Part 3: Data Collection

Overview

In this Part

This Part covers the following topics

Section 1: Introduction to eSTEPS and Preparation of the Data Collection Environment

Overview

Introduction

This section covers all the tasks that need to be conducted to setup and prepare for the electronic collection of the STEPS survey data.

Intended audience

This section is designed for use by people who have been assigned the following roles:

- Field team supervisors
- Data manager and analysis team
- STEPS Survey Coordinator.

Timeframe

The set up of the data collection environment can be done within a few days.

Task Name	Duration	Month 2
Adapting electronic STEPS Instrument	3 days	
Preparing Android devices and loading electronic STEPS Instrument	2 days	
Testing Android devices	1 day	

In this section

This section covers the following topics:

Introduction

Background

eSTEPS refers to the use of handheld electronic devices for STEPS data collection in connection with the STEPS online data management platform. The WHO STEPS team previously developed a Windows Mobile application for data collection, which has been used by dozens of countries since 2008. As this operating system has since been retired by Microsoft, in 2015 the WHO STEPS team developed an Android application for data collection.

The STEPS Android application provides the primary interface for STEPS data collection, though it works in conjunction with two pre-existing data collection tools:

- ODK Collect: This is a widely used, free, open-source application for electronic data collection. It is installed on the Android device and works seamlessly with the STEPS app.
- Online eSTEPS platform: A web-based, data management site that provides basic data management tools, allowing for remote data submission (via mobile data or wi-fi connection) while field work is ongoing.

Rationale of eSTEPS

eSTEPS provides the following benefits:

- Immediate error-checking during data collection (e.g. inadvertently skipped questions or out-of-range responses);
- Significantly reduced data entry errors;
- Marked reduction of materials to be carried by data collectors (one tablet vs. hundreds of paper instruments);
- No additional data entry needed.

With the change to the Android application, eSTEPS also allows for remote data submission using wi-fi or mobile data connections. This not only ensures greater data security but allows for closer monitoring of field work by the local STEPS Coordinating Committee.

While eSTEPS does require the use of several Android devices (one per data collector), this additional cost is partially offset by the savings in data entry expenses. If resources do not exist to purchase Android devices, consider pooling resources with other teams in your organization. The Android devices can be used for other surveys and therefore they can be made available in your organization as a shared resource. Alternatively, contact the WHO Country or Regional Office to enquire about the possibility of borrowing WHO-owned Android devices for the survey.

eSTEPS support

WHO provides support for eSTEPS and can provide assistance and training as needed.

Creating the electronic STEPS Instrument

Introduction

In order to use the STEPS Android app, the country-specific STEPS Instrument must be translated into the XLSForm format. This is a widely-used survey form standard that allows you to create complex forms in multiple languages using Microsoft Excel. An XLSForm version of the generic STEPS Instrument has been created by the WHO STEPS team. Thus, the generation of the country-specific STEPS Instrument should only entail modifications to the generic instrument file.

XLSForm overview

XLSForm files are Excel worksheets comprised of the following three worksheets:

Work-sheet	Description
Survey	Contains the majority of the instrument content and its overall structure.
Choices	Contains the response options for all multiple choice questions in the instrument.
Settings	Allows for the setting of advanced options for the instrument. This is an optional worksheet but is used in STEPS Instruments to clearly specify the Form ID (see next topic in this Section). If not explicitly named here, the name of the Excel file is used as Form ID.

Survey Worksheet

The image below shows a small sample from the survey worksheet, which will be used here to describe the columns of this worksheet. While only the first 3 columns listed here are mandatory, the remaining columns should be used as well in the STEPS Instrument.

Column	Description
type	Contains the data type for each question and indicates the beginning and end of a group of questions (which may or may not all appear on one screen, depending on the design).

	A	B	C	D	E	F	G	H	I
1	type	name	label::English	constraint	constraint_message	hint	required	required_message	relevant
13	text	pid	Participant ID (PID)				yes		
14									
15	begin group	location_date	Location and Date						
16	integer	I1	Cluster/Centre/Village ID	.>0	ID must be a positive number.		yes		
17	text	I2	Cluster/Centre/Village name				yes		
18	integer	I3	Interviewer ID	.>0	ID must be a positive number.		yes		
19	date	I4	Date of completion of the instrument				yes		
20	end group								
21									
22	begin group	consent_language_name	Consent, Interview Language and Name						
23	select_one y_n	I5	Consent has been read and obtained				yes		
24	select_one lang	I6	Interview Language				yes		${I5} = '1'
25	time	I7	Time of interview				yes		${I5} = '1'
26	text	I8	Family Surname						${I5} = '1'
27	text	I9	First Name						${I5} = '1'

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Survey Worksheet (cont.)

Column	Description
name	Contains the question ID for each question (e.g. I1, I2) as well as the short-hand names of any question groups. The question IDs will serve as variable labels in the final dataset. Note that question groups are not visible in the final dataset.
label	Contains the question text. The text entered here is what the interviewer will see on the question screen on the Android device. If multiple languages in the questionnaire are desired, label columns that are named accordingly can be used, e.g. label::English, label::Spanish, label::French. Also contains the long names of any question groups.
constraint	Contains the limitations for the questions, such as minimum or maximum values or error code values.
constraint_ message	Contains the error message that will appear on the screen when data is entered that does not comply with the constraint logic.
hint	Contains any additional explanatory text to accompany the question text. The text entered here will appear below the question text and will be italicized.
required	Enter "yes" in this column if the question is required. Leave blank if the question is not required.
required_ message	For required questions: contains the error message that will appear on the screen if the data collector tries to proceed to the next question without entering any data.
relevant	Contains the skip logic indicating under what conditions the question should be shown. For example, questions to be asked only of females would have a relevant check of ${C1}='2' (i.e. sex is female).
appearance	Forces grouped questions to appear on the same screen. Enter the text "field-list" on the row containing "Begin group" in the type column to make all questions in the group appear on the same screen.

Choices worksheet

The image below shows a segment from an example choices worksheet.

list name	name	label::English	label::French
y_n	1	Yes	Oui
y_n	2	No	Non
lang	1	English	Anglais
lang	2	French	Français
lang	3	Spanish	Espagnol
lang	4	Arabic	Arabe
m_f	1	Male	Homme
m_f	2	Female	Femme

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Choices worksheet (cont.)

As shown in the image, the worksheet contains a list of response options, grouped together by question. These response options can be used as many times as needed throughout the instrument. For example the Yes/No response options can be used for all Yes/No questions throughout the instrument. A description of each column is provided in the table below.

Column	Description
list name	Contains the name of the list of response options.
name	Contains the numeric value for each response option in the list.
label	Contains the text that will appear for each response options (numeric values in the name column do not appear on the question screen). If the country-specific instrument has multiple languages, be sure to include a label column for each language, as shown in the example image.

Question types

The table below describes the question types used in the standard STEPS Instrument. This is not an exhaustive list of all possible question types in XLSForms. Refer to the website **xlsform.org** for a complete list of all question types.

Type	Description
integer	whole number (non-decimal) input
decimal	decimal input
text	text input
select_one [*option name*]	multiple choice (drop-down list) allowing only one option can be picked; "[option name]" must be replaced with the name of the response option list from the choices worksheet
note	text screen or image
date	date input (can be viewed as calendar)
time	time input
barcode	scan a barcode or QR code

Images

It is possible to insert country-specific show cards directly into the instrument file so that they will appear on the screen of the device.

To insert an image into the country-specific instrument add a new line to the XLSForm where the image should appear (e.g. insert the tobacco show card at the beginning of the tobacco module). Complete the line as described in the following table.

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Images (cont.)

Column	Content
type	note
name	Shorthand name of the show card. This does not appear anywhere in the dataset or on the screen, so any shorthand can be used.
label	Any text that should appear above the show card on the same screen. This can be explanatory text for the data collector to read out loud or just a title. Be sure to complete the label fields of any other languages included in the country-specific instrument.
media::image	The precise file name of the show card (e.g. work_vigorous_showcard.png). If there are multiple languages in the country-specific instrument, this information needs to be repeated in a media::image column for each language (e.g. media::image::English, media::image::French).

Any images listed in the country-specific instrument must be added to the online eSTEPS platform and downloaded to each data collection device with the data collection form.

Testing

It is recommended to thoroughly test the country-specific instrument prior to data collection. In order to install it on a device, follow the instructions in the next topic of this section.

When testing the country-specific instrument, go through the instrument several times, entering different response options each time. Be sure to check not only that all questions are appearing correctly, but also check that all skip logic is functioning correctly and that invalid data cannot be entered in any field. A thorough test of the country-specific instrument should take at least an hour, if not more, depending on its complexity.

Support

Please contact the WHO STEPS team for further assistance in generating the country-specific instrument.

For those wishing to learn more on their own, the website **xlsform.org** is an excellent reference detailing the structure of XLSForm files.

Preparing the online eSTEPS platform

Introduction

A project must be created on the online eSTEPS platform for the survey, which will serve as the web-interface for the management of the survey.

Online eSTEPS project creation

Please contact the WHO STEPS team for assistance in creating a project for your STEPS survey on the online eSTEPS platform. The site address (URL) will then be provided.

Once the project has been created, a user name and password to access the project on the eSTEPS platform will be set up. The country-specific instrument as well as any related images (including show cards) can be uploaded to the eSTEPS project and, during data collection, submissions from data collectors in the field can be monitored.

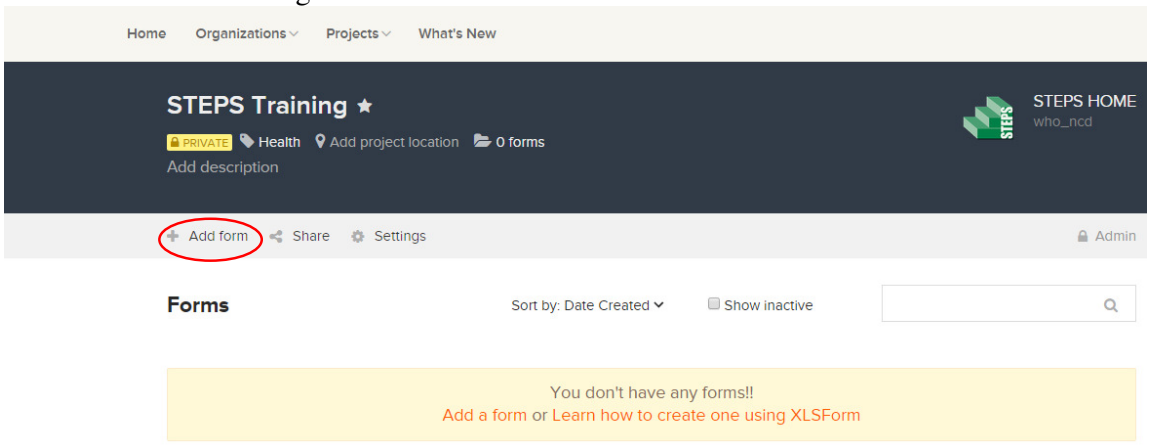
A username and password for the online household database will also be provided, where the household listing information for the survey can be accessed.

Adding forms to the eSTEPS project

Once logged into the online eSTEPS platform, your STEPS survey will be listed as a project. Click on the title of the project to see the instruments (referred to as "forms") associated with the project.

It is possible to have multiple instruments for one survey if Step 3 data collection will be done separately from Step 1 and 2. In this case, one instrument will contain only Step 1 and 2, another one will contain Step 3, and potentially a third one will contain information from urine analyses.

To add a new form to a project, click on "Add form", as indicated in the image below. Then follow the instructions in the pop-up window to upload the XLSForm file to the site. The form may be set as "Active" even if it is still being tested.



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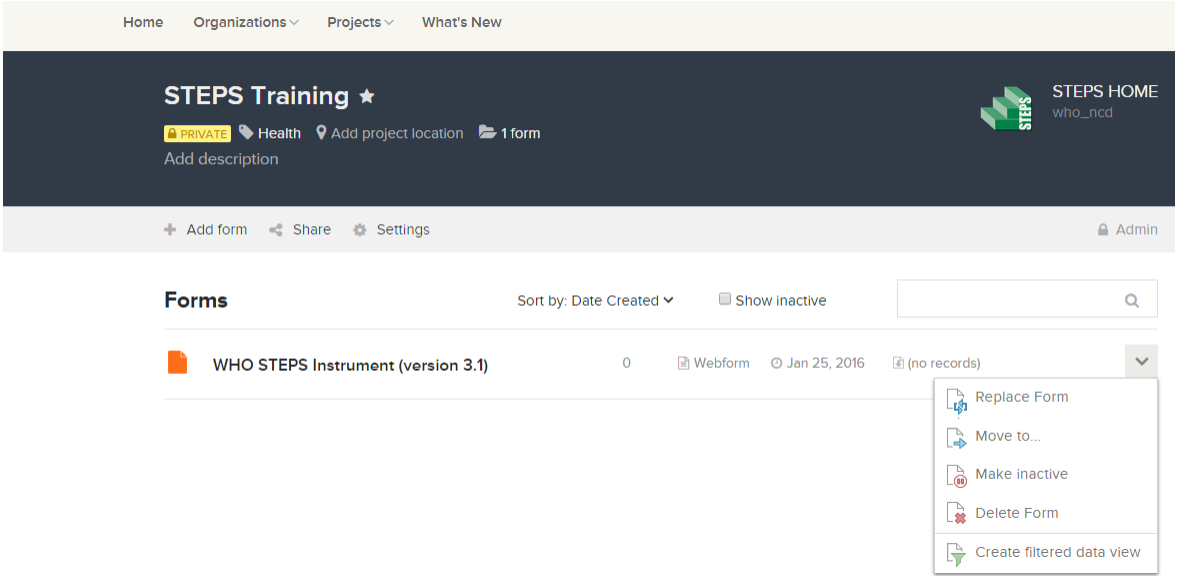
Adding forms to the eSTEPS project (cont.)

