

**KNOWLEDGE, ATTITUDES, AND
PRACTICES (KAP) SURVEYS DURING
CHOLERA VACCINATION CAMPAIGNS:
Guidance for Oral Cholera Vaccine
Stockpile Campaigns**

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PREFACE

Worldwide, an estimated 1.4 to 4.3 million cholera cases and 28,000 to 142,000 cholera deaths occur every year [1]. In places where cholera occurs regularly, an estimated 1.4 billion people are at risk for disease each year. Slow progress in providing access to safe water and sanitation to underserved populations, limitations of surveillance systems for early detection of cholera outbreaks, and lack of access to timely and appropriate healthcare have contributed to this burden of disease. Recognizing the importance of cholera as a continuing public health problem, the World Health Assembly (WHA) adopted Resolution 64.15 in May 2011 [2]. This resolution calls for implementation of an integrated and comprehensive approach to cholera control, which may include the use of oral cholera vaccines (OCV).

In response to the WHA resolution, the World Health Organization (WHO), in consultation with technical partners, has established an OCV stockpile that will be available mainly for epidemic response [3]. This stockpile has been created on the principle that vaccines have a role in the prevention and control of cholera outbreaks when used in conjunction with accessible healthcare and improvements in water and sanitation. It has also been established with the understanding that the stockpile will have a limited number of doses relative to the need for vaccine and that the use of OCV through the stockpile will not significantly alter global cholera disease trends. However, evidence generated through stockpile OCV use may help indicate its potential to impact disease trends when used on a larger scale. Therefore, a monitoring and evaluation framework has been developed to provide guidance on documenting the evidence for OCV use through the stockpile [4]. As part of this framework, a series of documents has been created to provide guidance on specific topics, such as cholera disease surveillance, field operations, communications, surveys regarding knowledge, attitudes, and practices of communities affected by and/or at risk for cholera, surveillance of adverse events following immunization (AEFI), cost analyses, vaccine effectiveness, and vaccination coverage.

This document outlines a uniform approach to conducting surveys regarding the knowledge, attitudes, and practices (i.e., KAP surveys) of communities regarding diarrheal disease, cholera and cholera vaccines, water, sanitation, and hygiene, and healthcare access that can be adapted for the needs of each setting. The main overall objectives of this protocol are the following:

- To provide general guidance on conducting KAP surveys for evaluating OCV campaigns and related activities.
- To provide implementers with adaptable KAP survey tools for use in the field.

This document is divided into five sections that provide information on cholera disease and current oral cholera vaccines, KAP surveys, survey protocol and questionnaire development, survey implementation, and translating findings into action. The annexes provide sample documents that may be modified for use in the field.

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ABBREVIATIONS

AEFI	Adverse events following immunization
CI	Confidence interval
IEC	Information, education, and communication
KAP	Knowledge, attitudes, and practices
OCV	Oral cholera vaccine
WASH	Water, sanitation, and hygiene
WHA	World Health Assembly
WHO	World Health Organization

1. BACKGROUND

Cholera is an acute diarrheal disease caused by infection with the toxigenic bacterium *Vibrio cholerae* serogroup O1 or O139. Human infection most often is caused by ingestion of contaminated food or water. Infection can result in rapid dehydration and death in the absence of timely and appropriate rehydration. Infected persons can shed trillions of infectious *Vibrio cholerae* bacteria and can trigger cholera outbreaks. Recommended cholera disease prevention and control measures include the provision of safe drinking water and proper sanitation to at-risk populations and timely and appropriate healthcare for those with clinical disease. Oral cholera vaccines may be used in a complementary role to the usual recommended prevention and control measures [2].

Currently, two WHO-prequalified OCVs are available for global use: Dukoral® (Crucell/SBL Vaccine, Sweden) and Shanchol™ (Shantha Biotechnics Ltd., India) (Table 1). These are whole-cell, killed vaccines that have demonstrated a protective two- to three-dose efficacy of 66%–85% in clinical trials and effectiveness of 65%–86% pre-emptive and reactive vaccination campaigns [5-11]. Protection against cholera disease is achieved approximately 7–10 days following a complete vaccine course and may persist up to 5 years [7]. Both vaccines have shown to be safe in clinical and field trials.

Table 1. Oral cholera vaccine characteristics

Characteristic	Oral cholera vaccines	
Trade name	Dukoral®	Shanchol™
		
Presentation	1 dose vial + buffer sachet	1 dose vial
Volume per dose	3 mL + 75 mL (for children) or 150 mL buffer	1.5 mL (water optional)
Recommended administration schedule	2 doses (3 in children 2-5y) 7-14 days apart (max 42 days) Booster every 2 years	2 doses 14 days apart Booster every 2 years
Minimum age of 1 st dose	2 years	1 year
Full series efficacy	<p><u>Bangladesh:</u> 85% after 6 months; 62% after 1 year; 58% after 2 years; 18% after 3 years; by age group: 2-5 years: 38% after 1 year; 47% after 2 years; >5 years: 78% after 1 year; 63% after 2 years</p> <p><u>Peru military recruits</u> 16-45 years of age: 86% (95% CI 37-97) after 4-5 months</p>	<p><u>Kolkata, India:</u> Intent to vaccinate adjusted cumulative 5 year protective efficacy:</p> <ul style="list-style-type: none"> - Overall: 60% (95% CI 46-71) - Ages 1-4 yrs: 39% (95% CI 4-61) - Ages 5-15 yrs: 65% (95% CI 39-80) - Ages ≥15 yrs: 69% (95% CI 53-80) <p>Per protocol adjusted cumulative 5 year protective efficacy:</p> <ul style="list-style-type: none"> - Overall: 65% (95% CI 52-74) - Ages 1-4 yrs: 42% (95% CI 5-64) - Ages 5-15 yrs: 68% (95% CI 42-82) - Ages ≥15 yrs: 74% (95% CI 58-84)

Full series effectiveness	Pre-emptive mass campaigns in endemic settings: <u>Beira, Mozambique:</u> 78%-84% <u>Zanzibar:</u> 79%	Reactive campaign during cholera outbreak: Boffa, Guinea: 86%
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INTRODUCTION TO KAP SURVEYS [12-14]

What is a KAP survey?

A KAP survey usually is conducted to collect information on the knowledge (i.e., what is known), attitudes (i.e., what is thought), and practices (i.e., what is done) about general and/or specific topics of a particular population – in the case of OCV campaigns, these topics would include diarrheal disease, cholera and cholera vaccine, and water, sanitation and hygiene (WASH). Information is collected by interviewers through a structured, standardized questionnaire that may include both quantitative and qualitative data.

Why conduct a KAP survey?

A KAP survey can generate data that can be used for the following purposes:

- To identify knowledge gaps, cultural beliefs, and behavioral patterns that may identify needs, problems, and barriers to help plan and implement interventions.
- To deepen the understanding of commonly known information, attitudes, and factors that influence behavior.
- To generate baseline levels and measure changes that result from interventions.
- To assess and identify communications processes and sources important for program implementation and effectiveness.
- To help set program priorities and make program decisions.

When is the best time to conduct a KAP survey?

In the case of OCV campaigns, a KAP survey ideally should be conducted before and after the vaccination campaign, if possible. A pre-campaign KAP survey will provide data that may help with vaccination campaign planning and provide baseline data to help measure impact of campaign-related activities. A post-campaign KAP survey will provide data that will help evaluate campaign-related activities. Should there be insufficient time and resources to conduct a complete KAP survey (pre- and/or post-vaccination campaign), campaign implementers may consider using a rapid assessment questionnaire to determine whether certain campaign activities/processes (e.g., communications, vaccine dispensing logistics) should be modified in real time. These assessments may be conducted at any time during a campaign.

Who should conduct a KAP survey?

For the purposes of the OCV stockpile, the KAP survey will probably be conducted during the early stages of a cholera outbreak response. Thus, personnel in addition to those involved in the emergency response will be needed. Survey staff may include those with

knowledge of survey methodology, cholera prevention and control measures, and/or immunizations who can help with protocol and questionnaire adaptation. Assistance from technical partners with relevant expertise also may be requested, and external interviewers with survey experience may be hired.

