi-dose vial of vaccines such as measles or BCG for one or few children is a rational practice in settings where there are frequent vaccine shortages. The various causes of missed opportunities to vaccinate, including ones rooted in the health system and health facility policies and procedures, are discussed in more detail in: Methodology for the Assessment of Missed Opportunities for Vaccination, October 2017, and related WHO publications. (http://www.who.int/immunization/documents/WHO_IVB_ISBN9789241512954/en/).

The effect of missed opportunities to vaccinate on coverage rates is difficult to state precisely, since some children who are initially missed are subsequently vaccinated, but missed opportunities to vaccinate are clearly a serious concern in many settings and contribute to both under-vaccination and delays in protection. Given that most caregivers in most settings respect health workers' recommendations, improved health worker/caregiver interactions may well lead to fewer missed opportunities.

IV. Methods for learning about health worker/caregiver interactions

Situational assessment. Once health worker/caregiver interactions have been identified as a concern, further study may be merited to understand the issue better and suggest responses. The first step is to analyse and discuss what is already known (this step is often referred to as the situational assessment). This may be carried out by the district or other level health management team alone or together with a research coordinator or other members of the study team (see Section V. below). Insights from existing information can help determine what locations or type of health facilities to study, how many and what type of respondents to seek out, and what questions to ask. There may be information from previous studies, from supervision reports, or from community feedback on vaccination services. The most recent Demographic and Health Survey, multiple indicator cluster survey (MICS), or coverage surveys may have data on the percentage of 1-year-old infants with no immunizations at the provincial or district level. You should have access to health system administrative data on coverage and dropout rates between early and late vaccinations (ideally for the area you intend to study, although this may not always be the case). Existing information may help identify what type of children are not being vaccinated because their families lack proper documentation, are nomadic, or belong to ethnic or religious minorities and therefore feel alienated from mainstream government services. An appropriately sized subsample should be included from such groups in the study, if possible.

Avoid assumptions. In assessing health workers' behaviour, it is important to note that it is caregivers' (rather than your) perceptions of their treatment that are crucial. For example, a researcher may consider a wait of an hour to be too long, but caregivers' perceptions may be that such a wait is normal and fine, because it gives them a break from household chores and provides a chance to chat with their friends. Whereas some people in some cultures may consider health workers yelling at mothers (for example, for forgetting the child health card or bringing the child after the vaccination due date) as an acceptable way to teach proper behavior, many mothers resent being verbally abused, especially in public. This explains the need to learn from both caregivers and health workers and not make assumptions about their knowledge and perceptions.

Research methods. After the situational assessment is complete, the health management team (and/or study team) can implement or oversee a study to learn about health workers' KAP, caregivers' perceptions of their interactions with health workers, and how these affect caregivers' intention to continue bringing back their children for vaccinations. Several methods and instruments to gather useful information are suggested, including:

- observations of vaccinator/caregiver interactions (and possibly of interactions in registration areas or where vaccinations are authorized, if this is part of the local process),
- interviews with health staff,
- exit interviews with caregivers, and
- group discussions with caregivers (mostly or exclusively mothers) and individuals who most influence the main caregivers.

Focus group discussions with health workers may also be organized, as long as the questions are directed at health workers' perceptions of the immunization programme and how vaccinators in general act. However, particularly if the group contains a mix of professional levels, some participants may be reluctant to say anything perceived to be wrong or critical, so individual interviews with health workers are usually best.

Note that these are primarily qualitative research methods, which are most appropriate for learning the type of in-depth information sought.

Each of the recommended methods listed below can yield insights into different aspects of health worker/caregiver interactions. However, each method has strengths and limitations that should be considered in designing the study and interpreting findings (Table 1).

Table 1: Analysis of information-gathering methods

Method	Advantages	Limitations
<i>Observations of vaccinator /caregiver interactions</i>	Good for learning about: (1) health workers' communication with and attitudes towards caregivers, as well as their decision-making and technical practices related to vaccination; (2) caregivers' attitudes and behaviours during the interaction; (3) the power dynamics, respect, and other aspects of the interaction of the two persons; and (4) how the physical setting (over-crowded conditions, lack of privacy) affects the quality of counselling. Observations can be quantified to facilitate analysis.	Vaccinators are likely to change their behaviour when being observed (a phenomenon known as the Hawthorne effect). This risk may be reduced by: observing for a long time; assuring vaccinators that they are not being personally evaluated and that findings will be reported for vaccinators in general, and not for individuals; and mentioning that at the end of the observation, feedback and any needed support will be provided.
<i>Individual, in-depth interviews with vaccinators, supervisors and facility directors</i>	Good for assessing health workers' technical understanding and attitudes; also useful for learning about their concepts of good practices and perceptions of the constraints they face and how the health system respects them and supports their work. May be a good opportunity to get their suggestions for improvements.	Not good for obtaining an accurate description of health workers' practices. Health workers may have little time to talk and may fear saying anything critical for fear of repercussions from their supervisor. Health staff may feel they are being evaluated or threatened unless they are assured that this is not the case. It must be made clear that the purpose of the conversation is to learn about and improve services, not to criticize or report anyone.
<i>Exit interviews with caregivers (outside the health facility)</i>	Good for assessing how well caregivers understand and remember what the health worker said, as well as caregivers' satisfaction with the service immediately after the interaction. May also provide insight into caregivers' previous knowledge and understanding of vaccination.	Caregivers commonly fear criticizing health workers or services, so they must be assured of their anonymity, and these interviews should be held out of sight of the facility if possible. Many caregivers will be anxious to get home, so there should not be too many questions.
<i>Focus group discussions with mothers (and with fathers or other family members if they commonly bring children for vaccination) (Box 6)</i>	Good for learning about caregivers' knowledge, perceptions and experiences, if the discussion is well facilitated and follows a good question guide. Participants must be carefully ("purposefully") chosen (to represent, for example, poor mothers of children aged 6–16 months who have had all of the vaccinations for which they are eligible; and those who have had none or not all of the vaccinations for which they are eligible). In a relaxed environment, they are more likely to speak critically about their health service experiences, particularly after one participant starts the conversation.	Group discussions are less effective if: the facilitator is inexperienced and/or ineffective (for example, the facilitator should be someone who can encourage wide participation and not allow participants to become too critical of a particular health worker); if the guide has too many or too specific questions; or if participants are not carefully chosen, don't have recent vaccination experiences, or are too intimidated to talk openly in front of others they perceive to have a higher status.

Generic interview, discussion and observation guides to accompany these methods, as well as brief screening questions to facilitate selecting of appropriate participants for group discussions, can be found in **Annex B**. Although they serve as a good starting point, study planners should modify these instruments as needed, based on what they have already learned from reviewing available information. Study instruments should also be adapted (and, ideally, pretested) for translation, wording, sentence structure, tone, and equivalent levels of comprehension by both the interviewer and the respondent.

Box 6: Suggested reading on conducting focus groups

- ▶ OMNI. Toolkit for conducting focus groups.
<http://pages.stolaf.edu/2014psych-230/files/2013/08/focusgrouptoolkit.pdf>
- ▶ Morgan DL. Focus groups as qualitative research: planning and research design for focus groups. SAGE Research Methods; 2013. doi:10.4135/9781412984287.
(http://www.uk.sagepub.com/gray3e/study/chapter18/Book%20chapters/Planning_and_designing_focus_groups.pdf, accessed 13 April 2017).
- ▶ Freitas H, Oliveira M, Jenkins M, Popjoy O. The Focus Group, a qualitative research method. Working paper ISRC No. 010298. Baltimore, MD: ISRC, Merrick School of Business, University of Baltimore; 1998
(http://www.ufrgs.br/gianti/files/artigos/1998/1998_079_ISRC.pdf, accessed 13 April 2017).

Some people, including your supervisors in the health system, may be sceptical about the reliability of findings from qualitative research. It should be acknowledged that although the findings cannot be statistically characterized, well established qualitative research principles can be followed that aim for maximum validity. Validity is the extent to which findings truly represent the phenomenon under investigation. Joseph Maxwell has proposed a seven-item checklist that can be used to assess validity. The checklist can be accessed at: Research Proposals: presenting and justifying a qualitative study. In: Maxwell J. Qualitative research design: an interactive approach. Thousand Oaks, CA: SAGE; 2012. (<https://us.sagepub.com/en-us/nam/qualitative-research-design/book234502#contents>, accessed 13 April 2017).

Triangulation in particular is a useful approach for ensuring validity. Triangulating (merging) information from several methods and data sources will ensure that the explanations collected provide a relatively accurate and complete picture not only of what is happening but also why, which is essential for planning responses to improve the situation.

V. Considerations in planning the study

Select and prepare the study team. Another key planning decision concerns who will plan and manage the study and who will do the interviewing and observations. The health management team should always be involved in planning and managing the study. However, for the actual interviewing and observations, it is often difficult for health staff to obtain valid and complete responses from participants, who are likely to want to avoid being critical or to give answers perceived as being incorrect to health workers. Moreover, health workers are unlikely to be able to stay away from their normal duties long enough to do the field work. If you do decide to use health workers to gather information, the disadvantages can be minimized by:

- providing intensive training and practice in good qualitative interviewing techniques, particularly in how to avoid reacting to or judging people's responses;
- not allowing health staff to be in uniform or otherwise be identified as health staff (since respondents are more likely to give polite, but not necessarily honest, responses to health workers); and/or
- using health staff from a neighbouring area or from private health facilities.

