



NCD Mobile Phone Survey Survey Tool



NCD Mobile Phone Survey Survey Tool Manual

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1. GETTING STARTED WITH THE SURVEY TOOL

1.1 Overview of the Survey Tool

1.1.1 Introduction

Noncommunicable diseases (NCDs) are the leading cause of death worldwide. Efficient monitoring and surveillance are cornerstones to track progress of NCD burden, related risk factors, and policy interventions. The systematic monitoring of risk factors to generate accurate and timely data is essential for a country's ability to prioritize essential resources and make sound policy decisions to address the growing NCD burden.

With increasing access and use of mobile phones globally, opportunities exist to explore the feasibility of using mobile phone technology as an interim method to collect data and supplement household surveys. Such technologies have the potential to allow for efficiencies in producing timely, affordable, and accurate data to monitor trends, and augment traditional health surveys with new, faster mobile phone surveys.

The Bloomberg Data for Health initiative aims to strengthen the collection and use of critical public health information. One of the components of the initiative aims to explore innovative approaches to NCD surveillance, including the use of mobile phone surveys for NCDs. The main objectives of this component are to assess the feasibility, quality, and validity of nationally representative NCD Mobile Phone Surveys and propose a globally standardized protocol. The specific objectives are to:

- Implement mobile phone surveys in 10 countries and support face-to-face STEPS surveys in six overlapping countries
- Compare findings from the two methodologies

The NCD Mobile Phone Survey is a nationally representative stratified survey of adults 18 years of age and older. The survey uses standardized instruments and procedures reviewed and approved by international experts. This includes a core questionnaire with optional questions, sample design utilizing random digit dialing (RDD), data management procedures, and data collection using single or mixed-mode technology such as interactive voice response (IVR), short message service (SMS), computer-assisted telephone interviewing (CATI), or mobile web. The implementation process consists of five stages: 1) engagement and orientation; 2) mobile phone technology and pretesting; 3) data collection; 4) data management; and 5) data release and use. Details on each stage are presented in the NCD Mobile Phone Survey Process Chart (see **Figure 1**).

Figure 1. NCD Mobile Phone Survey Process Chart



The noncommunicable disease (NCD) mobile phone survey is a nationally representative survey of adults 18 years of age and older using a standard protocol. Using technology platforms such as interactive voice response (IVR), short message service (SMS), computer-assisted telephone interviewing (CATI), mobile web, and mixed modes, the mobile phone survey will provide timely data and allow for rapid feedback of results. It is intended to generate comparable data within and across countries. This survey supplements national household face-to-face surveys conducted approximately at five-year intervals. Mobile phone surveys have the ability to collect interim data on NCD risk factors or specific disease conditions to support monitoring and evaluation of programs and policies.

PROCESS		DESCRIPTION	MANUALS
Engagement		<ul style="list-style-type: none"> Formalize national stakeholder coordination mechanism Select implementing agency Develop workplan and timeline 	
Mobile Phone Technology		<ul style="list-style-type: none"> Adapt protocol (questionnaire and sample design) Establish connections with mobile network operators Configure and test mobile phone technology platform Conduct pretest Determine optimal mode/s for full-scale data collection 	
Platform (IVR, SMS, CATI, mobile web, mixed modes)			
Planning and Pretest			
Data Collection		<ul style="list-style-type: none"> Finalize protocol Deliver sensitization and awareness campaign Deploy data collection Monitor progress of data collection 	
Data Management and Analysis		<ul style="list-style-type: none"> Aggregate data Execute quality assurance checks Construct sampling weights Analyze data 	
Data Release and Use		<ul style="list-style-type: none"> Finalize fact sheet and country report Release data Disseminate findings 	

Implementation Instructions	
Mobile Phone Technology	
Questions and Indicators	
Sampling Design	
Data Management and Analysis	

1.1.2 Purpose

This manual describes *Surveda*, a technology tool to collect data via SMS and IVR. This manual offers a high-level description of *Surveda* and links to complementary associated documentation such as “how-to” training briefs and videos. Future versions of this software will include mobile web and CATI as additional modes of data collection. *Surveda* documentation is available in the Bloomberg Philanthropies Data for Health Initiative Online Knowledge Base. Technical assistance for NCD mobile phone surveys is available from Centers for Disease Control and Prevention (CDC), in collaboration with RTI International and Innovative Support for Emergencies Diseases and Disasters (InSTEDD).

Surveda is designed to help Ministries of Health (MOH) conduct surveillance of noncommunicable diseases (NCDs) but is also a flexible tool that can be used for other purposes. Using *Surveda*, MOHs can collect individual-level data on NCD risk factors from respondents via SMS and IVR. In an SMS survey, respondents receive and answer questions via text messaging. In an IVR survey, respondents listen to prerecorded questions and select responses by pressing numbers on the mobile phone keypad.

Mobile phone surveys may offer several advantages relative to traditional household surveys. The primary benefits of mobile phone surveys are speed and low cost: MOHs can conduct NCD surveillance over a large geographic area quickly. Because of the low cost of mobile phone surveys, MOHs can conduct surveillance with larger sample sizes and greater frequency. Mobile phone surveys are a relatively new mode of data collection in low- and middle-income countries. As such, they cannot replace traditional face-to-face surveys for NCD surveillance. However, mobile phone surveys can be a useful supplement to face-to-face household surveys.

Key features of *Surveda* include the following:

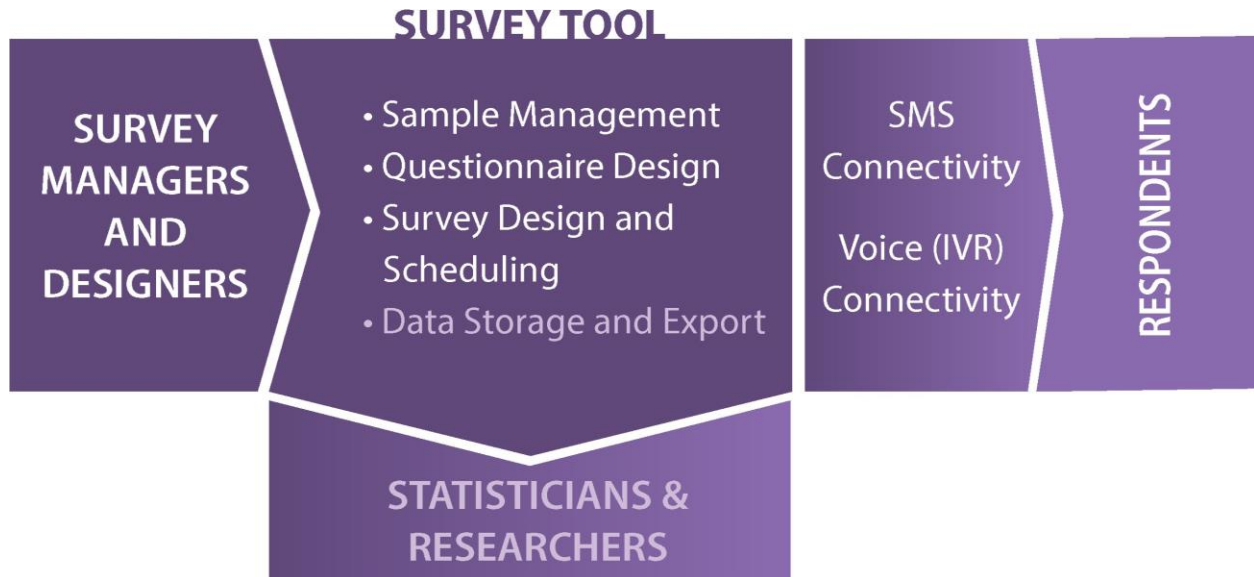
Open source: The source code for *Surveda* is freely available online and can be modified as needed to support MOH goals.

- **Mixed mode:** *Surveda* integrates SMS and IVR, allowing MOHs to contact a respondent via both SMS and IVR leveraging the strengths of both modes.
- **Easy-to-use interface:** *Surveda* allows a wide range of users to create, deploy, and manage surveys. It provides a robust survey designer that supports multi-lingual and complex surveys.
- **Secure storage:** The platform provides mechanisms to securely transport and store case level data. Data can be hosted locally at the MOH or in the cloud.
- **Time tested software:** *Surveda* is built on existing software programs created by InSTEDD. This means the software is tested, reliable, and robust.

As shown in **Figure 2**, *Surveda* is a full-service survey design and implementation tool. Users upload a sample of mobile phone numbers, design a questionnaire, set schedule and

modes, monitors survey progress and download data. *Surveda* sends surveys to respondents via mobile network operators (MNOs). Respondents send data back via MNOs and *Surveda* stores the data securely.