2. SURVEY PROTOCOL AND QUESTIONNAIRE DEVELOPMENT [12-14]

The following is an outline and brief discussion of practical steps for survey protocol and questionnaire development.

In general, a survey protocol should include the following items:

- A statement of the problem or its background
- Survey goals and objectives
- Survey methodology including the survey population, survey design, survey sampling plan, enrollment and consent procedures, data collection procedures, data management and analysis plans
- Plan for use and dissemination of survey results
- Ethics review
- Budget (allocation)
- Project schedule
- Questionnaires and interview forms as annexes

Although, no one protocol can fit all KAP surveys, a more specific example of an adaptable OCV campaign-related KAP survey protocol is included in Annex 1 for reference and potential use in the field. The following provides general steps for KAP surveys with specific reference to OCV campaigns.

Step 1: Review existing information

Before composing a survey protocol, it will be important to determine the overall goals and objectives of the survey. To do this, the first step will be to review existing information related to the population targeted for the OCV campaign. This may include local cholera disease surveillance data, WASH data, census reports, reports from other health surveys, and published literature.

Step 2: Determine survey goals

After reviewing relevant information, the next step is to determine what the overall goal of the survey is. Will the goal of the survey be to explore and collect information about the population or a specific topic? Will it be to establish baseline data prior to an intervention? Will it be to evaluate the impact of an intervention (i.e., test a hypothesis about an intervention strategy)? Or will it be a combination of these?

For the purposes of stockpile-related OCV campaigns, survey goals will be a combination of exploration, baseline data collection, and evaluation.

Step 3: Define survey objectives

Once the overall goal of the KAP survey has been determined, specific objectives should be defined. These objectives will determine what information will be collected during the survey.

Specific objectives of an OCV stockpile-related KAP survey may include the following:

- To assess the knowledge, attitudes, and practices regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, cholera vaccines, healthcare access, and immunization practices among residents of the population targeted for vaccination.
- To evaluate the impact of the OCV campaign on the knowledge, attitudes, and practices regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, cholera vaccines, healthcare access, and immunization practices among residents of the target population following the vaccination campaign.

Step 4: Outline survey methodology

Once the survey objectives have been defined, the next step will be to outline the survey methodology. This will include identifying the survey population and determining the study design, sampling plan, and data collection and analysis plan. It is strongly advised that staff or technical partners with expertise in survey design and data analysis be involved.

Survey population

The survey population will be determined by the information review and survey objectives. In general, this population may be defined by demographic characteristics (e.g., age, sex, religion, urban/rural residence, income level, education, employment status, ethnic or language group), job or social category, or other characteristics related to a specific topic (e.g., cholera or diarrheal disease risk, access to safe water, access to improved sanitation). Selection of the survey population will depend on the survey objectives, time, and resources, as different groups may be surveyed.

For the purposes of an OCV stockpile-related KAP survey, potential survey populations include the following:

- a) Community members targeted for cholera vaccination
- b) Community members targeted for cholera vaccination and those not targeted for vaccination within geographical proximity
- c) Community members residing within a cholera outbreak area
- d) Community members residing in both outbreak and non-outbreaks areas

However, given the limited time and resources that exist during cholera outbreaks, the most likely survey population will be community members targeted for cholera vaccination.

Other potential survey populations that are outside the realm of this document include health workers, immunization staff, and decision makers.

Survey design

Most KAP surveys are cross-sectional surveys that collect data at a specific point in time. Although these types of surveys are subject to sampling, response, and recall biases, they are the most convenient for situations in which time and resources are limited.

For OCV stockpile-related KAP surveys, pre- and post-vaccination campaign surveys should be planned if there is enough time. The pre-vaccination campaign survey should be conducted prior to campaign activities to provide baseline data that may also help plan campaign-related activities. The post-vaccination campaign survey should be conducted within 6-12 months following the vaccination campaign to help measure the intermediate term impact of campaign-related activities on the community. If there is no time to conduct a pre-vaccination campaign survey, a post-vaccination campaign survey can still provide data on health message delivery modes and specific knowledge acquired from campaign-related activities.

Sampling plan

The survey sample is the set of survey participants selected from the larger survey population. The survey sampling plan will determine how participants are selected and can address the generalizability, certainty, and precision of results by defining who is included in the survey and how many people are needed [12]. To provide the most appropriate survey sample while considering time and resource constraints, the sampling plan should be developed with the assistance of someone knowledgeable in survey methodology in order.

In general, there are three main categories of sampling – random, purposeful, and convenience sampling (Table 2) [12]. While random sampling may be the most methodologically rigorous, each of sampling method has advantages and disadvantages. Thus, it will be necessary to decide which will be most feasible in the setting of a cholera outbreak and reactive vaccination campaign.

Table 2. Main survey sampling categories

Sampling category	Description	Examples
Random sampling	Participants are chosen by chance (i.e., randomly) and have an equal chance of being selected – potentially most resource intensive; may include simple random, stratified random, and random cluster sampling	Households within randomly selected villages are selected for survey participation Households within a defined geographic area affected by cholera are randomly selected for survey participation
Purposeful sampling	Participants are selected in a directed way based on a criterion or rationale	All health workers from a district affected by a cholera outbreak are selected as survey participants
Convenience sampling	Participants are selected based on convenience – most expedient; produces estimates without the cost or time required to select a random sample	All adults seeking care at a cholera treatment center are selected as survey participants

Enrollment procedure and informed consent

A procedure for survey participant enrollment should be outlined as well as details for obtaining informed consent from potential survey participants. In some cases, verbal consent will be appropriate, particularly where written and signed consent forms are not culturally

appropriate or possible. During the consent process, it will be important to assure survey participants that the information they provide will be kept confidential.

A sample consent form/script and a sample household enrollment log are provided in Annexes 3 and 4.

Data collection

As previously stated, data for a KAP survey are collected through a structured, standardized questionnaire that may include both quantitative and qualitative data and also may include observations. Types of data to be collected are dependent on the survey objectives and questions to be answered (please see *Step 5: Develop the survey questionnaire*). Quality control of data collection should be provided daily during the survey period by survey team supervisors and principal investigators.

The mode of data collection (e.g., paper questionnaire, smartphone, tablet) should be determined based on the feasibility of use in the survey area, existing resources for training and supplies, and availability of technological support in the field during the survey period. Modes of data back-up should be specified (e.g., paper forms for smartphones).

Data management and analysis

A plan for data management, including quality control, and analysis should be outlined at the time of protocol development. Allocation of data entry, cleaning, and analysis tasks to specific personnel or groups should be made, as should plans for data storage.

For OCV stockpile-related KAP surveys, the data analysis plan should include a descriptive analysis to assess knowledge, attitudes, and practices regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, and immunization practices of the survey population. Should pre- and post-vaccination campaign surveys be possible in the same population, additional analyses may be performed to evaluate the impact of campaign-related activities.

Data use and dissemination of findings

A plan for data use and dissemination of findings should be outlined in the protocol. In general, a summary report of survey findings should be written, and results should be disseminated to all relevant stakeholders. Additional guidance is provided in Section 6: *Translating findings into action*.

Step 5: Develop the survey questionnaire

The survey questionnaire should be prepared with the survey objectives in mind. Content should be relevant to the key questions to be answered, and questions should be framed in a manner that will minimize bias and best reflect knowledge, attitudes, and practices.

Types of questions to include are both closed-ended and open-ended questions. Closed-ended questions have a pre-determined set of answers (easier to standardize for data entry

and analysis). Open-ended questions do not have a pre-determined set of answers and are more likely to include qualitative data (potential difficulties for data analysis, but still informative). Findings from questions may also be substantiated by observations.