If the study organizers can arrange the funding and identify a good partner, it is often best if the interviews and discussions are conducted by an external group, such as an NGO, research company or university students and/or health workers from outside the study area, and coordinated by an experienced research coordinator who communicates frequently with the local health management team. Ideally, the interviewers should have qualitative interviewing experience and a basic understanding of the Expanded Programme on Immunization (EPI). Contracting with an external group requires funds to cover these individuals' time (for planning, management and field work), transport, food and lodging. However, if health worker/caregiver interactions are identified as an important issue, this may be a reasonable investment. **Annex C** provides general job descriptions for the study coordinator and for the field team members.

Regardless of who does the field work, the health management team should work closely with the research coordinator and receive regular updates on progress and findings.

Organize the field work. The number of field supervisors and interviewers will depend on the scope and complexity of the study as well as the sample size. There is a quality-control advantage to keeping the number of interviewers and discussion facilitators small, but a large study may require many field teams. In a small study, the research team may consist of only one supervisor and their team of two to four interviewers, note-takers and discussion-group facilitators. The supervisors may be selected on the basis of previous experience or on the basis of participants' performance during training. Particularly in the first or second day in the field, each supervisor should observe some interviews and/or visit some of the people interviewed to assess the interviewers' skills and be able to address any shortcomings. Each supervisor should facilitate their team's daily debriefings to discuss any field challenges and emerging findings. In general, it is recommended that each team member who interviews individuals or facilitates a group discussion be teamed with a dedicated note-taker. One or two people may complete the checklist for observations of health worker/caregiver interactions. Having two note-takers allows them to compare their assessments or to complete different sections of the checklist.

Train the team. The field team needs thorough training and practice. The study instruments need to be drafted or adapted and then pre-tested (normally during the field team's training). The field team must

be or become comfortable with good qualitative interviewing practices (Box 7). (**Annex D** contains a generic training plan that can be adapted. **Annex E** provides more detailed suggestions for effective interviewing and note-taking.)

Box 7: Good practices for conducting a qualitative interview

1. Begin with easy-to-answer questions that introduces the general topic and makes the respondent feel more comfortable to have a conversation.
2. Speak less than the person you are interviewing.
3. Ask follow-up questions (probes) to learn more about topics of greatest interest.
4. Remain flexible during the interview to allow participants to explain their perspective without directing them to specific answers.
5. Do not react to what the person says, either positively or negatively, with either words or body language (gestures, movement).
6. Maintain rapport with the participant (maintain eye contact, keep an appropriate distance for conversation, make occasional brief comments to indicate your appreciation of their information ["thanks for that information/opinion"] but without reacting to something specific that the person said).
7. Use an interview protocol (question guide).

Suggested reading:

- Weiss RS. Learning from strangers: the art and method of qualitative interview studies. New York, NY: Free Press; 1994 (http://isites.harvard.edu/fs/docs/icb.topic463254.files/October_14/Weiss.pdf, accessed 13 April 2017).
- Health COMpass. How to conduct qualitative formative research. (<http://www.thehealthcompass.org/how-to-guides/how-conduct-qualitative-formative-research>, accessed 13 April 2017).

Logistics. Pay attention to logistics planning. Even if this is a small, relatively informal study, activities, responsibilities and transport must be carefully planned. Build in time for all the steps, including travel time, explaining the study to health officials, local civil officials and community leaders in sampling sites; screening for participants; the actual interviews and group discussions; and completing, clarifying, discussing, and summarizing the notes afterwards. If possible, a few rest days should be built into the schedule to enable accommodation of unforeseen delays (due to weather, illness or other problems).

Study plan. It must be established if the Ministry of Health or the organization that is funding this inquiry requires preparation of formal research plans that must be reviewed and approved by an institutional review board (IRB). The purpose of such a process is to ensure that good research practices are followed, including obtaining informed consent from all participants (Box 8).

Even if formal approval is not required, it is advisable to prepare a written study plan to ensure that the sample, research plan, interviewers and question guides are designed to provide valid, unbiased, and useful information (see Box 9 for a generic outline). The study plan should also include a process for informing all research informants about the general purpose of the study, what is expected of them, and that their personal identity and information will be safeguarded. All participants should be given the option of not participating or ending their participation when they wish to.

Box 8: Informed consent

To obtain informed consent, study participants should read (or listen to) the following information and then sign a form or agree verbally to participate.

1. A statement of the study's general objectives and methods (it is not necessary to give specific objectives, as this could bias responses to questions aimed at learning how much priority the respondent gives to the topic)
2. Why the respondent was chosen
3. What will be asked of the respondent and the expected time commitment
4. Who will have access to what the respondent says
5. A description of any foreseeable risks or discomforts
6. A description of expected benefits of participation to the respondent and to the community or health services
7. Information on when and where the interview or discussion will take place
8. Information on any incentives or help that will be offered (for example, snacks, small gifts, transportation to group discussions)
9. A statement that participation is voluntary, that the respondent can decide to stop participating at any point, and that respondents' questions will be answered fully at the end of the interview or discussion.

During the planning phase, it is helpful to discuss and reach agreement on five to ten key questions that the study is intended to answer. This helps the study implementers focus and provides a structure for their report. If possible, representatives of the community should be invited to participate in planning discussions. Their different viewpoints may be helpful in defining the key questions and deciding which vaccination sites and communities to include in the study (Box 10).

Box 9: Outline of a study plan

1. Background/introduction
2. Objectives of study: key questions (Box 10)
3. Situation assessment
4. Selection of study sites
5. Study methods:
 - Observations
 - In-depth interviews
 - Exit interviews
 - Focus group discussions, including site selection
6. Instruments:
 - Observation guide and checklist
 - In-depth interview guide
 - Exit interview guide and checklist

- Focus group discussion guide, screening tool, recruitment sheet
7. Recruitment and training/field testing of instruments
 8. Data collection and quality assurance
 9. Data analysis
 10. Dissemination of study findings

Box 10: Examples of key questions for the study

- What are the health workers' general levels of satisfaction, motivation, and abilities regarding their immunization responsibilities? What factors contribute to these feelings and abilities?
- What are health workers' attitudes towards caregivers, and health workers' behaviours when they interact with caregivers and children? What factors contribute to these attitudes and behaviours?
- What are caregivers' perceptions regarding health workers treatment of them? How do these perceptions affect their likelihood of continuing to bring back their children for vaccinations?
- How effectively do health workers communicate with caregivers?
- Do caregivers leave vaccination encounters with an understanding of the return date and the possible side-effects of vaccination?
- What factors lead to these results?
- Do health workers give each child all of the vaccinations for which the child is eligible? If not, why not? What are the causes of these missed opportunities to vaccinate?
- Are there positive motivations and supports to improved health workers' KAP that were noted in the study? How can these be better used to address health workers' KAP that discourage caregivers from bringing their children for all the recommended vaccinations?

Note: You may want to summarize answers to these questions separately for different types of health facilities, health workers, or locations within the study area.

VI. Sampling

The aim of this inquiry is to learn more about how health worker/caregiver interactions contribute to under-vaccination, identify the underlying causes of these poor interactions, and what could be done to improve these important interactions. **This is action (rather than academic) research, planned and carried out with the intention of putting findings immediately into practice to improve vaccination coverage.** This focus does not lessen the importance of following best practices in selecting which health facilities, communities, and individuals will participate in the study so that valid (and actionable) findings can be obtained.

It is difficult to give specific guidance on sample size (the number of observations, interviews and discussions) because the scope of the study may be as small as one health centre and a few communities, or as large as a district or province with many health facilities and dozens or hundreds of communities. Thus, in a province 10% of health facilities might be sampled, whereas in a district 20-50% of the health facilities could be sampled. Information from the situational assessment should also be considered, which might identify that issues in health worker/caregiver interactions are concentrated in:

- the entire province or district, all facilities and communities, or only certain sub-districts or facilities or types of facilities; and/or
- certain sub-populations, such as poor families or a particular ethnic group, or the population in general.

Finally, the time and budget available for the study may influence the sampling plan.

With these considerations in mind, it is useful to determine how large the sample should be to represent and detect distinct findings among the targeted study population and/or the various subgroups within the target population and within health services. That is, how large must a sample be to detect variations among different populations of interest, as well as in different types of health facilities or different types of health workers who vaccinate?

If coverage and dropout data are available or can easily be calculated at a local (district or sub-district) level, it should be possible to ascertain how widespread the issue is within a given geographical area, once other obvious causes have been eliminated, such as stock-outs, staff shortages, and lack of operational funds. If, at this point, the study efforts can be focused on one health facility, one sub-district or one sub-population within the district, then the inquiry (sampling) can be limited to that sub-district or subpopulation only. Table 2 provides general guidance for selecting the sample, once the scope of the study has been determined.

One acceptable approach is initially to plan what can be considered a minimal-sized sample. After completing the planned number of interviews, observations or discussions, the findings should be reviewed to ascertain whether new information is being learnt. If this is the case, then those methods that continue to provide new information can be added to the sample. Once saturation is reached (that is, no new information is emerging), you can stop collecting data. This sampling approach is different to quantitative research, in which the sample size is always statistically calculated based on standard formulae (especially when the sample size is small, because of the many caveats and assumptions associated with a small, representative sample).