If there are any errors in the XLSForm file, you will be informed during the upload process and the upload will not complete. Please contact the WHO STEPS team for help in correcting any errors.

Modifying forms in the eSTEPS project

Once a form has been uploaded to the site, you may wish to modify it during the testing process to correct any issues that have been discovered while testing. Any modifications must be done in the XLSForm Excel file and then this file must be re-uploaded to the eSTEPS project.

To update a form that has already been uploaded to a project, click on the small arrow to the right of the screen and click on "Replace Form" from the drop-down menu that appears (see screenshot below).



Confirm that you definitely want to replace the form and follow the instructions in the pop-up window to re-upload the XLSForm file.

Important: Forms should not be modified once data collection has begun.

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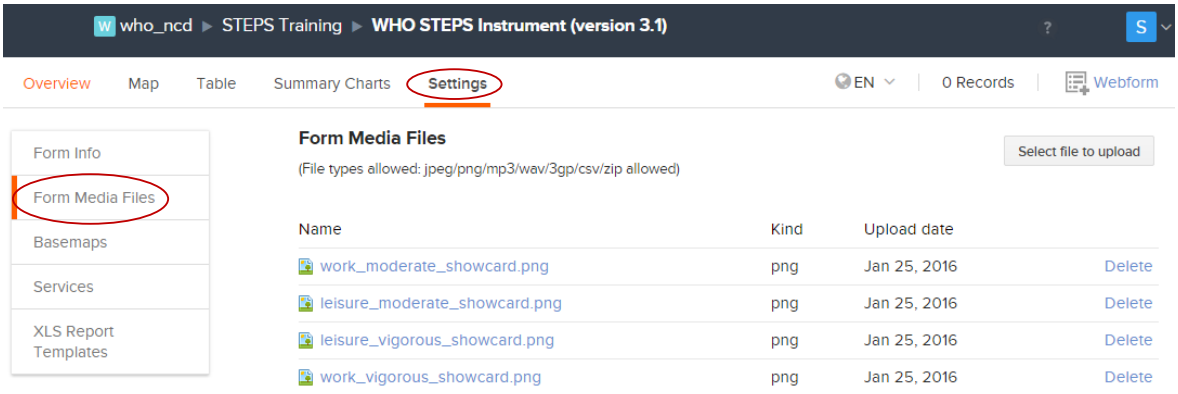
Preparing the online eSTEPS platform, Continued

Adding images (show cards)

If show cards are included in the XLSForm file, these images must be uploaded to the eSTEPS project along with the XLSForm file. Once the form has been uploaded, click on the title of the form, then click on "Settings" towards the top of the screen. On the Settings screen, click on "Form Media Files" on the left-hand side of the screen (see screenshot below).



In the Form Media Files page, all images (show cards) will be listed, if any, associated with the XLSForm file. Click on "Select file to upload" in the upper right-hand corner of the screen to upload additional files. Both .jpeg and .png images are allowed.

Preparing the Android devices

Introduction

In order to prepare the Android devices for data collection, the STEPS app and ODK collect app must be installed on each device.

Setting up the STEPS app

The STEPS app is available from the Google Play store, or from the WHO STEPS team upon request. After installing the STEPS app on an Android device, you will first see a welcome screen and then be asked to pick which app type you wish to use: Household or Participant. These two app types are described in the following table.

App type	Description
Household	Intended for household-based data collection. The data collector will enter all eligible household members and then use the device to select one person from this list to participate in the survey.
Participant	Intended for Step 3 data collection where the participant has been previously selected, or for surveys where individuals have been directly sampled from the sampling frame. The data collector will only need to enter the individual's Participant ID number, their name, age and sex and will then be able to proceed directly to the instrument.

Even though each device will most likely be used exclusively for one type of data collection, it is still recommended to complete the settings for both app types on all devices in the event any device is used for a different type of data collection than originally planned.

The table below describes each of the settings and what to enter for each.

Setting	Description / What to Enter
Survey ID	Unique ID for the entire survey (e.g. Switzerland2015) that is used to identify the household listing data for the survey. **What to enter:** The unique Survey ID for the survey, typically the country name + year.
Device ID	Unique ID number for the Android device. This number is used to generate Household IDs and PIDs, so it is critical that every device used for a survey has a unique number. **What to enter:** The unique Device ID for this particular device, typically devices are numbered 1 through n for each survey.

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Setting up the STEPS app (cont.)

Setting	Description / What to Enter
Starting Household ID	The starting number used to generate Household IDs on the device. **What to enter:** By default, this is automatically set to 1. Normally this should not be changed.
Form ID	The name of XLSForm file to open for this app type. The FormID of your XLSForm file can be found on the Settings tab of the Excel file. **What to enter:** The Form ID for the instrument that should be opened for this app type. Note that it is possible to have a different instrument associated with each app type, i.e. a Step 1 and 2 instrument can be opened when using the Household app type and a Step 3 instrument can be opened when using the Participant app type.
Min and max age	The minimum and maximum ages for participants in the survey. **What to enter:** By default these are set to 18 and 69, modify to the age range of a survey if it has a different age range.
URL to export	This provides the address of the server where the household listing data will be sent when exported from the device. **What to enter:** Do not edit. The URL of the server is automatically entered and must not be modified.
URL to import	This provides the address of the server from which household listing data will be received. This allows for a new device to "inherit" the household listing from another device, in the event a device fails. **What to enter:** Do not edit. The URL of the server is automatically entered and must not be modified.

Important: Once the settings have been entered, be sure to tap "Done" to save the changes to the settings. If you tap on the "X" in the upper left-hand corner, the changes to the settings will not be saved. You can return to the Settings at any time from the STEPS app home screen from the Menu in the upper right-hand corner.

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Setting up the ODK Collect app

After installing the ODK Collect app on an Android device, you will need to modify the settings of the app to ensure the instrument is loaded correctly and to hide a variety of tools to prevent data collectors from modifying them. Follow the instructions in the table below to set up ODK Collect. After completing these steps, you may exit from the ODK Collect app.

Step	Description
1	Open the General Settings by tapping on the menu icon (3 squares) on the ODK Collect home screen.
2	Tap on Configure platform settings in the General Settings screen.
3	Enter the URL for the eSTEPS platform (please contact the WHO STEPS team) and the username and password for your eSTEPS account.
4	Return to the ODK Collect home screen by using the device's back button.
5	Tap on Get Blank Form.
6	Confirm the login information in the pop-up window. Once the device connects to the ODK server, all instruments associated with your Ona account will be visible. Tap on each instrument to select it and then tap "Get Selected". Once the instrument(s) have downloaded, you will automatically return to the ODK Collect home screen. **Important:** Your device must have a mobile data or wi-fi connection activated in order to download the instrument(s). If wi-fi is not available, please contact the WHO STEPS team for an alternative method to put the instrument(s) on a device.
7	Return to the General Settings and modify the Navigation option so that both forward/backward buttons are used as well as swipes. (This is a recommended but optional step.)
8	Return to the ODK Collect home screen and go to the Admin Settings (accessed from the same menu as the General Settings).
9	In the Admin Settings, uncheck all boxes EXCEPT: • Change language (if the country-specific instrument exists in more than one language) • Go To Prompt • Save Form • Mark form as finalized
10	At the top of the Admin Settings, tap on Admin Password to prevent any users from making changes to the Settings. (This is a recommended but optional step.)
11	Save the changes to the Admin Settings by tapping on the menu in the upper right-hand corner.

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Preparing the Android devices, Continued

Additional setup: security	It is strongly advised to install an additional app on the devices to block all apps other than the STEPS and ODK Collect apps. Please contact the WHO STEPS team for current recommendations.
Additional setup: language settings	Both the STEPS and ODK Collect apps are available in English, French, Spanish and Russian. The language in which the app appears depends on the language setting of the device. Thus, in order to change the language of the app, you must change the language of the device. Typically, this can be found under Settings>Controls>Language and Input, but the location may vary by device and Android version. If the instrument is in multiple languages, which language is viewed is not linked to the language setting of the device. Changing the language version of the instrument can only be done once the questionnaire is open by going to the Menu (3 squares icon) visible on the question screens. It is recommended to have the data collectors modify the instrument setting during training (if applicable) as this is a setting they must know how to modify on their own.

Section 2: Data Collectors Training and Pilot Test

Overview

Introduction

This section provides guidance on how to plan, prepare for and deliver the training to the data collection team.

Intended audience

This section is designed for use by people that fulfil the following roles:

- STEPS Survey Coordinator
- STEPS Coordinating Committee
- Data Collection Team
- Statistical Adviser
- IT Specialist/Data Manager and Analysis Team.

Purpose

The purpose of the training is to:

- explain the rationale of the STEPS survey
- ensure a uniform application of the STEPS survey methodology and materials
- prepare data collectors to undertake the fieldwork for the survey
- motivate interviewers and survey staff
- ensure good overall quality of data.

In this section

This section covers the following topics:

Training Workshop

Introduction

A combination of formal classroom training and hands-on experience is required to adequately train staff that has been recruited to work on the STEPS survey.

Training workshop phases and durations

The table below provides a guideline for each of the training phases and durations to cover the material and train participants to a good level of understanding and proficiency in their specific area.

Training phases	Recommended durations
Classroom training	2-4 days
Pilot test	1 day
Refresher prior to start (optional)	1 day
Total	**4-6 days**

Notes: Refresher training may not be required since the gap between the data collectors training, including the pilot test, and the field work should be minimal. Refresher training may be useful if:

- unexpectedly, there is a significant gap between when the classroom training was completed and the start of the survey, or
- the pilot test shows up lots of knowledge gaps and some aspects of the training need to be repeated.

Training content and module durations

Suggested training workshop content and training delivery timeframes for each module of learning are provided in the lesson plan below. It may need adaptation for individual countries.

Participation

The training course is intended primarily for members of the respective data collectors teams. To help with coordination, identifying selected areas and households, and data download from the Android, the STEPS Coordinating Committee, the Statistical Adviser, as well as the IT Specialist/Data Manager and Analysis Team should also attend the training workshop.

Training Preparation

Introduction

Training preparation involves the following tasks:

Task	Description
1	Finding and setting up a suitable training room
2	Scheduling training sessions
3	Coordinating training tasks and events
4	Preparing, printing and distributing training materials
5	Informing participants about workshop content, date, time and location details and prerequisite requirements

Note: Each of these tasks is described further below.

Training location requirements

A training room will need to be located and arrangements made for use over a one week period to train all recruited relevant personnel.

The room should be able to accommodate the number of people being trained, the number of trainers or facilitators, plus several extras, at a time.

Requirements for the room include:
- tables
- chairs
- blackboard, white board or flip chart
- chalk, marker pens, or crayons
- projector
- sufficient room to practice taking physical and biochemical measurements
- props to help with scenarios
- wi-fi or LAN
- several laptops.

Scheduling training sessions

Training sessions for data collection will need to be scheduled in advance to ensure the workshop is well attended and training is provided to all team members before the survey begins.

Each participant should be provided with a letter confirming the workshop agenda, including date and place of training.

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Training coordination

The following coordination tasks will need to be planned for and arranged:

- select a pilot community, ideally not too far from the training workshop site;
- order and arrange tea/coffee and lunches for classroom training sessions;
- book accommodation and arrange transport for the participants (if necessary);
- develop and set up exercises to be used during classroom training;
- determine, develop and compile training and reference materials that will need to be used by workshop participants;
- obtain maps or list of households.

Preparing materials

Prior to training sessions, one set per participant of the relevant materials from the STEPS Manual will need to be printed out. The table below can be used as a guide to the most relevant materials.

Topics	Part, Section
Introduction	Part 1, Section 1
Introduction to eSTEPS and Preparation of the Data Collection Environment	Part 3, Section 1
Data Collection Process	Part 3, Section 3
Collecting Step 1 data: Interviews	Part 3, Section 4
Collecting Step 2 data: Physical Measurements	Part 3, Section 5
Collecting Step 3 data: Biochemical Measurements	Part 3, Section 6
STEPS Instrument	Part 5, Section 1
Question-by-Question Guide	Part 5, Section 2
Show Cards	Part 5, Section 3
Forms for STEPS Field Work	Part 6, Section 2

Participant preparation

Prior to attending a training session, all training participants will need to study the STEPS Instrument and appropriate sections in the STEPS Manual.

Generic training presentations

A set of generic training presentations is available from the WHO STEPS team for the data collectors training. These presentations cover each of the sessions included in the Training Lesson Plan below, but may need some adaptation or translation to the local context.

Training Lesson Plan

Introduction The following lesson plan is a guide for people responsible for delivering the data collectors training. In most cases, this would be the STEPS Survey Coordinator.

