



**World Health
Organization**



**The WHO STEPwise
approach to
noncommunicable
disease risk factor
surveillance**

WHO STEPS Surveillance Manual

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Part 1: Introduction and Roles

Overview

In this Part

This Part covers the following topics

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Section 1: Introduction

Overview

Introduction This section is an introduction to the WHO STEPS Surveillance Manual.

Purpose The purpose of the manual is to provide guidelines and supporting material for countries embarking on a noncommunicable disease (NCD) risk factor survey following the WHO STEPwise approach to surveillance (STEPS), so they are able to:

- plan and prepare the survey scope, sample and environment
 - train staff
 - conduct the field work
 - capture and analyse the data collected
 - report and disseminate the results.
-

Intended audience The manual is intended for all parties responsible for implementing a STEPS NCD risk factor survey in their country. The various parties include a wide range of people from public health officials in the Ministry of Health and/or any health institutions, to field staff as well as laboratory technicians, nurses and statisticians. Interested parties will read the parts and sections relevant to their role in STEPS.

Guide to using the manual The manual has been written in seven modular parts and is structured to follow the sequence of events required to implement a STEPS survey. Each part of the manual is further divided into sections. Each part and section is introduced with a table of contents to help readers find specific topics. The manual includes guidelines and instructional material that can be extracted and used for:

- training
- data collection
- data analysis
- reporting.

Page numbers have three components. The first number refers to the part, the second to the section and the third to the page number in that section. For example: 3-6-5 indicates Part 3, Section 6, Page 5.

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Overview, Continued

In this section This section contains the following topics:

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Rationale for Surveillance of NCD Risk Factors

Introduction Of the 56 million deaths occurring globally in 2012, NCDs were responsible for 38 million (68%) (1,2).

Especially in developing countries, the burden of NCDs is increasing rapidly and will have significant social, economic, and health consequences.

Main NCDs The main NCDs contributing to the NCD death and morbidity burden are:

- cardiovascular diseases
 - cancer
 - chronic respiratory diseases
 - diabetes (2).
-

Terminology The term 'noncommunicable diseases' is used to make the distinction between these conditions and infectious or 'communicable diseases'.

Characteristics of NCDs include:

- the epidemics take decades to become fully established - they have their origin at young ages;
 - they require a long term systematic approach to treatment;
 - given their long duration, there are multiple opportunities for prevention.
-

The evidence Evidence of the increasing burden of NCD globally, including in low and middle income countries is now very clear.

- In 2012, the major NCDs accounted for 38 million (68%) of all deaths.
 - By 2030, these figures are expected to rise to 52 million deaths.
 - Age-standardized NCD death rates are highest in low-income, and lowest in high-income countries.
 - Approximately 42% of all NCD deaths are premature, occurring before the age of 70 years. The majority of premature deaths (82%) are in low- and middle income countries (2).
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Rationale for Surveillance of NCD Risk Factors, Continued

Prevention	<p>The key to controlling the global epidemics of NCDs is primary prevention based on comprehensive population-wide programmes.</p> <p>The aim is to avert these epidemics wherever possible and to control them as quickly as possible where they are already present.</p>
Basis of prevention	<p>The basis of NCD prevention is the identification of the most common risk factors and their prevention and control. The risk factors of today are the diseases of tomorrow.</p>
Objectives of surveillance	<p>The objectives of surveillance of the most common NCD risk factors and NCDs are therefore to:</p> <ul style="list-style-type: none">• collect consistent data across and within countries;• develop standardized tools to enable comparisons over time and across countries;• prevent NCD epidemics before they occur;• help health services plan and determine public health priorities;• predict future caseloads of NCDs;• monitor and evaluate population-wide interventions.

Selected Risk Factors

Introduction Common, preventable risk factors underlie most NCDs. The leading risk factor globally is raised blood pressure, followed by tobacco use. Other major risk factors, accounting for a large fraction of the global mortality and morbidity from NCDs include alcohol use, unhealthy diet (such as low fruit and vegetable intake, or high salt intake), insufficient physical activity, overweight/obesity, raised blood glucose, and raised cholesterol (3).

Risk factor definition A 'risk factor' refers to any:

- attribute
- characteristic, or
- exposure of an individual

which increases the likelihood of developing an NCD.

Major behavioural risk factors The major modifiable behavioural risk factors are (2,4):

- tobacco use
 - harmful alcohol consumption
 - unhealthy diet (low fruit and vegetable consumption, diet high in salt)
 - insufficient physical activity.
-

Major biological risk factors The major biological risk factors are (2,4):

- overweight and obesity
- raised blood pressure
- raised blood glucose
- abnormal blood lipids, including raised cholesterol.

These eight major behavioural and biological risk factors are therefore included in STEPS NCD risk factor surveillance.

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Selected Risk Factors, Continued

Rationale for inclusion of core risk factors

The rationale for including these eight core risk factors in STEPS surveillance activities is that:

- they have the greatest impact on NCD mortality and morbidity
 - modification is possible through effective prevention
 - measurement of risk factors has been proven to be valid
 - measurements can be obtained using appropriate ethical standards (5,6,7).
-

Item Rationales for Risk Factors

Introduction The following paragraphs provide specific information and research findings for each of the risk factors that are included in STEPS NCD risk factor surveillance, and are presented in the order they are addressed in a standard STEPS survey.

Tobacco use

- In 2013, WHO Member States agreed to target a 30% relative reduction in prevalence of current tobacco use by 2025 (4).
- In 2010, the global prevalence of current tobacco smoking was estimated at around 22%. Smoking prevalence was about five times higher among men (37%) than among women (7%). Projections for 2025 are that the prevalence will slightly decrease, to around 19% (33% for men and 5% for women) (2,8).
- Smoking prevalence varied widely across the WHO regions in 2010, with the highest percentage of 30% of current smokers in the WHO European Region, and the lowest of 13% in the WHO African Region. However, projections for 2025 include that prevalence in the WHO African Region will increase to 18%, while prevalence in the WHO European Region will decrease to about 23% (2,8).
- Smoking prevalence among women increased with country income group in 2012, while prevalence among men varied less across income groups (2).
- Over 8 of 10 smokers smoke daily (2).
- Manufactured cigarettes, the most common form of smoked tobacco, are used by over 90% of current smokers (2).
- Tobacco use is estimated to cause about 6 million deaths each year (2).
- In 2015, tobacco use caused 6.9% of the global disease burden – as estimated in DALYs (3).
- Second-hand smoking was estimated to cause 1.0% of the global disease burden in 2015, and nearly a million deaths worldwide. Many of these deaths were among children (2,3).
- Smokers have markedly increased risk of multiple cancers, particularly lung cancer, and are at far greater risk of heart disease, stroke, Chronic Obstructive Pulmonary Disease (COPD), diabetes, and other fatal and non-fatal diseases. People who chew tobacco risk cancer of the lip, tongue and mouth (9).
- Intra Uterine Growth Retardation, spontaneous miscarriages and low birth weight babies are known outcomes of smoking during pregnancy (9).
- Non-smokers exposed to second hand smoke have a 20–30% risk of developing lung cancer and a 25–30% increased risk of suffering acute coronary diseases, as well as an increased frequency of chronic respiratory conditions. Small children whose parents smoke at home have an increased risk of suffering lower tract respiratory infections, middle ear infections and asthma (10,11).
- From 2003–2008, smoking-related healthcare accounted for up to 11% of a country's total healthcare costs (9).
- Many studies have shown that in the poorest households in some low-income countries as much as 10% of total household expenditure is on tobacco. In addition to its direct health effects, tobacco leads to malnutrition, increased health care costs and premature death (9,12).