Table 2: Selecting the sample

Method	Who to talk to	How many, for how long	How to find participants	Other considerations
Observations of vaccinator/caregiver interactions	Observe in two or more of each type of site where vaccinations are given: health centres, health posts, and outreach sites. The sites can be picked randomly or purposefully: for example, one site where you believe there are problems and one site where you believe health worker/caregiver interactions are pleasant and cordial. The number of each type of site can be adjusted depending on the relative percentage of vaccinations given at each type, the number of each type of site in your area, and existing knowledge of where the problem may be most serious.	You should observe for 30–45 minutes at a time when many children are being vaccinated. Observe at least five interactions. The longer you observe, the more likely you are to observe normal behaviour rather than health workers acting in ways that they believe you want to see.	You should observe every interaction during the time period, as long as each caregiver gives permission.	The observer, or someone who is assisting, should ask for the health worker’s and each caregiver’s consent to be observed. Explain that the purpose of the study is to learn how to improve the immunization programme (do not explain the specific types of things being observed). Request that both the health worker and the caregiver act as they normally do. Sit as far away as possible, while still being able to hear, and avoid reacting either verbally or with body language. Use an observation checklist (see Annex B). Besides filling in the checklist itself, the observer should note (on the back or in a notebook) important contextual information; e.g. “for client #9 vaccinator was trying to manage a large crowd, a mother pushed and she snapped.”
In-depth interviews with vaccinators and facility directors	At the selected vaccination sites, interview staff members who are vaccinators, as well as the facility director. In small facilities, all such staff should be interviewed. In large facilities, you may choose to interview randomly selected staff in each category.	Interview each selected staff member for 30–40 minutes.	Interview in the same facilities or outreach sites where you are observing.	It is important to assure health workers that they are not being personally evaluated and that the purpose of the study is to learn how to improve services and coverage. You should find a time when there are not a lot of people waiting for the service (often towards the end of the day).
Exit interviews with caregivers	Talk to caregivers with infants leaving the vaccination site. As soon as you have completed one interview, approach the next caregiver with the screening questions.	Talk to approximately five caregivers at each of the same sites where the observations are conducted (more than five if diverse responses are received from the initial five). These	Ask at least two screening questions: 1) Did the child receive at least one vaccination? 2) Is the caregiver willing to answer a few questions?	If you can work in two-person teams, you can do the exit interviews in the same time period and in the same place as the observations. You may link the observation of a particular caregiver and child with that caregiver’s exit interview. This would allow you to learn if, for example, a caregiver who doesn’t know

		interviews should be short (5–10 minutes).		the return date had (or had not) been told the return date by the vaccinator.
Focus group discussions with mothers or other caregivers	Hold discussions with mothers of young children who are fully vaccinated or less than a month late for any vaccination, and separate discussions with groups of mothers of children who are more than a month late for one or more vaccinations. Also talk to a few groups of fathers and grandmothers if they commonly bring children for vaccination. You will need to set an age range for eligibility: for example, caregivers of children aged 6–11 or 6–17 months, to include caregivers with recent vaccination experiences. If you believe that young mothers will not speak freely when there are older mothers in the group, hold separate discussions for younger and older mothers.	Recruit 8–12 participants for each discussion from random communities (assuming that 6–10 will actually participate). In each selected research site or area of your study, hold at least two group discussions with mothers (one group of mothers whose children are up to date with vaccinations and one with mothers whose children are not). Hold fewer discussions with fathers and/or grandmothers if they commonly bring children for vaccination. Each discussion should last 60–90 minutes.	In each community, randomly pick homes on a map, or select homes in different directions from the centre, approaching every third or fifth home to ask screening questions (“Is the mother eligible, willing and able to participate?”). You can enlist the help of community health workers, community health volunteers, community-based organizations or NGOs to identify participants, but they must be given rules so that the sample fairly represents the group.	Before beginning any study activities, meet with community leaders to explain the study’s purpose and proposed procedures and to ask their permission to visit homes and hold discussions. Hold each discussion in a community location, rather than a health facility. An experienced facilitator is essential. It is best if that person is not a health worker, to avoid possibly intimidating participants. Offer refreshments (and/or a small gift) if feasible and appropriate. If communities are small, you will need to draw participants for one discussion from more than one community, so you will need to offer transportation. Record the discussion if all the participants give their permission.
Group discussions with community leaders	Invite three to eight community leaders, such as an elected or traditional leader, teacher, religious leader, community health workers or community health volunteers.	These discussions can last 30–40 minutes.	Ask the official community leader to suggest other leaders; also ask them to recommend other men and women who are willing to make suggestions.	These discussions will need a skilled facilitator, particularly if there are rivalries among the leaders or if some consider themselves to be superior or inferior to others. The leaders may have good suggestions for improving health worker’s KAP and families’ use of services.

Box 11: Suggested readings on sampling

- ▶ Natasi B. Study notes: qualitative research: sampling & sample size considerations. Adapted from a presentation by Dr. Bonnie Nastasi, Director of School Psychology Program, Tulane University (https://my.laureate.net/Faculty/docs/Faculty%20Documents/qualit_res_smpl_size_considerations.doc, accessed 14 April 2017).
- ▶ Marshall MN. Sampling for qualitative research. *Family Practice* 1996;13:522–25.
- ▶ DePaulo P. Sample size for qualitative research. *Quirk’s Media*. December 2000 (<http://www.quirks.com/articles/a2000/20001202.aspx>, accessed 14 April 2017).

VII. Recording, analysing and sharing findings

Capture and begin to organize the information in the field. During the observations, interviews and discussions, notes can be taken either on the interview form or on separate forms. On the interview form, a column can be included where, during review of the notes, summary statements can be written of what people said. If all participants give their permission, group discussions can be recorded. The recordings can be used to catch nuances, clarify points in the notes that are unclear, and put sentences in context after the interviews are done.

In larger, complex studies, recordings can be converted into transcripts for coding and analysis. If you want to use a software program to assist analysis, you should record and transcribe in-depth interviews and focus group discussions, ideally as soon as possible after each interview or discussion.

If recording is not done, or if some participants do not give permission to record, it is particularly important for one or more team members to take good notes. Note-takers should be adequately briefed and have an opportunity for supervised practice. They should write as much verbatim as possible, rather than trying to summarize what the respondent said, which can lead to note-takers injecting personal opinions and judgments (see **Annex E** on note-takers' skills). For interviews with health workers and group discussions, it is best to have a dedicated note-taker. For the (shorter) exit interviews and observations, the same person can ask questions and simultaneously observe and take notes. However, because there are many aspects of the vaccination encounter to observe in a short time, it may be advisable to delegate observation tasks among two people on the team.

Analyse. As mentioned above, an initial clarification and analysis activity should take place daily among each study team in the field. This is an opportunity to note any problems with the wording of the questions or with the procedures, to improve notes taken in haste in the field, and compare interesting findings among team members and thus begin to discover patterns and connections. During the first day or two of field work, the field teams may decide to modify some questions or procedures. Daily discussions of emergent themes can support the formal analysis at the end of the information-gathering phase. When there is a large data collection team in the field scattered over many locations, it is helpful to do a quick check in over phone to ensure that all teams are in sync on their tool revisions and emerging insights.

Once the information-gathering phase has ended, schedule a few days for the entire study team to meet and systematically review and summarize the findings. Findings from each study method should be compiled on the key questions or major themes that emerged during the study. For each study method, the extent to which subgroups of the respondents yielded different findings should also be analysed. For example:

- For health worker interviews: did the findings vary by the professional level of the health worker or by the type of health facility (hospital, health centre, health post)?
- For observations and exit interviews: did the findings vary by environmental factors (overcrowding, privacy/no privacy, comfortable/uncomfortable conditions), professional level of the health workers or type of facility, or mothers' characteristics (income, education, age, ethnicity)?
- For focus group discussions: did the findings vary by mothers' characteristics or the child's vaccination status (up to date or missing vaccinations due)?

Once this has been done, relevant information from two or more methods can be compared and combined to reach conclusions on each key question. Such triangulation of information is essential for obtaining a full and complete understanding of the situation being investigated. For example, on the question of the quality of vaccinators' interactions with caregivers and children, three types of information will be available (from observations, exit interviews and focus group discussions), each of which may provide different, consistent or inconsistent information. You must use your judgment, based on the strengths and weaknesses of the different study methods, to compile the best summary of the actual situation from the various sources of information.

If a formal report is needed, organize the findings by the key questions that you set out to answer (Box 10). This is primarily a qualitative study, so the report should state findings in qualitative terms; for example, a few, about half, or most vaccinators (perhaps in a certain level of the facility) did such and such, rather than five of eight did such and such. It is fine to report the observation data in numbers, and there are a few other questions that are easy to quantify, such as ranges of waiting times reported. In the discussion of the findings, health workers' KAP may be linked or hypothesized to be linked to aspects of service quality that are beyond the individual health worker's direct responsibility, such as long waiting times, stock-outs, facilities that don't offer all antigens every day, staff vacancies, etc.

Qualitative data analysis comprises five stages:

Stage 1: Compilation of data

Stage 2: Disassembly of data through coding (examining and coding small pieces of data)

Stage 3: Re-assembly of data through synthesis (looking at the aggregate of small pieces of data that fit together)

Stage 4: Interpretation of data

Stage 5: Conclusion

Box 12: Correlating findings on health workers' KAP with coverage data

If routine coverage and dropout data are considered to be reasonably accurate, or if there has been a recent coverage survey, the study team can compare the qualitative findings on health workers' KAP with coverage data at the health facility, sub-district, or other appropriate level. This comparison would highlight if the facilities or areas with the most issues related to health workers' KAP are also areas of lower coverage and higher dropout, and if areas with minimal health worker issues are those with higher coverage and lower dropout. Of course, this is a broad correlation, since other factors could affect coverage and dropout, but it may be worth doing in some settings. Where there is a good correlation, if the programme takes steps to address issues in health workers' KAP then it should expect to see improvements in coverage (as well as in caregivers' satisfaction). If this does not occur, the team should explore other causes of low coverage (such as stock-outs or staff shortages).