The following tips are helpful for survey question writing [12, 14]

- 1) **Remember the purpose of the survey** – Make sure that the survey questions support the survey objectives.
- 2) **If in doubt, throw it out** - If the effectiveness of the question is in doubt, delete it.
- 3) **Keep your questions simple** – Use simple language; in each question, focus on one topic.
- 4) **Stay focused** – Avoid vague issues.
- 5) **Avoid leading questions** – Use neutral questions that will not lead the participant to answer in a specific way.
- 6) **Make sure the respondent has enough information** – Providing some background for a question may yield more accurate information. For example, rather than asking “Do you think that the oral cholera vaccination campaign was beneficial?” a two part question may be asked, such as, “Did you know that oral cholera vaccine was provided to people in this village during a vaccination campaign last month?” This may be followed by “What kind of benefits have you seen from this campaign?”

For OCV stockpile-related campaigns, the following question topics may be included:

- Demographic and socio-economic characteristics
- Knowledge, attitudes, and practices regarding diarrheal illnesses and cholera, WASH, cholera vaccines and other routinely administered vaccines, and healthcare access
- Exposure to health communication and messaging regarding diarrheal illnesses and cholera, and cholera vaccine
- Observations of household characteristics, water treatment and sanitation facilities in the household

For the purposes of this document, core questions that can be adapted to each setting have been identified for inclusion in any OCV stockpile-related KAP survey. Use of these core questions will ensure that key questions are asked and will allow for comparison across different settings. Additional questions relevant to the specific survey objectives may be included. A sample questionnaire that may be modified and used for specific settings is provided in Annex 5. The core questions indicated in the sample questionnaire should be used in every OCV stockpile-related KAP survey. Where possible, the core questions should be included in the rapid assessment questionnaire.

Of note, it will be important to allocate enough time to translate the questionnaire into different languages if necessary.

Step 6: Determine the requirements for ethics approval

Each survey protocol should be considered for approval by an ethics committee. Ethics committees review research protocols to ensure that study procedures adequately protect the study participants [12]. Survey planners and implementers, along with any technical partners, should submit the survey protocol for ethics committee review or determination of non-research. If possible, organizations frequently involved in KAP survey activities should consider approval for a generic KAP survey protocol that can then be modified for a specific setting and expedited for additional approval. Annex 1 includes a sample protocol that may be adapted for submission to relevant ethics committees and use in the field.

3. SURVEY IMPLEMENTATION

At the time of survey protocol development, certain factors such as time and human and financial resources should be assessed and considered and planning for field work can begin. Once the survey protocol has been prepared and appropriate action has been taken for ethical review, these plans can be finalized.

Survey dates and timeline

Before any further planning can begin, the survey dates and timeline should be chosen. Although there will be limited choice for KAP survey dates during a cholera outbreak and reactive vaccination campaign, things to consider include the following (Table 3):

Table 3. Factors to consider when planning survey dates

Factor	Issue to consider
Timing	Consider whether any special events may prevent or prolong survey work (e.g., holidays, harvest seasons)
Duration of training and field work	Consider the number of days needed for both training and field work (will help with budget projections as well)
Environmental factors	Consider environmental factors that may prevent or prolong survey work (e.g., rainy season, dust storms)
Concurrent activities	Consider whether any other concurrent large scale activities might create potential conflicts or synergies (e.g., other vaccination campaigns, other trainings or surveys)

The survey dates should be discussed and confirmed with all local partners and community leaders.

Budget and logistics

Final budget calculations can be made once the survey timeline and logistical plans are outlined. Main funding categories to include in the budget line are the following:

- Training/debriefing
- Personnel
- Transportation and per diems
- Equipment and supplies
- Data collection, management and analysis.

Logistical planning and overall survey organization are crucial to prevent and prepare for problems that may be encountered during field work and to ensure that the field work is completed. Those who have experience working in the survey area should be enlisted to help outline the plan for field work.

Supervisor and interviewer recruitment

When recruiting survey supervisors and interviewers, the following should be considered:

- **Team composition:** Each survey team should consist of at least one supervisor and one or more interviewers. However, if logistics allow, one supervisor potentially can overlook 2 to 3 teams. The number of interviewers may depend on the survey

sample size, geographical location and area to be covered, and resources. Other individuals to consider including are a translator (if needed), a logistics expert, a local guide, and/or a driver or skipper (depends on the main transportation mode). In some situations, the gender composition of team members may need to be considered, if for example, it would be culturally inappropriate for a man to interview a woman, or vice versa.

- **Number of survey teams:** As with the number of interviewers, the number of survey teams will depend on the survey sample size, geographical location and area to be covered, and resources.
- **Supervisor and interviewer qualifications:** In general, education, language skills, survey and supervisory experience, and interpersonal skills should be considered when recruiting survey team members (Table 4).
- **Recruitment sources:** If there is a need to recruit supervisors and/or interviewers outside of one's organization or collaborating organizations, schools of public health, nursing, or medicine may be a good source of qualified supervisors and interviewers. Additionally, if resources allow, local consulting firms that have experience with survey implementation may be contracted. Of note, always recruit more individuals than needed so that some may serve as back-up should anyone become unavailable due to a survey schedule change or other reasons.

Table 4. Desirable qualifications for supervisors and interviewers

<ul style="list-style-type: none"> ➤ Ability to read and write ➤ Ability to speak local language fluently ➤ Experience supervising staff in the field (supervisors only) ➤ Experience working on surveys ➤ Knowledge of the survey area ➤ Good interpersonal and observation skills ➤ Capacity to understand the survey research in general and the specific survey objectives ➤ Good organizational skills

Supervisor and interviewer training

Two to five days should be allocated for a supervisor and interviewer training workshop prior to field work. The following topics and exercises should be included:

- Survey goals and objectives
- Roles and responsibilities of the survey team members
- Survey participant selection procedures
- Informed consent, confidentiality, and the rights of survey participants
- Content and use of the questionnaire
- Review of each survey question and its purpose
- Interviewing techniques
- Data recording practices
- Supervision and data quality-control
- Survey pilot and review (please see below)
- Logistics

During this time, supervisors and interviewers can provide valuable feedback on the enrollment procedures and questionnaire. Appropriate modifications should be made in preparation for the survey pilot.

Survey pilot

A pilot of the survey questionnaire should be conducted after supervisor and interview training, prior to actual field work. This is essentially a practice run of the survey that can help identify poorly worded questions and other problems related to the questionnaire or logistics. A site convenient to the training workshop location and not within the survey sample may be approached for this. One or two days should be allotted for survey piloting, and a debriefing to review the pilot experience should be held. Once the survey pilot and debriefing are complete, the questionnaire may be finalized. Those using paper surveys can send the questionnaire for printing and copies.

Survey field work

While in the field, survey teams should make attempts to contact survey coordinators on a daily basis to report their progress. Team supervisors should review all completed surveys daily, where possible, for quality control, and any potential modifications to the survey should be discussed with survey coordinators. Should a modification be necessary or a questionnaire issue be addressed, survey coordinators should contact team supervisors to ensure that all teams are aware and can make the modification. Interviewers should also debrief daily with team supervisors to review daily survey activities and share experiences and lessons learned.

Post-field work debriefing

Once survey work is complete, a final debriefing meeting including the survey coordinators, technical partners, and survey team members should be held. This debriefing will be a forum for all survey implementers to discuss their experiences and identify lessons learned for future surveys. Feedback provided after a pre-vaccination campaign survey may be helpful for planning the post-vaccination campaign survey. Additionally, if time permits, rapid analysis of key variables from the pre-vaccination campaign survey can help identify potential barriers to vaccine acceptance and help inform campaign messaging.

4. TRANSLATING FINDINGS INTO ACTION

In general, upon completion of the data analysis, a summary report should be drafted and findings should be translated into action. The survey coordinators and field teams should be the primary authors of the report, with help from collaborators and technical partners if needed. The report should include a project background, the survey objectives, methods, and results, a discussion of the results, and conclusions and recommendations. The survey questionnaire and summary data tables and figures should also be included as annexes. A more detailed sample survey report outline is provided in Annex 7.

The final report should be made available to all stakeholders, and results should be presented at relevant meetings to encourage discussion and inform program planning.