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Item Rationales for Risk Factors, Continued

Harmful alcohol consumption

- In 2013, WHO Member States agreed to target an at least 10% relative reduction in the harmful use of alcohol by 2025, as appropriate, within the national context (4).
- The level of alcohol consumption worldwide in 2010 was estimated at 6.2 litres of pure alcohol per person aged 15 years and over (equivalent to 13.5 g of pure alcohol per day) (2,13).
- A quarter of this consumption (24.8%) was unrecorded, i.e., homemade alcohol, illegally produced or sold outside normal government controls. Of total recorded alcohol consumed worldwide, 50.1% was consumed in the form of spirits (13).
- The global prevalence of heavy episodic drinking during the past 30 days was estimated to be 7.5% in 2010 (2).
- Total alcohol consumption per capita among those aged 15 years and over varied greatly across WHO regions, with the lowest consumption of 0.7 litres of pure alcohol in the Eastern Mediterranean region, and the highest consumption of 10.9 litres in the European region (2).
- In general, the greater the economic wealth of a country, the more alcohol is consumed and the smaller the number of abstainers (2,13).
- Alcohol use causes about 3.3 million deaths each year (1).
- Alcohol use was estimated to cause 5.1% of the global disease burden – as estimated in DALYs – in 2015 (3).
- There are significant sex differences in the proportion of global deaths attributable to alcohol, for example, in 2012, 7.6% of deaths among males and 4.0% of deaths among females were attributable to alcohol (13).
- Harmful use of alcohol is associated with a risk of developing NCDs, mental and behavioural disorders, including alcohol dependence, as well as unintentional and intentional injuries, including those due to road traffic accidents and violence (2).
- There is also a causal relationship between harmful use of alcohol and incidence of infectious disease such as tuberculosis. Alcohol consumption by an expectant mother may cause fetal alcohol syndrome and pre-term birth complications (2,14).
- The highest numbers of deaths from alcohol are from cardiovascular diseases, followed by injuries (especially unintentional injuries), gastrointestinal diseases (mainly liver cirrhosis) and cancers (13).
- From 4% to about 25% of the disease burden due to specific cancers are attributable to alcohol worldwide (13).

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Item Rationales for Risk Factors, Continued

Unhealthy diet – low fruit and vegetable intake

- In 2013, WHO Member States agreed to a diet indicator regarding monitoring of the prevalence of persons aged 18+ years consuming less than five total servings (400 grams) of fruit and vegetables per day (4).
 - In many countries worldwide, the vast majority of the population consumes less than the recommended amount of five servings of fruit and vegetables per day (15).
 - In 2015, low intake of fruits and vegetables was estimated to cause 4.7% of the global disease burden – as estimated in DALYs (3).
 - Adequate consumption of fruit and vegetables reduces the risk of cardiovascular diseases, stomach cancer and colorectal cancer (15).
 - A higher consumption of fruit and vegetables is associated with a lower risk of all-cause mortality, particularly cardiovascular mortality. There was a threshold around five servings of fruit and vegetables a day, after which the risk of all-cause mortality did not reduce further (16).
-

Unhealthy diet – diet high in salt

- In 2013, WHO Member States agreed to target a 30% relative reduction in mean population intake of salt/sodium by 2025 (4).
 - WHO recommends a reduction in salt intake to less than 5 g/day (sodium 2 g/day). Current estimates suggest that the global mean intake of salt was around 10 g of salt daily (4 g/day of sodium) in 2010 (2,17,18).
 - Intake in men was approximately 10% higher than in women (2,17,18).
 - In 2010, a diet high in salt was estimated to cause 1.7 million deaths (2).
 - In 2015, a diet high in salt was estimated to cause 3.4% of the global disease burden – as estimated in DALYs (3).
 - High salt consumption is adversely associated with high blood pressure, coronary heart disease and stroke (19-21).
 - A reduction of salt intake by 4g/day is associated with a fall in blood pressure of 5/3 mmHg—systolic/ diastolic respectively—among those with hypertension and 2/1 mmHg among those with normal blood pressure (22).
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Item Rationales for Risk Factors, Continued

Insufficient physical activity

- In 2013, WHO Member States agreed to target a 10% relative reduction in prevalence of insufficient physical activity by 2025 (4).
- Globally, in 2010, 23% of adults aged 18 years and over were insufficiently physically active – i.e. they did less than 150 minutes of moderate-intensity physical activity per week, or equivalent, as recommended by WHO. Women were less active than men, with 27% of women and 20% of men not reaching the recommended level of activity (2,23).
- The WHO Eastern Mediterranean Region (31%) and the Region of the Americas (32%) had the highest prevalence of insufficient physical activity, while the prevalence was lowest in the South-East Asia (15%) and African (21%) Regions (2).
- Insufficient physical activity in adults increased according to the level of country income in 2010, with the prevalence in high-income countries (33%) about double that in low-income countries (17%) (2).
- In 2015, insufficient physical activity was estimated to cause 1.4% of the global disease burden – as estimated in DALYs (3).
- Physically inactive persons have a 20% to 30% increased risk of all-cause mortality as compared to those who adhere to 150 minutes of moderate-intensity activity per week, or equivalent (23).
- It has been shown that participation in regular physical activity reduces the risk of coronary heart disease and stroke, diabetes, hypertension, colon cancer, breast cancer and depression. Additionally, physical activity is a key determinant of energy expenditure, and this is fundamental to energy balance and weight control (23).
- Insufficient physical activity accounts for about 3.8% of cases of dementia worldwide (24).
- In 2013, insufficient physical inactivity cost health-care systems international \$ (INT\$) 53.8 billion worldwide (25).

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Item Rationales for Risk Factors, Continued

Cervical Cancer Screening

- In 2013, WHO Member States agreed to an indicator regarding monitoring of the proportion of women between the ages 30-49 years screened for cervical cancer at least once, or more often, and for lower or higher age groups according to national programmes and policies (4).
 - Each year, more than half a million new cases of cervical cancer are diagnosed (26).
 - Cervical cancer is a largely preventable disease, but worldwide it is one of the leading causes of cancer death in women. Most deaths occur in low- and middle-income countries (26,27).
 - 70% of cervical cancer is caused by the Human papillomavirus (HPV) types 16 and 18, for which there is a multivalent vaccine available. Without vaccination, almost every sexually active person will be infected with HPV at some time in their life (26).
 - Primary prevention of most cervical cancer can be taken by administering the HPV vaccine to women and is most efficacious among girls between the ages of 9–13 who are not yet sexually active (26).
 - If cancer develops, the time from HPV infection to invasive cervical cancer can be several decades, making it a good target for screening and early detection (28).
 - Cervical cancer screening is recommended for women over 30 and can be done by pap smear, visual inspection with acetic acid (VIA), or HPV testing for high risk HPV types (26).
 - Well established cytology-based screening and treatment programmes have resulted in a 50–90% reduction in cervical cancer annual rates (29).
-

Overweight and obesity

- In 2013, WHO Member States agreed to target to halt the rise in obesity by 2025 (4).
 - In 2014, 39% of adults aged 18 years and older (38% of men and 40% of women) were overweight (Body Mass Index (BMI) \geq 25), and 13% were obese (BMI \geq 30), including 11% of men and 15% of women (1,2).
 - Worldwide, obesity has more than doubled since 1980 (1,2).
 - The prevalence of overweight and obesity was highest in the Region of the Americas (61% overweight, 27% obese) and lowest in the South-East Asia Region (22% overweight, 5% obese) in 2014 (1,2).
 - The prevalence of overweight and obesity increased with the income level of countries, with the prevalence of obesity in high- and upper-middle income countries having been more than double of that of low-income countries in 2014 (1,2).
 - Overweight and obesity cause nearly 4 million deaths annually (3,30).
 - Overweight and obesity cause about 4.9% of the global disease burden – as estimated in DALYs (3).
 - Obesity increases the likelihood of diabetes, hypertension, coronary heart disease, stroke, certain cancers, obstructive sleep apnoea and osteoarthritis. It also negatively affects reproductive performance (2).
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Item Rationales for Risk Factors, Continued

- Overweight and obesity, cont.**
- Obesity also leads to adverse metabolic effects on cholesterol and triglycerides (31).
 - Waist circumference is an approximate index of intra-abdominal fat mass and total body fat. Changes in waist circumference reflect changes in risk factors for cardiovascular disease and other forms of NCDs (32).
 - Waist circumference or waist-to-hip ratio are powerful determinants of subsequent risk of type 2 diabetes (33).
-