Figure 2. Survey Tool



1.2 Information: Survey Tool Functions

The *Surveda* tool is accessed over the internet through a web browser. The primary purpose of the tool is to collect survey data via SMS and phone calls. Future versions of this tool will include mobile web and CATI as additional modes of data collection. As shown in Figure 3, the survey design process consists of creating a project, creating questionnaires, and setting survey protocols. Then, a user configures and deploys the SMS/phone call surveys through channels set up with Mobile Network Operators (MNOs). Respondents receive and respond to surveys using their mobile phones and their data are sent to the tool and stored securely.

Figure 3. Functions of *Surveda*



1.2.1 Create Project

The first step in this process is to create a new project. A project houses surveys or data collection efforts and is a place to store and execute surveys as well as questionnaires, and

translations. In a single project (e.g., NCD), a user may have multiple surveys—for example, separate surveys on diet, physical activity, and alcohol use.

1.2.2 Create Questionnaire

The questionnaire contains the questions, translations, responses, and logic. Users create questionnaires tailored for SMS and IVR modes using the questionnaire designer, which is an interactive online form built into the *Surveda* tool. *Surveda* is able to upload and deploy questionnaires in multiple languages specific to each country. Questionnaires can be saved, copied and reused across multiple surveys within a project. By default, questionnaires use English as the primary language, but the default language can be changed as needed.

1.2.3 Design and Start Survey

Using the interactive, step-by-step tool, users can design the survey by creating the questionnaire, uploading the sample, setting days and times for sending invitations to potential respondents, selecting the survey mode (e.g., SMS, phone calls, or both).

1.2.4 Monitor Survey Progress

Monitoring the survey progress allows users to view how the survey is progressing. *Surveda* shows the status of all invitations currently sent, including the number of completed interviews, partial interviews, and other types of non-response (e.g., call failed, refusal). This process allows for survey managers to gauge the overall performance of the survey as well as to estimate how long the survey will take to complete.

1.2.5 Export Results

The survey platform offers multiple ways to export survey data. Currently, all exports are available in a comma delimited (CSV) format, which can be imported into a wide range of data analytic tools such as Microsoft Excel, Tableau, and most statistical software packages.

1.3 Information: Hosting Options

1.3.1 Summary

Hosting refers to the location and methods used for storing data and survey software. Below is a summary of key concepts and hosting choices for the *Surveda* tool. As a first priority, it is important to highlight that the MOH is the owner of decisions for hosting. Further, each hosting option does not affect data ownership: under each scenario, the MOH has exclusive data ownership.

1.3.2 Hosting Choices

There are three main hosting options, each with different considerations that have effects on cost, timelines, and sustainability:

1. Cloud Hosting Operated by a Technology Partner, where the MOH has direct web-based access to the *Surveda* tool by navigating to the tool online and creating accounts where the MOH manages all aspects of a project and data. The software service and data are managed securely in partnership with a cloud service vendor, such as Amazon Web Services.
2. Local Hosting Operated by the MOH, where the MOH deploys and manages the *Surveda* tool hosted locally on its own servers. In this scenario, the MOH may be responsible for costs associated with hardware, bandwidth, and premises as well as for the ongoing staff for maintenance and support.
3. Local Hosting Operated by Technology Partner, where the MOH uses *Surveda* deployed at a local data center or set of servers. The technology partner would contract with a local hosting group to provide the solution and staff to maintain the tool. The local hosting needs to meet minimum bandwidth, reliability and security requirements specific to *Surveda*. This option would likely have added costs associated with accessing the infrastructure.

1.3.3 Impact of Hosting

The choice of hosting will impact aspects of how the platform is managed and maintained. Below is a summary of some of the key impacts associated with hosting decisions:

Impact on Data Ownership: There is no impact to the data ownership under any of the hosting options. Under all the options data ownership is exclusively that of MOH and is only accessible to users to whom the MOH gives explicit access.

Impact on Subscriber Privacy: There is no impact to subscriber privacy under any of the hosting options. Under all the options subscriber numbers are only visible during sample upload, are not visible during data collection, and are unlinked and de-identified in data exports.

Impact on Cost and Time: Using cloud hosting operated by a technology partner is the fastest method for an MOH or another implementer to begin deploying surveys. This option has been utilized and trusted by our technology partner and reduces risk and improves the sustainability of implementations. This option is the most cost efficient of the three hosting options.

1.3.4 Support and System Monitoring

Each data hosting option differs in how support can be provided. The table below describes the different outlets of user support, hosting support, and system monitoring for each hosting option.

	1. Cloud Hosting by Technology Partner	2. Local Hosting by Ministry of Health	3. Local Hosting by Technology Partner
User Support	User support via forums, webinars, knowledge base.	Limited user support via forums, webinars, knowledge base. technical assistance (TA) for the rate-based fee.	User support via forums, webinars, knowledge base.
Hosting Support	Managed by technology partner.	Managed by MOH. Contract outside support as needed.	Managed by technology partner.
System Monitoring	Professional tools: <ul style="list-style-type: none"> ▪ Throughput (i.e., the rate in which calls and messages are processed) and overall application performance ▪ Availability and Recovery ▪ Detailed error tracing 	MOH responsible for monitoring. Technology partners cannot monitor or respond to events.	Professional tools: <ul style="list-style-type: none"> ▪ Throughput (i.e., the rate in which calls and messages are processed) and overall application performance ▪ Availability and Recovery ▪ Detailed error tracing

1.4 Information: Mobile Network Operator Introduction

1.4.1 Summary

The *Surveda* tool sends SMS and phone calls to respondents via mobile network operators (MNOs). To use the *Surveda* tool at scale, it is necessary to set up agreements with MNOs. These agreements are primarily business arrangements between parties, in which costs and other terms are agreed upon.

In parallel to forming these agreements, it is also necessary to have discussions about how the *Surveda* tool connects to the MNO infrastructure. Even though the *Surveda* platform is compatible with most of the technologies used by MNOs, it's important to have these discussions on the details as early as possible to avoid delays. Sometimes it can take some time to sort through technical details.

For the NCD Mobile Phone Survey, InSTEDD provides free technical assistance to MoHs to establish agreements with MNOs. InSTEDD supports MoHs through all phases of setting up MNO agreements, from both the business and technical elements.

1.4.2 Process for Setting up MNO Agreements

The process of setting up an agreement with an MNO is a predominantly a business arrangement between various parties, rather than a strict technical task. For the NCD Mobile Phone Survey, the business element is between the MoH and the MNOs, and InSTEDD will support this process on behalf of the MoH. In this agreement, the rates for the SMS messages and voice calls are negotiated as well as other terms.

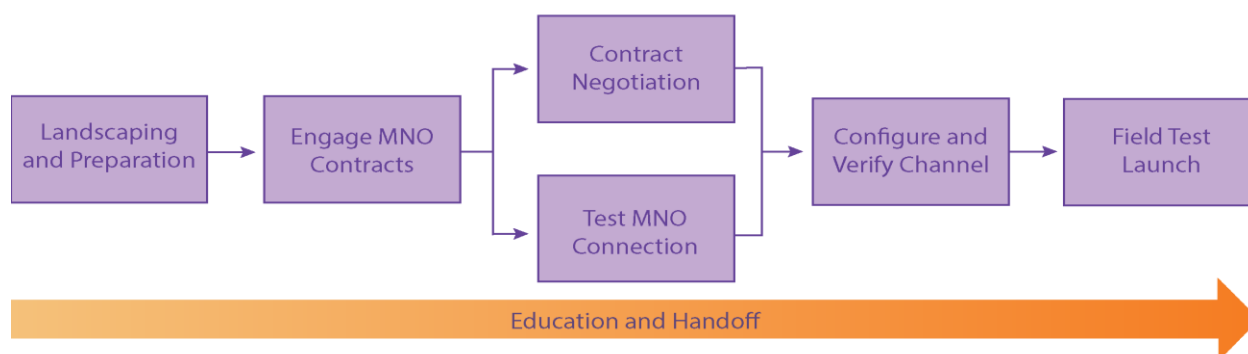
Figure 4. MNO Agreement Process

Figure 4 illustrates the general process that begins with understanding the local context and ends with a formalized relationship between the MoH and an MNO. Throughout the process, the MoH is trained on the business and technical aspects involved.