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ANNEX 1. Sample protocol

1. Project overview

a. Title

Evaluation of Knowledge, Attitudes, and Practices regarding Cholera, Water, Hygiene and Sanitation, and Immunization Practices in **[LOCATION NAME]**

b. Protocol summary

Since **[TIMEFRAME OR DATE]**, **[LOCATION NAME]** has been experiencing a cholera epidemic with over **[NUMBER]** cases reported and **[NUMBER]** deaths. As part of a comprehensive response for cholera prevention and control, **[ORGANIZATION NAME]** will be conducting a cholera vaccination campaign as an immediate short-term intervention to help control the spread of cholera in **[LOCATION NAME]**.

This primary purpose of this program evaluation is to assess community knowledge, attitudes, and practices (KAP) regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, cholera vaccines, healthcare access, and immunization practices before and after the cholera vaccination campaign as part of the impact evaluation of the vaccination campaign.

Two independent, cross-sectional surveys will be conducted in a representative sample of households in a selected geographic area. The first survey will take place prior to the vaccination campaign and will be useful to inform campaign messaging, social mobilization activities, and potentially other control programs, such as water, sanitation, and hygiene (WASH) and treatment programs. The second survey will take place 6-12 months after the vaccination campaign and will be useful to evaluate the impact of oral cholera vaccine (OCV) use and campaign information, education, and communication (IEC) activities on the diarrhea, cholera, WASH, cholera vaccine, and immunization-related knowledge, attitudes, and practices of the community.

For each survey, a total of **[NUMBER]** households will be sampled for survey participation. One adult person will be interviewed in each household. Verbal consent will be obtained from all study participants.

c. Lead institutions, investigators, and roles

Principal investigator and role

[NAME OF PRINCIPAL INVESTIGATOR], **[INSTITUTION]**, **[INSTITUTION LOCATION]**, will be responsible for protocol development and submission for approval, training preparation, and coordination of survey implementation, data analysis, and report writing.

Co-investigators and roles

Co-investigator	Institution	Role

2. Introduction

a. Background and rationale

Cholera is an acute diarrheal disease caused by infection with the bacterium *Vibrio cholerae*. Human infection most often is caused by ingestion of contaminated food or water. Infection can result in rapid dehydration and death in the absence of timely and appropriate rehydration. Infected persons can shed trillions of infectious *Vibrio cholerae* bacteria and can trigger cholera outbreaks. Recommended cholera disease prevention and control measures include the provision of safe drinking water and proper sanitation to at-risk populations and timely and appropriate healthcare for those with clinical disease. Oral cholera vaccines may be used in a complementary role to the usual recommended prevention and control measures [1].

Since [TIMEFRAME OR DATE], [LOCATION NAME] has been experiencing a cholera epidemic with over [NUMBER] cases reported and [NUMBER] deaths. As part of a comprehensive response for cholera prevention and control, [ORGANIZATION NAME] will be conducting a cholera vaccination campaign as an immediate short-term intervention to help control the spread of cholera in [LOCATION NAME].

Currently, two WHO-prequalified OCVs are available for global use: Dukoral® (Crucell/SBL Vaccine, Sweden) and Shanchol™ (Shantha Biotechnics Ltd., India). Shanchol™ will be used in the cholera vaccination campaign in [LOCATION NAME]. This vaccine has demonstrated a protective two-dose efficacy/effectiveness of 66%–86% in clinical trials and reactive vaccination campaigns [2-4]. It has been shown to be safe in clinical and field trials.

b. Justification for the survey

Information collected through this program evaluation will provide essential information to help [ORGANIZATION NAME OR LOCATION NAME] evaluate the impact of the cholera vaccination campaign.

c. Intended/potential use of survey findings

Potential use of findings is to inform program decisions related to cholera prevention and control in [LOCATION NAME].

d. Specific objectives (*Add appropriate objectives*)

- To assess the knowledge, attitudes, and practices regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, cholera vaccines, healthcare access, and immunization practices among residents of the population targeted for vaccination.
- To evaluate the impact of the OCV campaign on the knowledge, attitudes, and practices regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, cholera vaccines, healthcare access, and immunization practices among residents of the target population following the vaccination campaign.

3. Methods

a. Survey population

The OCV campaign will target persons aged 1 year and older living in [OCV CAMPAIGN LOCATION NAME]. The target population for the KAP evaluation will include households located in [LOCATION NAME] where the OCV campaign will take place. This includes approximately [NUMBER] people living in approximately [NUMBER] households in [NUMBER] districts.

District	Estimated population (year)	Estimated no. of households (year)	Total number of enumeration areas (year)

b. Survey design

Two independent cross-sectional surveys will be conducted in a representative sample of households where the OCV campaign will be implemented. The first KAP survey will be conducted prior to the vaccination campaign. The second KAP survey will be conducted 6-12 months following the vaccination campaign.

c. Sampling plan (*should be modified with help from statistician or survey methodology expert*)

Sample size

To calculate sample size, we assumed a pre-campaign proportion of [PERCENTAGE]% and a [PERCENTAGE]% change in outcome (alpha=.05, power=90%) Inflating the samples size by a design effect for [NUMBER] and a

[PERCENTAGE]% non-participation rate, the expected number of HHs is **[NUMBER]** each for the pre- and post-campaign KAP surveys.

We propose to proportionally allocate **[NUMBER]** enumeration areas (EA) in the vaccination area are based on the proportion of HHs in each **[DISTRICT/PROVINCE/COMMUNE]**. We will select **[NUMBER]** EAs from each **[DISTRICT/PROVINCE/COMMUNE]**. EAs will be selected based on probability proportional to size based on the number of HHs in each EA. We propose to systematically sample **[NUMBER]** HHs per selected EA, as summarized in the following table:

District	No. sampled EAs	No. sampled HHs within each EA	Total no. sampled HHs

Household selection

Within a selected EA, survey teams will start with the first household at the corner of the EA. Interviewers will then skip households moving in a clockwise manner to cover every street using a pre-determined sampling interval based on the total number of HHs in the EA (e.g., # HHs in EA divided by 9).

d. Enrollment and consent

HHs randomly selected according to the described sampling strategy will be eligible for participation in the survey. Invitation to participate will be extended to the female heads of households or an available alternative person \geq **[ENTER AGE OF ADULTHOOD FOR COUNTRY]** of age living in the HH. The survey will be administered to persons consenting to participate, and only one family member will be interviewed per HH. If consent is not given or no eligible adult is present at the HH, survey teams will continue to the next selected HH. When logistically feasible, survey teams will attempt to revisit the HH at least once at a later time to enroll the HH.

For each selected HH in the survey sample, survey teams will record on a logsheet (Appendix 1) the following information: 1) the household number (sequential in order visited), 2) number of persons living in the household, 3) whether consent was given, 4) whether data collection was completed, and 5) reason for non-inclusion in the survey (e.g., not present, refused).

Prior to conducting the interview, the purpose of the study will be explained in **[LANGUAGE OR LANGUAGES]** based on the preference of the respondent using a script included in the consent form to ensure consistent wording. The respondent will be given the opportunity to ask questions at any time. Verbal consent to participate in the survey will be obtained from the person selected for interview (Appendix 2). Waiver for signed consent will be requested since the evaluation presents no more than minimal risk of harm to subjects and involved no procedures for which written consent is normally required outside the evaluation context. Personal identifiers will not be collected which will ensure confidentiality.

e. Data collection

Data collection will be conducted using a standardized questionnaire. Questionnaires will obtain data on demographic and socio-economic characteristics and knowledge, attitudes, and practices regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, cholera vaccines, and other immunizations. Observations will be made by interview teams for household characteristics, water storage containers and presence of latrines, handwashing stations, and soap.