To undertake high-quality analysis, sound data management principles must be followed (Box 12). It is highly recommended that field notes are organized systematically before commencing qualitative analysis. This leads to **Stage 1** of the analysis, which involves compiling data in an orderly fashion. During this stage it is important to review the notes, transcripts and recordings multiple times to familiarize oneself with the content.

Box 13: Suggested reading on qualitative data management best practices

► Mack N, Woodsong C, Macqueen KM, Guest G, Namey E. Qualitative research methods: a data collector's field guide. Research Triangle NC; Family Health International 360; 2005

(<http://www.fhi360.org/sites/default/files/media/documents/Qualitative%20Research%20Methods%20-%20A%20Data%20Collector's%20Field%20Guide.pdf>, accessed 14 April 2017).

► McLellan E, MacQueen KM, Niedig J. Beyond the qualitative interview: data preparation and transcription. *Field Methods* 2003; 15(1):63–84.

► Chandler CIR, Reynolds J, Palmer JJ, Hutchinson, E. ACT Consortium Guidance: qualitative methods for international health intervention research. London School of Hygiene & Tropical Medicine. December 2008; updated December 2013 (http://www.actconsortium.org/data/files/resources/72/ACTc-Guidance.-Qualitative-methods-for-international-health-intervention-research_Dec2013.pdf, accessed 14 April 2017).

The following sample questions may help the study team think about the data as they read the interview or focus group notes:

- Which themes or topics are emerging multiple times during your review of your notes?
- What linkages do you find between the various topics?

During **Stages 2 and 3**, researchers will code data according to themes and topics that cluster together and identify links between various data points.

During **Stage 4**, the researcher ensures that their understanding of the phenomenon under investigation is complete, fair, empirically accurate and credible.

Stage 5 pulls all the elements of the analysis together to produce a compelling description of the phenomenon and generate a set of action items for follow-up as needed.

Software for qualitative research may be used to organize and manage data and to facilitate data analysis. However, the actual analysis is undertaken by the researcher or researchers. The decision on whether to use software will depend on resources, time and the anticipated volume of data generated during the study. For more information about the various types of software options available, see: Choosing an appropriate CAQDAS package. University of Surrey.

<http://www.surrey.ac.uk/sociology/research/researchcentres/caqdas/support/choosing/> (accessed 14 April 2017).

Once the analysis is completed, the study team should discuss, with support from other levels of the health system, other local partners and the community, how they could address the problem areas identified by the study.

VIII. Ways to improve health worker/caregiver interactions

Findings from studies using these guidelines are bound to vary. To provide an example of possible findings, Box 14 describes some of the key findings from the WHO-sponsored pilot test of these study guidelines in Migori County, Kenya, in 2016.

Box 14: Selected findings from the Migori County pilot test of these guidelines

- ▶ A combination of staff shortages and overcrowded conditions in the mornings puts pressure on vaccinators, some of whom do minimal counselling and fail to record vaccinations in the facility register and/or the child's take-home record. One factor contributing to morning crowds is a perception among both caregivers and some health workers that the fresh vaccine in the morning loses potency by the afternoon.
- ▶ Some health workers scold mothers and may send them home if they forgot the child's card.
- ▶ Some staff began their careers enthusiastic and motivated, but became frustrated with the stresses of work over time.
- ▶ Some additional factors affecting coverage include distance to facilities, long waiting times for some mothers, and lack of a cold chain in some facilities. Although general demand for vaccination is high, there is a religious minority that resists vaccination.

All solutions should be based on the local resources and context, as well as on the nature of the problems and their causes. Table 3 outlines some of the common problems that might be encountered and suggests some possible responses. It is recommended that the responsible managers involve both the health staff themselves as well as local leaders and representative community members in discussing problems and solutions, based on the study findings. Managers may also need the support of their superiors in the Ministry of Health during this process, because some of the underlying causes for health workers' behaviours are likely to be rooted in the broader health system.

Table 3: Possible issues identified in health worker/caregiver interactions and possible ways to address them

Key issues	Possible solutions to consider	Likely responsibility
Vaccinators do not consider communication to be an important part of their job	<ul style="list-style-type: none"> ▶ Emphasize to vaccinators the importance of good communication with caregivers. Remind health staff that they are the most trusted source of information so good communication on their part is very important. ▶ Make counselling of caregivers an official part of the vaccinators' job description (if it is not already) ▶ Provide refresher training and practice to improve skills and attitudes for good counselling ▶ Monitor and support counselling during supportive supervision 	<ul style="list-style-type: none"> ▶ Supervisors ▶ Ministry of Health ▶ National or sub-national Ministry of Health ▶ Supervisors
Health workers don't always provide key information (on side-effects and return dates)	<ul style="list-style-type: none"> ▶ Provide a simple job aid to remind vaccinators of key information to provide and to invite questions and concerns ▶ Role-play counselling and practice it in service sites as part of pre-service and in-service training ▶ Improve conditions for counselling (allocate more time, ensure privacy, etc.) 	<ul style="list-style-type: none"> ▶ EPI/Ministry of Health's health promotion unit ▶ EPI ▶ Facility directors
Health workers don't confirm caregivers'	<ul style="list-style-type: none"> ▶ Emphasize to vaccinators the importance of confirming caregivers' understanding and inviting questions ▶ Role-play and practice this in actual service sites as part of pre-service and in-service training 	<ul style="list-style-type: none"> ▶ EPI, supervisors ▶ Supervisors

understanding or invite questions	<ul style="list-style-type: none"> ▶ Assess this (and improve if needed) during supportive supervision ▶ If large numbers of clients waiting to be served creates pressure on vaccinators to treat each caregiver and child rapidly, provide other opportunities for questions and dialogue (e.g. during health talks in facilities and communities, at an “information table” at the exit of the facility). 	<ul style="list-style-type: none"> ▶ Supervisors ▶ Facility directors
Caregivers don’t ask questions because of lack of privacy, feeling pressured by the many people waiting, or fear of the vaccinator’s reaction	<ul style="list-style-type: none"> ▶ Encourage caregivers to ask questions by raising this issue in meetings with the community at large and with community leaders ▶ In health talks and community events, encourage caregivers to ask questions, express concerns, and never leave without being clear about side-effects and return dates ▶ Have all vaccinators wear a badge, button, or apron that says “Ask me about vaccination” ▶ Set up a table at the exit where a health worker or trained volunteer can answer caregivers’ questions and respond to concerns 	<ul style="list-style-type: none"> ▶ Health workers, community health workers, community leaders ▶ EPI/Ministry of Health’s health promotion unit and supervisors ▶ Facility directors
Health workers treat caregivers rudely, and are also verbally abusive	<ul style="list-style-type: none"> ▶ Provide sensitivity training to health workers aimed at changing attitudes; for example, bring mothers in to play the role of a rude health worker and have the health worker play the role of a mistreated mother ▶ Establish a feedback loop, such as a complaints box, SMS number to send complaints, or “rate our service” panels ▶ Facilitate meetings at which members of each group talk about how they feel when interacting with the other, and then jointly discuss how to improve relations ▶ If feasible, organize exchange visits in which health staff visit communities to learn about their history, economy, talents, and so on, and community representatives visit the health facility to receive a tour and explanation of its services 	<ul style="list-style-type: none"> ▶ EPI/Ministry of Health’s health promotion unit ▶ Facility directors ▶ District or facility health staff ▶ District or facility health staff
Health workers have too many caregivers and children to attend to at the same time and therefore feel they cannot take the time to communicate thoroughly	<ul style="list-style-type: none"> ▶ Assign more vaccinators to the facility (this requires additional resources) ▶ Ensure that vaccinators are available to vaccinate during all hours when they should be ▶ In facilities with many children to vaccinate, set up a counselling table that is staffed by another health worker or a trained volunteer, to give caregivers key information on additional vaccinations needed, the return date, side-effects, the vaccination card and vaccine-preventable diseases, and to respond to any questions or concerns ▶ If health talks are given in the waiting area, add more discussion and invite questions and concerns ▶ Ensure that vaccinations are available during all days and hours when they should be; through community leaders and meetings, inform families that children will be vaccinated later in the day; have health workers write not only the return date but also return time slots (for example, 08:00 to 10:00, 10:00 to 12:00, 13:00 to 15:00) 	<ul style="list-style-type: none"> ▶ Ministry of Health/EPI ▶ Facility directors, supervisors ▶ Facility directors ▶ Facility directors, staff ▶ Facility directors
Health workers unnecessarily deny vaccination because of caregivers’ expressed or perceived preferences	<ul style="list-style-type: none"> ▶ Inform health workers of what caregivers said in the study: it is most likely that caregivers respect and will follow health workers’ recommendations regarding what vaccinations to give ▶ Remind health workers of, and discuss with them, the official contraindication policy and give them a copy (if needed) that they can show to caregivers ▶ Observe interactions and occasionally review registers to eliminate unnecessary denial of vaccinations 	<ul style="list-style-type: none"> ▶ Facility directors, supervisors ▶ Facility directors, supervisors ▶ Facility directors, supervisors