1.4.3 Contractual Framework for MNO Agreements

Within the context of the Bloomberg Data for Health Initiative, a contractual framework has been developed to provide the MoH technical assistance in engaging with MNOs. In general, the following agreements will be made among the MoH, the MNO, and InSTEDD as the lead technical assistance provider:

1. **Introduction Letter:** The first document to be presented is the formal introduction of InSTEDD, the technology implementer to the MoH. This is important to ensure the necessary institutional support for the technology partner throughout this process.
2. **Non-Disclosure Agreement:** The Non-Disclosure Agreement is established between the MNO and the technology partner—this allows important technical details to be shared between the two parties regarding equipment, network configuration, etc.
3. **Technical Services Agreement:** The agreement is established between the MNO and the technology partner. This agreement defines the technical terms and conditions of the MNO connection.
4. **Content Services Agreement:** This is the central agreement that will provide a sustainable relationship between the MoH and the MNO. In this agreement, the terms of service, roles and responsibilities and escalation procedures are all defined.

Note: This is a generalized framework which may be adapted to the country context.

1.4.4 In-Network vs. Out-of-Network

It can be advantageous to work with multiple MNOs for a given country, although this is not always required. The main advantage of working with multiple MNOs is lower MNO costs as well as increase overall coverage. Working with multiple MNOs can lower costs for the MoH by using more in-network calls—i.e., those calls where both the sender of the call and the receiver of the call are subscribers of the same MNO. For in-network calling, MNOs generally incur very little expense and can offer cheaper rates than when the sender and receiver are not on the same network. Phone calls or SMS messages sent from one MNO to another are referred to as out-of-network calls, and because additional fees apply, these rates will be higher.

1.4.5 Alternative Approach: Mobile Network Aggregator

In some countries, there exist businesses that seek to make it easier to work with MNOs. These companies aggregate the connections to MNOs and are referred as aggregators. Aggregators take the time to establish the direct connections to MNOs themselves and then sell the use of these combined/aggregated connections as a business. The main advantage of using an aggregator is that considerable time can be saved by not having to set up and maintain a direct connection to the MNO. The disadvantage is these aggregators charge a transaction fee and this fee is often higher than what could be negotiated with the MNO directly. Aggregators are not available in all countries and the choice of how and when to use an aggregator is part of the process of determining the rollout strategy for each country.

The *Surveda* survey tool can work indistinctly and simultaneously with both direct connections to MNO and aggregator-mediated connections. Once the channels are established, there is no difference between MNOs versus aggregators from the perspectives of tool users or respondents.

1.4.6 Shortcodes

When conducting an SMS or IVR survey, the messages for SMS and phone calls for IVR will originate from a specific number. How a respondent perceives that number may influence their willingness or interest in responding to the SMS or answering the voice call. In many cases, special shorter numbers can be used to distinguish the phone call or SMS message from other calls people may receive. In most countries, these shorter numbers appear more official than typical numbers, which are generally longer. These special numbers are called shortcodes and can be obtained from the MNO and other regulatory bodies. For example, 911 is a short code that people call in the United States for emergency medical assistance or the police. However, some people may have negative connotations of shortcodes—e.g., spam or premium services billed at higher rates. The positive and negative connotations of shortcodes vary by country, so it is important to understand the specific country context.

It's important to note not all MNOs will offer shortcodes in the same way. The availability of shortcodes, their fees, and time to set up will vary. For example, shortcodes may take a significant amount of setup time for some MNOs but less time for others. Understanding what shortcode options are available from the MNO, the extent to which they have been used in the country, and whether shortcodes are viewed positively or negatively, are all components of the landscaping process.

2. QUESTIONNAIRES—DESIGN AND MANAGE

2.1 Guideline: Creating Phone Call User-Friendly Multiple-Choice Questions

2.1.1 Summary

There are many ways to structure a multiple-choice question via IVR. Here are some guidelines and examples to help you improve the user-friendliness to survey respondents and improve the accuracy of data.

2.1.2 Introduction

A multiple choice question is a question that can result in the respondent selecting one of many pre-determined options. For example:

- asking a user if they are right-handed or left-handed asking a yes/no question
- asking if they eat vegetables every day, every week or never

A multiple choice question usually consists of:

- **Introduction:** An Introductory description, such as "Are you right handed or left handed?"
- **Options:** An Enumeration of options, such as "For left handed press 1. For right handed, press 2."
- **Correction:** An Error Message in case an option wasn't recognized, such as "Sorry, I didn't understand."

The user experience when a respondent answers correctly will be as follows:

[Introduction]->[Options]-> {correct user input}

If the user makes a mistake while entering an option the flow will typically go:

[Introduction]->[Options]-> {user input} -> [Correction]->[Options]-> {correct user input}

2.1.3 Guidelines

Do say the option before the required input.

Listeners typically 'perk up' and pay more attention when the correct answer is read, and then they pay attention to the required input. Conversely, if the question is sequenced wrong, listeners will forget the input code by the time they hear the description.

Correct: "If you ate a salad yesterday, press 1. If you didn't, press 2."

Incorrect: "Press 1 if you ate a salad yesterday. Press 2 if you didn't."

Do stay consistent for similar question types.

Listeners will be 'trained' after only one example on whether 1 means Yes and 2 means No. For example, if "very frequently" is 3 and "seldom" is 1, don't swap the options across questions. Changing the inputs for similar questions is confusing and will decrease data quality.

Do consider the natural sequence of numbers.

Asking magnitude or linear questions should be done so it matches numeric input codes. This applies to ages, weights, etc. Consider the growing sequences in: "If you're 20 to 29 years old, press 1. If you're 30 to 44 years old, press 2."

Do shorten the list of options.

Keeping the list of options as short as possible will reduce survey time.

Do consider the keypad position of numbers.

Languages and some words have a certain left/right or top/bottom predisposition. Match the answers to intuitive positions on the keypad. For example, consider the physical keypad position of answers in: "For left handed, press 1. For right handed, press 2."

2.2 Guideline: Creating SMS User-Friendly Multiple-Choice Questions

2.2.1 Summary

There are many ways to structure a multiple-choice question via SMS. Here are some guidelines and examples to help you improve the user-friendliness to survey respondents and improve the accuracy of data.

2.2.2 Introduction

A multiple choice question is a question that can result in the respondent selecting one of many pre-determined options. For example:

- asking a user if they are right-handed or left-handed,
- asking a yes/no question,
- asking if they eat vegetables every day, every week or never.

Multiple choice questions usually consist of:

- **Introduction:** An introductory description, such as "Are you right handed or left handed?"
- **Options:** An enumeration of options such as "For left handed, text 1. For right handed, text 2."

- **Correction:** An error message in case an option wasn't recognized, such as "Sorry, I didn't understand."

In SMS, as users can read the options at the same time as the question, it is possible to combine the options and enumeration.

The user experience when a respondent answers correctly will be as follows:

[Introduction]->[Options]-> {correct user input}

If the user makes a mistake while entering an option the flow will typically go:

[Introduction]->[Options]-> {user input}-> [Correction]->[Options]->{correct user input}

2.2.3 Guidelines

State the expected before the option description.

Readers will associate categories and answers with the content that is read afterward

Note: this is the opposite of voice/IVR-based questions.

Correct: "Did you eat a salad this week? 1: Yes, very often; 2: Not very often, 3: No."

Incorrect: "Did you eat a salad this week? Yes, very often: 1; Not very often:2, No:3."

Expect wide ranges of input.

Respondents may reply many things besides the enumerated options. In the Questionnaire designer, program multiple inputs for any option, including misspelling, slang, and excerpts from the options themselves.

For example:

Never Smoke	0, N, Never, No
Sometimes Smoke	1, S, Some, Sometimes,
Smoke Every Day	2, Every, Day,

Do stay consistent for similar question types.

Respondents will be 'trained' after only some examples of whether 1 means Yes and 2 means No. For example, if "very frequently" is "3" and "seldom" is "1" in a question about diet, don't swap the options in another question about smoking.

Changing the inputs for similar questions is confusing and will decrease data quality.

Do consider the natural sequence of numbers.

Asking magnitude or linear questions should be done so it matches numeric input codes.

This applies to ages, weights, etc. Consider the growing sequences in: "How often do you smoke? 0: Never, 1: Sometimes 2: Every Day."

Do shorten the list of options.

Keeping the list of options as short as possible will reduce survey time message lengths and make responses more accurate.

2.3 Guideline: Drafting a Questionnaire Introduction

2.3.1 Summary

This section describes best practices for drafting the introduction to a questionnaire. There isn't one solution that is perfect for all scenarios. However, there are best practices and some common patterns to remember. The introduction is critical for achieving a successful response rate: people respond positively to brief introductions and make immediate judgments about whether the survey is trustworthy and important. In fact, the majority of people who break off a survey stop at the survey introduction step. Once people agree to participate in a survey, they are much more likely to complete it. Therefore, it is critical to write a compelling and brief introduction for SMS and phone call surveys.