Training topics	Duration	Section reference	Outcomes or competencies	Exercises
Day 1				
Introductions, objectives of the workshop, agenda	9.00-9.30	3-2	Establish a new team, set expectations and course agenda.	
Overview and Rationale of the WHO STEPwise approach to NCD risk factor surveillance	9.30-10.00	1-1	Understand NCDs and their key risk factors, importance of surveillance framework, get an overview of what STEPS is and how it works.	
Introduction to the STEPS survey in [...]	10.00-11.00		Presentation by the STEPS Coordinating Committee on how the STEPS approach was adapted to the local context. Get a clear idea on scope and methods of the country-specific STEPS survey.	
Interview tracking, Reaching and Approaching selected households	11.00-12.00	3-3 6-2	Understand the importance of interview tracking (e.g., tracking of non-response) and know how to use the Interview Tracking Form. Understand how the information from the Interview Tracking Form will be used in data analysis. Competently follow procedures for reaching and approaching households.	Talk through examples on how to fill in the Interview Tracking Form. Scenarios, moving from simple to more difficult.
Lunch				

Training topics	Duration	Section reference	Outcomes or competencies	Exercises
Introduction to eSTEPS	13.00-13.30	3-1	Understand the basics of electronic data collection. Get familiar with the basic components of the Android devices for data collection.	Basic practice with the Android devices for data collection.
Selection of an individual within a selected household	13.30-15.30	3-3	Understand how an individual within a selected household is selected, know how to use the Android devices for data collection to do this.	Practice selection of an individual within selected households using the Android devices for data collection.
Informing participants and obtaining consent	15.30-16.30	3-3 6-2	Know why and how to inform participants in detail. Understand ethical considerations and their relevance for interviewing. Follow guidelines to obtain consent.	Practice how to inform participants and obtain consent. Scenarios with e.g. reluctant, objecting, unwell, or over-busy respondents.
Interview skills	16.30-17.00	3-4	Understand and demonstrate good interview practices.	Use scenarios to demonstrate how responses can be swayed by different interview techniques.
Day 2				
Review of day 1, warm up	9.00-9.30		Recognize previous day's learning. Identify and handle any queries.	
STEPS Instrument, Question-by-Question Guide and show cards	9.30-12.00	5-1 5-2 5-3	Understand the Instrument, the different risk factors and what they aim to measure, response options (including don't know and refuse), skip instructions and show cards. Understand how to use the Question-by-Question Guide and the show cards.	Talk through the STEPS Instrument and Question-by-Question Guide section by section.
Lunch				
Recording and checking information on the Android devices for data collection	13.00-13.30	3-1	Understand the functions of the Android devices for data collection.	

Training topics	Duration	Section reference	Outcomes or competencies	Exercises
Collecting demographic and behavioural risk factor information (Step 1)	13.30-15.30	3-4	Get familiar with using the Android devices for data collection for interviewing. Understand the questions, know how to clarify. Record responses, deal with different people.	Practice interviews.
Taking and recording physical measures (Step 2)	15.30-17.00	3-5	Assemble equipment and supplies for Step 2 measurements. Measure blood pressure, height, weight, waist and hip circumference. Record results.	Learn and practice on team members, all participants' measure independently then compare results.
Day 3				
Review of day 2, warm up	9.00-9.30		Recognize previous day's learning. Identify and handle any queries.	
Taking and recording physical measures (Step 2), *cont.*	9.30 - 10.30	3-5	Assemble equipment and supplies for Step 2 measurements. Measure blood pressure, height, weight, waist and hip circumference. Record results.	Learn and practice on team members, all participants' measure independently then compare results.
Completing the Participant Feedback Form (Step 2)	10.30 - 11.00	6-2	Understand how to record information on the Participant Feedback Form. Know how to use the BMI Classification Chart.	Practice recording information on the Participant Feedback Form and using the BMI Classification Chart.
Referrals and procedures for biochemical measures (Step 3)	11.00-12.00	3-6 6-2	Know how to make appointments for those selected for Step 3, know what interviewees need to know for Step 3, know how to use forms related to Step 3.	Explain referrals and procedures related to biochemical measures.
Lunch				
Taking and recording biochemical measures (Step 3)	13.00-15.00	3-6	Assemble equipment and supplies for Step 3 measurements. Measure blood sugar and lipids. Record results.	Learn and practice on team members.

Training topics	Duration	Section reference	Outcomes or competencies	Exercises
Completing the Participant Feedback Form (Step 3)	15.00-15.30	6-2	Understand how to record information on the Participant Feedback Form.	Practice recording information on the Participant Feedback Form.
Check-list for equipment and supplies, checking paperwork	15.30- 16.30	3-5 3-6 6-2	Know what documents, equipment and supplies are needed for field work. Know how to organize the material.	Explain all equipment, supplies and documents and how to organize the material.
Wrap-up and discussion	16.30-17.00		Review of most important issues that arose during training, discussion.	Wrap-up, clarify all questions that have not been answered during the training.
Day 4				
Review of day 3, warm up	9.00-9.30		Recognize previous day's learning. Identify and handle any queries.	
Preparing pilot test	9.30-10.00	3-2	Clarification of final questions before interviewers do the pilot test.	
Pilot test	10.00-16.00	3-2	Major aspects of data collection thoroughly tested. Identify weaknesses or failures in current systems and processes.	Go to a residential area, with a pre-determined sampling plan. Participants do a complete run-through of whole data collection process.
Discussion and closure of workshop	16.00-17.00		Reporting of issues and experiences from the pilot test.	

Training Delivery Tips

Introduction

The training delivery tips below may be useful for those that have been assigned the role of training, but are not in fact trained trainers.

Introductions and warm up

Before the training starts, it is important for team development to introduce yourself and find out a little about the people in the room. Use the table below to help with the introductions.

Step	Action
1	Introduce yourself and any other co-trainers to the participants.
2	If you don't already know everyone in the room, or they don't know each other, get each participant to briefly introduce themselves (or a person beside them).
3	Ask participants and adapt according to the class: • what they understand by 'noncommunicable disease risk factors'; • what they think the biggest NCD health issues are in their country or area; • in what ways do those diseases impact on the health and welfare of the people in their communities. **Note:** Write the responses on a board. Acknowledge that there is not necessarily a 'correct' answer, it varies by time and community. Encourage discussion so you can gauge the level of understanding that the staff already have. The staff can begin to learn on what they and their colleagues will be working.
4	Ask participants if they have any questions or topics they would really like to have covered in the training. **Note:** Write the responses on the board and try and answer them during the training workshop.

Course agenda and setting expectations

Participants will need to know what to expect in terms of training content, how long it will take and what is expected of them during the workshop. Use the table below (and lesson plans) to help explain the agenda and set expectations:

Step	Action
1	Explain the aim of the training.
2	Outline what will be covered.
3	Tell them how long the training will take.
4	Explain what is expected of them during training.

Continued on next page

Using material

The STEPS Manual has been structured into modular sections that can be easily extracted and recompiled to provide customised manuals for training.

The manual content has been designed for use as both training material and in the field reference.

Exercises

Exercises should be created that:

- are relevant to the local environment
- support the training material
- work through typical problems and issues that are likely to be encountered
- allow for hands on practice.

Encouraging participation

The workshop is not about how much you as the trainer fill it with content, but how much the participants take away in new learning and understanding of skills.
Continually encourage all attendees to participate. Use the table below for guidance.

Topic	Guidance
Comfort zones	Acknowledge that participants may be asked to do things out of their comfort zone (particularly in the interviewing session where scenarios are an important part of training).
Criticism	Ensure participants are not criticised or demoralised when offering comments and questions.
Experience	Develop or build on participants own experiences and understandings.
Fears	Recognize fears and concerns and offer strategies to handle them.
Support	Offer praise when appropriate and support when participants demonstrate feelings of inadequacy or difficulty.
Strengths and weaknesses	Assure everyone that we all have strengths and weaknesses and that they have been selected as a team, with skills that complement those of others.
Team work	Encourage teams to work together and communicate well.
Being self reliant	Once the survey starts, there will not always be an "expert" available to answer questions. Participants must understand enough to be self reliant and know when to seek advice or help from others.

Continued on next page

Beginning and ending sessions

It is always helpful to introduce each session with an introduction covering:

- the previous work that builds a foundation for this session
- the content and purpose of the session
- briefly the resources and format to be used.

At the end of the session, summarise:

- what topics and skills have been covered;
- whether that is the end of that topic or a future session will cover further material;
- acknowledge areas of good progress, but also areas where further work will be required.

Handling problems and participation issues

Use the guidance in the table below to help with some typical problems encountered in the training environment.

Problem/ situation	Guidance
Late arrivals	Recap briefly what has just been covered and politely make it clear that you want all participants to be punctual.
Interruptions	Remain patient at all times.
Participant does not seem to follow and understand.	Show patience and understanding. Repeat the point/topic in a different way and then ask if the participant understands better.
A participant is dominating the sessions, making it difficult for others to participate and learn.	First try commenting during discussions that you'd like everyone to contribute, even use the phrase "let's hear from someone else this time". If that does not achieve anything, take the staff member aside during a break and suggest that others also need to participate. Give a little praise, if warranted, about their grasp of the topic, but state that, as the trainer, you need to hear from other participants, too.
Participant is not keeping up with the others, or appears unable to "engage".	During a break, seek out the staff member to see whether anything is wrong, or if they are finding anything particularly difficult. If so, a short "catch-up" session may help. If the participant is unwell or troubled it might be best if they leave.

Continued on next page

Celebrating milestones

Within the context of the training workshop, as in the conduct of the survey itself, recognize milestones to encourage the participants and to help develop a sense of "team-ship".

Think particularly of those who may be regarded as outsiders in any way – perhaps they are from out-of-town, are not known to other members of a group, or are of a different language group or cultural background – who may be more hesitant to participate.

You may like to have markers of effort, mastery, achievement or other contribution - use your imagination to select small gifts, snack food treats or certificates to award to participants.

Pilot Testing

Introduction

A pilot test of the entire data collection process must be conducted among a limited number of people with a broad range of backgrounds prior to implementing the actual survey. It involves all aspects of the survey including:

- approaching selected households
- explanation of the purpose of the visit
- selection of an individual within the household
- interview tracking
- seeking and obtaining informed consent
- making arrangements/appointments for data collection
- site preparation and set-up
- collecting all needed data
- identifying participants who may need follow-up.

When to conduct pilot test

Ideally, the pilot test should be conducted as soon as the translated versions of the country-specific Instrument and all other interview materials are ready.

In practical terms, however, it is recommended that it be conducted after the recruitment and training of data collection staff so trained interviewers can be used during the pilot. This will ensure interviewer consistency and test interviewer skills prior to the main survey.

Test group

The test group should include the following:

- at least 2-3 people per trained data collection staff
- both men and women
- cover age range used in STEPS
- more than one ethnic or language group (if applicable)
- people with differing levels of education
- people from a range of socio-economic groups.

Test environment

Where possible conduct the pilot test under realistic field conditions.

Timeframe

When planning the pilot test, allow sufficient time for adjustments to be made prior to starting data collection.

Continued on next page

Conducting the pilot test

Follow the steps below to conduct the pilot test with each participant.

Task	Description	✓
1	Approach selected households.	
2	Brief household members on purpose of the survey.	
3	Select a participant from all eligible members within a selected household.	
4	Record information on the Interview Tracking Form.	
5	Inform the selected participant using the Participant Information Form and obtain written consent.	
6	Conduct the interview and record results for Step 1.	
7	Take measurements and record results for Step 2.	
8	Fill in Participant Feedback Form on results of Step 2 measurements for the participant.	
9	Make appointment for Step 3 (if applicable), provide instructions for urine sampling and inform participant on fasting.	
10	Report any difficulties to supervisor.	

Feedback

At the end of each interview, ask the participant the following questions and record their feedback:

- Did any of the questions make you feel uncomfortable?
- Did you understand all the words?
- How clear was the intent of the questions?
- Did you know what was being asked?
- How could we make it clearer?
- How else could we improve this survey?

Evaluation and refining the Instrument

On completion of the pilot test:

- compile all participants' comments into a single report;
- where necessary, adapt and refine the country-specific STEPS Instrument - taking care not to change intended meanings;
- send the country-specific STEPS Instrument to WHO STEPS Team for comments and quality assurance.

Section 3: Data Collection Process

Overview

Introduction

This section gives an overview of the data collection process in the field. It covers supervision of data collection and provides step-by-step instructions regarding the sequence of interviewer's tasks during the field work before an interview with a participant starts.

Intended audience

This section is designed for use by those fulfilling the following roles:

- Field team supervisors
- Data collection staff
- STEPS Survey Coordinator.

Timeframes

Data collection takes approximately 10-12 weeks. This depends, however, on the number of staff available as well as on the logistics in a country.

In this section

This section covers the following topics:

Supervising Data Collection

Introduction

Members of the data collection team may have different levels of skills, experience and varying strengths and abilities. To ensure high standards of data collection, appointing field team supervisors to lead and supervise the data collection teams is necessary.

Core tasks

The core tasks of a field team supervisor are provided in the checklist below.

Role	Description
1	Obtaining and preparing household lists and maps for each area, or other lists to be used as the sampling frame, data collection forms, devices for data collection, supplies and equipment, and distributing them to data collectors
2	Coordinating logistics and assigning interviewers to households in each cluster or primary sampling unit
3	Making travel arrangements for data collectors
4	Informing local authorities about the survey
5	Supervising the interview process and recording daily activities
6	Ensuring data quality
7	Ensuring regular submission of the data to the server
8	Managing human resource performance and issues
9	Sending regular progress reports to STEPS Survey Coordinator

Note: The core tasks are further described below.

Obtain and manage household lists and maps

The field team supervisors will need to obtain household lists and maps of the selected clusters from the Statistical Adviser or the STEPS Survey Coordinator, manage them, and provide them to the data collectors during the field work.

Coordinate logistics and assign interviewers to households

Create a plan for visits to the enumeration areas to be surveyed, and assign data collectors to each household:

- schedule the data collection team to complete the survey of one enumeration area before moving to another;
- assign data collectors to each household within the enumeration area;
- schedule time to revisit households within each enumeration area to finish interviews;
- keep a record of all interviewers that need transport and schedule the transport;
- keep track of which enumeration areas and households were visited.