Annex A: Studying health workers' KAP at different levels of the health system

Level/issue	Who should plan?	Who collects the information?	Complexity of sampling	Approach to analysis	Ability to respond to findings
Sub-district	If possible, a local research consultant together with the staff of the largest health facility in the sub-district, in consultation with community representatives or leaders	Staff from a local NGO, or health staff from a neighbouring sub-district, out of uniform, in well supervised teams	The sample will include most or all vaccination sites and randomly selected communities with good and poor coverage	If there are clear research questions and good note-taking, analysis should be fairly straightforward and not require analysis software.	Some findings should be easy to respond to at this level; however, those requiring major resources (more staff, more transport) will need support from higher levels of the system. Local NGOs and community-based organizations may be able to assist.
District	An NGO, university or research group, if there are contracting funds available (in close collaboration with the district health management team); if not, a research consultant with the district health management team	Staff from an NGO, university or research group; or health staff from a neighbouring district, out of uniform, in well supervised teams	The sample should include a roughly proportional, random selection of each type of vaccination venue and a random selection of communities with good and poor coverage	If there are clear research questions and good note-taking, the analysis should be fairly straightforward; a large district may opt to use analysis software if there is a person with experience of using it.	Some findings should be easy to respond to at this level; however, those requiring major resources (more staff, more transport) will need support from higher levels of the system. Local NGOs and community-based organizations may be able to assist.
Provincial/national	An NGO, university or research group, if there are contracting funds available (in close collaboration with the provincial health management team or national immunization unit); if not, a research consultant with the provincial health management team or EPI staff	Trained staff from an NGO, university or research group, in well supervised teams	Determining an adequate but feasible sample size is more challenging. The sample should include a roughly proportional, random selection of each type of vaccination venue and a random selection of communities with good and poor coverage. A comparison of high and low performing districts may be desired. It may be appropriate to include private vaccination providers and hospitals. A larger sample over a wider area implies increased travel and research time (and increased costs).	With a larger and more diverse sample, the analysis will be more complicated. Analysis software may be helpful, especially if there is a person with experience of using it.	Findings may be easier to respond to at this level, unless the system is highly decentralized; significant resource needs will still require collaboration with top national Ministry of Health staff and support beyond the Ministry of Health (such as the Ministry of Finance). National or regional NGOs may be able to assist.

Annex B: Sample study guides (for adaptation)

Study Guide #1: Observations of vaccinators' communication with caregivers/children

Caregiver/Child →	1	2	3	4	5	6	7	8	9	10	11	12	Totals			
Vaccinator had access to documented information on child's age and vaccination history*														Y =	N =	
If not, vaccinator asked open ended questions to obtain this information														Y =	N =	N/A =
Vaccinator gave all vaccinations for which child was eligible**														Y =	N =	
Vaccinator avoided asking caregiver for money or in-kind gift outside official procedures														Y =	N =	
Vaccinator was friendly (greeted, smiled, said goodbye)														Y =	N =	S =
Vaccinator avoided getting angry because of something the caregiver did or didn't do														Y =	N =	
Vaccinator explained what vaccines they were giving and for what diseases														Y =	N =	
Vaccinator discussed possible side-effects and what to do if they occurred														Y =	N =	
Vaccinator invited questions														Y =	N =	
Vaccinator listened and thoughtfully responded to the caregiver's thoughts and fears														Y =	N =	N/A =
Vaccinator explained return date and its importance														Y =	N =	N/A =
Vaccinator wrote return date on vaccination card/other paper that caregiver took home														Y =	N =	N/A =
Vaccinator recorded vaccinations in child's take-home record														Y =	N =	
Vaccinator reminded caregiver to bring the take-home record to each visit														Y =	N =	
Vaccinator thanked and/or praised caregiver														Y =	N =	
Vaccinator avoided rushing through the encounter***														Y =	N =	
How much time did the vaccinator spend talking with the caregiver?														< 1 min.	1-2 min.	> 2 mins.

Y = yes; N = no; N/A = not applicable; S = somewhat

*Note on the back of this form if any caregiver or caregivers never received the child's take-home record or if they received it but lost or forgot it. In these cases, did the vaccinator vaccinate? Did the vaccinator give a new record?

**If the health worker missed an opportunity to vaccinate, note the reasons on the back of this form. For example, did the health worker make an incorrect decision on which vaccinations to give, based on the child's age and vaccination history? Did the health worker deny vaccinations because of false contraindications or reluctance to giving multiple vaccinations, although the required vaccine and syringe was present? Did the vaccinator deny vaccinations because of caregiver concerns? Were there reasons beyond the health workers' control (such as stock-out of vaccine or syringes, or a facility policy to avoid opening a large vial for few children)?

***Note on the back of this form the environmental conditions for the interaction of the vaccinator with caregivers. Was the room crowded with caregivers and children waiting for the service? Did the people waiting create pressure on the vaccinator to work quickly? Was there privacy for the interaction between vaccinator and caregiver?

Name of facility:

Location:

Date of observations:

Observer:

Type of health worker observed:

Length of time observed:

Notes on children who had no home-based record (child health or immunization card):

Reasons for not giving vaccinations for which children were eligible:

Please describe any environmental conditions that may facilitate or hinder the health worker from providing a good service and communicating adequately with caregivers:

Study Guide #2: In-depth interviews with health staff

Date: _____

Facility name and location: _____

Beginning and ending times of interview: _____/_____

Name of the interviewer: _____

Name of the note-taker: _____

Type of vaccination site: Outreach site Heath post Health centre Government hospital
Private facility Other (_____)

Position of person interviewed (check one): Vaccinator Health worker who authorizes vaccinations
Facility Director Other

Note: You will need to skip or modify some questions if the health worker you are interviewing does not vaccinate.

Introduction

1. What is your position in this health facility?
2. How long have you been in this position?
3. What are your main responsibilities?

Knowledge of vaccination

(If this information is easily available on the wall or desk, let the health worker look at it)

4. Who is your target group for vaccination?
5. How large is the population of infants?
6. What was your facility's vaccination coverage for Penta3/DTP3 [third dose of pentavalent vaccine] last year?
7. What was the Penta3 coverage for the last quarter?
8. What was your dropout rate from Penta1 to Penta3 last year?
Don't know Dropout rate ___%
9. What is the national vaccination schedule for infants?
Knows Does not know completely

10. Please tell me the contraindications you follow for the pentavalent vaccine:

Your immunization programme

11. Does your health facility offer all the vaccines in the national schedule every day of the week?

Yes No

If not, please explain when each vaccine is available at the health facility.

12. During what hours each day are vaccinations supposed to be available in the facility?

13. Are all vaccinations in fact available during all of those hours?

Yes No

[If not] Please explain the reason(s).

14. Does your health facility have the needed cold chain capacity, vaccine, syringes, and safety boxes for vaccination?

Yes No

[If not] Please describe the situation in the health facility.

15. Do you feel that your health facility has sufficient staff available for vaccinating all eligible children?

Yes No

[If not] Please explain your opinion.

16. Does your facility hold outreach sessions and or mobile clinics?

Yes No

17. [If yes]

a) Are all planned vaccination sessions outside the facility held as planned? Yes No

b) [If not] What are the main reasons for postponing or cancelling sessions?

18. What percentage of vaccinations would you estimate are given outside the facility?

19. How do you think most parents in your area feel about vaccination?

20. What is the basis of your opinion?

21. Does your facility provide information to the public on vaccination and immunization services?

Yes No

[If yes] How?

22. Does your facility involve community leaders and groups in promoting immunization?

Yes No

[If yes] How? [If not] Why not?

23. Does your facility have a system for identifying specific infants who are behind in their vaccinations?

Yes No

[If yes] What do you do?

24. Does your facility, or the community-based individuals you work with, contact families of dropouts to alert, remind and motivate them to have their infant vaccinated?

Yes No

[If yes] How and what are the results?

Your personal involvement in vaccination

25. Considering all of your duties, what proportion of time would you estimate you spend on vaccination?

26. What are your main responsibilities related to vaccination? ... Anything else?

27. How do you feel about your work in vaccinating children? ... Are there aspects that you enjoy and aspects that you do not enjoy?

28. In your opinion, how important is your work in vaccination? Please explain your opinion.

29. How do you feel about the mothers or other caregivers who bring their children for vaccination?

30. How do you feel about mothers who bring their children in late for vaccination?

31. What do you say or do when this happens?

32. How do you feel if a mother forgets her child's health card?

33. What do you say or do when this happens?

34. What do you normally say to a mother before vaccinating her child?

35. What do you normally say to a mother after vaccinating her child?

[You should compare responses to questions 30–35 to what you observe in observations of vaccination encounters.]

36. Are there any factors that make your conversations with caregivers at the time of vaccination difficult?

Yes No

[If yes] Please tell me about these factors.

37. Do you ever discuss immunization and vaccination services in communities?

Yes No

[If yes] Please tell me more about this.

38. What concerns, if any, do you ever hear from caregivers about pain at the time of vaccination?

How do you normally respond to these concerns about pain?

Opinions on the immunization programme

39. In your opinion, what are the main reasons why some children in your area have incomplete or delayed vaccinations?

40. What could your health facility do to improve its immunization coverage?

41. What could the district or Ministry of Health do to help your facility to improve its immunization coverage?

This concludes our discussion. Is there anything we have not discussed that you would like to mention?

Thank you for your time and information.

Study Guide #3: Exit interviews with caregivers

Date: _____

Facility location: _____

Beginning and ending times of interview: _____/_____

Name of the interviewer: _____

Name of the note-taker: _____

Type of vaccination site: Outreach site Heath post Health centre

Government hospital Private facility Other (_____)

Approach any caregiver leaving the health facility or outreach site with a child who appears to be younger than 18 months.

Introduction/screening questions

Good morning/afternoon. My name is I am from.....

Tell the caregiver: We are working with the Ministry of Health to learn how to improve health services. If you agree, I'd like to ask you just a few questions about what happened today at the clinic. This should take less than 10 minutes. I will not write your name or your child's name, and what you as an individual say will not be shared with anyone outside this study. We will report only what mothers in general have said. Are you willing to answer a few questions?