2.3.2 Key Dimensions

Key dimensions of an introduction for a questionnaire include the following components:

- **Greeting:** Where the survey identifies what it is, who is sending it, and context describing why it is important for an individual to participate.
- **Language selector:** Allows you to self-select your preferred language for the questionnaire.
- **Consent:** Where the questionnaire informs you of the conditions around a survey and allows them to opt in or out of the survey.
- **Incentive:** Consider including incentives in the introduction. In *Surveda*, this is the only place where respondents can be informed of any survey token and the amount.

2.3.3 Guidelines

Do Balance the length and content of the greeting.

The greeting is critical. It needs to identify who is sending out the survey and encourage participation. A long or confusing greeting will result in decreased participation, but writing something concise and engaging will encourage participants to stay involved. The ideal length of the greeting is under 8 seconds for a phone call, and within 1-2 messages for an SMS version.

Do test your introduction with a small group of people.

Before main data collection, test the introduction with a small group of people to adjust to social and cultural expectations and reactions to the survey. No one approach is perfect for

all situations, but by testing early and often, costly mistakes and issues that depress response rate can easily be resolved.

Do use the lingua franca for greetings in multilingual surveys.

In multilingual countries, it can be difficult to convey the greeting in each language. For example, people may quickly lose interest in a survey when greeted in another language. In these situations, it is recommended to start with a lingua franca—i.e., a language that is widely understood by a broad section of the population. Examples of lingua francas are English in Zambia and Swahili in Kenya. Using a lingua franca often mirrors the usual style of government communications, which can build trust and encourage participation.

Do Provide a language selector; have it presented in all languages.

For each language that is offered, use the related language directly in the step or language selection questions. This comes after the lingua franca introduction. A successful language selector step that offered in English, French, and Arabic (via SMS) would read as:

“For English, press 1; Pour le François, appuyez sur 2; 3 بالنسبة للغة العربية, اضغط”

This allows individuals who do not read the other languages offered or specifically the lingua franca, to find an option associated with a language they are literate in. For IVR, an individual would hear the script in the specific dialect they understand.

Do separate and sequence the language selector before consent.

Consent to participate can be technical in nature. For example, the institutional review board may have some specific language that must be included. Allowing you to select your language before hearing the consent question can help to improve the delivery and comprehension of the consent question.

Don't Use the same script for both IVR and SMS introductions.

Using identical scripts for an introduction in IVR and SMS fails to take advantage of the strengths of each mode of communication. For example, IVR allows for longer, more fluid introductions, whereas SMS can take advantage of abbreviations. It is helpful to design the right introduction for each mode from their perspective of the respondent.

2.4 Guideline: Creating Quality Audio Files for Phone Call Surveys

2.4.1 Summary

This section describes best practices for recording high-quality audio files for IVR. This is important when you deploy surveys, as the type of voice and quality of the audio recording will affect response rates and data quality. Below, we outline recommendations to:

1. Identify and select a voice and recording partner.
2. Manage the recording process.

With some preparation and proactive management, you can easily and quickly record and test audio files, even for long and complex surveys.

2.4.2 Guidelines: Selecting a Partner

Do decide what languages and dialects are important.

Before drafting the IVR audio script, decide which languages and dialects your survey will support, then ensure you have complete questionnaire scripts for the languages you plan to deploy.

Do identify at least 2-3 professional and fluent individuals.

We recommend working with professional audio talent from a local firm. Also, be sure to identify 2–3 individuals fluent in each language the survey will use.

Do collect audio samples from a common script.

Once you obtain audio samples from a number of individuals, the survey team and fluent speakers should rate which one they like best and why they were good or bad. The selected sample should be easy to understand, trustworthy, and able to record the full script in a timely fashion.

Don't wait until the last minute to find individuals to record audio.

The process of recording audio content can take some time. We recommend allowing at least 2 weeks to record, test, and finalize audio recordings. These 2 weeks begin after professional talent is secured, and the recording process can begin.

If you expect any changes in the script, re-recording audio adds additional complexity. You should identify someone early and begin audio recording iteratively as soon as the questionnaire and languages are determined.

2.4.3 Guidelines: Managing the Recording Process

Do clearly communicate expectation for turnaround times.

It can take several cycles to arrive at the final set of audio files for an Interactive Voice Response project. Factors such as last-minute changes to the script or poor quality audio require testing of content and resolution of any issues. To fix issues, you must have clear expectations on turnaround time for doing the recordings (e.g., 24-hour or 72-hour turnaround time).

Do test each new version of audio files in the IVR script.

Each time new audio files are loaded, test the new questionnaire to ensure quality. By taking an iterative approach, questionnaire designers can quickly evolve and ensure high-quality surveys.

Do have audio files versioned and documented against a script.

This step can get complicated and confusing if you are not diligent in naming and versioning the audio files. Be sure to have identifiers per audio file that relate to the script and can be versioned in the filename (e.g., 1.Consent_v3.wav or 7.Smoking_v1.mp3).

Do have audio files recorded as either WAV or MP3 files.

Use common file formats for audio files such as .WAV or .MP3. The *Surveda* tool may not accept obscure file formats.

Do consider using online file storage to save versioned audio files.

Managing the versions from your inbox can get complicated quickly. If you store audio files on a local hard drive, the device could suffer loss or damage. Using shared cloud-based storage such as Dropbox or Onedrive can be a great option, particularly in low bandwidth situations.

Do use the same human voice for each language you deploy.

Participants will be confused if they hear different voices in a single survey. This issue can become challenging if someone wants to reuse audio files years later, but small changes are needed. In these instances, if the original voice is no longer accessible, all the audio may need to be re-recorded.

Don't use audio files that have any hiss or crackle noise.

Background noise often can become an issue in IVR projects, distracting users and depressing response rate. Background noise during recording, poor quality recording equipment, or the post-processing of audio files can all cause these problems.

Don't use text-to-speech for important or large-scale surveys.

We do not recommend using the robo-voice associated with text-to-speech for important or large surveys. It will mispronounce words and depress user participation. Only use the text-to-speech if it is an emergency or you are testing the system using it on a small group of people.

2.5 Guideline: Incentives

2.5.1 Summary

This section provides tips for setting incentives during the survey design process.

2.5.2 Introduction

Respondents have various motivations for participating in a survey, such as having an interest in the topic, improving their community's health, or complying with a government request. Regardless of people's motivations, one way of encouraging participation is through a token of appreciation, or "incentive," to people who complete the survey. Using *Surveda*, the survey designer integrates text about the incentive (amount and type) in the introduction to the questionnaire.

Note: the designer includes the incentive description in the wording of the questionnaire introduction. *Surveda* does not have a separate menu where the survey designer sets the incentive. One can only set incentives within the questionnaire.

2.5.3 Guidelines

Do offer an incentive, if appropriate.

Incentives can generally increase response rates to the survey, which can improve data quality. However, survey designers should consider whether and how incentives fit into the program’s goals and country context. Incentives may not be appropriate in all countries.

Do inform respondents about the incentive in the survey introduction.

Remember that the survey designer sets the incentive in the introduction to the questionnaire. This is the only place where you can inform respondents about the incentive, so be sure to make the incentive clear.

Do specify the incentive type.

Typically, we provide incentives in the form of mobile phone airtime “top up” for SMS and Phone Call surveys. “Top up” means that money is automatically loaded to a person’s prepaid mobile phone account, which people can use however they choose. You can also offer a lottery (e.g., if you complete the survey, we will enter you in a drawing for 20 USD).

Do specify the incentive amount.

The exact incentive amount depends on a number of factors specific to each country. As a general guideline, offering \$0.50 to \$1.00 in airtime for completing a survey may be adequate. In most countries, offering slightly more (e.g., \$1.50 or \$2.00) may not increase response rates.

Do test different incentive amounts during pretesting.

The optimal incentive amount may depend on the country context. For this reason, we recommend testing different incentive amounts during pretesting. The *Ask* tool makes this easy by conducting assessments.

Do be clear that respondents earn incentives after completing the survey.

We recommend providing an incentive for answering all survey questions. Respondents who answer some (but not all) questions generally should not receive an incentive. Offering a single incentive for survey completion provides motivation for a respondent to answer all questions.

Do remember that for multimode surveys, you should offer the same incentive for all modes.

We recommend offering the same incentive for SMS and phone call surveys. Respondents and survey designers could be confused by the different incentive amounts.

Don't wait too long to send incentives to participants.

We recommend delivering incentives no more than 24 hours after the survey's data collection period ends. Alternatively, you can provide incentives regularly (e.g., every 3 days) during the data collection period, but this takes more effort from the survey team.

3. SURVEYS—CONFIGURE, RUN, AND MONITOR

3.1 Guideline: Setting Survey Schedule

3.1.1 Summary

This section provides best practices for setting the survey schedule for Short Message Service and Interactive Voice Response.