- Raised blood pressure**
- In 2013, WHO Member States agreed to target a 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstances by 2025 (4).
 - The global prevalence of raised blood pressure (defined as systolic and/or diastolic blood pressure $\geq 140/90$ mmHg) in adults aged 18 years and over was around 22% (23% for men, 21% for women) in 2014 (2).
 - Across the WHO regions, raised blood pressure was highest in Africa (30%), and lowest in the Region of the Americas (18%). In all WHO regions, men had slightly higher prevalence of raised blood pressure than women (2).
 - The prevalence of raised blood pressure in adults was higher in low-income countries compared to middle- and high-income countries in 2014 (2).
 - During the past four decades, the highest worldwide blood pressure levels have shifted from high-income to low-income countries in south Asia and sub-Saharan Africa due to opposite trends, while blood pressure has been persistently high in central and eastern Europe (34).
 - Raised blood pressure is one of the leading risk factors for global mortality and is estimated to cause about 10 million deaths each year (2,3).
 - Raised blood pressure was estimated to cause 8.6% of the disease burden – as measured in DALYs – in 2015 (3).
 - Raised blood pressure and hypertension, if left uncontrolled, can cause stroke, myocardial infarction, cardiac failure, dementia, renal failure and blindness, causing human suffering and imposing severe financial and service burdens on health systems (2,35).
 - A reduction in systolic blood pressure of 10 mmHg is associated with a 22% reduction in coronary heart disease, and a 41% reduction in stroke in randomized trials, and a 41-46% reduction in cardiometabolic mortality in epidemiological studies (36,37).
 - Identifying and treating hypertension early is associated with a reduction in the risk of heart attack, heart failure, stroke, and kidney failure (36,37).
-

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Item Rationales for Risk Factors, Continued

Raised blood glucose

- In 2013, WHO Member States agreed to target to halt the rise in diabetes by 2025 (4).
- The global prevalence of diabetes (defined as a fasting plasma glucose value \geq 7.0 mmol/L [126 mg/dl] or being on medication for raised blood glucose) was estimated to be 8.5% in 2014 (38).
- The global prevalence of diabetes has nearly doubled since 1980 (38).
- Over the past decade, diabetes has risen faster in low- and middle-income countries than in high-income countries (38).
- The prevalence of diabetes was highest in the WHO Eastern Mediterranean Region (14%) and lowest in the African and European Regions (7%) in 2014 (38).
- In 2012, diabetes was estimated to cause 1.5 million deaths worldwide, and higher-than-optimal blood glucose caused an additional 2.2 million deaths. Forty-three percent of these 3.7 million deaths occurred before the age of 70 years (38).
- In 2015, raised blood glucose was estimated to cause 5.8% of the global disease burden – as estimated in DALYs (3).
- Diabetes is a well-recognized cause of premature death and disability, including heart attack, stroke, kidney failure, blindness, nerve damage, and lower-limb amputation (2,38).
- Impaired glucose tolerance and impaired fasting glycaemia are risk categories for future development of diabetes and cardiovascular disease (39,40).
- Cardiovascular disease is a main cause of mortality and morbidity among those with diabetes. Those with type 2 diabetes often have comorbidities such as obesity, hypertension, and abnormal blood lipids that further increase the risk of cardiovascular disease (41).
- Approximately one-third of people with diabetes develop some degree of diabetes-related eye damage, or retinopathy (42).
- Clinical trials have shown that type 2 diabetes can be prevented or delayed for long periods of time if lifestyle and/or medical intervention is sought. Returning to normal glucose levels from prediabetes reduces the risk of developing diabetes (39).
- Lower extremity amputations are at least 8 times more common in people with diabetes than in non-diabetic individuals in developed countries, and around half of all non-traumatic lower limb amputations are due to diabetes (43-45).

Abnormal blood lipids

- In 2013, WHO Member States agreed to an indicator regarding monitoring of the prevalence of raised total cholesterol among persons aged 18+ years (defined as total cholesterol \geq 5.0 mmol/l or 190 mg/dl); and mean total cholesterol concentration (4).
- Globally, the prevalence of raised total cholesterol (defined as \geq 5.0 mmol/l) was at nearly 40% in 2008 (15).

Continued on next page

Item Rationales for Risk Factors, Continued

Abnormal blood lipids, cont.

- The prevalence of raised total cholesterol was highest in the WHO European Region (54%), followed by the Region of the Americas (48%). The WHO African Region and the WHO South-East Asia Region showed the lowest percentages (23% and 30%, respectively) (15).
 - The prevalence of raised total cholesterol increased according to the income level of the country. In low-income countries, around a quarter of adults had raised total cholesterol in 2008, while in high-income countries, the prevalence was over 50% (15).
 - In 2015, raised total cholesterol was estimated to cause 3.6% of the global disease burden – as estimated in DALYs (3).
 - Raised total cholesterol is a major cause of disease burden in both the developed and developing world as a risk factor for ischaemic heart disease, stroke and other vascular diseases (15).
 - Lowering cholesterol through dietary changes and/treatment is associated with a reduction of risk of cardiovascular disease. 1 mmol/L lower total cholesterol is associated with about a half lower heart disease-related mortality in those aged 40–49, a third lower in those aged 50–69, and a sixth lower in those aged 70–89 through the main range of total cholesterol levels (46,47).
 - Levels of plasma high-density lipoprotein (HDL) cholesterol are inversely related to coronary artery disease incidence, and the relationship is independent of total, low-density lipoprotein (LDL) cholesterol and triglyceride levels (48).
 - An elevated triglyceride level is commonly accompanied by high LDL and low HDL cholesterol, and this combination (i.e. the atherogenic dyslipidemic triad) is associated with the highest risk of cardiovascular disease. Therefore, triglyceride levels appear to provide unique information as a biomarker of risk, especially when combined with low HDL and elevated LDL cholesterol (49).
 - A large proportion of people with raised blood lipids remain unaware of or untreated for their condition (50).
-

WHO STEPS Overview

Introduction STEPS is the WHO's recommended tool for surveillance of NCDs and their risk factors.

It provides an entry point for low and middle income countries to get started on NCD surveillance activities. It is also designed to help countries build and strengthen their capacity to conduct surveillance (5,6).

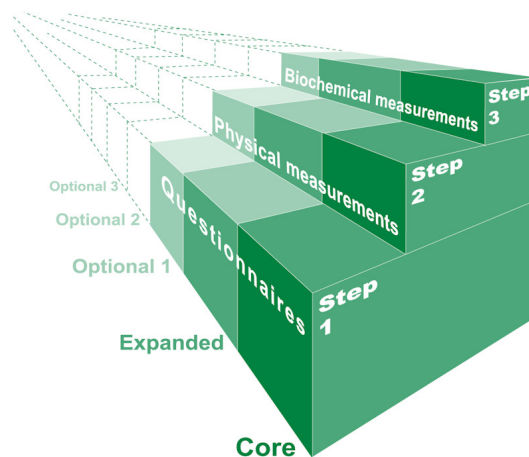
Basis of STEPS STEPS is a sequential process. It starts with gathering key information on risk factors with a questionnaire, then moves to simple physical measurements and then to more complex collection of urine and blood samples for biochemical analysis.

STEPS emphasizes that small amounts of good quality data are more valuable than large amounts of poor data. It is based on the following two key premises:

- collection of standardized data
- flexibility for use in a variety of country situations and settings.

Population focus The STEPS approach uses a representative sample of the study population. This allows for results to be generalized to the population.

STEPS diagram The following diagram illustrates the general concept of the STEPwise approach:



Continued on next page

WHO STEPS Overview, Continued

STEPS Instrument

The STEPS tool used to collect data and measure NCD risk factors is called the **STEPS Instrument**.

The STEPS Instrument covers three different levels, or 'Steps', of risk factor assessment: Step 1, Step 2 and Step 3, as follows:

Step	Description	Purpose	Recommendation
1	Gathering demographic and behavioural information by questionnaire in a household setting.	To obtain core data on: <ul style="list-style-type: none"> • socio-demographic information • tobacco and alcohol use • dietary behaviour • physical activity • history of NCD conditions and lifestyle advice • cervical cancer screening. 	All countries should undertake the core items of Step 1.
2	Physical measurements in a household setting.	To build on the core data in Step 1 and determine the proportion of adults that: <ul style="list-style-type: none"> • are overweight and obese • have raised blood pressure. 	All countries should undertake the core items of Step 2.
3	Receiving participant's urine samples and taking blood samples in a convenient setting such as a community health facility, a school, the house of the local health worker, or a place of worship.	To measure prevalence of high urinary sodium concentration, raised blood glucose, and abnormal blood lipids.	All countries should undertake the core items of Step 3.