All data will be collected by trained project personnel. A copy of the survey instrument can be found in Appendix 3. The survey instrument will be translated into **[LANGUAGE OR LANGUAGES]**. No biological specimens will be collected. The data collection methods pose no risk to survey participants. Personal identifying information will not be collected.

f. Quality control measures

All data collection will be monitored and reviewed daily by field team supervisors. Supervisors will check all questionnaires for completeness and accuracy. All data collection will be supervised by a survey coordinator who will monitor survey teams at frequent intervals.

g. Data management and analysis

Data management

Data collection will be completed using **[METHOD (e.g. paper surveys, electronic devices)]**. Data from questionnaires will be transferred into a/an **[DATABASE SOFTWARE NAME (e.g., Excel, Access, EpiInfo)]** database. Data will be cleaned and analyzed using **[STATISTICAL SOFTWARE NAME(e.g., SAS, EpiInfo)]**.

Data analysis

Data will be analyzed descriptively to assess and knowledge, attitudes, and practices regarding safe water, sanitation, and hygiene, diarrheal disease, cholera, cholera vaccines, and other immunizations before and after the cholera vaccination campaign.

Limitations

This evaluation will be subject to the limitations of cross-sectional surveys, including sampling, response, and recall biases. In the case it is not possible to enumerate HHs due to time and funding limitations, selections of HHs will be based on a pre-determined skip interval, which will not yield a true probability sample.

4. Dissemination of findings

Aggregated results will be reported to key stakeholders, such as the Ministry of Health, the Cholera Coordination Committee, other partners, and donors. Data access and reporting policies will be followed. Additionally, results may be presented at appropriate scientific conferences or published in scientific or public health literature.

5. Ethical considerations

a. Potential risks/discomforts

The potential risk of a loss of confidentiality will be minimized by the use of survey identification numbers and removal of personal identifiers at the time of data entry. There are no anticipated risks or discomforts. The evaluation activities impart no greater than minimal risk to participants, i.e., the risks encountered to the participants will be no greater than those ordinarily encountered in daily life.

b. Potential benefits

Findings from this evaluation will provide information for guiding social mobilization activities for the vaccination campaign and will provide information for implementation of a comprehensive cholera prevention and control plan in **[LOCATION]**, which may positively impact the health of the population.

6. Conflicts of interest

None of the investigators listed in this protocol has a financial conflict of interest with the goals and objectives of this program evaluation, nor with any products developed for use as a result of this evaluation.

7. Timeline

Evaluation implementation activities will be carried out over one year. The initial survey will take place in **[MONTH YEAR]**, followed by the second survey approximately 6-12 months later. Data entry and analysis will occur throughout the period of fieldwork. Dissemination of survey findings will occur following completion of data analysis and report writing.

References

1. World Health Assembly. Resolution 64.18. Cholera: mechanism for control and prevention. Sixty-fourth World Health Assembly , Geneva, 17 March 2011. Geneva, Switzerland: World Health Organization, 2011.
2. Clemens JD et al. Field trial of oral cholera vaccines in Bangladesh: results from three-year follow-up. *Lancet*, 1990, 335:270–273.
3. Sur D, Kanungo S, Sah B, Manna B, Ali M, et al. Efficacy of a Low-Cost, Inactivated Whole-Cell Oral Cholera Vaccine: Results from 3 Years of Follow-Up of a Randomized, Controlled Trial. *PLoS Negl Trop Dis*, 2011, 5(10):e1289.
4. Médecins sans Frontières. Mass vaccination campaign using oral cholera vaccines during an outbreak in Guinea – Boffa and Forecariah Report. 2012.

Appendix 1

Insert logsheet here.

Appendix 2

Insert consent form here.

Appendix 3

Insert questionnaire here.

ANNEX 2. Sample household selection protocol

Standard Operating Procedures – Sampling and Survey

Each interview team will be accompanied by a village guide and will be assigned a specific area to be covered for the survey.

[NUMBER] VILLAGES will be surveyed **PER DISTRICT.**

[NUMBER] HOUSEHOLDS will be interviewed **PER VILLAGE.**

Instructions for random selection of households per village

- ***For selected households with adults at home:***
 - Interview the household.
 - If they ask you to return at a later time, please return for the interview at that time if possible. If it is not possible to return at that time, move to the next household to the right of the selected household. Continue until you get a household which has an adult member to be interviewed.

- ***For selected households without people at home:***
 - Ask neighbors if anyone will return later – if yes, return to this house after all other surveys are completed for the day; if no, then move to the next household to the right of the selected household. Continue until you get a household which has an adult member to be interviewed.
 - Make sure you note all households approached in your “Interviewer Assignment Sheet.”

- ***For selected household with no adult available to interview:***
 - Ask children if an adult will return later – if yes, return to this house after all other surveys are completed for the day; if no, then move to the next household to the right of the selected household. Continue until you get a household which has an adult member to be interviewed.
 - Make sure you note all households approached in your “Interviewer Assignment Sheet.”

Instructions for selecting respondents

Interview the female head of the household. If female head of the household is not available, interview any other person, including males, who is over the age of 18 years and lives in the household.

Number of interview attempts to be made

The interview team should make ONE additional attempt to interview any household that will have an adult available later during the survey day. If unable to find someone to interview at second attempt, indicate this on the ‘Interviewer Assignment Sheet’ and inform supervisor at the end of the day.

ANNEX 3. Sample consent script

Consent to Participate in Household Survey

(Flesch-Kincaid Grade Level: 6.9)

Hello, my name is _____ (*introduce all staff present*). We're here on behalf of the Ministry of Health and Population. We would like to learn about what people in your community know about cholera, water handling practices, and vaccines. May I please speak with the female head of the household?

If the female head of household is not available: Is there someone else in the household who is older than 18 years of age with whom I may speak?

If the female head of household or someone older than 18 years is available: Would you help us by answering some questions about your household? The interview should take about 30 minutes and will be followed by some observations of some things in your house. Any information you give to us will be kept private. Reports from this study will not identify any single person. If you do not like any of the questions, you do not have to answer them, and you may stop the interview at any time. You will not receive any direct benefits from participation in the survey, although what we learn from your answers will help us find out how to improve our program to prevent cholera. There will be no penalty if you do not wish to participate. At this time, would you like to ask me anything about survey? Please feel free to ask any questions you may have at any time.

If you have any questions or concerns after the interview about your participation, you may contact [NAME] at [CONTACT INFORMATION (e.g., telephone number)].

Do you have any questions before agreeing to participate? If not, may I begin?

I agree to participate in this survey (Interviewer: please mark response): YES NO

DATE OF ENROLLMENT: ____ / ____ / ____ (DD/MM/YYYY)

INTERVIEWER NAME: _____

If YES, begin the interview. If NO: Is there another time that would be better for you?

ANNEX 4. Sample household log

Today's date:						Interviewer names:					
Village:						Enumeration Area #:					
			Starting point:								
Household #	Contact (check yes or no)		# persons living in HH	Consent given (check yes or no)		Location, telephone # for contact if needed	# visits	Interview completed		Reason why interview not completed	Comments/notes
	Yes	No		Yes	No			Yes	No		
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											

ANNEX 5. Sample questionnaire

OCV Campaign KAP Community Assessment Survey Questionnaire

Interview Date: ___ / ___ / ___ (DD/MM/YYYY)

Interviewer Name: _____

Commune: _____ Enumeration area: _____ Household Number: _____

Respondent Status: Female Head of household Male head of household Other adult

Participated in 1st KAP survey [to be added to post-campaign KAP survey]

1. Yes
 2. No
 3. Don't know
-

DEMOGRAPHIC INFORMATION

1) What is your age? [CORE]

Respondent age in years: _____

Date of Birth: _____

2) Sex of respondent [CORE]

1. Male
2. Female

3) How many people live in your household including yourself? [CORE] _____

4) How many children <5 years of age live in your household? [CORE] _____

5) What is the highest level of education you have completed? [CORE] (*Choose one only.*)

1. None
2. Some primary
3. Primary
4. Some secondary
5. Completed secondary or higher
6. Other: Specify _____
7. Refused

6) Does your household have (*Check all that apply*) [CORE]:

a) Electricity?	1. Yes	2. No	3. Don't know
b) A bed?	1. Yes	2. No	3. Don't know
c) Working refrigerator?	1. Yes	2. No	3. Don't know
d) Working television?	1. Yes	2. No	3. Don't know
e) Working radio?	1. Yes	2. No	3. Don't know
f) Mobile phone?	1. Yes	2. No	3. Don't know

ILLNESS IN THE HOUSEHOLD

7) In the past week, has anyone in the household been ill with diarrhea, that is, stools that are more frequent and more liquid than usual?