3.1.2 Introduction

The Ask tool allows you to customize when and how often surveys are sent to respondents. Specifically, you can set:

- The days of the week (e.g., Sunday, Monday, Tuesday)
- Timezone (e.g., UTC)
- The time of day (e.g., 9 am–6 pm)
- The number of times a phone number is contacted (e.g., 2 re-contacts)
- The time interval between re-contacts
- When a fallback mode is used, the number of re-contacts before switching modes

Setting the optimal survey schedule is important for achieving a high response rate while not burdening respondents with too many messages at the wrong time.

3.1.3 Guidelines

Below, we provide some general guidelines for setting the survey schedule. The optimal survey schedule most likely varies between each country. However, we also provide some default ideas that you can tailor based on the country.

Do set appropriate days of the week.

In most countries, a best practice is to send surveys all 7 days of the week to maximize response. In some countries, however, you may have to restrict surveying on a particular day due to religious, cultural, or other considerations, for example, work weeks that run Sunday to Thursday.

Do remember to set the local time zone.

The default time zone is UTC. You must customize the time zone, otherwise, respondents may not see surveys at the expected times.

Do carefully consider the appropriate start and end times.

As a best practice, we recommend 7 am–9 pm. In general, a wide time window improves data quality because more people can respond. Cultural considerations may impact decisions regarding survey timing. Legal restrictions can also affect call times.

Do remember that you create one set of times for all days.

Currently, Ask does not support customizing the times based on the day of the week (e.g., start at 10 am on Sunday, start at 7 am on Monday).

Do set re-contact attempts.

Use re-contact attempts to follow up with people who have not responded to the initial attempts. Re-contact attempts are important for reminding respondents to participate, which improves data quality. We recommend 3 re-contact attempts per mode. If the survey has one mode, you may have up to 4 contacts: one initial contact and 3 re-contacts. If the survey has two modes, you may have up to 8 contacts: in the first mode, one initial contact and 3 re-contacts. The second mode, will have one initial contact and 3 re-contacts.

Do carefully consider the best interval between re-contacts.

As a general practice, we recommend a window of 15 hours between re-contacts. This interval ensures a spread of re-contacts across different times of the day.

Do test different scheduling protocols.

After testing, adjust schedules accordingly to maximize response rates and data quality.

Don't select "all day" for the times unless absolutely necessary.

People are generally unwilling to respond late at night or early in the morning. Sending calls during these times may have legal implications as well.

Don't re-contact people too frequently.

We recommend at least 24–48 hours between contacts. Re-contacting people on the same day may lead to respondent burden.

Don't include too many re-contacts.

Typically, sending more than 6 or 8 calls to a single telephone number has diminishing returns.

3.2 Checklist: Create a Survey

3.2.1 Summary

This section lists the necessary steps to create and configure a survey. Once you complete these steps, you can run your survey. There are five core steps. Some steps (e.g., specify quotas) require other steps to be completed first (e.g., design a questionnaire).

The steps include:

- Select a questionnaire

- Upload your respondents' list
- Select mode and channels
- Set up a schedule
- Set up cutoff rules

3.2.2 Select a Questionnaire

- Select an existing questionnaire. If no questionnaires exist or you need to create a new one, select "New Questionnaire."
- To create a new questionnaire:
 - Select the type of modes you wish to support in the questionnaire (e.g., Short Message Service, Interactive Voice Response).
 - For each step: Enter question text, response options, variable label.
 - Add translations.
 - Upload audio files.
 - Configure and check skip logic in the tool.
 - [For advanced users only] Check the "run a comparison" box to use two questionnaires in the same survey.
 - Test questionnaire via SMS and phone call by deploying a test survey and filling out the survey.

3.2.3 Select Mode and Channel

- Select a survey mode: SMS or IVR and whether you want a fallback mode.
- Select a channel for each mode that you have selected.
- [For advanced users only] Check the "run a comparison" box to use two modes at the same time.

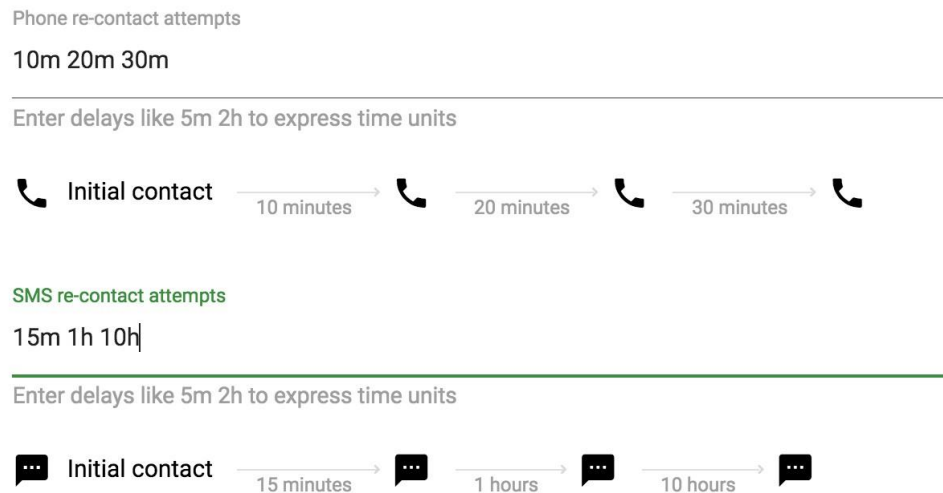
3.2.4 Upload Your Respondents List

- Before you upload, check your sample file:
 - Remove duplicates.
 - Create separate files for each mobile network operator.
- Upload a list of phone numbers.
- Assign channels to each file.

3.2.5 Set Up a Schedule

- Select days of the week (e.g., Monday–Sunday).
- Select desired time zone.
- Specify the time range each day that surveys will go out (e.g., 5 pm to 8 pm).

- Indicate the number of re-contact attempts and the time intervals between each attempt for each mode that you select (see Figure 5).

Figure 5. Phone Re-Contact Attempts

3.2.6 Set up Cutoff Rules

- Enter the cutoff rules: (1) number of successful interviews, (2) quotas for completes per question (e.g., gender, age group).
- Specify whether you want the survey to stop after all or some of the rules are reached.
- If quotas are selected:
 - Specify the variables (e.g., age) that define the quotas.
 - Specify the categories (e.g., 18–34, 35–49, 50 and over) for each variable.
 - Enter the number of completes for each quota group.

3.3 Guideline: Cutoff Rules

3.3.1 Introduction

During the survey design process, you define “Cutoff rules” to direct *Surveda* when to stop inviting people to participate in the survey (see Information: Cutoff Rules - link). You can set different types of cutoff rules, such as continuing the survey until there are 5,000 successful interviews, or until there are 400 interviews from various sub-groups of the population.

Defining the cutoff rules is one of the most important decisions you will make as a survey designer. If you set the wrong cutoff rules, you may have too much or too little data collected. Incorrect cutoff rules can also end up costing unnecessary time and money. This section provides some best practices in setting cutoff rules.

3.3.2 Guidelines for Setting Cutoff Rules

Do set cutoff rules for most surveys.

In *Ask*, cutoff rules are optional. If you do not set a cutoff rule, then the survey will run indefinitely—i.e., it will continue collecting data and will not stop. This may be appropriate in some surveys. However, most surveys will use a cutoff rule. Generally, using cutoff rules is recommended unless there is a valid reason not to do so.

Do work with a statistician to calculate the appropriate cutoff rules.

Cutoff rules affect how the number of successful interviews will be available when someone analyzes the data. A statistician can help determine how many completed interviews are needed. The larger the number, the more precision, but the more money and time are needed to collect the data. For example, in the NCD Mobile Phone Survey, a standardized sample design suggests the number of completed interviews for different quota groups.

Do be mindful of how cutoff rules affect cost.

The *Surveda* tool itself is free. However, it costs money to send Short Message Service or phone calls to respondents via mobile network operators. Best practice is to first generate the cutoff rules from a statistical perspective, then modify the cutoff rules in light of available budget.

Do remember that cutoff rules can operate on both completed and partial interviews.

By default, the *Surveda* tool sets cutoff rules based on completed and partial interviews. You can also check an option to allow partial interviews to count toward cutoff rules.

Don't try to define quota groups until the questionnaire has been designed.

Remember, you can define quota groups only based on questions already in the questionnaire.

Don't include too many quota groups.

Quota cutoff rules are great for ensuring that the survey reaches different groups. However, quotas can be problematic if you have too many of them. For example, if the age quotas are too narrow (e.g., 45–49 years, 50–54 years, 55–59 years), filling up some of the quotas may be difficult. *Ask* will continue to run until all the cutoff rules are met, which may cost unnecessary time and money. In general, we recommend a maximum of 6 quota groups. Each quota group can be a fairly wide demographic group (e.g., women 18–35 years; men 18–35 years; women 34–49 years; men 34–49 years).