Continued on next page

WHO STEPS Overview, Continued

Core, expanded and optional items Within each Step, there are three levels of data collection. These depend on what can realistically be accomplished (financially, logistically and in terms of human resources) in each country setting.

The core, expanded and optional levels of detail gathered for each Step are briefly described below:

STEPS Core, Expanded, and Optional Items			
	Core Items	Expanded Items	Optional Items
Step 1 Behavioural	<p>Basic demographic information, including age, sex, and years at school</p> <p>Tobacco use, duration and quantity of smoking, quit attempts, past smoking, smokeless tobacco use</p> <p>Alcohol consumption, cessation, binge drinking, past 7 days drinking, consumption of untaxed alcohol</p> <p>Fruit and vegetable consumption, consumption of salt and processed food high in salt</p> <p>Physical activity at work/in the household, for transport and during leisure time</p> <p>History of raised blood pressure, diabetes, raised total cholesterol and cardiovascular diseases</p> <p>Lifestyle advice</p> <p>Cervical cancer screening</p>	<p>Expanded demographic information including highest level of education, ethnicity, marital status, employment status, household income</p> <p>Cessation, exposure to environmental tobacco smoke</p> <p>Alcohol use disorders</p> <p>Awareness of too much salt as a health problem, control of salt intake</p> <p>Sedentary behaviour</p>	<p>Cervical cancer</p> <p>Mental health/suicide</p> <p>Oral health</p> <p>Sexual health</p> <p>Tobacco policy</p> <p>Violence and injury</p>
Step 2 Physical measurements	<p>Blood pressure</p> <p>Height and weight</p> <p>Waist circumference</p>	<p>Hip circumference</p> <p>Heart rate</p>	<p>Objective measurement of physical activity</p>
Step 3 Biochemical measurements	<p>Fasting blood sugar</p> <p>Total cholesterol</p> <p>Urinary sodium and creatinine</p>	<p>HDL-cholesterol</p> <p>Fasting triglycerides</p>	

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WHO STEPS Overview, Continued

eSTEPS

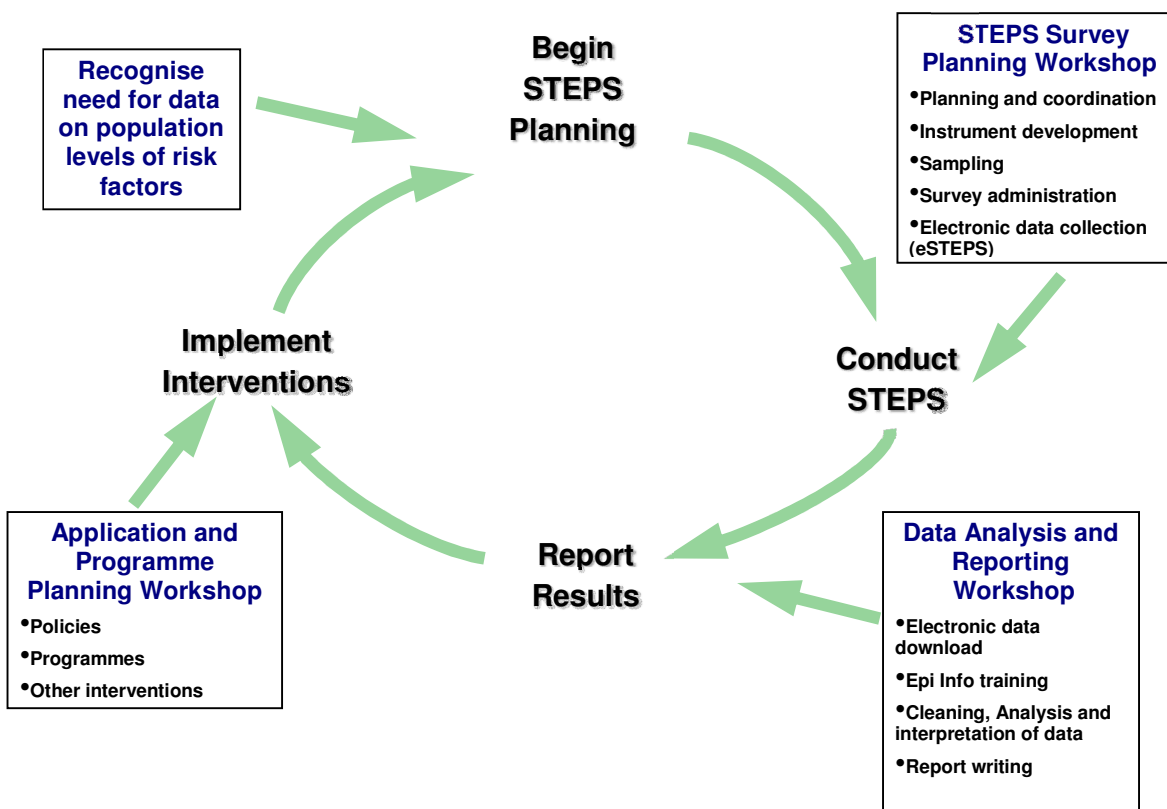
WHO STEPS includes specific software and supporting materials to undertake data collection electronically (eSTEPS), such as with Android devices. The benefits of electronic data collection include:

- immediate error checking during data collection (e.g. inadvertently skipped questions or out of range responses);
- marked reduction of materials to be carried by data collectors;
- remote data submission;
- no additional data entry from paper based questionnaires is needed, and therefore
 - no additional cost for data entry;
 - fewer errors arising from data entry;
 - final dataset can be created quickly following completion of data collection.

From surveys to surveillance

While surveys can be a one off exercise, surveillance involves commitment to data collection on an ongoing, repeated basis. Repeat surveys are essential to identify trends in the prevalence of risk factors.

The following diagram illustrates the surveillance process. Ideally, countries should repeat these surveys every approximately 5 years, depending on the resources available.



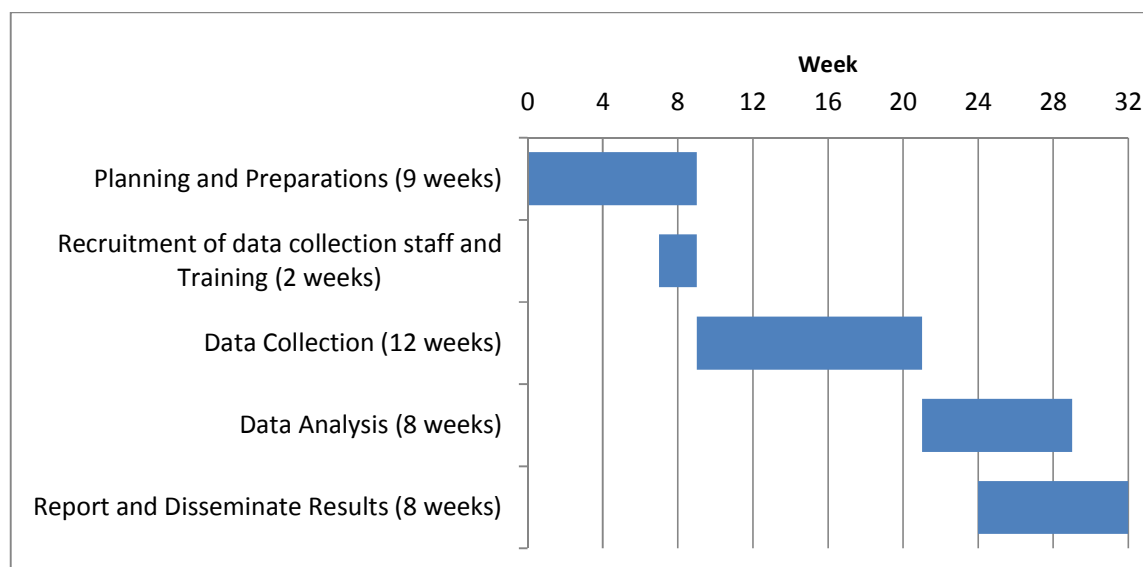
Planning and Implementation Overview

Introduction

For STEPS Surveillance to be effective, the whole process needs to be properly planned and organized before being implemented. Guidelines are provided below to help a country plan a STEPS survey.