Continued on next page

Supervising Data Collection, Continued

Making travel arrangements for data collectors	The field team supervisors are responsible for making travel arrangements for the data collectors to move within selected enumeration areas from household to household, and between selected areas.
Contact local authorities	The field team supervisors will need to contact appropriate local authorities to inform them about the survey and gain their support and cooperation.
Supervise interview process and record daily activities	Interviewers should use the Interview Tracking Form, available in Part 6, Section 2, to track household and participant response information on a daily basis. Collect and review the forms regularly to track process and recording quality. To ensure high-quality data collection, the supervisor will need to observe a certain proportion of the interviews conducted by each interviewer, particularly at the beginning of the data collection period. The proportion may vary depending on the interviewers' experience, the timeframe and the budget involved.
Ensuring data quality	The supervisors should check that data have been recorded properly by the data collectors in their team, and ensure proper follow up for unavailable selected participants and unfinished interviews.
Regular data submission	It is strongly recommended that field team supervisors ensure that all data collectors in their team submit their data electronically at the end of completion of the each enumeration area or least once a week. A wi-fi connection is needed to send data electronically. If data collectors have periodic access to a wi-fi connection during data collection, they can submit their data electronically whenever they have a connection.
Manage Human Resources	Manage and support the data collection team to ensure : • good quality interviews are conducted and all data are complete; • interview timeframes are adhered to; • interviewers are supported if any issues arise in the community or with individual participants; • performance issues are dealt with appropriately; • confidentiality of all STEPS material is respected at all times; • feedback is provided to data collection staff; • any leave is appropriately covered.

Continued on next page

Supervising Data Collection, Continued

Progress reports

During the data collection stage, field team supervisors will need to provide regular updates to the STEPS Survey Coordinator. This should include:

- updates on progress against scheduled data collection timeframes
- issues and problems encountered.

Sequence of Data Collector's Tasks

Introduction

Data collection starts in the field only when the actual planning of the STEPS survey has been done, and all data collectors have been trained. Each of the stages for data collection needs to be undertaken appropriately to ensure accurate data is being collected.

Interviewers have a key role to play in the STEPS survey. The quality of the data collected and therefore the available results depends on successful interviews done correctly.

Interviewer Tasks during Data Collection Process

An overview of the tasks of an interviewer are included in the following checklist.

Task	Description	✓
1	Approach selected households.	
2	Brief household members on purpose of the survey.	
3	Select a participant from all eligible members within a selected household using the Android Device.	
4	Record information on the Interview Tracking Form.	
5	Inform the selected participant using the Participant Information Form and obtain written consent.	
6	Conduct the interview and record results for Step 1.	
7	Take measurements and record results for Step 2.	
8	Fill in Participant Feedback Form on results of Step 2 measurements for the participant.	
9	Make appointment for Step 3 (if consent given), provide instructions for correct collection of urine sample and inform participant on correct method of fasting.	
10	Report any difficulties to supervisor.	

Continued on next page

What the interviewer will need

The forms and resources the interviewer will need for data collection are listed in the following checklist:

For Step			Form	✓
1	2		Map or list of households in sample	
1	2		Name tag	
1	2		Notification of WHO STEPS survey visit	
1	2	3	Participant Information Form	
1	2		Consent Form 1	
		3	Consent Form 2	
1	2		Interview Tracking Form	
1	2	3	Question-by-Question Guide	
1	2		Show cards	
		3	Step 3 Appointment Card (with map if necessary)	
		3	Instructions for Spot Urine Collection	
		3	Fasting instructions	
	2		Participant Feedback Form (Step 2)	
		3	Participant Feedback Form (Step 3)	
		3	Step 3 Registration Form	

Approaching Selected Households and Participants

Introduction

For Step 1 and Step 2 of the Instrument, the interviewers will need to physically visit individual households to conduct the survey.

Contact process

See the table below for an overview of the contact process.

<table>
<tr><th>Stage</th><th>Description</th></tr>
<tr><td>1</td><td>Obtain household lists with associated addresses (and map if necessary) from your supervisor.</td></tr>
<tr><td>2</td><td>Physically approach the household.</td></tr>
<tr><td>3</td><td>
<table>
<tr><th>If …</th><th>Then …</th></tr>
<tr><td>Nobody is home</td><td>Leave a Notification Card and record on the Interview Tracking Form.</td></tr>
<tr><td>Somebody is home</td><td>Introduce yourself and exchange greetings.</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Explain the reason for your visit and purpose of the STEPS survey.</td></tr>
<tr><td>5</td><td>Record each eligible person living in the household between the ages of 18-69 on the Android device for data collection.</td></tr>
<tr><td>6</td><td>Select one household participant using the electronic device for data collection.</td></tr>
</table>

Note: Each of these stages is described in more detail below.

Procedure of approaching the household

Contact attempts must be made by actually making yourself noticeable to the household; simply walking by and thinking that no one is at home cannot be counted as an attempted contact.

Use the following table to help with different situations when you approach the household.

If…	Then…
Someone is at home	Speak to the first adult you encounter in the household. Verify that they live in the household and then explain the purpose of the visit.
Nobody answers	Look around to see if someone is nearby.
Nobody is at home	Leave a notification of WHO STEPS survey visit and record details in the Interview Tracking Form (see below how to complete this form).
Household members are not available at the time of the first visit.	Make at least 2 different visits to obtain an interview. Choose times that are different – early morning or late afternoon.

Continued on next page

Recording household details

Record if anyone is home and the date and time of the visit on the Interview Tracking Form. See "Completing the Interview Tracking Form" on page 3-3-13 below.

Introducing yourself

Make sure your name tag is attached and clearly visible.
Introduce yourself and explain the reason for your visit as follows:

> My name is _____ and this is_____. We are employees of the <Ministry of Health> and we are working in a team to conduct a survey on health issues. We are hoping that the people in this household will participate in this survey. We would like to find out the number of people usually residing in this house between the ages of 18-69. Can you please give me the first name of those who usually live in this house between the ages 18-69 (starting, for example, with the oldest male)?

Explaining purpose of the survey

Explain that the purpose of this study is to determine the extent of noncommunicable disease (NCD) (i.e. long-standing diseases not caused by infections) risk factors in your country. These risk factors include:

- tobacco use
- alcohol consumption
- low intake of fruit and vegetable
- diet high in salt
- insufficient physical activity
- obesity
- raised blood pressure
- raised fasting blood glucose
- high levels of fat in the blood.

Explain that once the survey data has been collected and analysed, this will help your health services plan and determine public health priorities to:

- prevent NCD epidemics before they occur
- monitor and evaluate population-wide NCD programmes.

Selecting a Participant within a Selected Household

Introduction

From each selected household, one participant needs to be randomly chosen. The STEPS app on the Android device will assist you in performing this selection.

Create a new household

Prior to selecting a participant within a household, an entry for the household must first be made in the STEPS app. To create a new household simply tap on "Add New Household" on the STEPS home screen. You can then add a contact phone number or any comments (e.g. how to locate the household) pertaining to this household. Entering this information is optional.

Enter all eligible household members

To add a new household member, tap on "Add New Member". Then enter the individual's name, age, and sex.

Continue to add new household members until all eligible members have been listed. Even if there is only one eligible household member, a household entry must be created and that person must be listed as (the sole) household member.

Eligibility criteria for household and members of the households to be included in the survey will need to be defined in advance of the fieldwork.

Select participant using the electronic device for data collection

Once all eligible household members have been added to the household, confirm that the list of eligible members entered on your Android device reflects the eligible members of this household. Once you have confirmed the accuracy of the list of eligible household members, simply tap on "Select Participant" to select one household member at random.

The selected participant will be highlighted on your screen and you will be given the option to conduct the interview now, defer the interview for a later time, or a refusal.

While there is an option at this point to cancel the selection, this option should be used very rarely, in the event that an error has been made in the household listing. This option should never be used in the event of a refusal. Note that canceled selections are recorded by the device and submitted to the server along with the household listing data so that canceled selections can be monitored by the local STEPS Coordinating Committee.

Informing Participants

Introduction

After having chosen a survey participant from a household, this participant needs to be informed on the details of the study before he/she will be asked to sign the Consent Form. For informing the participant, the Participant Information Form can be read out (see Part 6, Section 2).

Explaining aim of the survey

Explain that the aim of the survey is to determine population levels of major NCD risk factors. Also explain how the information will be used, i.e. for policy making in order to decrease risk factor levels.

Explaining survey process

Explain that you will collect information from a number of pre-selected households throughout the country. Explain how data will be collected, as appropriate, i.e. through:

- interview questions (Step 1)
- measurements of blood pressure, height, weight, waist, and hip (Step 2)
- urine samples and blood tests for sugar and fats (Step 3).

Explaining collection methods

Use the table below to help run through the whole data collection process with the participant:

Stage	Description
1	Step 1, asking questions about participant's: • age; • education, ethnicity, marital status; • employment, income; • tobacco and alcohol use; • fruit and vegetable intake, salt in diet; • physical activity; • knowledge and history of raised blood pressure, diabetes, raised total cholesterol, cardiovascular diseases; • lifestyle advice; • cervical cancer screening
2	Step 2, taking the following measurements: • blood pressure and heart rate • height and weight • waist and hip circumference.
3	Step 3, taking urine samples to determine urinary sodium, and a small amount of blood from a prick on your finger to determine blood sugar and blood lipid levels.* ***Note**: This may cause some mild pain
4	Respond to any questions the participant may have.

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Survey timeframe

It is estimated that each part (i.e. Step 1, Step 2 and then, Step 3) of the survey will take approximately the following timeframes:

Step	Timeframe
1	30 to 45 minutes
2	20 minutes
3	10 minutes

Other items to explain to participants

Use the table below to help explain to each participant the benefits, their rights and how confidentiality will be handled.

In terms of…	You will need to explain to each participant that…
Community benefits	The results of this study will be used to assist the Ministry of Health develop public health programs that target efforts to lower the risk factors that lead to NCDs.
Individual rights	Participants may: • decline to take part in the study; • withdraw their consent at any time; • not answer any questions in the interview that they do not wish to answer.
Confidentiality	• Participants should provide their name and contact information so they can be contacted if there is any problem following the analysis of the information and follow-up is necessary. • Participation and data provided will be completely confidential. • While the data from this study may be sent elsewhere for analysis, no personally identifiable information will be provided for this analysis. • Their name and their household or village will not be used in any report of the study.

Obtaining Consent

Introduction

Each participant must provide both verbal and written consent before taking part in the survey.

Obtain consent

For those who will take part in the survey, follow the steps below to obtain verbal and written consent.

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Use the following table to select the appropriate consent form for each person taking part:

<table><tr><th>In…</th><th>Then use Consent Form…</th></tr><tr><td>Step 1 and 2 only</td><td>1</td></tr><tr><td>Step 1, 2 and 3</td><td>1 and 2</td></tr></table>
Note: See Part 6, Section 2 for suggested drafts of consent forms.</td></tr>
<tr><td>2</td><td>For each participant, use two copies of the consent form(s) as follows:
• one for the participant to keep
• one for the STEPS coordination office.</td></tr>
<tr><td>3</td><td>Allow the participant to read the consent form(s) or, in case of poor eyesight or illiteracy, read it out to them.</td></tr>
<tr><td>4</td><td>Use the table below to help with the following situations:

<table><tr><th>If…</th><th>Then...</th></tr><tr><td>The intended participant declines to take part in the survey or parts of it.</td><td>Ask the participant whether he/she understands the purpose of the survey.</td></tr><tr><td>The participant does not understand the purpose of the survey or specific aspects of it.</td><td>Rephrase the purpose of the survey and try to clarify further.</td></tr><tr><td>The participant understands the purpose of the survey and the still declines to take part.</td><td>Circle “Refused” in the consent form and record age and sex as best you can.*</td></tr></table>
*This means that the household member will not participate in the survey. However, you must still include him / her in the Interview Tracking Form, then move to the next selected household.</td></tr>
<tr><td>5</td><td>Get the participant to sign both copies.</td></tr>
<tr><td>6</td><td>As the interviewer, you must sign as a witness.</td></tr>
<tr><td>7</td><td>Thank him/her for agreeing to take part in the survey.</td></tr>
</table>

Completing the Interview Tracking Form

Introduction

You need to record every household visited on the Interview Tracking Form.

For a copy of the Interview Tracking Form, see Part 6, Section 2.

Purpose of Interview Tracking Form

The purpose of the Interview Tracking Form is to document and be able to report on:

- number of households visited;
- number of eligible individuals in each household;
- Participant ID;
- if the participant was at home on either the first or second visit;
- age group and sex of the participant;
- participant eligibility for Step 1, Step 2, and Step 3 and if they consented or declined each step;
- appointment date and time for a scheduled interview (in case participant was not at home at the first visit);
- individual comments.

Note: The Interview Tracking Form is used during analysis. If this form is not used, you will not be able to properly weight your data which will reduce the quality of your results.

Completion guidelines

Depending on the sample design the Interview Tracking Form may already be partially completed (see Part 2, Section 2 "Preparing Data Collection Forms"). Use the following table for guidance on how to finish completing this form.

Column	Guidelines for completion
Cluster ID	ID code associated with the cluster. Separate forms need to be used for different clusters.
Household ID	Use the predetermined codes, see Part 2 Section 2.
Number eligible in household	Record the number of eligible people (aged 18 to 69) in the household.
Participant ID	Mark the Participant ID that is generated by the Android device.
At home (visit 1 and visit 2)	• If participant is at home, then mark "Y". • If participant is not at home, then mark "N".
Male/female by age group	Mark an "X" in the box according to the sex and age group of the participant.