3.4 Information: Cutoff Rules in *Surveda*

3.4.1 Introduction

Cutoff rules tell *Surveda* when to stop sending survey invitations. Technically, cutoff rules are optional. However, if they are not set, the survey would run indefinitely. Most surveys will use cutoff rules, and *Surveda* has several ways to define them.

3.4.2 Sending Survey Invitations

Before defining cutoff rules, you must understand how the *Ask* tool chooses how many phone numbers to invite to the survey.

Once a survey is started, *Surveda* sends invitations to an initial batch of phone numbers. *Ask* automatically determines the size of the initial batch based on the cutoff rules. As data collection progresses, *Surveda* sends invitations to additional phone numbers that weren't included in the initial batch. *Surveda* automatically attempts to contact phone numbers so manually sending more invitations is unnecessary. *Surveda* will invite as many phone numbers as needed to achieve the cutoff rules, without exceeding the rules.

The pace of sending out invitations will vary. At the beginning of the data collection period, *Surveda* will deploy a large number of invitations. Toward the end of data collection, the pace of invitations will slow down proportionately based on the number of completed interviews and cutoff rules.

3.4.3 Types of Cutoff Rules

Surveda has two types of cutoff rules.

Number of Total Interviews: Enter the total number of successful interviews that need to be obtained. By default, a "successful" interview is one where the respondent completes at least one NCD question. For example, if you enter "500," then *Surveda* will send invitations until 500 successfully are reached. You can also select an option for partial interviews to count toward cutoff rules.

Quotas Filled: You can also specify that the survey should stop only after all quotas are met. A quota is a subgroup of the population, such as "women 18–29 years old." *Surveda* allows you to specify a minimum number of successful interviews from each quota group. For example, you can specify 300 from "women 18–29," 500 from "women 30–39," 500 from "women 40–49," and so on. The *Surveda* tool will provide guidance on setting up quotas.

Important note: You can only set quotas based on the questions that the questionnaire already has. For this reason, set quotas after the questionnaire has been created.

3.4.4 Number of Cutoff Rules

One or more cutoff rules can be set. If one cutoff rule is set, the survey will end when that cutoff rule is met. But more than one cutoff rule can be set. For example, a requirement of 5,000 successful interviews can be set and that female respondents complete at least 2,000 interviews.

4. TECHNICAL INFORMATION

4.1 Checklist: SMS Mobile Connections Tests

4.1.1 Summary

When a mobile connection is established via a new mobile operator or channel, it is useful to perform certain tests to make sure things work as expected, or to get information about how things fail (e.g., user experience, error codes).

4.1.2 SMS Checklist

These are basic tests to verify the connection works:

- SMS can be sent to a working phone number.
- Message is received within a short timeframe.
- "From" in the SMS message is not blank.
- "From" in the SMS message is the expected shortcode.
- SMS message can be replied.
- Reply gets back to server in a short timeframe.

4.1.3 SMS Content

The following tests validate message length, concatenation, and encoding:

- Send an SMS that is over 170 characters long.
- Test maximum length of a message with one accentuated character (e.g., "á"). To test, you can send a long message such as:

```
0-----1-----2-----3-----4-----5-----612345678971234567890-----8-----9-----012345678901234567890123456789
```

- Refer to the table in **GSM 03.38 Standard** (https://en.wikipedia.org/wiki/GSM_03.38) to see which characters specifically trigger changes in message length.
- Test maximum length of a message with at least one local non-western language (e.g., putting the following as the first characters of the sample message above "مرحبا" or "你"). 好
- Test messages in a local script or accentuated content and make sure it appears correctly. For example, "aló" could appear as "al[]."
- Test a long message and see if it is delivered as one or two messages. This can be dependent on the respondent's phone, so test with both a feature phone and a smartphone.

- Test very long messages—up to 4 concatenated, if you have them—as some phones will truncate messages and just replace with “=more text=.”

4.1.4 Failure Mode Tests

The following tests indicate the types of error codes a channel can provide under situations that aren't expected to work:

- Send to an invalid number (e.g., “11111111111111”).
- Send to an invalid MNO number (e.g., “016-000-00000”).
- Send to an invalid MNO number, of a different MNO than the sender (e.g., “017-000-00000”).
- Send SMS to a landline
- Send SMS to a nonexistent mobile number
- Send SMS to a fax line

4.2 Guideline: Setting Up and Managing Channels

4.2.1 Summary

This section describes best practices associated with setting up and managing channels. Channels are the connections that are used by the *Surveda* tool to reach out directly to individuals' mobile phones via a mobile network operator (MNO), an aggregator, or another type of connection. Channels must be carefully managed, particularly if they are direct connections with MNOs.

4.2.2 Guidelines

Do Have Technical Partners Assist with MNO Connection Setup

Connections with MNOs require investment and technical expertise. In order for a channel from an MNO partner to appear in the *Surveda* tool, connections with the operator need to be made. The skill set for this task requires experience and technical expertise to create, test and deploy surveys correctly. Technical assistance partners are important to assist with setup.

Do Manage Permissions Carefully for Channels.

It is important to carefully manage permissions for channels and set clear expectations with staff on their ability to modify them. When you have access to a channel you can deploy as many surveys as you like. Thus, it is critical to effectively manage channel permissions to prevent the misuse of these tools, which can have serious consequences on implementers' ability to continue to use them.

Do Be Aware of Costs and Contractual Agreements.

There are associated costs for deploying surveys and certain rules that may apply when using a channel. It is important to confirm that the costs are well understood, the rules related to the channel are adhered to, and all charges are paid on time. It is important to maintain the terms of the content and technical agreements associated with high volume channels negotiated with MNOs.

Do Contact Support for Any Issues with Channels.

Issues with channels can occur from time to time—as either technology on the channel or software provider evolves over time. These configuration issues are rare and can be resolved quickly with technical support from partners (e.g., support@mobilesurveys.freshdesk.com).

4.3 Checklist: Steps Associated with Incentives**4.3.1 Summary**

This section describes the steps to follow when setting up and maintaining incentive payments associated with a survey.

For the NCD Mobile Phone Surveys, incentives are distributed through mobile network operators (MNOs). In order to accomplish this, a content agreement must be in place between a group sending the incentives and the MNO, to distribute them to the correct users. Details of the content agreement will often further articulate the specific parameters of incentive distribution.

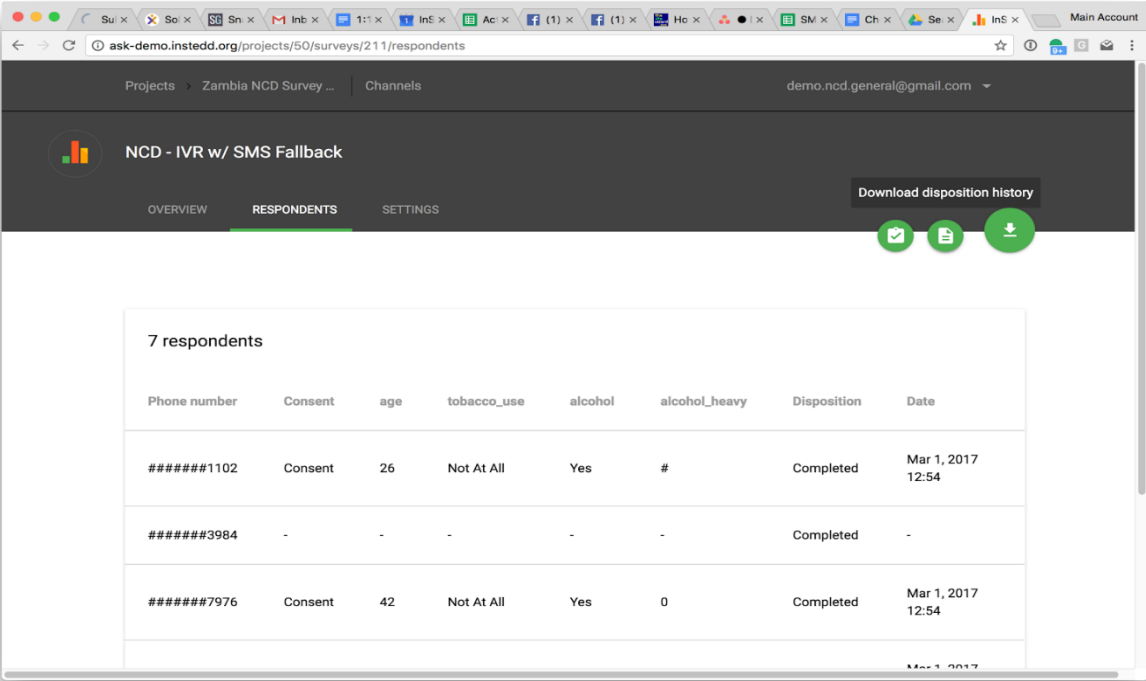
4.3.2 Checklist for Sending Financial Incentives**Before the Survey Begins: Get Prepared**

1. Determine the incentive size and type you wish to provide for individuals who **complete the survey**
 - Optional: Run experiments to see what is the right amount of financial incentive to sufficiently boost participation.
 - Optional: Explore other types of motivation in the survey (e.g., conveying the importance of participating in the survey introduction).
2. Determine how often you will send incentives to participants (e.g., Every day, once per week). Key determinants of the frequency include: (1) your agreement with the mobile network operator, (2) how much time you have, (3) desired messaging to participants for timing to receive incentives.
3. Update your questionnaire content—scripts, translations, audio files and SMS messages—to include details regarding the incentive amount and expectations for when a respondent will receive the incentive.