1. Yes
2. No (*Skip to question 10*)
3. Unknown (*Skip to question 10*)
4. Refused (*Skip to question 10*)

8) How many household members including yourself were sick with diarrhea in the past week?

Number sick: _____

How many children < 5 years of age were sick with diarrhea in the past week? _____

9) Has anyone in the household died this past year?

1. Yes
2. No (*Skip to question 10*)
3. Unknown (*Skip to question 10*)
4. Refused (*Skip to question 10*)

- If YES:** 9A) How many household members have died? _____
 9B) How many members who died were under 5 years of age? _____
 9C) How many had symptoms of diarrheal illness within the 3 days before they died? _____

DIARRHEA INFORMATION AND EXPOSURE TO HEALTH COMMUNICATION MESSAGES/WASH INTERVENTIONS
 (Questions should be modified to fit health messages provided to the specific community being surveyed)

10) What causes diarrhea? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned) [CORE]

a) Drinking bad water	1. Yes	2. No
b) Eating bad food	1. Yes	2. No
c) Unwashed fruits/vegetables	1. Yes	2. No
d) Flies/insects	1. Yes	2. No
e) Poor hygiene/not washing hands	1. Yes	2. No
f) Other, specify: -----	1. Yes	2. No
g) Don't know	1. Yes	2. No

11) How can you prevent you or your family members from becoming ill with diarrhea? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned) [CORE]

a) Wash hands with soap and water	1. Yes	2. No
b) Cook food thoroughly	1. Yes	2. No
c) Wash vegetables/fruits	1. Yes	2. No
d) Dispose of human waste properly	1. Yes	2. No
e) Boil water	1. Yes	2. No
f) Clean cooking utensils/vessels	1. Yes	2. No
g) Treat water with chlorine products	1. Yes	2. No
h) Cover food to keep away from flies	1. Yes	2. No
i) Cholera vaccine	1. Yes	2. No
j) Cannot prevent	1. Yes	2. No
h) Other, specify: -----	1. Yes	2. No
k) Don't know	1. Yes	2. No

12) How would you treat diarrhea for yourself or family members? [CORE]

1. Go to cholera treatment center (see below)
2. Go to clinic/hospital (see below)
3. Use oral rehydration solution/
4. Use homemade sugar-salt solution
5. Go to a traditional healer
6. Home remedy: Specify _____
7. Do not treat
8. Other: Specify _____
9. Don't know

IF GO TO CTC/CLINIC/HOSPITAL: 12A) To which cholera treatment center/ clinic/hospital would you go?

Name of CTC/ clinic/hospital: _____

12B) How long does it take for you to get to the CTC/clinic/hospital?

- | | | |
|--------------|---------------------|---------------|
| 1. <30 min | 2. 30-59 min | 3. 1-2 hours |
| 4. 2-3 hours | 5. More than 3 hour | 6. Don't know |

13) In the past 6 months, have you ever heard about preventing and treating diarrhea? [CORE]

1. Yes
2. No (*Skip to question 13E*)
3. Don't know (*Skip to question 14*)

If YES: 13A) From whom or from what have you heard about preventing and treating diarrhea. (*Do not read. Check all that are mentioned and circle No for those that are not mentioned.*)

a) Family member	1. Yes	2. No
b) Neighbor/friend	1. Yes	2. No
c) Clinician/healthcare worker	1. Yes	2. No
d) Radio	1. Yes	2. No
e) TV	1. Yes	2. No
f) Community meeting	1. Yes	2. No
g) Community health worker visiting home	1. Yes	2. No
h) Religious leader	1. Yes	2. No
i) Other, specify: -----	1. Yes	2. No

13B) What did you hear were the ways to prevent diarrhea? (*Do not read. Circle Yes for all that are mentioned and circle No for those that are not mentioned*) [CORE]

a) Wash hands with soap and water	1. Yes	2. No
b) Cook food thoroughly	1. Yes	2. No
c) Wash vegetables/fruits	1. Yes	2. No
d) Dispose of human waste properly	1. Yes	2. No
e) Boil water	1. Yes	2. No
f) Clean cooking utensils/vessels	1. Yes	2. No
g) Treat water with chlorine products	1. Yes	2. No
h) Cover food to keep away from flies	1. Yes	2. No
i) Cholera vaccine	1. Yes	2. No
j) Cannot prevent	2. Yes	2. No
i) Other, specify: -----	1. Yes	2. No
k) Don't know	1. Yes	2. No

13C) Were you given any educational materials or any items to help you protect yourself/your family from diarrheal diseases? [CORE]

1. Yes
2. No (*Skip to question 14*)
3. Don't know/Don't remember (*Skip to question 14*)

If YES: 13D) What were you given? (*Check all that are mentioned. Prompt after each response.*)

a) Chlorine solution	1. Yes	2. No
b) Soap	1. Yes	2. No
c) Oral rehydration solution	1. Yes	2. No
d) Pur Tablets/ aqutabs/ dloavi	1. Yes	2. No
e) Oral Information	1. Yes	2. No
f) Print material (brochures, pamphlets, posters)	1. Yes	2. No
g) Other, specify:-----	1. Yes	2. No
h) Don't know	1. Yes	2. No

If NO: 13E) From whom or from what do you usually receive any messages about keeping healthy and health-related activities? (Do not read. Check all that are mentioned and circle No for those that are not mentioned.)

a) Family member	1. Yes	2. No
b) Neighbor/friend	1. Yes	2. No
c) Clinician/healthcare worker	1. Yes	2. No
d) Radio	1. Yes	2. No
e) TV	1. Yes	2. No
f) Community meeting	1. Yes	2. No
g) Community health worker visiting home	1. Yes	2. No
h) Religious leader	1. Yes	2. No
i) Other, specify: -----	2. Yes	2. No

CHOLERA INFORMATION AND EXPOSURE TO HEALTH COMMUNICATION MESSAGES/WASH INTERVENTIONS
(Questions should be modified to fit health messages provided to the specific community being surveyed)

14) Have you ever heard about cholera? [CORE]

1. Yes
2. No (*Skip to question 20*)
3. Don't know (*Skip to question 20*)

15) What causes cholera? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned) [CORE]

a) Drinking bad water	1. Yes	2. No
b) Eating bad food	1. Yes	2. No
c) Unwashed fruits/vegetables	1. Yes	2. No
d) Flies/insects	1. Yes	2. No
e) Poor hygiene/not washing hands	1. Yes	2. No
f) Other specify:-----	1. Yes	2. No
g) Don't know	1. Yes	2. No

16) What symptoms are associated with cholera? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned) [CORE]

a) Fever	1. Yes	2. No
b) Vomiting	1. Yes	2. No
c) Watery diarrhea	1. Yes	2. No
d) Stomach/abdominal pain	1. Yes	2. No
e) Bloody diarrhea	1. Yes	2. No
f) Dehydration	1. Yes	2. No
g) Other specify:-----	1. Yes	2. No
h) Don't know	1. Yes	2. No

17) How can you prevent you or your family members from becoming ill with cholera? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned) [CORE]

a) Wash hands with soap and water	1. Yes	2. No
b) Cook food thoroughly	1. Yes	2. No
c) Wash vegetables/fruits	1. Yes	2. No
d) Dispose of human waste properly	1. Yes	2. No
e) Boil water before drinking	1. Yes	2. No
f) Clean cooking utensils/vessels	1. Yes	2. No
g) Treat water with chlorine products	1. Yes	2. No
h) Cover food to keep away from flies	1. Yes	2. No
i) Cholera vaccine	1. Yes	2. No
j) Cannot prevent	1. Yes	2. No
k) Other specify:-----	1. Yes	2. No
l) Don't know	1. Yes	2. No

18) How would you treat cholera for yourself or family members? [CORE]

1. Go to cholera treatment center (see below)
2. Go to clinic/hospital (see below)
3. Use oral rehydration solution/sugar-salt solution
4. Go to a traditional healer
5. Home remedy: Specify _____
6. Do not treat
7. Other: Specify _____
8. Don't know

IF GO TO CTC/ CLINIC/HOSPITAL: 18A) To which CTC/ clinic/hospital would you go?