Continued on next page

Completing the Interview Tracking Form, Continued

Completion guidelines (cont.)

Column	Guidelines for completion
Step 1 (Yes, Decline)	Mark an "X" in the appropriate column if participant has agreed to participate or declined Step 1.
Step 2 (Yes, Decline)	Mark an "X" in the appropriate column if participant has agreed to participate or declined Step 2.
Step 3 (Yes, Decline)	Mark an "X" in the appropriate column if participant has agreed to participate or declined Step 3.
Appointment Time	If you schedule an appointment with a participant, record the date and time here.
Individual Comment	Free area for interviewers to record comments. Some reasons to use this field may be that: • The interview got interrupted (in this case, the interviewer should note the Instrument code of where the interruption occurred); • Participant has a communication problem (e.g. speaks a local dialect only, has hearing impairment); • Participant refuses to consider participation; • Participant is ill, cannot obtain consent; • Participant has a disability; • Participant cannot miss work; • Participant refuses to take part in Step 3 (e.g. is afraid of needles or has cultural/religious preference not to provide blood).

Notes:

- If a country altered the age range of the survey, these changes will need to be reflect on the interview tracking form (for example, if the sample is for ages 18+ years, one or two columns need to be added to the tracking form).
- If a country decides to report on less than 4 age groups per gender, the age group columns need to be removed and modified accordingly.
- If a country does not do Step 3 measurements, the Interview Tracking Form should be altered by removing the corresponding columns.

Section 4: Collecting Step 1 data: Interviews

Overview

Introduction

The quality of a STEPS survey results and their usefulness for intra- and intercountry comparisons largely depends on the quality of the interviews. This section provides generic guidelines for interviewers.

Intended audience

This section is designed for use by those fulfilling the following roles:

- Interviewers
- Field team supervisors
- STEPS Survey Coordinator.

Purpose

The purpose of this section is to cover:

- interview skills;
- how to interview participants;
- how to complete participants' Instruments by entering data into the Android devices;
- how to use the Question-by-Question Guide;
- how to use the show cards.

Learning outcomes

The learning outcome of this module is to conduct consistent and effective interviews and record accurate data.

In this section

This section covers the following topics:

Interview Skills

Introduction

The STEPS interview is about finding out and recording a list of facts and behaviours relating to selected participants.

The participant needs to feel comfortable about the survey and can refuse to be interviewed as participation is voluntary. An interview should therefore be as natural as possible and conducted politely, like a normal conversation.

Behaviour and tact

The table below provides guidelines on appropriate behaviour during an interview:

Behaviour	Guidelines
Respect confidentiality	Maintain the confidentiality of all information you collect.
Respect participants time	You are asking participants for their time so be polite and prepared to explain.
Tact	If you feel that a person is not ready to assist you, do not force them but offer to come back later.
Friendly disposition	Act as though you expect to receive friendly co-operation and behave accordingly.
Body language	Maintain good eye contact and adopt appropriate body language.
Pace of interview	Don't rush the interview. Allow the participant enough time to understand and answer a question. If pressured, a participant may answer with anything that crosses their mind.
Patience	Be patient and polite at all times during the interview.
Acceptance	No matter what the responses to questions are, do not be judgemental of a participant's lifestyle. Expression of any criticism may lead to refusing or concealing important information.
Appreciation	Thank them for their help and cooperation.

Continued on next page

Asking questions

The table below provides guidelines for asking questions in an interview:

Topic	Guidelines
Issues relating to NCDs and their risk factors	Do not discuss or comment on issues relating to NCDs and their risk factors. Participants may not give correct answers to the questions but give the answers they think the interviewer is looking for.
Right or wrong answers	Point out that there are no right or wrong answers and that the interview is not a test.
Biased answers	Ask your questions according to guidelines given in the Question-by-Question Guide to avoid biased answers and ensure comparability of data (see Part 5, Section 2).
Read all options	Where stated, all options must be read to the participant except for Don't know/Don't remember, Refused, and Other.
Reading questions	Questions should be read: • as they are written in the text; • slowly and clearly emphasizing key words in bold; • in a pleasant voice that conveys interest and professionalism; • entirely to make sure the participant has heard it completely. Do not change the: • wording • order of the questions.
Making assumptions	Don't make assumptions about the participants' answers with comments such as "I know this probably doesn't apply to you, but…". This practice may prevent accurate and unbiased information.

Continued on next page

Providing clarification

The interviewer may need to provide clarification when the participant:

- is unable to answer the question asked;
- does not seem to understand the question and gives an inappropriate reply;
- does not seem to have heard the question;
- is taking a long time to answer the question and hesitates;
- asks about a specific part of the question to be repeated (it is acceptable to repeat only that part);
- asks for one option to be repeated (read all options again but you may omit one option if it has clearly been eliminated by the participant);
- asks for one term to be clarified (refer to the explanations provided in the Question-by-Question Guide).

When to probe further

The interviewer will need to probe further to get an appropriate response when the participant:

- seems to understand the question but gives an inappropriate response
- does not seem to understand what is asked
- misinterprets the question
- cannot make up his or her mind
- digresses from the topic or gives irrelevant information
- needs to expand on what has been said or clarify the response
- gives incomplete information or an answer is unclear
- says that he or she doesn't know the answer.

Continued on next page

Common responses that need probing

The table below lists some common responses that may need further probing:

If the participant replies…	Then…
"I don't know"	Repeat the question.
"I still don't know"	Probe once before recording "Don't know", for example, ask "Could you give me your best estimate".
"I still don't know"	This may mean the participant: • is taking time to think and wants to gain time; • does not want to answer because of personal reasons; • in fact does not know or has no opinion.
"Not applicable"	• ask him/her why the question does not apply to him/her; • all questions should apply to each respondent.

Note:
- Don't know/Don't remember and Refuse should be used only as an absolute last resort.

Probing techniques

The table below provides a few techniques to use when probing further:

Technique	Guidelines
Repeat the question	The participant may come up with the right answer if he/she hears the question a second time.
Make a pause	This gives the participant time to collect his/her thoughts and expand on his/her answer.
Repeat the participant's reply	This is often a very effective way of having the participant reflect on the answer he/she has just given.
Use neutral probes	Avoid biased responses and probes. Never give the impression that you approve or disapprove what the participant says, or that their answer is right or wrong. Instead, if you want more information, ask "anything else?", or "could you tell me more about…?"

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Interruptions

Interruptions may occur during an interview. If they become too long or too many, suggest returning at another time to complete the interview.

Take care that even if interrupted or delayed, you should remain patient and polite at all times.

Refusal to answer

Some participants may refuse to be interviewed. Reasons for this are varied and differ from one participant to another. Some participants may not refuse outright but may express hesitancy, reservation or hostility.

You will learn to distinguish between refusals (e.g. hesitancy from a definite refusal). Success in obtaining cooperation will depend upon your manner and resourcefulness.

Participants must not be forced to respond to the whole interview or to any part of the survey process. However, the more refusals that are made, the less representative the survey is of the whole population.

Handling refusals

Be prepared to obtain cooperation from a participant who does not want to be interviewed. In general, be pleasant, good-natured and professional and most participants will cooperate.

Use the table below to help you handle some refusal situations:

If...	Then…
The participant becomes defensive	• show patience and understanding; • provide token agreement and understanding of his/her viewpoint, that is, saying something like, "I can understand that" or "You certainly have the right to feel that way"; • convey the importance of the survey to the participant.
You may have visited at a bad time	Try again later.
The participant may have misunderstood the purpose of the visit	Try to explain the purpose again.
You think you may get a "no"	Try to leave and suggest coming back later before you get a partial or an absolute "no".

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Language issues	'Interpreters of convenience' (such as members of the participant's family or household, the village headman, or domestic staff) should never be used, since you may get incorrect data being recorded. If the interviewer doesn't get sufficient cooperation due to a language barrier, this should be reported to the field team supervisor.
Working with the Android devices	After some practice, data collectors usually get proficient in using the Android devices quickly. However, they should always try to not get too absorbed recording, and to keep the participant's interest by saying the participant's response aloud as they record it.

Recording information on the Android devices

Introduction

Once the standard STEPS Instrument has been adapted, translated and loaded onto the Android devices, it is ready for use during the survey.

One instrument is to be completed for each participant that is interviewed and measured. Apart from questions that should be skipped depending on the response given to other questions, all items on the instrument must be completed for the response to be valid.

Introductory statements

Where a section of items has an introductory statement, this should be read out to the participant before asking the questions in the section. All statements to be read out are displayed on the screen of the Android device. "Hint" text in italics is not to be read aloud but is there to provide additional guidance for data collectors.

Entering the participants' responses

Depending on the required response for a question/item on the STEPS Instrument, there are different types of data entry fields on the Android devices.

- Radio buttons allow the data collector to select one option from a short list of options;
- Dropdown lists allow the data collector to select one option from a long list of options;
- Number fields allow the data collector to enter numeric data using the number pad;
- Text fields allow the data collector to enter text responses using the keyboard.

Date fields and time fields are also used to record the date and time of interview and time of collection of Step 3 measures. These fields are pre-filled with the date and time from the data collection device but entries can be modified if needed.

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"Don't know" responses

Many questions in the STEPS Instrument have a "don't know" or "refused" option. For numeric fields, a pre-defined error code is used (typically 77 or 777) and must be entered in the field to indicate "don't know" or "refused". The on-screen hint will instruct the data collector as to which code to enter.

"Don't know" or "refused" responses should be used rarely and only as an absolute last resort. Refer to the topic on Interview Skills earlier in this Section for guidance on how to avoid "don't know" or "refused" response options.

Skip instructions

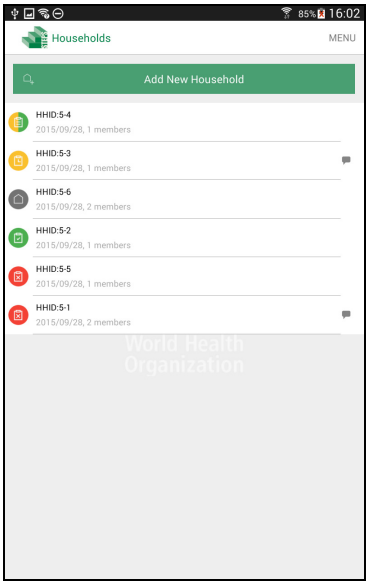
Skips are programmed into the electronic instrument and are performed automatically, thus skip instructions are not included.

Comments

If an interviewer needs to record any comments pertaining to the interview, (for example, if the right arm was used instead of the left arm to take a blood pressure measurement) these should be inserted in the comments field at the end of the instrument (if such a field is included in the country-specific instrument) or in the comments for the household in the STEPS app.

Records management

During the data collection process, it is very likely that selected participants will not be immediately available to complete the interview following their selection. Thus, most interviewers will see a listing of households on their device showing interviews that have been completed, deferred or partially completed, as shown in the image below.



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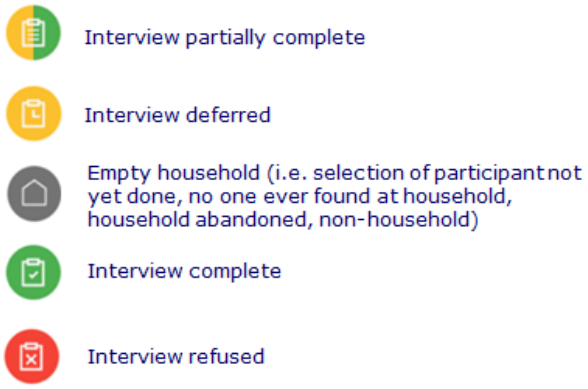
Records management (cont.)

Each of the icons is explained below:



Note that partially completed interviews (i.e. interviews that have been interrupted) and deferred interviews are always listed at the top, followed by households where the listing of eligible members has not yet been done, then finally completed and refused interviews.

In order to start an interview that has been deferred, the data collector simply needs to tap on the household in the household list on their screen and then tap on the "Interview Now" button on the screen. Similarly, to continue an interrupted interview, simply tap on the household in the household list and then tap on "Continue Interview".

Submitting data

Whenever there is a wi-fi connection available, it is recommended to submit all data on the Android device to the server. It is recommended to submit both the household listing data and completed questionnaires at the same time, using the button "Submit Data" on the STEPS home screen.

You will get a pop-up window in which to confirm the export. Both boxes should be left checked to send both household listing data and questionnaire data.

To submit your completed questionnaires, the STEPS app will automatically take you to the listing of all completed forms in the ODK collect app. Records can be selected by tapping on "Toggle All" at the bottom of the screen. Alternatively, records can be selected one by one by ticking the boxes to the right. Once all records to be submitted have been checked, tap on "Send Selected" at the bottom of the screen. If there are no unsubmitted records, no records will be listed and you will see the message "Nothing available to display. Try finalizing forms before sending."

Question-by-Question Guide

Introduction

The Question-by-Question Guide (Q-by-Q) is a 'master' version of the standard STEPS instrument. It provides instructions and guidelines for each question.

A copy of the Q-by-Q Guide can be found in Part 5, Section 2.

Purpose of the Q-by-Q guide

The purpose of the Q-by-Q Guide is to provide background information, explanations and examples of correct information to help interviewers accurately complete each Instrument with participants.

It is to be used as both a training and data collection tool.

Using the guide

Before conducting the interviews, data collection staff should:

- read the Q-by-Q Guide many times over until they are comfortable with the information;
- practice asking the questions;
- become thoroughly familiar with the contents of the country-specific STEPS instrument.