During the Survey: Carry Out Your Plan

1. Run your survey, allowing participants to complete the questionnaire.

- 2. On the schedule you determined above:
 - Download the list of respondents that have a successful disposition code from the survey’s Respondents Tab. (Remember this list is kept separate from the respondent’s answers to the survey questions.)



- 3. Share this list of phone numbers and the desired incentive amount with your contact at each MNO. Note: As part of the agreements with MNOs, you likely will send 1 file to each MNO, including successful participants in each network.
- 4. Ensure that you pay your associated bill, as described in the content agreement for each MNO, in a timely fashion. Late payments could affect the expectations set with participants or place the content agreement at risk with the MNO.

4.4 Information: Permissions

4.4.1 Account Access

To use the *Surveda* tool, you must first create an account. Access to projects and surveys in *Surveda* is granted based your identity. For example, when Person A creates a survey Person B will not have access to that survey unless collaborators invite that person and explicitly grant access.

4.4.2 Logging In

You have ownership of your data and can control the level of access that others have to it. However, the *Surveda* tool needs to know the identity of everyone using it. You must provide a valid username and password combination to access the system. A username is

any valid email address, and your password must have at least 6 characters. You will get access to projects and surveys in the system only after you log in.

4.4.3 Invite Collaborators

You can invite another person as a collaborator. Collaborators can be helpful when multiple people are working on a project. For example, a manager may want to grant access to a staff translator to upload question translations, or a statistician to export data and then analyze results. The level of access depends on the collaborator type. Table 1 describes the two collaborator types.

Table 1. Collaborator Types

Collaborator Type	Description
Viewer	Viewers are granted read-only access to surveys, questionnaires, and other project resources. Viewers can also download survey data.
Editor	Editors have access to all Viewer functions, but can also design questionnaires, set the schedule, start a survey, and make other changes to the survey design.

4.5 Information: Channels and Modes

4.5.1 Channels

A channel is the mechanism that *Surveda* uses to communicate with mobile network operators or aggregators. It is the route that *Surveda* uses to make a phone call (for IVR) or send a message to people (for SMS) via a mobile operator.

Generally, an individual channel will correspond to a unique phone number. For example, when conducting an SMS survey, the SMS messages to the respondent will come from the phone number associated with the SMS channel.

4.5.2 Modes

A mode is a method of communication *Surveda* uses to communicate with respondents. Currently, there are two types of modes supported: SMS and Phone Calls.

For each mode used in the survey, there must be a corresponding channel. For example, when configuring a survey to use SMS, there must be an SMS channel. Similarly, a phone call survey must also have an IVR channel. When configuring a survey to use both SMS and IVR, there must be one SMS channel and one IVR channel. It is not possible to use the same channel for both SMS and IVR at the same time.

The *Surveda* tool comes with a number of built-in channels types that will support each of the selected modes. For a full list of available channel types, see the drop down list when

creating a new channel. In addition to these channels, the *Surveda* tool will also utilize country specific MNO connections to provide SMS and IVR connectivity.

Table 2. Built-in Channel Types for *Surveda* (December 2016)

SMS Channels	<i>Clickatee, DTAC, I-POP, MSN, Multimodem iSms, POP3, QST Client, QST Server (local gateway)</i>
Phone Call Channels	<i>Callcentric, Custom Channel, SIP Client, SIP Server, Skype, Twilio, Shujaa</i>

MNO Channel Setup

A new channel can be created and configured directly in the *Surveda* tool. Each channel type is different and must be configured according to its specifications. Once these channels are established, they can be reused for as long as agreements remain in place between you (i.e., the implementer) and the MNO. The specifics for the initial setup and maintenance require an in-depth understanding of network protocols and may benefit from guidance from the technical assistance partner.

Note: Within the *Surveda* tool, channels are configured at the account level. This means channel configurations can be reused across projects and surveys. However, channels should not be used at the same time for more than one survey. If you have two surveys running at the same time, you'll need to use two channels. A channel should only be reallocated to another survey after the survey has completed.

4.6 Information: Channels

4.6.1 Channels

A channel is the mechanism that *Surveda* uses to communicate with mobile network operators or aggregators. It is the route that *Surveda* uses to make a phone call (for Interactive Voice Response) or send a message to people (for Short Message Service) via a mobile network operator.

Generally, an individual channel will correspond to a unique phone number. For example, when you are conducting an SMS survey, the SMS messages to the respondent will come from the phone number associated with the SMS channel.

4.6.2 Modes

A mode is a method of communication *Surveda* uses to communicate with respondents. Currently, there are two types of modes supported: SMS and phone calls.

Each mode used in the survey must have a corresponding channel. For example, when configuring a survey to use SMS, you must use an SMS channel. Similarly, a phone call

survey must also have an phone call channel. When you configure a survey to use both SMS and phone calls, you must use one SMS channel and one phone call channel.

The *Surveda* tool comes with a number of built-in channels types that support each of the selected modes (see Table 3). For a full list of available channel types, see the drop-down list when you create a new channel. In addition to these channels, the *Surveda* tool will also utilize country-specific MNO connections to provide SMS and phone call connectivity.

Table 3. Built-in Channel Types for *Surveda* (December 2016)

SMS Channel	Voice Channels
Clickatell	Callcentric
DTAC	Custom Channel
I-POP	SIP Client
MSN	SIP Server
Multimodem iSms	Skype
POP3	Twilio
QST client	
QST server (local gateway)	
SMPP	
XMPP	
SMTP	
Twilio	
Shujaa	

4.6.3 MNO Channel Setup

You can create and configure a new channel directly in the *Surveda* tool. Each channel type is different and must be configured according to its specifications. Once these channels are established, you can reuse them as long as agreements remain in place between you (i.e., the implementer) and the MNO. For the initial setup and maintenance, you need an in-depth understanding of network protocols and may benefit from guidance from the technical assistance partner.

Note: Within the *Surveda* tool, channels are configured at the account level. This means channel configurations can be reused across projects and surveys. However, channels should not be used at the same time for more than one survey. If you have two surveys running at the same time, you'll need to use two channels. You should only reallocate a channel to another survey after the survey has completed.

4.7 Information: Components of the Survey Tool

4.7.1 Summary

Surveda is a tool for developing questionnaires, executing and monitoring multimodal surveys, and exporting the results. The *Surveda* tool consists of four primary components: projects, surveys, questionnaires, and channels. These are building blocks of the tool. This section describes these components and the relationships among them.

4.7.2 Project

The project is a place to create surveys and questionnaires. Creating a project is the first step you will take when designing a survey. The project itself is very basic, but it serves an important purpose to organize resources for running surveys.

As shown in Figure 6, a project can house multiple surveys and questionnaires. Once created, surveys and questionnaires are fixed in a particular project (i.e., they cannot be moved across projects).