Key stages, tasks and timeframes

The optimal, recommended total timeframe to conduct a STEPS survey of NCD risk factors is approximately six to eight months. This timeframe is based on seasonal considerations and a country's ability to 'dedicate' staff to the STEPS project for longer periods. It is by no means a hard and fast rule, but an indicative guideline.



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Section 2: Roles and Responsibilities

Overview

Introduction There are a number of entities involved in a STEPS survey at different levels including:

- country
- regional
- global.

They all have key roles, which are described below.

Purpose The purpose of this section is to:

- provide an overview of the relationships between all those involved in a STEPS survey;
- provide a description of each of the core roles involved.

In this section This section contains information outlining the responsibilities for the following:

Topic	See Page
Relationships Between Survey Team and WHO	1-2-2
STEPS Survey Coordinator	1-2-3
STEPS Coordinating Committee	1-2-5
Data Collection Team	1-2-6
Laboratory Technician	1-2-9
Statistical Adviser	1-2-10
IT Specialist/Data Manager and Analysis Team	1-2-11
WHO Offices	1-2-13

Relationships Between Survey Team and WHO

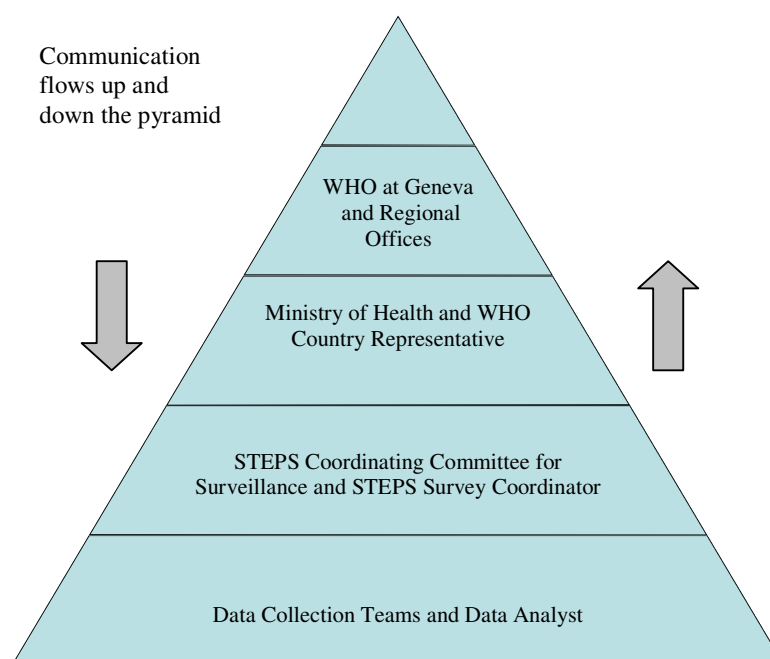
Introduction

The survey team is all those involved in the survey preparation, data collection, analysis and reporting processes.

The WHO Geneva STEPS team and the WHO Regional Office provide guidance and support for STEPS surveys.

Roles and Relationships

The diagram below shows the lines of communication between all the players in a STEPS survey.



STEPS data policy and procedures

As part of the collaboration between the implementing country, the survey team, WHO and other stakeholders, it is recommended to have all involved parties sign the STEPS Data Policy document.

The document is available from the WHO Geneva STEPS team upon request, and provides guidance on data policy and sharing, information exchange and publication procedures.

STEPS Survey Coordinator

Introduction	<p>The STEPS Survey Coordinator is the key person responsible for planning and implementing STEPS.</p> <p>The STEPS Survey Coordinator should be familiar with the entire manual to understand the whole STEPS process.</p>
Skills and attributes	<p>The STEPS Survey Coordinator will need to have the following general skills and attributes:</p> <ul style="list-style-type: none">• good written and oral communication skills;• ability to recruit efficient and motivated staff;• current knowledge of the Ministry of Health, public health institutions and the personnel involved in STEPS;• well-organized and efficient planner;• ability to mobilize multiple teams over a short period to complete data collection;• ability to chair/organize meetings of the STEPS Coordinating Committee;• good understanding of the philosophy and objectives of the STEPS risk factor surveillance process.
Level of authority	<p>The STEPS Survey Coordinator should have sufficient authority to:</p> <ul style="list-style-type: none">• lead the whole process of STEPS implementation;• negotiate and obtain resources for survey implementation;• oversee progress of the national/subnational STEPS implementation plan• develop partnerships;• contribute to the disease prevention and health promotion activities that will arise from the data gathered by STEPS.

Continued on next page

STEPS Survey Coordinator, Continued

Core roles

The core roles of the STEPS Survey Coordinator may include all or some of the following:

Role	Description
1	Liaising with local authorities, the STEPS Coordinating Committee, WHO Country Representatives and other stakeholders
2	Developing a STEPS implementation plan
3	Planning a STEPS survey
4	Coordinating the setup of a STEPS survey in the country
5	Recruiting and training field staff
6	Supervising the data collection processes
7	Reporting back results and ensure results are appropriately used
8	Overseeing archiving of files at completion of the project
9	Planning and preparing for future surveys

Note: Information on archiving is available in Part 4, Section 4.

STEPS Coordinating Committee

Introduction The STEPS Coordinating Committee will most likely be organized within the Ministry or Department of Health (MOH).

Objectives The main objective of the STEPS Coordinating Committee is to oversee the practical and logistic issues relating to the overall implementation of the STEPS survey.

Core roles of the committee The core roles of the STEPS Coordinating Committee are to:

- support the STEPS Survey Coordinator;
- act as an advocacy body for NCD surveillance within the country;
- develop national level partnerships with MOH and other stakeholders to enhance the capacity for ongoing NCD risk factor surveillance;
- identify and secure local funding and/or "in kind" support;
- oversee the overall implementation of the STEPS survey;
- assist in translating the data into policy and programmes;
- ensure the long term sustainability of STEPS surveillance.

Core roles of the chairperson The STEPS Coordinating Committee chairperson is responsible for chairing meetings of the STEPS Coordinating Committee and for overseeing the practical and logistic issues relating to the overall implementation of the STEPS survey.

This role is usually filled by the STEPS Survey Coordinator.

Expertise of members Members of the STEPS Coordinating Committee should be selected for their expertise in the following areas:

- public health
 - epidemiology and statistics
 - survey planning and implementation
 - subject matter expertise in NCDs
 - experience as an advocate for preventing NCDs.
-

Data Collection Team

Introduction

The data collection team undertakes a core function in a STEPS survey and includes all those who have been recruited for survey data collection.

The data collection team usually consists of

- field team supervisors
- interviewers
- Step 3 data collectors
- drivers
- administrative staff.

It is recommended these staff be organized in field teams. A field team usually includes one supervisor, two to three interviewers, one Step 3 data collector, and one driver.

Hiring good interviewers and other field personnel is crucial to successful data collection. The quality of data collection and the survey results depend on the consistency and quality of these workers. Training the staff is therefore a major undertaking.

Field team supervisor's roles

The core roles of a field team supervisor are listed in the table below. They are further specified in Part 3, Section 3.

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

Continued on next page

Data Collection Team, Continued

Skills and attributes

The field team supervisor should have the following skills and attributes:

- ability to work with teams and motivate people;
- well-organized and efficient in planning STEPS activities;
- ability to mobilize multiple teams over a short period to complete data collection;
- experienced in health population-based surveys;
- good understanding of the philosophy and objectives of the global STEPS risk factor surveillance process.

Interviewer's roles

The interviewers are all those who have been trained to conduct the survey in the household setting using Step 1, and take physical measurements for Step 2 of the STEPS Instrument. They may also undertake Step 3 measurements, if required.

The core roles of an interviewer include:

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.	

Skills and attributes

Interviewers should have the following general skills and attributes:

- good oral and written communication skills
- friendly manner and patience
- good attention to detail.

Continued on next page

Data Collection Team, Continued

Step 3 data collectors

Those people recruited to take biochemical measurements for Step 3 of the STEPS Instrument.

This role does not need health professionals with full medical training. These professionals could be nurse practitioners or medical assistants.