Depending on the design of the electronic version of the instrument, the guidance text from the Q-by-Q may be included for some or all questions and would appear in italics on the screen next to the question text.

Responding to questions for clarification

If participants request clarification about specific questions, the Q-by-Q Guide should be used to help, rather than offering own interpretations.

Show Cards

Introduction

Show cards are useful tools to help explain what is meant by some of the questions on the STEPS Instrument. To be useful, they must be adapted to local settings.

Applicable show cards

For each interview you may need to have show cards that cover the following topics:

- list of work status
- list and/or show cards of tobacco products
- alcohol consumption (standard drink)
- diet (typical fruit and vegetables and serving sizes, foods high in salt)
- types of physical activities.

Note: Templates for show cards can be found in Part 5, Section 3.

Instructions for use

These cards will need to be adapted so they are appropriate for each setting.

Use the show cards to:

- help clarify what is meant by specific questions and terms used on the STEPS Instrument;
- show participants examples of the kind of products mentioned.

Show cards appear on the screen of the Android device along with the related question(s).

Demographic Information (Step 1)

Introduction

Accurate core demographic information is essential for analysing and reporting on the overall results of the STEPS survey.

If the age and sex of a participant cannot be recorded, their responses cannot be used in the analysis, as most analyses report results that are grouped by these variables.

Core demographic information

The core demographic information that is captured with the STEPS Instrument includes:

- sex
- age
- years spent at school.

Dates of birth and age

In some countries, some individuals may not know their exact dates of birth and/or age. In these situations their age has to be estimated. To estimate someone's age, the interviewer will need to ask them how old, or at what stage in life they were at the time that a number of widely known major local events occurred.

Expanded demographic information

Expanded demographic information includes:

- highest level of education
- ethnic/racial group
- marital status
- work status
- household earnings.

Please note that it will be easier for respondents to answer the question on work status if a list of work status is used (see Part 5, Section 3 "Show Cards").

Some of the expanded demographic questions will have been adapted for your country so the terms and phrases make sense to participants in your environment, e.g., insertion of country specific examples for work status.

Automatic skips

The Android devices include the following automatic skips in the demographic information section of the STEPS Instrument:

- C2: If date of birth is known, C3 ("How old are you?") is skipped;
- C10a-d: If average earnings of the household are known, C11 (income quintiles) is skipped.

Behavioural Measurements (Step 1)

Introduction

The behavioural measures in the STEPS Instrument relate to risky behaviour with regards to NCDs. In particular, they are designed to record details about:

- tobacco use
- alcohol consumption
- fruit and vegetable consumption
- salt intake
- physical activity
- history of raised blood pressure, diabetes, raised total cholesterol and cardiovascular diseases
- lifestyle advice
- cervical cancer screening.

For the rationale for capturing information on these topics, see Part 1, Section 1.

Core questions

The STEPS Instrument includes core questions for each of the following:

- tobacco use
- alcohol consumption
- fruit and vegetable consumption
- salt intake
- physical activity
- history of raised blood pressure, diabetes, raised total cholesterol and cardiovascular diseases
- lifestyle advice
- cervical cancer screening.

The core questions of each are explained in detail in this section below.

Expanded questions

The behavioural measurements section of the STEPS Instrument includes expanded questions for each of the following:

- tobacco use
- alcohol consumption
- salt intake
- sedentary behavior.

The expanded questions of each are explained in detail in this section below.

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Core questions on tobacco use

The tobacco-related questions recommended for the STEPS approach are based on the WHO guidelines for tobacco use surveillance, and are aligned with the Tobacco Questions for Surveys (TQS).

Even though in some countries it is mostly men who smoke, women as well as men must be asked these questions.

The core questions in the STEPS Instrument ask about:

- current smoking
- daily smoking
- age when starting smoking
- number of items smoked per day/week
- quit attempts
- past smoking
- current use of smokeless tobacco
- daily use of smokeless tobacco

The following skip instructions that are automatically programmed on the Android devices apply:

- T1: If a person does not currently smoke, go to the questions on past smoking (T8);
- T3: If a smoker knows the age when he/she started smoking, T4a-c ("how long ago was this?") can be skipped;
- T5a/aw-T5other: current (non-daily) smokers are only asked about their weekly smoking of each item. For daily smokers, where any item is smoked less than daily, they are asked about their weekly smoking of that item;
- T7: Daily smokers can skip over all questions on past smoking (T8-T11), while current (non-daily) smokers are asked if they ever smoked daily in the past (T9) and skip the other questions related to past smoking;
- T8: Respondents that have never smoked in the past and are not current smokers are not asked any other question on past smoking (T9-T11);
- T12: If a person does not use smokeless tobacco, go to T15 (past use of smokeless tobacco).

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Expanded questions on tobacco use

The expanded tobacco questions focus on past smoking, the number of times smokeless tobacco is used and on exposure to smoke and include questions on

- age stopped smoking
- number of times smokeless tobacco is used per day/week
- past use of smokeless tobacco
- passive smoking.

The following skip instructions that are automatically programmed on the Android devices apply:

- T10: If a past daily smoker knows the age when he/she stopped smoking, T11a-c ("how long ago was this?") can be skipped;
- T14a/aw-T14other: current (non-daily) users are only asked about their weekly use of each item. For daily users, where any item is used less than daily, they are asked about their weekly use of that item;
- T14a-other: Daily users of smokeless tobacco can skip over the questions on past use (T15-T16), while current (non-daily) users are asked if they ever used tobacco daily in the past (T16), but skip the question on past use (T15);
- T15: Respondents that have never used smokeless tobacco products in the past are not asked about their daily use in the past (T16).

Use of smokeless tobacco

In some settings, smokeless tobacco will be more prevalent than smoking tobacco. For these settings, it is strongly recommended to include all expanded questions on smokeless tobacco use.

Tobacco use show card

See Part 5, Section 3 for a list of tobacco products as well as tobacco show cards. It is recommended that countries develop their own show cards displaying country specific examples of tobacco products.

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Core questions on alcohol consumption

The consumption of alcohol varies a lot within and across countries, and different patterns of alcohol consumption are associated with different levels of risk. Alcohol consumption can be episodic, and asking individuals about their average (daily) consumption can be problematic. In addition, while some communities abstain from alcohol entirely or may use alcohol on very rare and specific occasions, others usually consume it rather regularly. Even though in some countries, it is mostly men who may consume alcohol, women as well as men must be asked these alcohol-related questions.

Due to the above mentioned reasons, surveys of alcohol consumption should attempt to capture amount and frequency as well as patterns of drinking.

The questions in the STEPS Instrument ask about:

- lifetime consumption of alcohol;
- past 12 month consumption of alcohol and it's frequency;
- reasons for stopping drinking;
- general consumption of alcohol in past 30 days;
- number of occasions of alcohol consumption in the past 30 days;
- average number of drinks per drinking occasion;
- largest number of drinks per drinking occasion;
- number of occasions with six or more drinks in one occasion;
- past 7 days drinking;
- unrecorded alcohol consumption and number of standard drinks of unrecorded alcohol during the past 7 days.

The following skip instructions that are automatically programmed on the Android devices apply:

- A1: If a person has never drunk, all other core alcohol questions can be skipped;
- A2: If a respondent has drunk alcohol during the past 12 months, the question on stopping drinking can be skipped (A3);
- A3: This question only applies to respondents that have drunk alcohol in their lifetime, but not in the past 12 months. After answering this question, these respondents can skip over the rest of the core alcohol questions;
- A5: If a person has not drunk within the past 30 days, all other core alcohol questions can be skipped;
- A11: If a respondent has not drunk any unrecorded alcohol during the past 7 days, A12 can be skipped.

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Expanded questions on alcohol consumption

The expanded alcohol questions have been adopted from the Alcohol Use Disorders Identification Test (AUDIT) and focus on early signs of hazardous and harmful drinking and on identifying mild dependence.

Alcohol consumption show card

The definition of a "standard drink" will have to be reviewed and potentially modified by each country on the show cards, included in Part 5, Section 3, to reflect local types of alcohol. This will include:

- types and strengths of products
- common measures
- local terms used for both.

If domestic manufacture of beer, wine or spirits is common, information on the usual ethanol content of such products should also be available to help determine the volume of absolute alcohol that makes a "standard drink".

Core questions on diet

The STEPS questions on diet include:

- the number of days fruit is eaten in a typical week
- the number of servings on one of these days
- the number of days vegetables are eaten in a typical week
- the number of servings on one of those days
- adding of salt or salty sauce to the food
- consumption of processed food high in salt
- perception of the amount of salt consumed.

The following skip instructions that are automatically programmed on the Android devices apply:

- D1: If a person reports 0 days of fruit consumption, go to D3
- D3: If a person reports 0 days of vegetables consumption, go to D5.

Expanded questions on diet

The expanded diet questions ask about lowering and controlling salt intake:

- importance of lowering salt intake
- knowledge of health effects of consumption of too much salt
- measures to control salt intake.

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Diet show card

The diet show card in Part 5, Section 3 will have to be updated to show examples of fruits and vegetables considered most typical for the country. A serving size is standardized to represent 80 grams. Furthermore, the examples for foods high in salt should be adapted to the country context.

Core questions on physical activity

The STEPS physical activity questions represent the Global Physical Activity Questionnaire, version 2 (GPAQ). This questionnaire assesses physical activity behaviour in three different domains: at work (which includes paid and unpaid work, in and outside of the home), for transport (to get to and from places), and during leisure time.

Some people will be physically active in all three domains, others may not be active in any of the settings. In any case, questions from all three domains should be asked.

The GPAQ questions include:

- vigorous activities at work;
- number of days in a typical week with vigorous physical activity at work, and time spent in this activity on one of those days;
- moderate activities at work;
- number of days in a typical week with moderate physical activity at work, and time spent in this activity on one of those days;
- physical activity for transport;
- number of days in a typical week with activity for transport, and time spent in this activity on one of those days;
- vigorous activities during leisure time;
- number of days in a typical week with vigorous physical activity during leisure time, and time spent in this activity on one of those days;
- moderate activities during leisure time;
- number of days in a typical week with moderate physical activity during leisure time, and time spent in this activity on one of those days.

The following skip instructions that are automatically programmed on the Android devices apply:

- P1: If a person does not do vigorous physical activities at work, go to moderate physical activities at work (P4);
- P4: If a person does not do moderate physical activities at work, go to physical activities for transport (P7);
- P7: If a person does not do physical activity for transport, go to vigorous physical activities during leisure time (P10);
- P10: If a person does not do vigorous physical activities during leisure time, go to moderate physical activities during leisure time (P13);
- P13: If a person does not do moderate physical activities during leisure time, go to sedentary behaviour (P16).

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Expanded question on physical activity

The expanded question on physical activity assesses the time spent sitting on a typical day.

Physical activity show card

The physical activity show cards will have been adapted by each country to show types of physical activities.

See Part 5, Section 3 for a list of typical physical activities as well as show cards that display examples of physical activities for each type of activity.

Core questions on history of raised blood pressure

The STEPS questions on history of raised blood pressure include:

- whether a person has ever had his/her blood pressure measured
- diagnosis of raised blood pressure
- treatment of raised blood pressure
- traditional treatment of raised blood pressure.

The following skip instructions that are automatically programmed on the Android devices apply:

- H1: If a person's blood pressure has never been measured, the rest of the history of raised blood pressure questions can be skipped;
- H2a: If a person has never been told that he/she has raised blood pressure, the rest of the history of raised blood pressure questions can be skipped.

Core questions on history of diabetes

The STEPS questions on history of diabetes include:

- whether a person has ever had his/her blood sugar measured
- diagnosis of raised blood sugar
- treatment of raised blood sugar
- traditional treatment of raised blood sugar.

The following skip instructions that are automatically programmed on the Android devices apply:

- H6: If a person's blood sugar has never been measured, the rest of the history of diabetes questions can be skipped;
- H7a: If a person has never been told that he/she has raised blood sugar, the rest of the history of diabetes questions can be skipped.

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Core questions on history of raised total cholesterol

The STEPS questions on history of raised total cholesterol include:

- whether a person has ever had his/her total cholesterol measured
- diagnosis of raised total cholesterol
- treatment of raised total cholesterol
- traditional treatment of raised total cholesterol.

The following skip instructions that are automatically programmed on the Android devices apply:

- H12: If a person's total cholesterol has never been measured, the rest of the history of raised total cholesterol questions can be skipped;
- H13a: If a person has never been told that he/she has raised total cholesterol, the rest of the history of raised total cholesterol questions can be skipped.

Core questions on history of cardiovascular diseases

The STEPS questions on history of cardiovascular diseases include:

- whether a person has ever had a heart attack, chest pain from heart disease or a stroke;
- prevention and treatment of heart disease.

Core questions on lifestyle advice

The STEPS questions on lifestyle advice are around six areas of potential advice from a doctor or other health worker to prevent NCDs.

Core question on cervical cancer screening

The STEPS question on cervical cancer screening asks female respondents whether they have ever had a screening test for cervical cancer.

Section 5: Collecting Step 2 data: Physical Measurements

Overview

Introduction

This section provides information on and is a guide to working with the topics covered under Step 2 of the STEPS Instrument.

Intended audience

This section is designed for use by those fulfilling the following roles:

- Interviewers
- Field team supervisors
- STEPS Survey Coordinator.

In this section

This section covers the following topics:

Physical Measurements Overview

Introduction

Step 2 of the STEPS Instrument includes selected physical measures to determine the proportion of adults that:

- have raised blood pressure
- are overweight and/or obese.