Name of CTC/clinic/hospital: _____

18B) How long does it take for you to get to the CTC/clinic/hospital?

- | | | |
|--------------|---------------------|---------------|
| 1. <30 min | 2. 30-59 min | 3. 1-2 hours |
| 4. 2-3 hours | 5. More than 3 hour | 6. Don't know |

19) In the past 6 months, have you heard about preventing and treating cholera? [CORE]

1. Yes
2. No (*Skip to question 19E*)
3. Don't know (*Skip to question 20*)

IF YES: 19A) From whom or from what have you heard about preventing and treating cholera? (*Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned*)

a) Family member	1. Yes	2. No
b) Neighbor/friend	1. Yes	2. No
c) Clinician/healthcare worker	1. Yes	2. No
d) Radio	1. Yes	2. No
e) TV	1. Yes	2. No
f) Community meeting	1. Yes	2. No
g) Community health worker visiting home	1. Yes	2. No
h) Religious leader	1. Yes	2. No
i) Other specify:-----	1. Yes	2. No

19B) What did you hear were the ways to prevent cholera? (*Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned*)

a) Wash hands with soap and water	1. Yes	2. No
b) Cook food thoroughly	1. Yes	2. No
c) Wash vegetables/fruits	1. Yes	2. No
d) Dispose of human waste properly	1. Yes	2. No
e) Boil water	1. Yes	2. No
f) Clean cooking utensils/vessels	1. Yes	2. No
g) Treat water with chlorine products	1. Yes	2. No
h) Cover food to keep away from flies	1. Yes	2. No
i) Cannot prevent	1. Yes	2. No
j) Cholera vaccine	1. Yes	2. No
k) Other specify:-----	1. Yes	2. No
l) Don't know	1. Yes	2. No

19C) Were you given any educational materials or any items to help you protect yourself/your family from cholera? [CORE]

1. Yes
2. No (*Skip to question 20*)
3. Don't know/Don't remember (*Skip to question 20*)

If YES: 19D) What were you given? *(Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned)*

a) Chlorine solution	1. Yes	2. No
b) Soap	1. Yes	2. No
c) Oral rehydration solution	1. Yes	2. No
d) Pur Tablets/ aqutabs/ dlolavi	1. Yes	2. No
e) Oral information	1. Yes	2. No
f) Print material (brochures, pamphlets, posters)	1. Yes	2. No
g) Other specify:-----	1. Yes	2. No
h) Don't know	1. Yes	2. No

WATER SOURCE, STORAGE, AND HANDLING PRACTICES

20) What is the main source of drinking water for members of your household? [CORE]

- | | |
|-------------------------------|--|
| 1. Piped water, in house | 9. River/stream/lake/irrigation canal |
| 2. Piped water, in court | 10. Bottled water/ Company for selling water |
| 3. Piped water, public | 11. Rain water |
| 4. Communal standpipe | 12. Spring water |
| 5. Well, protected | 13. Spring water, unprotected |
| 6. Well, unprotected | 14. Other: Specify _____ |
| 7. Well with pump | |
| 8. Water truck / water vendor | |

21) What is the main source of water used by your household for other purposes such as cooking and handwashing? [CORE]

- | | |
|-------------------------------|--|
| 1. Piped water, in house | 9. River/stream/lake/irrigation canal |
| 2. Piped water, in court | 10. Bottled water/ Company for selling water |
| 3. Piped water, public | 11. Rain water |
| 4. Communal standpipe | 12. Spring water |
| 5. Well, protected | 13. Spring water, unprotected |
| 6. Well, unprotected | 14. Other: Specify _____ |
| 7. Well with pump | |
| 8. Water truck / water vendor | |

22) Are there any times during the year when water is not readily available?

1. Yes. Specify when: _____
2. No
3. Don't know

23) Do you do anything to the water to make it safer to drink? [CORE]

1. Yes (*Go to question 23A*)
2. No (*Skip to question 23D*)
3. Don't know (*Skip to question 24*)

If YES: 23A) What do you usually do to make the water safer to drink? *(Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned)*

a) Boil the water	1. Yes	2. No
b) Use water filter	1. Yes	2. No
c) Strain it through as cloth	1. Yes	2. No
d) Add PUR sachet	1. Yes	2. No
e) Add Acquatabs	1. Yes	2. No
f) Add bleach/chlorine solution	1. Yes	2. No
g) Let it stand/settle	1. Yes	2. No
h) Solar disinfection	1. Yes	2. No
i) Other specify : -----	1. Yes	2. No
j) Unknown	1. Yes	2. No

23B) During the past 6 months, how often did you treat your drinking water before using it?

1. All the time
2. Most of the time
3. Sometimes
4. Did not treat water during past 6 months
5. Don't know
6. No response

23C) When did you last treat the water you are drinking today? (Go to question 24 after this question)

1. Within the last 24 hours
2. Between 1 and 2 days ago
3. More than 2 days ago
4. Did not treat water drinking today
5. Unknown
6. No response

If NO: 23D) Why not? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned)

a) My current water source is safe/does not need treatment	1. Yes	2. No
b) No chlorine solution in the house	1. Yes	2. No
c) No money/cannot afford	1. Yes	2. No
d) Too busy	1. Yes	2. No
e) Children/spouse complained about the taste/smell	1. Yes	2. No
f) Other specify :	1. Yes	2. No

HAND HYGIENE AND SANITATION

24) Do you regularly wash your hands? [CORE]

1. Yes
2. Occasionally
3. No (*Skip to question 26*)

25) When do you wash your hands? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned)

a) After using the toilet	1. Yes	2. No
b) Before eating	1. Yes	2. No
c) After eating	1. Yes	2. No
d) Before cooking	1. Yes	2. No
e) After washing/cleaning tables	1. Yes	2. No
f) After cleaning baby diapers/baby stools	1. Yes	2. No
g) After cleaning the home	1. Yes	2. No
h) Other, specify :	1. Yes	2. No

26) Do you have soap or detergent in the house? [CORE]

- Yes
- No (*Skip to question 28*)
- Don't know (*Skip to question 28*)

27) For which purposes do you use the soap/detergent? (Do not read. Circle yes for all that are mentioned and circle no for those that are not mentioned) [CORE]

a) Washing hands	1. Yes	2. No
b) Washing clothes	1. Yes	2. No
c) Cleaning utensils/vessels	1. Yes	2. No
d) Bathing	1. Yes	2. No
e) For cleaning the home	1. Yes	2. No
f) Other specify :	1. Yes	2. No

28) What kind of toilet facility do members of your household usually use? [CORE]

1. Flush, connected to system (chasse d'eau connectee a un systeme d'egout)
2. Flush, connected to septic pits (chasse d'eau connectee a une fosse septique)
3. Flush, connected to latrines (chasse d'eau connectee a des latrines)
4. Flush connected to other system or do not know the system
5. Pit latrine, ventilated and ameliorated (latrines ventilees ameliores)
6. Pit latrine with cement slab
7. Pit latrine, without cement slab
8. Bucket toilet (seau)
9. Hanging toilet/Hanging latrine
10. No toilets: Canal or open defecation/bush/field
11. Other: Specify _____

ROUTINE VACCINATION AND VACCINE ACCESSIBILITY

29) Have you or anyone in your household ever received any vaccinations to prevent you from getting diseases, including vaccinations received in a campaign or immunization day?