Yes No

If not, thank the caregiver for her time.

If yes, thank the person and request that they try to answer the questions as honestly as possible.

Why did you come here today?

Child's vaccination Other reasons: _____

What is your relationship to the child?

Did the child receive one or more vaccinations today?

Yes No

If they came for vaccination but the child was not vaccinated, ask about the reason. Then thank the caregiver for their time.

Reason:

If the child was vaccinated today, continue.

Interview questions

You may want to ask a few demographic questions on caregivers here, e.g. ethnic group, educational level, language(s) spoken.

1. How was your waiting experience today?

2. How long did you wait?

3. What vaccinations did your child receive today?

4. Can I please look at your child's vaccination card for a moment to see if what you recall agrees with what the health worker wrote?

Yes No Does not have card

If yes, comment on what the health worker wrote (or did not write) and on agreement with caregiver's recall:

5. [If the caregiver brought the child for vaccination] Did your child receive all of the vaccinations you came for? Yes No

[If not] Why not?

6. [If they came for some other reason but the child got vaccinated], how did it happen that your child got vaccinated today?

7. How did the vaccinator treat you today?

8. Do you need to bring back your child for more vaccinations?

Yes No Not sure

[If yes] When do you need to bring back your child for more vaccinations?

Knows Does not know Does not know but on child's record

Note: The interviewer can look at the child's record if the return date is written there.

9. Do you intend to bring your child back then?

Yes No Not sure

[If not] Please explain why:

10. Did the vaccinator tell you about how your child might feel after the vaccination?

Yes No

[If yes] what did they say to do if your child has some discomfort after the vaccination?

11. Did the vaccinator say anything about your child's vaccination card/health booklet?

Yes No

[If yes] What did they say?

12. Do you have any questions about vaccination in general or about today's vaccinations?

Yes No

[If yes] Did you ask the health worker? Yes No

[If not] Why not?

What would you like to know?

13. Is there anything else you would like to mention about your vaccination experience today?

Thank you very much for your time and information.

Study Guide #4: Screening participants for group discussions

Good morning/afternoon. My name is I am from We are collaborating with the Ministry of Health to learn how to improve health services in

Ask if a young child lives in this house and, if so, if the type of person you are looking for (mother, father or grandmother) is at home. If not, ask when that person might be available to answer a couple of questions. If you can talk to the right type of person, continue. Ask if it's okay to ask just a few questions now, which should take about 5 minutes. If the person agrees, continue. If not, thank the person for their time.

Date: _____

Name of Interviewer: _____

Information to identify the neighbourhood/town and/or the population segment that this potential respondent represents; for example, mother younger or older than 23 years; ethnic group or primary language; urban or rural residence; dirt floor and organic roof versus wood or cement floor and wood or ceramic roof:

Address/location of the house: _____

First name of person to be interviewed: _____

Part 1:

1. When was the youngest child who lives in the house (your child or grandchild) born?

Date:/...../..... (dd/mm/yr) Child's age in months: _____

If the respondent is not sure, ask if they can find the child's health card or some other document that has the birth date. If the person cannot find such a document, ask about the child's birth date in relation to events or occurrences that they should be familiar with, such as the beginning of the rainy season, an election, major holidays, etc.

If the exact birth date cannot be ascertained, what is the best estimate of the child's age in months?

Note: If the team decides it wants a group with certain demographic characteristics, there must be appropriate screening questions. For example, there might be a question on ethnic group, comfort using the national language, or educational level.

☞ **Decision: Is the child's age between 6 and 12 months? Yes No**

Note: You may want to modify this age range. You should use an age range so that participants have had time to have several vaccination experiences with the current child, so the experiences are fresh in their mind (hence 6–12 months are suggested). If you are investigating small rural communities where there are few infants, you may need to recruit participants from one or more neighbouring communities in order to have enough participants for the discussion.

If there is no child in the age range you are looking for, thank the person and move on.

Part 2:

1. Ask to see the child's vaccination record. *[In places where many children do not have home-based records or many records are missing information, it may be necessary to obtain this information from health facility records.]*
2. If the person cannot produce a record, ask if the child has received any vaccinations, either by drops in the mouth or injections. Yes (one or more vaccinations) No (no vaccinations)
3. [If yes] How many times has the child been brought for vaccinations? For each visit: how old was the child? How many vaccinations did the child receive that day? Did the child receive injections or drops? How many of each? Where on the child's body were the injections given? *[With all the new antigens, it has become difficult to obtain an accurate vaccination history without a written record; however, your task here is to determine, as best you can, if the child is up to date on vaccinations.]*

☞ **Decision: No vaccinations or not up to date on vaccinations** **Fully vaccinated/up to date**

Note: Fully vaccinated/up to date means that the child has received all the vaccinations for which they are currently eligible or the child is not more than 4 weeks overdue for one or more vaccinations. It does not necessarily mean that the child is completely vaccinated.

4. I would like to invite you to participate in an hour-long discussion with other mothers (or fathers and grandmothers) from your neighbourhood or community to discuss your ideas and experiences related to vaccination. We want to learn from you how we can improve this programme.

Tell them when and where their session will take place. Explain that their names will not be used in any report, and their full names will not be recorded. If all participants agree, the discussion will be tape recorded. In that case, the recording will be listened to only by the small study team to be sure that they heard what people said. All tapes and notes will be stored in a safe location that only the study team can access.

Would you be willing to participate in this discussion?

Yes (will participate) **No**

If yes, thank the person and ask if they will walk to the discussion venue or would like to be picked up. Agree on a pickup time and give them a slip of paper with the time and date for pickup as a reminder. Ask if they will need someone to watch other young children at the place of the discussion.

Yes No

Mention that refreshments will be served and [if applicable] a small gift (such as soap or food) given.

If they don't want to participate, ask them to please explain why, but do not pressure them to change their mind.

Reason for not wanting to participate:

Thank them for their time now and/or willingness to cooperate.

Study Guide # 5: For group discussions with mothers (or fathers or grandmothers)

Date: _____

Focus group discussion location: _____

Beginning and ending times: _____/_____

Name of the moderator: _____

Name of the note-taker: _____

Type of participants (older or young mothers, not up to date or up to date on vaccinations, etc):

Introduction

- ▶ *State the reason for the discussion (to learn how to improve immunization services and protect more children)*
- ▶ *Explain how the discussion will proceed: ground rules (turn off cell phones, everyone should participate, one person talking at a time, etc.)*
- ▶ *Request that everyone share opinions and experiences: explain that no one is being judged or evaluated*
- ▶ *Express appreciation for everyone's participation*
- ▶ *Repeat that participation is voluntary and that participants' names and individual opinions will not be shared with anyone*
- ▶ *Encourage people to speak honestly and not worry if they are being critical of anyone*

[Hand out name tags with first names only]

Topic 1: Introduction of participants: talk about their families

Can each of you please tell us:

1. Who are the members of your family?
2. How long you have lived in your community or neighbourhood?

Note: You can modify these questions. The purpose is to help people feel comfortable with each other and with speaking out. Write these questions on a flip chart if most participants are literate.

Topic 2: Concepts of vaccination

1. What do you think is the purpose of vaccination?
2. How important is it for your children to get all the recommended vaccinations?
3. Do you have any concerns about getting your children vaccinated?

Note: If you believe that concern about vaccine safety is a major issue, you can add a question about this. For example: how safe do you feel that vaccination is?

Topic 3: Practical knowledge of vaccination

1. How many vaccination visits do you think your child needs?
2. How did you learn about vaccination, from what individuals or materials?

Topic 4: Experiences with and feelings about vaccination services

Next we'd like to discuss your experiences in getting your children vaccinated.

1. Can each of you please tell us where your child has received most of his or her vaccinations: a health centre, health post or outreach site?
2. Can you please tell us about your experiences when you brought your children for vaccination?
Note: You can call on various participants to share experiences. Ask if anyone else has had a similar experience.
3. How satisfied are you with the way in which the vaccinators treated you and your child?
4. Have you ever brought your child for vaccination but not been able to receive it? Why was your child not vaccinated that day?
5. How much did your previous vaccination experiences influence your decision to return for additional vaccinations?

Possible additional questions to ask:

- ▶ What did you like about your experiences?
- ▶ What aspects of getting your children vaccinated have been difficult or unpleasant? (Please be frank because we are asking this so we can learn how to improve the services.)
- ▶ How friendly is the vaccinator?
- ▶ What does the vaccinator normally tell you when they vaccinate your child?
- ▶ How easy is it to understand what the vaccinator says to you?
- ▶ Does the vaccinator invite you to ask questions?
- ▶ How confident are you about the vaccinator's competence?

Topic 5: Reasons for child's current vaccination status

Note: Choose the appropriate category: All of you have young children who have either had some but not all of the vaccinations they should have received, or they are fully vaccinated or up to date with their vaccinations.

1. In your family, who decides that your child will (or won't) be brought for vaccinations?
2. Can you please explain the reasons why your child has had:
 - *only some or none of the vaccinations he or she is eligible to receive; [or]
 - *all of his or her vaccinations?
3. Do some people advise you not to get your child vaccinated? If so, who and what do they say? How do you feel about that?