What you will learn

In this section, you will learn:

- what the physical measures are and what they mean
- what equipment is needed
- how to assemble and use the equipment
- how to take physical measurements and accurately record the results.

Learning outcomes objectives

The learning outcome of this section is to understand what the physical measures are and how to accurately take the measurements and record the results.

Physical Measurements

Introduction

Blood pressure is taken from the participants to determine the proportion of the population with raised blood pressure. Height and weight measurements are taken to calculate body mass index (BMI) that is used to determine the prevalence of overweight and obesity in the population.

Units of measurement

The table below shows the standard units of measurement for physical measurements used in STEPS and their upper and lower limits. The Android devices will not accept values outside these limits.

Physical Measure	Unit	Minimum	Maximum
Systolic blood pressure (SBP)	mmHg	40	300
Diastolic blood pressure (DBP)	mmHg	30	200
Height	cm	100	270
Weight	kg	20	350
BMI (body mass index)	kg/m^2	11	75
Waist circumference	cm	30	200
Hip circumference	cm	45	300
Heart rate	beats/minute	30	200

Sequence of tests

In most countries, the physical measurements (Step 2) are done immediately after the behavioural measurements (Step 1). Since the participant must have rested for 15 minutes before the blood pressure measurement, it is most convenient to start the Step 2 measurements with blood pressure as the participant will have already been sitting for the duration of the interview. The Step 2 measurements should hence be taken from the participant in the following order:

1. Blood pressure (and heart rate, if measured)
2. Height
3. Weight
4. Waist circumference
5. Hip circumference (if measured).

Equipment required for tests

The equipment you will need for taking physical measurements include:

- blood pressure monitor and appropriate cuff sizes (or universal cuffs);
- height measuring board and weighting scales, or a combined device;
- tape measure;
- pen;
- chair or coat rack for participant's clothes;
- curtain or screen to provide privacy if no private area is available for taking measurements.

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Privacy

Where possible, all physical measurements should be conducted in a private area. In some settings, a separate room in the household may be set up with the necessary equipment to take each measurement. Where this is not possible, a separate area should be screened off to provide privacy for waist and hip circumference measurements at minimum.

Allow the participant to select the degree of privacy – some may be concerned about going behind a screen or out of sight of others with people they do not know.

When to take physical measurements and record results

It is recommended that physical measurements are taken immediately after the Step 1 interviews. Results of Step 2 measures are to be recorded on the same Android device.

If physical measurements are taken some time after Step 1 interviews (not recommended), care should be taken to ensure data are recorded correctly on the Android devices where the participant's record already exists.

Introductions and explanations

Prior to taking physical measurements, explain that the following measurements will be taken:

For Core

- blood pressure
- height
- weight
- waist circumference

For Expanded

- heart rate
- hip circumference.

Taking Blood Pressure and Recording Heart Rate

Introduction

Blood pressure is taken to determine the prevalence of raised blood pressure in the population.

Equipment

To take blood pressure you will need the following:

- digital automatic blood pressure monitor, e.g. Bosch & Sohn Medicus UNO, or OMRON M6
- appropriate size cuffs or universal cuffs.

Preparing the participant

Ask the participant to sit quietly and rest for 15 minutes with his/her legs uncrossed. If physical measurements (Step 2) are done immediately after the behavioural measurements (Step 1), as recommended, the participant should have already been seated for at least 15 minutes, and the blood pressure measurements can be done immediately after finishing the Step 1 questions. If the participant has moved around during the interview, have him/her rest after the interview while you set-up the equipment.

Furthermore, the participant should have an empty bladder when the measurements are taken, should not have coffee before or during the measurements, and should not talk during the measurements. The elbow should be supported during the measurements.

Three measurements

Three blood pressure measurements should be taken. During data analysis the mean of the second and third readings will be calculated. The participant will rest for three minutes between each of the readings.

Recording the blood pressure measurements

For recording the results of the blood pressure measurements, do the following:

- record your Interviewer ID on the Android device;
- record the device ID of the blood pressure machine you are using;
- after each of the three measurements, record the results;
- check that all readings are correctly filled in;
- inform the participant on the last blood pressure reading only after the whole process is completed.

Recording heart rate measurements

Heart rate and blood pressure results are displayed simultaneously on the digital blood pressure monitor. If a country decides to include the expanded measurement of heart rate, the recording should be done along with the recording of the blood pressure measurements after each of the three measurements.

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Procedure for measuring blood pressure

The instructions below apply to the use of automatic blood pressure monitors. However, more detailed operating instructions are included with each device and should be reviewed before taking any blood pressure measurements.

Applying the cuff

Follow the steps below to select an appropriate size and apply the cuff:

Step	Action
1	Place the **left arm*** of the participant on the table with the palm facing upward.
2	Remove or roll up clothing on the arm (make sure rolled up clothing isn't tight).
3	Use a universal cuff, or select the appropriate cuff size for the participant using the following table:

Arm Circumference (cm)	Cuff Size
17 -22	Small (S)
22-32	Medium (M)
> 32	Large (L)

Step	Action
4	Position the cuff above the elbow so that the lower band is positioned 1-2 cm above the elbow joint.
5	Wrap the cuff snugly onto the arm and securely fasten with the Velcro.
6	Keep the level of the cuff at the same level as the heart during measurement.

***Note:** If the right arm is used, note this in the comments for the household in the STEPS app.

Taking the measurement

Follow the instructions below to take the blood pressure measurement:

Step	Action
1	Switch the monitor on.
2	The monitor will start measuring when it detects the pulse. The systolic and diastolic blood pressure readings should be displayed within a few moments (systolic above and diastolic below).
3	Record the reading in the Android device.
4	Switch the monitor off, but leave the cuff in place.
5	Wait three minutes, then repeat steps 1-4 two more times.
6	Record the last reading on the participant feedback from as well.

Continued on next page

When to use a Sphygmomanometer

The sphygmomanometer is generally **not recommended**, but may be used in the following circumstances:

- the automatic blood pressure monitor is not functioning;
- the automatic blood pressure monitor display shows multiple errors;
- to cross check automatic blood pressure monitor readings in various clinical states such as irregular pulse, peripheral circulatory disturbance, extreme hypotension;
- for calibration of the automatic blood pressure monitor.

Procedure for Sphygmomanometer

Follow the steps below or refer to the operating instructions included with the device to measure the blood pressure of a participant using the sphygmomanometer.

Step	Action
1	Apply the cuff (as detailed above).
2	Put stethoscope earpieces in ear and set to bell.
3	Palpate pulse at either brachial or radial artery. Take a pulse count for one full minute.
4	Pump up pressure and inflate cuff until unable to feel pulse.
5	Continue to inflate cuff 30 mmHg beyond this point.
6	Apply the bell of the stethoscope to the right antecubital fossa.
7	Listen for pulse sounds while deflating the cuff slowly.
8	Record the systolic blood pressure (SBP) when a pulse is first audible.
9	Record the diastolic blood pressure (DBP) when the pulse sound disappears.
10	Deflate the cuff fully and let the arm rest for three minutes (between each of the readings).
11	Repeat Steps 2-10 twice to obtain three readings.
12	Check that all readings are correctly filled in on the Android device.
13	Inform the participant about the blood pressure readings only after the whole process is completed, and record the last reading on the participant feedback form.

Measuring Height

Introduction

The height of eligible participants is taken to help calculate their body mass index (BMI), which is their weight relative to their height, and therefore to determine the prevalence of overweight and obese people in the population.

Equipment

To measure height, you need a portable height/length measuring board, such as from SECA. Alternatively, a BMI scale measuring both height and weight (e. g. Growth Management Scale) can be used.

Assembling the measuring board

Follow the steps below to assemble the measuring board:

Step	Action
1	Separate the pieces of the board (usually 3 pieces) by unscrewing the knot at the back.
2	Assemble the pieces by attaching each one on top of the other in the correct order.
3	Lock the latches in the back.
4	Position the board on a firm surface against a wall.

Procedures

Follow the steps below to measure the height of a participant:

Step	Action
1	Ask the participant to remove their: • footwear (shoes, slippers, sandals, etc) • head gear (hat, cap, hair bows, comb, ribbons, etc). • any fancy or high hairdos may have to be pressed. **Note:** If it would be insensitive to seek removal of a scarf or veil, the measurement may be taken over light fabric.
2	Ask the participant to stand on the board facing you.
3	Ask the participant to stand with: • feet together • heels against the back board • knees straight.
4	Ask the participant to look straight ahead and not tilt their head up.
5	Make sure eyes are the same level as the ears.
6	Move the measure arm gently down onto the head of the participant and ask the participant to breathe in and stand tall.
7	Read the height in centimetres at the exact point to the nearest mm.
8	Ask the participant to step away from the measuring board.
9	Record the height measurement in centimetres in the Android device, along with the device ID and your Technician ID.

Measuring Weight

Introduction

The weight of eligible participants is taken to help determine their body mass index (BMI), which is their weight relative to their height, and therefore to determine the prevalence of overweight and obese people in the population.

Equipment

To measure weight, you will need a portable weighting scale, such as a SECA scale or the Tanita HS301 Solar Scale. Alternatively, a BMI scale measuring both height and weight (e. g. Growth Management Scale) can be used.

Set up requirements

Make sure the scales are placed on a firm, flat surface. Do not place the scales on:

- carpet
- a sloping surface
- a rough, uneven surface.

Set up scales

Follow the steps below to put the scales into operation:

Step	Action
1	Put the scale on a firm, flat surface.
2	Connect the adaptor to the main power line or generator, if the scale is not battery operated.
3	Turn on the scale and wait until the display shows 0.0.

Procedures

Follow the steps below to measure the weight of a participant:

Step	Action
1	Ask the participant to remove their footwear (shoes, slippers, sandals, etc) and socks. They should also take off any heavy belts and empty out their pockets of mobiles, wallets and coins.
2	Ask the participant to step onto scale with one foot on each side of the scale.
3	Ask the participant to: • stand still • face forward • place arms on the side and • wait until asked to step off.
4	Record the weight in kilograms on the Android device, along with the device ID and your Technician ID. If the participant wants to know his/her weight in pounds, convert by multiplying the measured weight by 2.2.

Measuring Waist Circumference

Introduction

Waist circumference measurements are also taken to provide additional information on overweight and obesity.

Equipment

To take waist circumference measurements you will need a:

- constant tension tape (for example, Figure Finder or Myo Tape Body Tape Measure);
- chair or coat stand for participants to place their clothes.

Privacy

A private area is necessary for this measurement. This could be a separate room, or an area that has been screened off from other people within the household.

Preparing the participant

This measurement should be taken without clothing, that is, directly over the skin.

If this is not possible, the measurement may be taken over light clothing. It must not be taken over thick or bulky clothing. This type of clothing must be removed.

How to take the measurement

This measurement should be taken:

- at the end of a normal expiration;
- with the arms relaxed at the sides;
- at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest (hip bone).

Continued on next page

Procedure

Follow the steps below to measure the waist circumference of a participant:

Step	Action
1	Standing to the side of the participant, locate the last palpable rib and the top of the hip bone. You may ask the participant to assist you in locating these points on their body.
2	Ask the participant to wrap the tension tape around themselves and then position the tape at the midpoint of the last palpable rib and the top of the hip bone, making sure to wrap the tape over the same spot on the opposite side. **Note:** Check that the tape is horizontal across the back and front of the participant and as parallel with the floor as possible.
3	Ask the participant to: • stand with their feet together with weight evenly distributed across both feet; • hold the arms in a relaxed position at the sides; • breathe normally for a few breaths, then make a normal expiration.
4	Measure waist circumference and read the measurement at the level of the tape to the nearest 0.1 cm, making sure to keep the measuring tape snug but not tight enough to cause compression of the skin.
5	Record the measurement on the Android device, along with the device ID. **Note:** Measure only once and record.

Measuring Hip Circumference

Introduction

Hip circumference measurements are taken in some countries as an expanded option to measure overweight and obesity.

Equipment

To take hip circumference measurements you will need a:

- constant tension tape (for example, Figure Finder or Myo Tape Body Tape Measure);
- chair or coat stand for participants to place their clothes.

Privacy

A private area is necessary for this measurement. This could be a separate room, or an area that has been screened off from other people within the household. Hip measurements are taken immediately after waist circumferences.

Preparing the participant

This measurement should be taken without clothing, that is, directly over the skin.

If this is not possible, the measurement may be taken over light clothing. It must not be taken over thick or bulky clothing. This type of clothing must be removed.

How to take the measurement

This measurement should be taken:

- with the arms relaxed at the sides
- at the maximum circumference over the buttocks.

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Measuring Hip Circumference, Continued

Procedure

Follow the steps below to take hip circumference measurements.

Step	Action
1	Stand to the side of the participant, and ask them to help wrap the tape around themselves.
2	Position the measuring tape around the maximum circumference of the buttocks.
3	Ask the participant to: • stand with their feet together with weight evenly distributed over both feet; • hold their arms relaxed at the sides.
4	Check that the tape position is horizontal all around the body and snug without constricting.
5	Measure hip circumference and read the measurement at the level of the tape to the nearest 0.1 cm.
6	Record the measurement on the Android device, along with the device ID. **Note:** Measure only once and record.

Completing the Participant Feedback Form (Step 2)

Introduction

After having completed the Step 2 measurements, the participant should be informed on his/her results. You can use the Participant Feedback Form (Step 2) in order to give the participant feedback on his body measurements (see Part 6, Section 2). This form stays with the participant after having completed the survey.