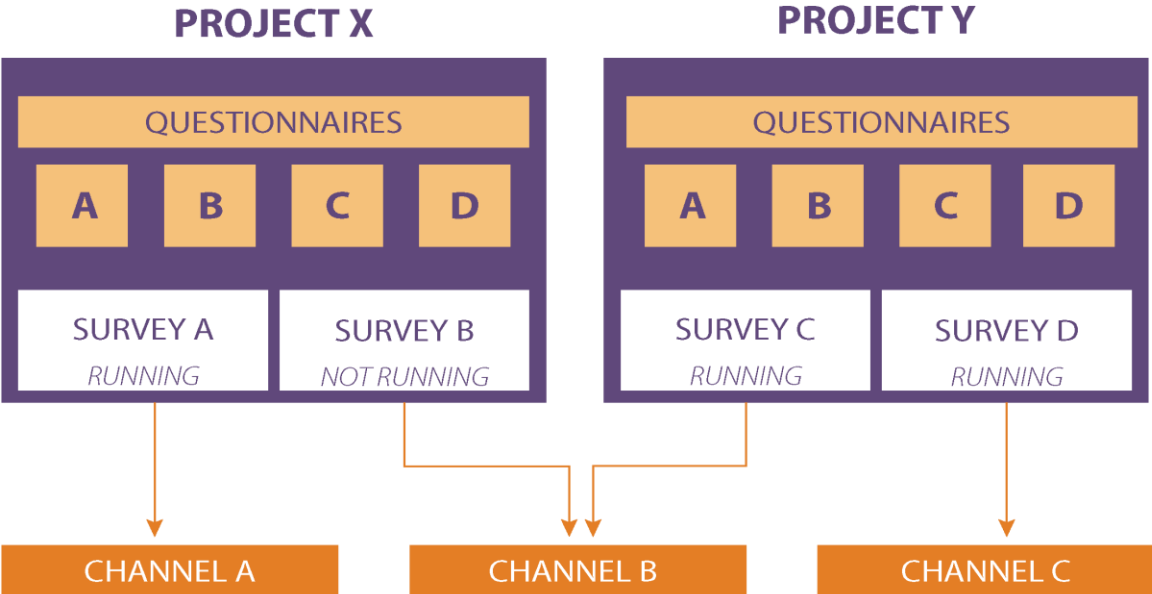
You can share projects across multiple users. You can create as many projects as needed, but you should group similar surveys in the same project. For example, a Ministry of Health (MOH) may have a project on “Noncommunicable Diseases” with multiple surveys. That same MOH may have a project on “Health Promotion” with other surveys.

Note: The project name should be short and simple and something that conveys meaning. For example, “Noncommunicable Disease Survey” or “Family Planning Survey.”

4.7.3 Survey

A survey is a set of parameters for how to administer the questionnaire to respondents. These parameters include a list of telephone numbers to be dialed or contacted, the questionnaire, the supported modes, cutoff rules, and start and end information. You can create surveys by clicking on the “Add Survey” button within a project. In *Surveda*, you follow a step-by-step guide to design and run each survey.

Figure 6. *Surveda* Components



4.7.4 Questionnaire

A questionnaire contains one or more questions that the respondent will answer. The questionnaire designer is intended to be simple and easy to use while also allowing for the flexibility to meet various requirements, such as skip logic, language translations, and mode support.

You can assign questionnaires to multiple surveys. In Figure 6, Project X has both Survey A and Survey B. Both of these surveys use Questionnaire C. This ability to reuse questionnaires helps ensure consistency in questionnaire design and may support efficiency across surveys.

While questionnaires can be shared within a project, you cannot share them across projects. For example, Questionnaire C in Project X cannot be used in a survey in Project Y.

4.7.5 Channel

A channel is the mechanism that *Surveda* uses to communicate with mobile network operators or aggregators. When you create the survey, you configure the survey channel in the Select Modes and Channels screen.

You must configure a channel for each mode supported in the survey. For example, if a survey is to support both SMS and phone calls, then you must create two channels, one for each mode. As illustrated in Figure 6, channels exist outside of the project domain, which means that a channel can be used across projects.

4.8 Information: Export Results

4.8.1 Summary

You can export survey data from the *Surveda* tool to calculate survey weights as well as data analysis. *Surveda* supports three file types:

1. **Survey Response File:** A file containing the survey responses, with one record for each respondent.
2. **Disposition History File:** A file containing a full history of disposition codes for each respondent over time.
3. **Complete Call Record:** A file that contains a complete record of all actions for each phone number.
4. **Completed Case File:** A file containing the phone numbers of completed cases. Typically, you use this file to process incentives.

Each file type is available for download in a comma-delimited value (CSV) format, a common file format for use with applications such as Microsoft Excel, Tableau, and statistical packages including Stata, R, or EpiInfo. The following sections describe these file types in more detail.

4.8.2 Survey Response File

The survey response file includes a row for each respondent and columns for each of the questions. This is a convenient format for conducting analysis on the response values along with the final case disposition.

The Survey Response file includes the following information:

- **Respondent ID:** A unique identifier for the respondent. Note that this is not the phone number. The phone number is not included in the file to protect respondent privacy.
- **Survey Data:** Each column contains data from a separate question. The column header is the variable name you enter during the questionnaire design. The values are the actual responses the questionnaire designer defines, not the value that the respondent entered through Short Message Service or Interactive Voice Response. To make analysis easier for multilingual surveys, the value of the exported response is the same for every language.
- **Response Timestamp:** The date and time when each response was received by the *Surveda* tool, as Universal Time Coordinated (UTC).

Final Disposition: The final disposition code for the particular respondent. See Table 4 for examples.

Table 4. Example Survey Response File

Respondent ID	Gender	Age	Disposition
654648321654	Male	22	Completed
654873543549	Female	38	Completed
321687354347	Male		Failed

4.8.3 Disposition History File

The disposition history file contains a row for each interim disposition code and final disposition code assigned for each respondent. This file format is useful for tracking how an individual respondent interacts with the tool. Table 5 lists the supported disposition codes.

Table 5. Disposition Codes in Surveda

Disposition Code	Description
Pending	In the sample, not yet contacted

Disposition Code	Description
Active	Contacted and participant actively responding to survey
Stalled	Contacted, but not replying
Failed	Unable to contact
Completed	Contacted all questions in the survey
Partial	Contacted and completed up to a specific question (if configured by the questionnaire designer)
Ineligible	Not met eligibility requirements as configured by the questionnaire designer.

As shown in Table 6, file format includes the following columns:

- **MPN:** The mobile number of the respondent.
- **Disposition Code:** A standard code to describe the state of the case.
- **Mode:** The mode used (SMS/phone call).
- **Timestamp:** The timestamp of the event as UTC.

Table 6. An Example of the Disposition History File

Respondent hash	Disposition	Mode	Timestamp
777-253-5842	No answer	Phone call	2016-11-14 09:45:11 UTC
777-253-5842	Partial	SMS	2016-11-15 15:56:39 UTC
777-252-9358	Completed	SMS	2016-11-15 15:57:39 UTC

4.8.4 Complete Call Record

The call record audit file is the complete record of all actions for each phone number. It includes everything from the disposition history file (see above), but with additional metadata. The complete record of call includes metadata, or data describing the response, of each response and corresponding contact attempt and mode.

The columns included in the file are:

1. **Respondent ID:** A unique ID for the respondent. As in the other files, this ID is hashed.
2. **Survey ID:** The ID of the survey.
3. **Call ID:** The ID of the call.
4. **Mode:** The mode used.
5. **Channel:** The phone number of the channel used to execute the call.
6. **Disposition:** The disposition of the case after this action.

7. **Action Type:** Contact Attempt/Question/Response
8. **Action Data:** Depending on the action type this column contains the following:
 1. Contact Attempt: Success or failed, along with the reason
 2. Question: The name of the question
 3. Response: The value of the response
9. **Start Time:** The date and time when the action started.
10. **End Time:** The date and time when the action finished.

4.8.5 Completed Case File

The completed case file includes just the phone numbers of the cases that have completed. The primary purpose of this file is to process incentives.

Table 7. Completed Case File

Mobile Phone Number
2120642028
2120652238
2120652256

5. APPENDIX A: GLOSSARY OF GENERAL TERMS

The following are basic terms and concepts associated with *Surveda*.

Channel: A communication channel, or simply channel, refers to the connection made with a mobile network operator (MNO) or aggregator to send out SMS messages or phone calls. A channel is always associated with a single phone number.

Cutoff Rules: Are included in the tool as an option to address non-response sample size adjustments. Based on the required sample size, *Surveda* can halt the survey administration. If you don't select any, the survey will be sent to all respondents.

Experiment: A comparison of two scenarios to evaluate success (i.e., response rate, data quality, etc.).

Incentive: A token of appreciation provided to a survey respondent for completing a questionnaire.

Fallback: A secondary mode of communication that will be implemented if the primary is not successful in reaching the user.

Mode: A way or manner in which a survey is delivered or is experienced by a respondent (e.g., SMS, IVR, mobile web, etc.). Each mode has unique advantages and disadvantages researchers should consider before selecting the best format to implement a survey.

Project: A collection of surveys and questionnaires to which a group of users have access.

Questionnaire: A flow of questions, response options, and logic, with the supporting content text and audio messages to be sent to potential respondents.

Quotas: The minimum number of completed results for specific categories such as age or gender.

Respondent: An individual from the sample that participates in the survey, answering at least one question from the questionnaire.

Sample: A list of mobile phone numbers used to select respondents to participate in the survey.

SMS: Short Message Service, a text messaging service component of most telephone and mobile telephony systems.

Survey: The administration of a questionnaire using mobile phone numbers in order to collect data.