Possible additional questions to ask:

- ▶ How convenient for you are the days and hours when vaccinations are offered?
- ▶ How difficult is it to leave your normal tasks in order to bring your children for vaccination?
- ▶ Does it cost you any money to get your child vaccinated?
- ▶ Are you concerned about the bad things that people may say about vaccination?
- ▶ Are you concerned about the side-effects of vaccination? Have any of you not brought your child because of this concern?
- ▶ Do you and your family leave your community during certain times of the year? Does your travel affect your ability to bring your child for vaccinations?

Topics 6: Suggestions for improvement

1. Can you please share your ideas for how vaccination services could be improved?
2. Do you have any suggestions for how your time with the vaccinator could be improved?

Closing remarks

1. Do you have any final questions or concerns about vaccinations or vaccine-preventable diseases that you would like to ask?

Thank the participants and ensure them that a summary of their experiences and suggestions will be shared with the health officials, and that the participants' feedback will be considered in planning improvements in vaccination services and how they are promoted.

If possible, wait until the end to serve refreshments. You can also break in the middle, but try to break at a time when the discussion has slowed down.

Remember: The moderator's job is to:

- *Make everyone feel comfortable*
- *Get everyone to talk*
- *Not allow anyone to dominate*
- *Ask the questions and appropriate probing questions*
- *Ask others or everyone in the group if they agree or not with what others have said (can ask for a vote if group sentiment is not clear)*
- *Know when to extend a discussion and when to move on to the next topic*
- *Make sure the participants know how important their opinions are and how much you appreciate their input*

Study Guide #6: For group discussions with community leaders

Date: _____

Name of Community: _____

Roles of the various participants (community health worker, religious leader, traditional leader, etc.):

Name of Moderator: _____

Name of Note-taker: _____

Introduction

- ▶ *State the reason for the discussion (to learn how to improve immunization services and protect more children)*
- ▶ *Explain how the discussion will proceed: ground rules (turn off cell phones, everyone should participate, one person talking at a time, etc.)*
- ▶ *Request that everyone share opinions and experiences: explain that no one is being judged or evaluated*
- ▶ *Express appreciation for everyone's participation*
- ▶ *Repeat that participation is voluntary and that participants' names and individual opinions will not be shared with anyone*
- ▶ *Encourage people to speak honestly and not worry if they are being critical of anyone*

[Hand out name tags with first names only]

Introduction

1. How long have you been a leader in your community?
2. What are your main responsibilities in this role?

Immunization programmes

1. Where do families in your community obtain vaccination services?
2. How satisfied are you with these services for your community?
3. How do you feel caregivers from your community are treated when they bring their children for vaccination?
4. How effective do you feel the vaccinators are in communicating key information to caregivers at the time of vaccination?
5. Do you feel that health facilities near your community provide adequate information to the community members on immunization services?
6. If yes, how? If no, how could this be improved?
7. How do community members feel about vaccination and available vaccination services?
8. What do you think can be done to improve these perceptions?
9. In your opinion what are the key reasons why some children in your community are not fully immunized?
10. What can the health workers and facilities do to get more of your community's children fully immunized?

Personal involvement in immunization programmes

1. How involved, if at all, are you in promoting or supporting immunization in your community?
2. In your opinion, how important is your involvement with immunization in your community?
Please explain.
3. What, if any, mechanisms are there for informing the health facility about newborn babies in your community?
4. What do you think your role should be in encouraging community members to make sure their children are fully immunized?

Closing remarks

1. Do you have any final questions or concerns about vaccinations or vaccine-preventable diseases that you would like to ask?

Thank the participants and ensure them that a summary of their experiences and suggestions will be shared with the health officials, and that the participants' feedback will be considered in planning improvements in vaccination services and how they are promoted.

If possible, wait until the end to serve refreshments. You can also break in the middle, but try to break at a time when the discussion has slowed down.

Remember: The moderator's job is to:

- *Make everyone feel comfortable*
- *Get everyone to talk*
- *Not allow anyone to dominate*
- *Ask the questions and appropriate probing questions*
- *Ask others or everyone in the group if they agree or not with what others have said (can ask for a vote if group sentiment is not clear)*
- *Know when to extend a discussion and when to move on to the next topic*
- *Make sure the participants know how important their opinions are and how much we appreciate their input*

Annex C: Job descriptions for research coordinators and field team members

Job description and qualifications for the research coordinator

Tasks

1. Study your job description and ask for any needed clarifications.
2. Meet with the Ministry of Health team sponsoring the study to discuss their reasons for organizing the study, their expectations of the research coordinator and the study, and you and they will interact during the process.
3. Identify, review and analyse existing relevant documentation to assess what is known about the immunization programme, mothers' perceptions of the programme, and health workers' KAP regarding immunization (possibly together with the Ministry of Health team).
4. Supplement the review of documents by carrying out key interviews with a few Ministry of Health staff and anyone else who can be identified who has studied immunization or mothers' perceptions of services and health workers in the study area.
5. In conjunction with the Ministry of Health team, lead the design of the study on health workers' KAP using the health workers' KAP tool as a guide. In consultation with the Ministry of Health team, define the key research questions. Make the key decisions (on samples, methods, etc.) and adapt the generic research tools annexed to the guide on the basis of what is already known about the issues of interest. Adapt the research methods and study guides as appropriate to the key research questions, capabilities of the team members, available time, and budget.
6. Draft the research plan, share it with the Ministry of Health team and make revisions as needed.
7. If necessary, work with the Ministry of Health team to obtain approval for the study from the appropriate institutional review board.
8. Work with the Ministry of Health team to identify individuals or groups interested in carrying out the study; interview and select the team.
9. Adapt the training plan in the guide for training the field team for this study. Identify the venue and dates of training.
10. Serve as a facilitator for training the research team and, with them, pretest and revise the instruments as necessary.
11. Work with the Ministry of Health team to schedule and plan the logistics for the fieldwork.
12. Work with the Ministry of Health team and field team to inform and request permission of facility directors and communities participating in the study.
13. Organize and oversee the supervision and quality control of the research teams.
14. Organize and oversee the preliminary analysis of findings with other members of the study field team/teams. Work with the field teams and Ministry of Health team to summarize the findings, first from each method and then from all methods combined, and their implications for modifying immunization services, health workers' practices, and/or communicating with caregivers.
15. Draft a study report (estimated 8-10 pages, plus annexes) and revise it after comments from the Ministry of Health team.
16. Prepare a PowerPoint presentation on the study background, design, field experiences, findings, and recommendations.
17. Participate in a meeting to present the main findings of the study, and to plan actions to address the findings, as needed.

Requirements

- University degree in social sciences, anthropology, sociology, public health, or related fields
- Proven experience in the design, conduct, and analysis of qualitative research involving mothers from poor, rural areas, particularly with regard to immunization or child health
- Proven experience in training and supervising field research teams

Highly desirable

- Ability to speak one or more local languages in which interviews will be conducted
- Experience working in or studying public health services

Job description and qualifications for field team members

Tasks

1. Review the research plan and schedule of field activities, and make comments and suggestions.
2. Participate in training to gain the required level of competency in:
 - identifying appropriate respondents, as per the sampling plan;
 - introducing yourself and the study, and requesting consent from participants;
 - using the research guides in interviews and/or observations;
 - following recommended interviewing and other qualitative research skills;
 - treating all respondents respectfully and not reacting to their responses verbally or non-verbally;
 - taking thorough and legible notes;
 - pulling key quotations or other information from notes; and
 - contributing to the analysis of information.
3. Carry out assigned interviewing, note-taking and analysis tasks in the recommended manner and in accordance with the planned schedule.

Requirements

- Completion of secondary school, some university courses or university degrees, ideally in social sciences, anthropology, sociology, public health, or related fields
- Fluency in the language or languages in which proposed respondents are most comfortable
- Ability to take good notes in the main language used in the health system
- Willingness to spend the required time in the study locations
- Availability to work until the end of the planned study period
- Experience living or working in the types of communities included in the study
- Respect for and empathy with the ethnic and socioeconomic groups who will be included in the study

Desirable

- Previous experience collecting information in qualitative studies in similar environments
- Knowledge of or experience working with immunization or other primary health care services
- A nursing or similar background for those team members who interview health staff and observe vaccination sessions

Annex D: Training outline for a study on health workers' KAP

There are many factors to consider in planning the content and length of training for a study of health workers' KAP. The main considerations are the interviewers' level of knowledge of immunization and experience in qualitative research. Other important considerations include the breadth of the topics to be explored and the complexity of the research, particularly the number of proposed methods and research instruments (protocols or question guides). The training outline below (for three days) assumes that the research team has some basic familiarity with the immunization programme and experience in qualitative research. If the team members are not strong in these areas, the training may need to last a week or longer. Normally, the training should include pretesting of the question guides.