The core roles of the Step 3 data collectors include:

Role	Description
1	Checking for appropriate participant consent
2	Receiving urine samples from participants and ensuring proper labeling for further processing and shipment
3	Taking blood samples from participants and recording results for Step 3 on the tablets and the participant feedback forms
4	Ensuring consistency of Participant Identification Numbers (PIDs) for all data and labels

Drivers

Drivers are required to:

- move the field teams around to their respective enumeration areas, and within the enumeration areas where data collection is conducted.
-

Administrative staff

Administrative staff are required to:

- assist with organizing logistics
 - organize supplies and venues
 - print and distribute materials
 - organize any publicity for the survey
 - send out letters of invitation
 - file survey materials in the STEPS coordination office.
-

Laboratory technician

Laboratory technician's roles

Laboratory technicians are the people responsible for analysing the urine samples taken for Step 3.

The core roles of a laboratory technician include:

Role	Description
1	Check whether or not urine samples can be analysed (e.g. check for contamination with blood)
2	Analyse urine samples
3	Record results for urinary sodium and creatinine along with PIDs

Statistical Adviser

Introduction The statistical adviser plays a key role in the sampling and data analysis process. The statistical adviser should be part of the STEPS Coordinating Committee and/or may serve as the data analyst. If this expertise is not available within the MOH, experts from a country's national statistics agency or organization may be recruited. If a statistical adviser cannot be identified within a country, then the WHO Geneva STEPS team or the WHO Regional Office focal point will be able to advise and assist with this role.

Objectives The statistical adviser provides an integral role in the sampling and weighting of the survey data. The objective of the adviser is to ensure that a proper sample is selected and that the sample can be weighted to make the results nationally representative.

Expertise of statistical adviser The statistical adviser should have:

- an advanced degree in statistics
- a special interest in survey statistics
- experience with sampling and weighting data
- an interest in population health statistics
- an ability to discuss concerns and convey advice clearly to the data analyst.

Statistical adviser's roles The statistical adviser, under the guidance of the STEPS Coordinating Committee, will be responsible for:

Role	Description
1	Collecting the sample frame
2	Drawing the survey sample and documenting the sampling strategy
3	Reviewing available tracking material and adapting it to the country-specific sample
4	Applying weights to survey data
5	Providing statistical advice during the analysis and reporting process

Note: The tracking material is the Interview Tracking Form, available in Part 6, Section 2. The statistical adviser or the supervisor should advise the data collection team on the importance of properly tracking the sample and the impact it has on making the data representative of the target population.

IT Specialist/Data Manager and Analysis Team

Introduction

The IT specialist/data manager and analysis team should work closely with the STEPS Survey Coordinator and the statistical adviser to produce results for inclusion in various STEPS country reports. They should also assist with any issues related to the Android devices used for electronic data collection.

Roles of the IT Specialist/data manager

The IT specialist/data manager is someone who has been assigned to provide support related to set up and use of the Android devices, and to oversee the data download from the Android devices, the compilation of the final dataset and the analysis process.

The core roles of the data manager are listed in the table below.

Role	Description
1	Assisting with set-up of Android devices for training and data collection
2	Providing support during the data collectors training on issues related to the Android devices
3	Providing support to the field teams during the field work on issues related to the Android devices
4	Downloading completed records from the Android devices
5	Compiling all completed records into one dataset
6	Pre-cleaning of the survey data
7	Weighting of the survey data in collaboration with the statistical adviser
8	Ensuring security of all survey data*
9	Overseeing the data analysis process

* It is common that the data manager becomes the de-facto guardian of the survey data and files.

Roles of the data analysis team

The analysis team is assigned to undertake the descriptive and statistical analysis of data gathered using the STEPS Instrument.

The core roles of the data analysis team are listed in the table below.

Role	Description
1	Performing any needed cleaning of the dataset
2	Generating derived variables
3	Undertaking exploratory data analysis
4	Undertaking descriptive analyses (e.g. means and proportions)
5	Undertaking additional analyses if needed, under the guidance of the data manager
6	Producing tables and graphs for reports
7	Assisting in report preparation

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IT Specialist/Data Manager and Analysis Team, Continued

Attributes and qualifications

It is desirable that the data manager and analysis team has some qualifications and experience in data analysis and statistics.

People asked to perform these roles should:

- have a science or computing background;
 - have experience in analysis of previous survey data using statistical software;
 - be able to understand outputs of means, proportions and confidence intervals.
-

WHO Offices

Introduction There are various roles and responsibilities assigned to the WHO office in Geneva as well as to the WHO offices in the regions and countries. Each entity has a core function, which is described below.

WHO Geneva STEPS team The WHO Geneva STEPS team works closely with the WHO Regional Offices and provides global coordination for STEPS implementation across the regions.

The WHO Geneva STEPS team is also responsible for supporting training and providing technical support to the countries implementing STEPS surveys.

The core roles of the WHO Geneva STEPS team include:

Role	Description
1	Providing training, tools, software, guidance and advice for all aspects of STEPS planning, implementation, analysis and dissemination of data
2	Lending survey equipment (Android devices, blood pressure monitoring devices, tape measures, weighting scales, devices for Step 3 measurements) to low resource settings, as needed
3	Communicating with the STEPS Regional focal point and with the STEPS Survey Coordinator
4	Developing a global strategy in NCD risk factor surveillance

WHO Regional Office WHO Regional Offices are responsible for coordinating the implementation of STEPS in their respective region. The Regional Offices provide ongoing technical support to countries implementing STEPS surveys.

The core roles of the WHO Regional Office include:

Role	Description
1	Identifying countries that are ready to implement STEPS
2	Providing overall guidance on planning and coordination of STEPS in their region
3	Funding and delivering STEPS training workshops
4	Coordinating technical support to countries
5	Coordinating government and agency activities at the regional and international levels
6	Developing a regional strategy in NCD prevention and control activities by promoting use of STEPS data

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WHO Offices, Continued

STEPS regional focal point The STEPS regional focal point is responsible for:

- developing a strategic plan of action that addresses the immediate needs for NCD risk factor surveillance;
- liaising between the WHO Geneva STEPS team and STEPS countries;
- suggesting improvements or developments to STEPS materials;
- providing technical support to countries.

**WHO Country Representative/
WHO Country Office Staff** The WHO Country Office Staff, including the WHO Country Representative, is the local facilitator, and is responsible for:

- facilitating resource mobilization for NCD surveillance;
- serving on the STEPS Coordination Committee;
- facilitating communications between the STEPS country and the WHO Regional Office.

Note: The WHO Country Representative does not usually have a technical role.

Additional regional support This consists of providing additional technical and statistical support to build capacity at the regional and country level. The primary link is through the WHO Geneva STEPS team or Regional Office focal point.

Part 2: Planning and Set Up

Overview

In this Part

This Part covers the following topics

Topic	See Page
Section 1: Planning and Preparing a STEPS Survey	2-1-1
Section 2: Preparing the Sample	2-2-1