Filling in the Participant Feedback Form

Please follow the following guidelines when completing the Participant Feedback Form:

- blood pressure: record reading 3 for both systolic and diastolic blood pressure;
- blood pressure classification: tick the appropriate box;
- heart rate: record reading 3;
- height and weight: record height in cm (to the nearest mm) and weight in kg (to the nearest 0.1 kg);
- body mass index: calculate the body mass index and record (weight in kg divided by meters squared: kg/m^2), the BMI Classification Chart helps calculating the BMI (see Part 6 Section 2). If a BMI scale is used measuring both height and weight, record BMI as displayed on the scale;
- BMI classification: tick the appropriate box, the BMI Classification Chart helps finding the BMI category;
- waist and hip circumference: record waist and hip circumference (if applicable) in cm (to the nearest mm).

Referrals and Information for Step 3 Measurements

Referrals for Step 3 measurements

If your country plans to take biochemical measurements for Step 3, including spot urine and blood samples, you will need to

- provide the participant with a small container (50 ml), a plastic bag to carry the sample and instructions for the urine collection that is done in the evening before fasting for the blood measurements;
- schedule and appointment for the blood measurements with the participant;
- provide the participant with a copy of the appointment card and the fasting instructions (see Part 6, Section 2);
- remind the participant to bring the appointment card and the urine sample to the appointment the next day.

Scheduling

Follow the steps below to schedule and brief participants:

Step	Action
1	Advise the participant the day and time they should come to the Step 3 site for blood tests using the times assigned to your team.
2	If necessary, provide a map showing the venue.
3	Record the time in the appropriate box on the Step 3 Appointment Card (see Part 6, Section 2). Leave this card with the participant. Take note of the appointment time for communication to the field team supervisor.
4	Provide a copy of the Fasting Instructions and explain the importance of fasting properly.
5	Remind the participant to bring to the Step 3 site their own copy of the signed consent form as well as the Step 3 Appointment Card as a means of identification.
6	Remind the participant to bring the urine sample to the designated place at their appointment time.
7	In cases where participants need transportation to the Step 3 site for blood tests, make the arrangement and inform your supervisor.

Section 6: Collecting Step 3 data: Biochemical Measurements

Overview

Introduction

This section provides information on taking biochemical measures required under Step 3 of the STEPS Instrument.

Intended audience

This section is designed for use by those fulfilling the following roles:

- Field team supervisors
- Step 3 data collectors
- STEPS Survey Coordinator.

In this section

This section covers the following topics:

Biochemical Measurements Overview

Introduction

Step 3 includes selected biochemical measurements that require taking urine and blood samples.

Step 3 blood testing is usually conducted jointly for all the participants who have completed Step 1 and 2 the day before and had given consent for Step 3. This is usually done at a convenient community setting, closer to the homes of the participants. Step 3 urine samples are usually collected by the participants the evening before the blood testing, and the samples are brought to the Step 3 site the next day.

What you will learn

In this module, you will learn:

- what the biochemical measures are and what they mean
- the process of urine collection and instructions for participants
- the fasting process and instructions for participants
- what equipment will be needed
- how to take biochemical measurements
- how to record the results.

Learning outcome

The learning outcome of this section is to understand what the biochemical measures are and how to accurately prepare participants, take the measurements and record results.

Recording results and field logistics

Since results for Steps 1 and 2 and results for Step 3 will have to be recorded at different times and places (Step 1 and 2 usually in the household, Step 3 usually at the Step 3 site), Step 1 and 2 data will need to be linked to Step 3 data at a later point in time. The participant identification number (PID) plays a crucial role here, since it is the variable used for matching the data. Additionally, it is recommended to use stickers with a unique bar or QR codes for each participant.

The Step 3 Appointment Card (Part 6, Section 2) is an important form in this process: the PID (either automatically or manually generated for Step 1 and 2) should be written on the form, and the participant should bring the form with her/him to the appointment for the Step 3 measurements. The same PID will then be used to record the Step 3 information of the participant. The bar or QR code should be printed on a sticker that is placed on the Step 3 Appointment Card. This code should be scanned with the Android device twice: once by the interviewer before Step 1 and 2 data are collected, and once by the Step 3 data collector before recording Step 3 results.

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Recording results and field logistics (cont.)

Options for recording of Step 3 data include:

- recording on a separate set of Android devices, specifically for Step 3, and linking of the data at the end of the entire field work period;
- recording on paper, and entering of Step 3 data into the Android devices where Step 1 and 2 data are already recorded during regular (ideally daily) field team meetings, for example each evening after data collection.

Required forms

The following forms should be used for Step 3:

- Consent Form 2 (Step 3)
- Step 3 Appointment Card
- Instructions for Spot Urine Collection
- Fasting Instructions
- Participant Feedback Form Step 3
- Step 3 Registration Form.

Note: These forms can be found in Part 6, Section 2.

Dry vs. wet chemistry for blood testing

There are two main blood chemistry screening methods: dry and wet chemistry. Dry chemistry means that blood is taken from the fingertip, while wet chemistry means that a venous blood sample is drawn. See Part 2, Section 1 for further information on dry and wet chemistry.

Note: In this section, only the dry chemistry method is described since wet chemistry is done directly at the laboratory.

Urine Collection

Introduction

Urine samples are taken from eligible participants to measure urinary sodium and creatinine.

24-hour Urine Collection vs Spot Urine Collection

The "gold-standard" approach to assessing population salt intake is to obtain urine samples collected over 24 hours (to avoid diurnal variations) on a representative sample of the population. However, this approach is difficult to do well, and provides significant challenges in terms of skills and resources, particularly when done as part of large scale, comprehensive population heath surveys in low and middle income countries.

Several new important research papers have concluded that it is possible to accurately estimate average population 24 hour salt intake from spot urine samples. Spot urine samples are collected as part of a STEPS survey.

Scheduling Spot Urine Collection

Participants will be asked to collect their urine in the evening before fasting, and take it with them to the appointment for blood testing the next morning.

Material needed for Spot Urine Collection

In order for them to collect their urine, participants will be provided with a container, a bag, and instructions for urine collection.

Instructions for Spot Urine Collection

Instructions for spot urine collection are listed in the table below:

1. We are asking you to collect a sample of your urine (pee) in the evening before you commence your fast.	
2. When you go the bathroom (toilet) void urine (pee) into the container. Once the container is half full finish voiding in the toilet. Screw on the lid tightly and place the container in the zip closable plastic bag (do not remove labels).	
3. Write down the time you collect your sample:	____:____
4. Place container filled with urine (pee) in the zip closable plastic bag and store upright in a cool, dark place.	
5. Bring your container filled with urine in the zip closable plastic bag and this instruction sheet to the Step 3 site.	

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General guidelines for urine collection

General guidelines for urine collection include:

- Samples should be kept at a dark place (no direct exposure to sunlight)
- Samples should be kept cool, if possible (this is because of the smell; heat won't change sodium or creatinine levels in the sample);
- Participants should take any prescribed medication as usual on the day they provide the urine sample;
- Participants should NOT fast before they take their sample;
- Contamination of the sample with blood should be avoided (women having their period should use a tampon).

Samples should be excluded from the analysis

- From pregnant women
- If the participant has fasted before taking the sample
- If the sample is contaminated with blood.

Urinary Sodium and Creatinine Measurement

Introduction	Urinary sodium and creatinine are measured to determine population levels of high salt intake, a risk factor mainly for hypertension and cardiovascular disease.
Storing of urine samples	There is no specific temperature at which samples should be stored, although it is sometimes more convenient to freeze them.
Transport of urine samples and Laboratory analysis	In most countries, urine samples will be analysed at a central laboratory by a laboratory technician. Results of this analysis will need to be recorded on the Android devices, in order to have each participant's data complete. The participant ID plays a crucial role here, since it is the variable used for matching the data. If samples are stored frozen/unfrozen for future use or sent elsewhere for analysis, then there may be need to consider further consent taking to account of cultural beliefs.

Blood Collection

Introduction

Blood samples are taken from eligible participants to be used to perform tests to measure blood glucose and blood lipids.

Infection control

Infection control procedures appropriate for the setting should be followed.

Whole blood is more infective with regard to blood borne disease than centrifuged serum or plasma. There may be an increased risk in handling whole blood and universal precautions should be adopted.

Units of measurement

The table below shows the standard units of measurement for biochemical tests used in STEPS and their upper and lower limits for data entry purposes on the Android devices.

Blood Test	Unit	Minimum	Maximum
Fasting glucose	mmol/L	1.1	33.3
Total cholesterol	mmol/L	2.59	10.36
HDL	mmol/L	0.30	2.59
Fasting triglycerides	mmol/L	0.56	5.65

Blood Test	Unit	Minimum	Maximum
Fasting glucose	mg/dl	20	600
Total cholesterol	mg/dl	100	400
HDL	mg/dl	10	100
Fasting triglycerides	mg/dl	50	500

Participant fasting requirements

To obtain accurate results, participants must fast for at least 8 hours before blood collection (12 hours if triglycerides are also measured). This is particularly important for the measurements of blood glucose as well as triglycerides, if applicable.

Most blood samples are to be taken in the morning. This means participants must not to eat or drink anything (except plain water) from about 10 pm the night before.

Diabetic patients on medication are required to bring their tablets and insulin with them and to take them after their blood measurement if possible (if they have not done so, they should inform the relevant laboratory staff).

Note: Fasting Instructions for Step 3 can be found in Part 6, Section 2.

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Preparing the participant

After greeting the participant, and asking them to take a seat, follow the steps below to prepare the participant for a blood test:

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Fill in the following details on the Step 3 Registration Form:

• Date
• Participant ID (if not already filled in)
• Participant Name (if not already filled in)
• check if Consent Form 2 has been signed
• scan the participant QR code.</td></tr>
<tr><td>2</td><td>Ask the fasting question (first question on the instrument under Step 3, Code B1) and record the answer.</td></tr>
<tr><td>3</td><td>If the participant has not fasted correctly, then:
• explain that to get accurate results participants need to fast for a minimum of 8 hours (12 hours if triglycerides are being measured);
• ask if they would try fasting again and come back for a blood test the following day.

If the participant agrees to come back the following day, then:
• give the participant an appointment time and fasting instructions;
• note the time of the new appointment in the Step 3 Registration Form;
• inform the supervisor.</td></tr>
<tr><td>4</td><td><table><tr><th>If...</th><th>Then explain to the participant that…</th></tr><tr><td>The participant has fasted correctly</td><td>• blood is going to be collected from a small prick on the finger;
• tests will be done on: fasting blood sugar, cholesterol, fasting triglycerides and HDL.</td></tr></table></td></tr>
</table>

Measurement of Blood Glucose and Lipids

Introduction

Blood sugar tests are taken to measure for raised blood sugar levels which are a risk factor for diabetes.

Blood cholesterol tests are taken to measure total cholesterol and HDL cholesterol levels.

Triglyceride tests are taken to measure the fasting levels of natural fats and oils in the bloodstream.

Equipment required

Dry chemistry equipment and supplies required for blood glucose and lipid tests include:

- a device that measures blood glucose and lipids (such as: Cardiochek PA, Refloton Plus, Cholestech LDX), or separate devices that measure blood glucose and lipids;
- batch of sufficient reagent test strips (note: for some devices, combined strips measuring several items are available);
- single use lancets;
- capillary tubes and plungers for collection of the right amount of blood;
- cotton balls and swabs;
- gloves;
- disposable container.

Preparing the device

Follow the appropriate device instructions to set up, prepare and use the meter for blood tests.

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Measurement procedure

Follow the steps below to take blood measurements and record the results. Note that you should also read the instructions provided with the device carefully.

Step	Action
1	Put on gloves.
2	Remove a test strip, put it into the machine and close the test strip box. The strips are sensitive to heat and humidity, so only take one strip at a time and close the box tightly.
3	Rub and kneed a fingertip to help withdraw blood (rub the side of the participant's finger closest to the thumb).
4	Wipe or swab the fingertip by using a sterile swab.
5	Lance the massaged place on the fingertip with lancing device.
6	Allow a hanging blood drop to form without applying too much pressure.
7	Carefully collect the blood with the capillary tube until the blood reaches the mark on the tube. Put the blood onto the test field without touching it. **Note:** The test field must be completely covered with blood. If too little blood is applied, do not rub it in or apply a second drop, but repeat the measurement with a fresh test strip.
8	Give the participant a cotton ball to press on the puncture.
9	Wait for the measurement to be displayed. The results are usually displayed in mmol/L or mg/dL.
10	Record the results of the readings on the Android device and on the Participant Feedback Form (Step 3). Also tick the corresponding boxes on this form.
11	Record Technician ID, Device ID, time of day and answer to medication questions (B6 for glucose, B9 for lipids) on the Android device.

Completing the Participant Feedback Form (Step 3)

Introduction

After having completed the Step 3 measurements, the participant should be informed on his/her results. The Participant Feedback Form (Step 3) can be used in order to give the participant feedback on his blood measurements (see Part 6, Section 2). This form stays with the participant after having completed the survey.

Filling in the Participant Feedback Form

Please follow the following guidelines when completing the Participant Feedback Form:

- fasting blood glucose: record the result for fasting blood glucose in mmol/L or mg/dL;
- fasting blood glucose classification: tick the appropriate box;
- total blood cholesterol: record the result for total blood cholesterol in mmol/L or mg/dL;
- total blood cholesterol classification: tick the appropriate box;
- HDL cholesterol: record the result for HDL cholesterol in mmol/L or mg/dL;
- HDL cholesterol classification: tick the appropriate box;
- fasting triglycerides: record the result for fasting triglycerides in mmol/L or mg/dL;
- fasting triglycerides classification: tick the appropriate box.