Day 1			
<i>Topic</i>	<i>Methods/materials</i>	<i>Facilitator(s)</i>	<i>Time</i>
Introduction; review and discuss training plans and schedule; agree on ground rules (be on time, cell phones on vibrate, etc.)	Welcome speech; pass out and discuss handout of training schedule; show proposed ground rules, then ask for comments and suggestions		30 minutes
Introduction of the team	Ask all team members to describe their experience with immunization and with qualitative research and their reasons for wanting to participate in the study		30 minutes
Review of immunization basics: diseases, vaccines, national vaccination schedule	Hand out basic information sheets and review them together; invite and respond to participants' questions		60 minutes
Description of public and private immunization services (facilities, community health days, outreach) and the major components of the immunization system	PowerPoint presentation followed by questions and discussion		60 minutes
Major findings from existing information, including the health management information system, coverage surveys, previous studies, and supportive supervision	PowerPoint presentation showing coverage and dropout trends, strengths and weaknesses of the immunization programme and services, followed by questions and discussion		60 minutes
Evidence that health workers' KAP may be contributing to lower coverage and higher dropout rates; study objectives and justification; 5–10 key questions that study is designed to answer; how findings will be disseminated and used to improve coverage	PowerPoint presentation followed by questions and discussion		90 minutes
Overview of the study methods and schedule	Handout and PowerPoint presentation followed by questions and discussion		60 minutes

Administrative procedures: per day, forms, time sheets, cell phones	Presentation using actual forms, then invite questions		30 minutes
Begin review of basic qualitative research skills (Note: length of session will be dependent on the participants' relevant experience and may need to include many roleplays with feedback)	PowerPoint presentation followed by questions and discussion: open and closed questions, leading questions, probing questions, verbal and non-verbal neutrality, initiating and closing a conversation, conditions needed for a good interview, note-taking; if group is not experienced, include role plays in plenary and/or small groups, followed by comments and suggestions (can use Annex E as a handout)		60 minutes
Day 2			
Continue review of basic qualitative research skills	See above		60 minutes
Roles and responsibilities of team members: who will screen, interview, take notes, facilitate focus group discussions, observe, supervise, and analyse?	Present (and hand out) tentative assignments, then invite comments and suggestions		60 minutes
Consent, anonymity	Discuss consent and forms; discuss importance of confidentiality and how team will maintain it (not saying or writing participants' full names, not discussing findings with outsiders, keeping notes secure); engage in role play explaining and receiving consent to participate; invite questions		45 minutes
Review of field schedule and procedures, including daily debriefings of each sub-team	Present plans and invite questions, comments and suggestions		45 minutes
Review of draft instruments	Divide into groups by assignment: screeners and interviewers; focus group discussion facilitators; and observers and interviewers at immunization sessions; each group discusses their instruments and notes down suggestions		90 minutes
Discussion and decisions on changes to instruments	Discussion and decisions on suggested changes to each instrument		90 minutes
Plans and logistics for pretesting instruments the next day	Hand out plans, discuss, invite comments and questions		60 minutes
Day 3			
Practice/pre-testing of instruments and procedures	► Sub-team 1 will pre-test the observations and interviews with vaccinators, facility directors and mothers in one facility		180 minutes

	► Sub-team 2 will practice a focus group discussion at the training site with mothers recruited by the organizers		
Debriefing by each sub-team on procedures and instruments: Were questions clear? How did people react? Were people comfortable? What changes in the order or wording of questions are suggested?	Each team will present, followed by general discussion and questions, followed by consensus decisions on any changes in procedures or instruments		120 minutes
Screening and random selection	Discussion and role plays of screening interviews with mothers, fathers and grandmothers		60 minutes
Coding and analysis	Discussion and practice using examples from the pre-test interviews and discussions		60 minutes
Final review of field logistics and schedule	Organizers will present tentative plans and invite comments		60 minutes

Note: Participants should receive a hard copy of all PowerPoint presentations (4 slides per page). Energizers, coffee and lunch breaks will be inserted. The times given are approximate. Organizers should feel free to modify them or other parts of this generic training plan.

Annex E: Skills for interviewers and note-takers

This annex is adapted from Mack N, Woodsong C, Macqueen KM, Guest G, Namey E. Qualitative research methods: a data collector's field guide. Research Triangle NC; Family Health International 360; 2005²

Skills for interviewing

1. Know your question guide

Practice your introduction. You should be able to explain all the elements of informed consent in your own words. Practice asking the questions and probes in the interview guide, section by section, until you are very familiar with every section. During the interview, you should not have to search through the guide for the next question. Be sure that you understand the study's main objectives and the reasons behind each question. If you don't understand a topic, discuss it with your supervisor, training facilitator, or team members until you understand it well enough to explain it yourself.

2. Build rapport

The interviewer should be able to make the respondents feel relaxed. Respondents will talk openly and honestly when they are comfortable with the interviewer, trust the interviewer and are confident about confidentiality, believe the interviewer is truly interested in their story, and do not feel judged or criticized. Be friendly, have a relaxed body language, be humble, do not scold or coerce respondents, and be patient.

3. Emphasize the respondent's perspective

Remember that the purpose of the interview is to learn the respondents' perspective, and that your task is to learn from them. Be a good listener, but at the same time keep control over the interview. If the respondent asks for your opinion, let them know that you consider their point of view more important. If the respondent asks you for factual information during the interview, write down the questions and let them know that you will answer at the end of the interview, and then remember to do so.

4. Adapt to different personalities and emotional states

Every respondent has a different personality and a different mood at the time of the interview. Learn to adapt your approach so that each participant becomes comfortable enough to speak freely about the topic. Different styles will be needed for different respondents: for example, be able to keep control of a conversation with a dominant person, and be able to animate a shy respondent. If a respondent becomes emotional or angry, know how to calm them by adjusting your tone of voice and your body language.

5. Keep the conversation on the topic

Respondents are often very happy that someone is interested to hear their opinions. Sometimes, they may want to talk a lot and also tell you things outside of the research topic. As the interviewer, it is your job to keep control of the conversation, and, when necessary, politely guide the respondent back to the topic of the interview guide.

² (<http://www.fhi360.org/sites/default/files/media/documents/Qualitative%20Research%20Methods%20-%20A%20Data%20Collector's%20Field%20Guide.pdf>, accessed 14 April 2017).

6. Ask one question at a time

Ask one question at a time: avoid asking another question before the respondent has a chance to respond to the last question. When questions are grouped together, the respondent is unlikely to give a full answer to each question.

7. Verify unclear responses

If you are unsure whether you accurately heard what the participant said, verify the response before going to the next question. You can say: "I'm sorry I didn't quite hear/understand what you said, could you repeat that?" You can also try the mirror technique, where you reflect the respondent's answer back to them in question form. For example: "So you're saying that you think rice is more nutritious than cassava?" Even if the respondent's answer appears shocking to you, be sure to remain neutral while verifying unclear responses.

8. Ask open-ended questions

Closed questions are those that can be answered with a single word, or with a "Yes" or "No" response. You can ask these questions, but then you should follow up with an open-ended question. Open-ended questions usually start with "Why...?", or "How...?", or "Can you tell me more about...?". These questions give the respondent an opportunity to explain their opinions, feelings, or experiences. Practice asking open-ended questions (questions that do not bias the response). For example, instead of asking "Did that make you happy?", ask "How did you feel about that?".

9. Avoid leading questions

A leading question is worded in such a way that it can influence the respondent's answer, because it usually implies that there is a correct answer. When answering a leading question, a respondent is likely to agree with the interviewer. For example, "Don't you agree that it's best to breastfeed exclusively?" is a leading question. A better way to ask is, "What is your opinion about exclusive breastfeeding?"

10. Use effective probing with direct and indirect probes

Probes are neutral questions, phrases, sounds and even gestures interviewers use to encourage respondents to elaborate their answers. The particular probe used depends on the response given by the respondent, so the interviewer must listen carefully to what the respondent says in order to probe effectively. Use probes when the respondent's answer is brief or unclear.

Direct probes	Indirect probes
What do you mean when you say...?	Yes
Why do you think...?	I see
How did this happen...?	Interesting
How did you feel about...?	Uh-huh
What happened then?	I can understand that
Can you tell me more?	Repeating their last phrase, ("So you have given
I'm not sure I understand...would you explain that to me?	birth at home for all of your pregnancies...")
How did you handle...?	Nodding
How did that affect you?	
Can you give me an example of...?	

11. Practice, practice, practice! And practice again!

Skills for Note-taking

Tips for writing field notes

- ✓ Start by recording the date, time, place, first name of the interviewer and first name of the respondent. At the end of each interview, note the time that the interview ended.

- ✓ Take notes strategically. It is usually practical to make only brief notes during an interview. Direct quotes can be hard to write down accurately. Instead of trying to document every detail or quote, write down key words and phrases that will trigger your memory when you expand your notes.

- ✓ Use shorthand. Because you will expand your notes soon after you write them, it does not matter if you are the only person who can understand your shorthand system. Use abbreviations and acronyms to quickly note what is happening and what is being said.

- ✓ Distinguish clearly between the respondent's comments and your own observations. Use your own initials or another shorthand term (for example, "OBS") to indicate your own observations and not things the respondent said. For example: "OBS: embarrassed by dirty toilet". This documents the note-taker's observation that the respondent seemed embarrassed to show her toilet to her guests because it was dirty. It does not mean that the respondent said she was embarrassed.

- ✓ Follow the question guide so that you can help to remind the interviewer if any topics have not been discussed, or if any questions are still unanswered at the end of the interview. Remind your colleague about any such remaining questions towards the end, but before the close, of the interview. In this way, the interviewer can try to revisit or clarify certain topics with the respondent before the interview ends.

Debrief

- ✓ Schedule time to review your field notes with your colleague (the interviewer) as soon as possible, and no later than 24 hours after the interview. Go through your notes section by section, and verbally summarize your field notes to the interviewer. The interviewer may also have some observations to add, or if they have taken some of their own notes then they may be able to help you recall more details of what was said, or clarify anything that was unclear.

Expand your notes

- ✓ As you debrief, expand your field notes by writing complete sentences and descriptions of what happened and what was said during the interview on summary sheet forms. Expand your shorthand into sentences that anyone can read and understand.

- ✓ The sooner you expand your notes, the greater the chance that you will remember other things that you had not written down. Good note-taking often triggers the memory, but this opportunity is lost with the passage of time.

- ✓ Expand your notes as if you were writing a story. Don't forget to note clearly which things were said as part of the conversation, and which were observations. Also, be sure to identify any remaining or unanswered questions.