Section 1: Planning and Preparing a STEPS Survey

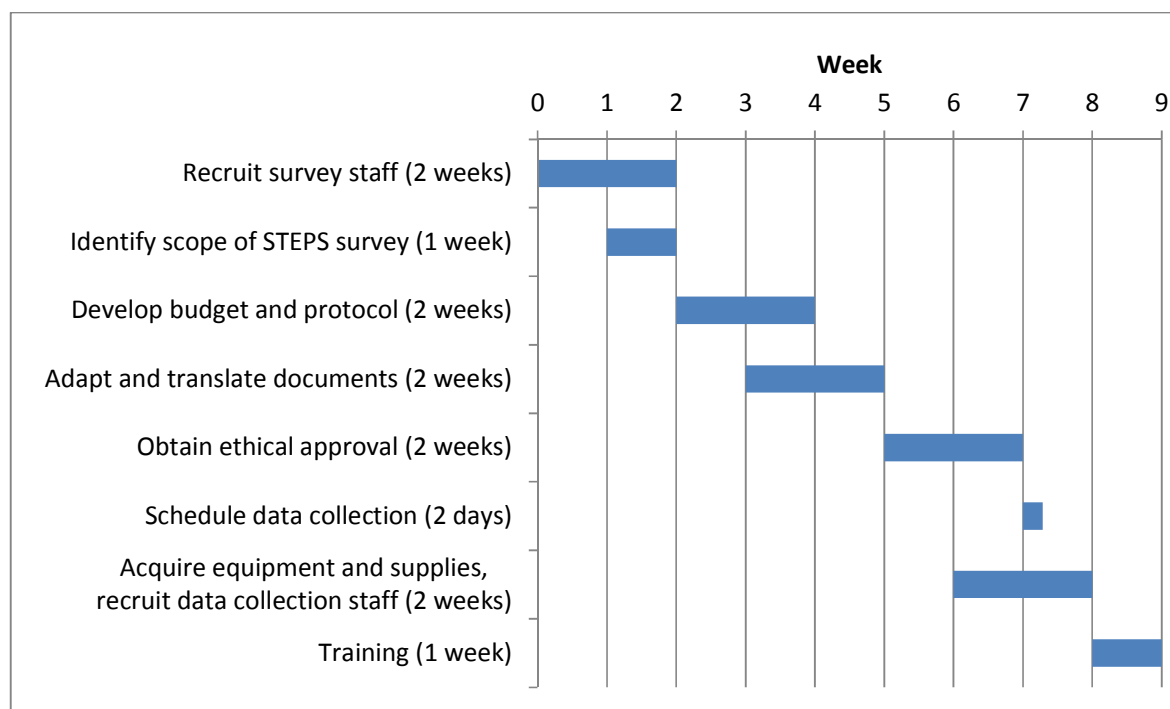
Overview

Introduction This section covers the tasks that need to be undertaken for planning your STEPS NCD risk factor survey.

Intended audience This section is primarily designed to be used by those fulfilling the following roles:

- STEPS Survey Coordinator
 - STEPS Coordinating Committee.
-

Tasks and timeframes The chart below shows the main tasks and indicative timelines covered in this section.



Continued on next page

Overview, Continued

In this section This section covers the following topics:

Topic	See Page
Recruiting Staff	2-1-3
Number of Staff Required	2-1-5
Identifying the Scope of the STEPS Survey	2-1-6
The STEPS Implementation Plan	2-1-10
Developing a Budget	2-1-13
Adapting the STEPS Instrument	2-1-14
Translating STEPS Documents	2-1-20
Applying for Ethical Approval	2-1-22
Equipment and supplies for Step 1 and 2	2-1-23
Equipment and supplies for Step 3	2-1-27
Choosing a Chemistry Screening Method for Step 3	2-1-30
Timeframes and Data Collection Considerations	2-1-31
Scheduling Data Collection	2-1-33

Recruiting Staff

Introduction The number and qualifications of staff will depend on the scope of the STEPS survey and the size of the sample as well as the type(s) of data to be collected, e.g. whether the country is implementing Steps 1, 2 and 3, and if optional modules are added. See Part 1, Section 2 for further details on the roles and responsibilities described below.

Timeframes for recruitment of staff Recruitment of the members of the STEPS Coordinating Committee, including the STEPS Survey Coordinator, the Statistical Adviser, the IT Specialist/Data Manager, as well as other experts should be separate from the recruitment of the staff for the data collection activities, and should take place at the very early stages of the preparation of the STEPS survey.

Staff for the data collection activities, including field team supervisors, interviewers, Step 3 data collectors, drivers and administrative staff should only be recruited once the scope of the survey has been identified, and the field work has been planned.

Where to recruit people from In many countries, recruitment is likely to be an informal process where data collection staff are 'seconded' from other duties within the MOH or other health authority responsible for undertaking the STEPS survey. In this situation, arrangements for their release and scheduled participation may need to be negotiated and explicitly agreed upon.

Where there is not sufficient available staff or specific skills are required (e.g. for data analysis) formal recruitment may be necessary.

Statistical adviser The core tasks of the statistical adviser include:

- drawing the sample and documenting the sampling method;
 - applying weights to the survey data and providing statistical advice during data analysis and reporting.
-

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Recruiting Staff, Continued

IT specialist/ Data manager and analysis team

The core tasks of the IT specialist/data manager and the analysis team include:

- assisting with set-up of Android devices for data collection;
 - providing support during the data collectors training on issues related to the Android devices;
 - providing support to the field teams during the field work on issues related to the Android devices;
 - downloading completed records from the Android devices;
 - compiling the final dataset;
 - pre-cleaning of the dataset;
 - weighting of the survey data in collaboration with the statistical adviser;
 - cleaning, analysis and assistance with reporting of the survey data.
-

Data collection team

The core roles within the data collection team include the following:

- field team supervisors
 - interviewers
 - Step 3 data collectors, if separate from the interviewers
 - drivers
 - administrative staff.
-

Gender considerations for the data collection team

For the data collection team, a mixture of staff of both sexes may be required for situations and communities where:

- there are strict rules about contact with members of the opposite sex
 - there is individual preference.
-

Language, ethnic and religious considerations

For the data collection team, a mixture of staff who are fluent in several local languages and/or dialects and represent varied cultural, ethnic and religious groups may be valuable.

Laboratory technician

The core tasks of the laboratory technician include:

- check and analyse urine samples
 - record results and PIDs.
-

Number of Staff Required

Estimating numbers for the data collection team

The number and mix of staff requires careful calculation, based on the sample size and the geographical scope of the survey. Typically, one field interviewer is expected to complete 4-6 interviews in one day.

For data collection, multiple teams should be recruited and trained to enable completion of interviews within the planned timeframe. All teams should have back-up staff available to cover for illness and other absences among members of the team.

Data collection staff

Use the following table as a guide to help determine the number of data collection staff required to interview. A final sample size of 5,760 participants and a timeframe of approximately 3 months of data collection was used to determine the numbers in the table below. The numbers may need to be adjusted depending on the final sample size and field implementation plan of your survey.

Average number of interviews per day per interviewer	Number of interviewers*	Number of Step 3 data collectors	Number of field teams and supervisors	Team composition
4-6	24-32	6-8	6-8	1 Supervisor with 4 interviewers and 1 Step 3 data collector

Note:

- * The average number of interviews represents the number of interviews conducted or measurements taken by one interviewer during an eight hour working day.
 - If the size of the survey increases or decreases, or this timeframe for data collection is extended, these indicative numbers would change accordingly.
-

Field teams

The following factors need to be considered when putting together the field teams:

- Consider allocating between two and four interviewers and one Step 3 data collector per team, with each interviewer assigned to different households.
 - In some countries, male and female interviewers may be paired.
 - One supervisor should be responsible for between one and two teams.
-

Identifying the Scope of the STEPS Survey

Introduction To develop a STEPS implementation plan, the scope of the STEPS Instrument being covered must be clearly defined.

The WHO STEPwise Instrument

The focus of the WHO STEPwise approach to surveillance of NCD risk factors is reflected in the core modules of the STEPS Instrument.

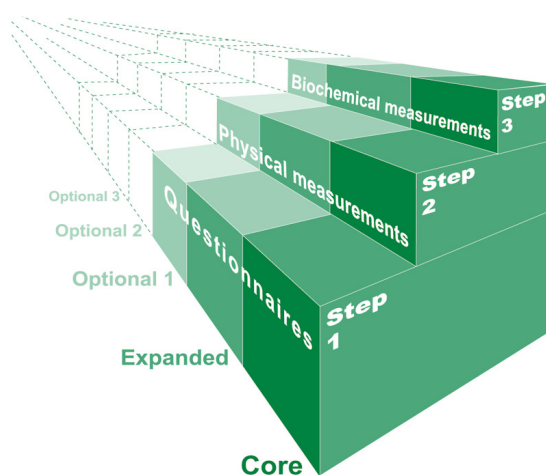
Step 1 core and expanded information will provide basic data on behavioural risk factors. Including Step 2 core and expanded physical measurements will provide useful additional data on excess body fat, raised blood pressure and heart rate.

Including Step 3 biochemical measurements will provide data on salt intake, raised blood glucose and cholesterol levels.

Note: The STEPS Instrument can be found in Part 5, Section 1.

STEPS diagram

The diagram below shows each of the Steps.



Note: For guidance on implementing each of the Steps, please refer to the pages that follow. To fully understand each item covered in the STEPS Instrument, please see the Question-by-Question Guide in Part 5, Section 2.