- Yes
- No (*Skip to question 33*)
- Don't know (*Skip to question 33*)
- Refused (*Skip to question 33*)

30) Who in your household has received any vaccine? (Check all that apply.)

a) Respondent	1. Yes	2. No
b) Child/children <5 years of age	1. Yes	2. No
c) Children 5 – 9 years of age	1. Yes	2. No
d) Children 10-17 years of age	1. Yes	2. No
e) Other adult ≥18 years of age	1. Yes	2. No
f) Don't know	1. Yes	2. No
g) Refused to answer	1. Yes	2. No
h) Other specify : -----	1. Yes	2. No

31) Where do you or anyone in your household usually go to receive any vaccine (check all that apply)?

a) Hospital	1. Yes	2. No
b) Public dispensary or clinic	1. Yes	2. No
c) Private clinic	1. Yes	2. No
d) Health care worker visit the house (skip to Q33)	1. Yes	2. No
e) Don't know (skip to Q33)	1. Yes	2. No
f) Refused to answer (skip to Q33)	1. Yes	2. No
g) Other specify : -----	1. Yes	2. No

32) How long does it take for you to get to the hospital, dispensary, or clinic to get vaccinated?

- 1. <30 min 2. 30-59 min 3. 1-2 hours
- 4. 2-3 hours 5. More than 3 hour 6. Don't know

33) Did you ever know that your child was supposed to get a vaccine dose, but for some reason, did not get it?

- 1. Yes
- 2. No
- 3. Don't know (*Skip to question 34*)
- 4. Refused to answer (*Skip to question 34*)
- 5. No children (*Skip to question 34*)

If YES: 33A) what is the primary reason for not vaccinating your child? (Chose only most common reason)

- 1. Vaccine unavailable at the clinic/hospital
- 2. Vaccinator not available at clinic/hospital
- 3. Too difficult to get to clinic/hospital
- 4. Did not have time/busy
- 5. No transportation
- 6. Too expensive to vaccinate
- 7. Unfriendly vaccination staff
- 8. Fear of injection
- 9. Family member or friend advised against it
- 10. Other: Specify _____

34) Do you personally have any concerns or worries about your receiving a vaccine?

- 1. Yes
- 2. No (*Skip to question 35*)
- 3. Don't know (*Skip to question 35*)
- 4. Refused (*Skip to question 35*)

If YES: 34A) What is your main concern about vaccines? (Chose only most common reason)

- 1. Already healthy
- 2. Infection will help develop natural immunity
- 3. Vaccine not needed/not helpful
- 4. Fear of pain from injection
- 5. Side effects/adverse effects of vaccines. Specify: _____
- 6. Other: Specify _____

35) Do you personally have any concerns or worries about any children in your household receiving a vaccine?

1. Yes
2. No (*Skip to question 36*)
3. Don't know (*Skip to question 36*)
4. Refused (*Skip to question 36*)
5. No children (*Skip to question 36*)

If YES: 35A) What is your main concern about vaccinating children? (Chose only most common reason)

1. Already healthy
2. Infection will help develop natural immunity
3. Vaccine not needed/not helpful
4. Fear of pain from injection
5. Side effects/adverse effects of vaccines. Specify: _____
6. Other: Specify _____

CHOLERA VACCINES

36) Have you heard of cholera vaccine? [CORE]

1. Yes
2. No (*Skip to question 37*)
3. Don't know (*Skip to question 37*)

If YES: 36A) How did you hear about the vaccine? (*Chose the main source of information*)

- | | | |
|--------------------------|----------------------------|------------------------|
| 1. Health worker | 2. Friend or family member | 3. Village leader |
| 4. Radio | 5. Television | 6. Cell phone messages |
| 7. Megaphones | 8. School | 9. Religious leader |
| 10. Other, Specify _____ | | |

36B) How many doses are needed for a complete course of the vaccine?

Number of doses: _____

37) If a vaccine against cholera was available, would you be willing to get it? [CORE]

1. Yes. Why? _____
2. No. Why not? _____
3. Don't know
4. Refused

38) If a vaccine against cholera was available, would you be willing to let your child get it? [CORE]

1. Yes. Why? _____
2. No. Why not? _____
3. Don't know
4. Refused

39) For how long would you expect a vaccine against cholera to protect you? (Do not read. Please record response.) [CORE]

1. ≤ 1 year
2. 2-4 years
3. 5 years
4. Lifetime
5. Other, specify: _____
6. Don't know

40) Have you ever been given cholera vaccine?

1. Yes.
2. No [END interview]
3. Don't know [END interview]
4. Refused [END interview]

40A) After receiving the cholera vaccine, how important do you think it is to: [compare to situation before receiving vaccine]

a) Wash hands with soap and water	1. Still important	2. Less important	3. Not important	4. no opinion
b) Cook food thoroughly	1. Still important	2. Less important	3. Not important	4. no opinion
c) Wash vegetables/fruits	1. Still important	2. Less important	3. Not important	4. no opinion
d) Boil water before drinking	1. Still important	2. Less important	3. Not important	4. no opinion
e) Clean cooking utensils/vessels	1. Still important	2. Less important	3. Not important	4. no opinion
f) Treat water with chlorine products	1. Still important	2. Less important	3. Not important	4. no opinion
g) Safely dispose of feces	1. Still important	2. Less important	3. Not important	4. no opinion
h) Give a person ill with diarrhea ORS	1. Still important	2. Less important	3. Not important	4. no opinion
i) Take someone ill with diarrhea to the health facility	1. Still important	2. Less important	3. Not important	4. no opinion

We have now finished the interview portion of the survey. May I look at some things related to water and sanitation in your home?

OBSERVATION SECTION

OB1) Is there a container to store drinking water? [CORE]

1. Yes
2. No

If YES: Container is:

1. Covered
2. Uncovered

Container opening is:

1. Wide-mouthed (hand can fit in the opening)
2. Narrow-mouthed (too small for hand to fit through opening)

Container has a spigot/tap:

1. Yes
2. No

OB2) Is there soap in the housea place for washing hands? [CORE]

1. Yes
2. No
3. Unable to observe

OB3) Is there a place for washing hands? [CORE]

1. Yes
2. No
3. Unable to observe

OB3) Are water and soap in the same location? [CORE]

1. Yes
2. No
3. Unable to observe

OB4) Is there a toilet or pit latrine in the home? [CORE]

1. Yes
2. No
3. Unable to observe

OB5) Is there any evidence open defecation near the home?[CORE]

1. Yes
2. No
3. Unable to observe

OB6) What is the main roofing material for the household's dwelling? [CORE]

1. Thatch
2. Metal/Iron sheets
3. Tile/Asbestos sheets
4. Wood
5. Cement
6. Other: Specify _____

OB7) What is the main flooring material? [CORE]

1. Thatch
2. Metal/Iron sheets
3. Tile/Asbestos sheets
4. Wood
5. Cement
6. Earth/sand
7. Other: Specify _____

We have now reached the end of the survey. Thank you for taking the time to answer our questions.

ANNEX 6. Survey report outline

- Cover page with title of survey
- Table of contents
- Abbreviations page
- Acknowledgements
- Executive summary
- Background on cholera disease and the vaccination campaign in the affected area
- Survey objectives
- Methods
 - Survey population
 - Survey area
 - Survey design
 - Sampling design
 - Ethics and consent procedures
 - Training
 - Data collection and quality control procedures
 - Data analysis
- Results
- Discussion of results
- Conclusions and recommendations
- References
- Annexes
 - Survey questionnaire
 - Map of the survey area
 - Summary data tables and figures
 - List of persons involved in the survey and their roles

ANNEX 7. Survey task checklist

Survey protocol development

- Review the literature
- Define the survey goals and objectives
- Develop the survey protocol
- Design the survey questionnaire
- Submit the survey protocol for ethics approval or non-research determination

Survey implementation

- Choose survey dates and contact appropriate local authorities and community leaders to confirm
- Plan logistics for the survey
- Allocate the budget for the survey
- Recruit supervisors and interviewers
- Train supervisors and interviewers
- Pilot test and revise the questionnaire
- Print surveys or update mobile survey technology if needed
- Conduct field work

Data analysis, use, and dissemination

- Enter the data
- Clean the data
- Analyze the data
- Write survey report
- Disseminate findings
- Develop timeline and plan for implementing next steps identified through survey results