Continued on next page

Identifying the Scope of the STEPS Survey, Continued

Step 1 core questions

Step 1 core items will provide basic demographic information and measures of:

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

Step 1 expanded questions

Countries should include Step 1 expanded questions to:

- describe demographic breakdowns (e.g., level of education, ethnicity, marital and employment status, and household income);
- collect information on cessation of tobacco smoking, and exposure to environmental tobacco smoke;
- capture information on alcohol use disorders;
- collect information about awareness of too much salt as a health problem, and control of salt intake;
- capture sedentary behavior.

Collecting this information is recommended for countries that wish to capture this level of detail.

Step 2 core

Step 2 core items can be done at the same time as Step 1, using the same data collection staff. Step 2 core will provide measures of:

- blood pressure
 - height and weight
 - waist circumference.
-

Step 2 expanded

Step 2 expanded will provide measures of:

- hip circumference
 - heart rate.
-

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Identifying the Scope of the STEPS Survey, Continued

Step 3 core Countries should undertake Step 3 core items if they have a need to detect the prevalence of high urinary sodium concentration, raised blood glucose and raised cholesterol. Step 3 core will provide measures of:

- urinary sodium and creatinine
- blood glucose
- total cholesterol.

Step 3 expanded Countries should undertake Step 3 expanded if they need to know about abnormal lipid profiles as a risk factor for cardiovascular diseases. Step 3 expanded will provide measures of:

- triglycerides
- HDL cholesterol.

Optional questions and measures

Some countries may wish to go beyond the core and expanded items of STEPS to describe the prevalence of other specific health problems.

This may be achieved by asking the additional 'optional' questions in Step 1 from the available optional modules, by including additional country-specific questions, or by adding objective measurement of physical activity with pedometers or accelerometers as part of Step 2.

Step 1 and 2 optional

If a country wants to capture the prevalence of a particular health problem, optional modules can be added to Step 1 or Step 2. For example:

If you need to	Then add
Assess a particular health problem, such as: <ul style="list-style-type: none"> • Cervical cancer • mental health/suicide • oral health • sexual health • tobacco policy • violence and injury. 	Optional modules to Step 1.
Link the STEPS survey to other population surveys.	Appropriate optional questions.
Get more information on population physical activity levels	Optional objective measurement of physical activity to Step 2.

Continued on next page

Identifying the Scope of the STEPS Survey, Continued

Considerations When countries add additional questions to Step 1 to tailor the Instrument to a local context, the time of the each interview increases, in turn leading to higher costs of collection, analysis and presentation of the information.

Adding more questions and local information also adds to the burden on participants in the surveys, and thus threatens the level of participation in future surveys in the same population.

The STEPS Implementation Plan

Introduction Each country conducting STEPS will need to create a detailed STEPS implementation plan for all stakeholders involved in the surveillance process.

Purpose The purpose of the implementation plan is to:

- outline the scope of the survey and desired goals;
- outline the roles and responsibilities of national and international teams involved in the survey;
- describe the survey methods including sample size and sampling design;
- describe the plans for training, field work and data management;
- identify required human and financial resources;
- create an action plan and timeline;
- develop a communication strategy; and
- provide a well-planned budget as a basis for funding.

Requirement The content of the implementation plan should be developed using the guidelines in the sections below. Once complete, it should be approved by the STEPS Coordinating Committee after wide consultation and discussion with in-country subject matter experts, and sent to the WHO Regional Office and Headquarters STEPS team for review.

Core topics The topics that should be covered in the implementation plan and references to appropriate sections in the manual where guidelines can be found are listed in the table below:

Topics	Detail	Reference
Executive Summary	Provide a high level summary of main points including: <ul style="list-style-type: none">• current situation of NCD risk factors in the country• goals of the survey• scope and methods planned to be used• required resources• budget.	
Current Situation	Specify: <ul style="list-style-type: none">• the rationale for conducting NCD risk factor surveillance;• if a risk factor survey was conducted in this country previously;• the availability of risk factor data in this country;• if there is an infrastructure (human capacity, equipment, etc.) on which STEPS could be built.	Part 1, Section 1

Continued on next page

The STEPS Implementation Plan, Continued

Core topics (cont.)

Topics	Detail	Reference
Goals and Objectives	<ul style="list-style-type: none"> Identify planned goals and the use of collected information to: <ul style="list-style-type: none"> describe the current levels of NCD risk factors in this population; track the direction and magnitude of risk factor trends; plan or evaluate a health promotion or preventive campaign; collect data from which to predict likely future demands for health services. Specify objectives that support gathering 'essential' information only. 	
Scope	<ul style="list-style-type: none"> Specify the scope of surveillance to be conducted (Step 1, Step 2 and Step 3, plus coverage of core, expanded and optional items). Specify if future STEPS surveillance can be assured. 	In this Section
Survey methods	<ul style="list-style-type: none"> Describe the survey design; Identify the geographical coverage; Identify the sample size and sample frame that will be used*; Describe the sampling methodology; Describe broad timeframes; Specify how STEPS sustainability can be assured and plans for future surveys. 	Part 2, Section 2
Organization of field work	<ul style="list-style-type: none"> Describe the number and roles of the field staff; Describe the composition of field teams; Describe the logistics of the field work, including the flow of Step 1, 2 and 3; Specify equipment to be used for electronic data collection, as well as Step 2 and 3 measurements; Describe organization of training of field staff and pilot testing. 	In this section; Part 4, Section 1
Data management	<ul style="list-style-type: none"> Describe how data quality will be checked during field work; Describe data management, analysis and reporting. 	Part 4, Section 3

Continued on next page

The STEPS Implementation Plan, Continued

Core topics (cont.)

Topics	Detail	Reference
Resources	<ul style="list-style-type: none"> Specify required resources in terms of all personnel and equipment required for STEPS surveillance. Describe resources that have already been committed from within the country or which are expected (in-kind or financial commitments). Specify resources expected from other organizations involved, including support from WHO. 	In this Section
Action Plan	Provide a chart of the main tasks, with roles and responsibilities of each agency involved, with estimated start dates and timeframes for completion of each phase.	
Communication strategy and publicity	Specify methods for informing and involving community leaders, members of the public, and the media in the STEPS survey project to gain commitment and support during the field work.	
Reporting and Disseminating Results	Describe to whom and how the results will be reported and disseminated.	Part 4, Section 4
Budget	Provide a detailed budget that includes: <ul style="list-style-type: none"> total funds required for each year planned to implement all STEPS activities as identified in the Scope (including future surveys); source of funds; funding gap. 	In this Section

* During the planning phase of the survey, it is fundamental to determine the size of the sample as this will impact operational considerations, such as the number of interviewers required and days of field work. There will have to be a compromise in which the precision requirements of the estimates are weighted against various constraints such as available budget, resources and time.

Implementation plan template A STEPS Implementation Plan Template can be found in Part 6, Section 1.

Developing a Budget

Introduction	Each country conducting STEPS will need to create a detailed STEPS budget including realistic costs for all tasks and items needed during the STEPS surveillance process.
Budget template	<p>The items and subline items that should be covered in the calculation of a realistic and detailed budget are listed in the Budget Template in Part 6, Section 1. However, items or subline items may need to be added or removed as the template is adapted to the local context.</p> <p>An excel tool with integrated formula and examples is available on the WHO STEPS website, and on request from the WHO STEPS team.</p>
Use of the template	<p>For each subline item in the Budget Template in Part 6, Section 1, the following information should be listed in a table:</p> <ul style="list-style-type: none">• quantity or number required (units)• unit cost (in local currency)• unit cost (converted to USD)• total cost (in USD)• responsible organization• comments.
Costs for personnel	A STEPS survey is usually an activity implemented by the NCD Unit of the respective MOH, and is expected to be part of the core activities of national NCD Programme. Therefore, usually, the salaries of the STEPS Coordinating Committee members involved in overall planning and coordination of the survey should not be included in the survey budget.

Adapting the STEPS Instrument

Introduction Use of a standardized STEPS Instrument enables comparisons both within the country over time and also in-between countries. However, the degree to which the Instrument can be standardized across cultures or settings can be limited.

When to adapt the Instrument Adaptations may need to be made to the STEPS Instrument to provide valid data for the country or to address the needs for information on other risk factors.

The following table provides guidance on when the Instrument can be adapted to local requirements.

Item	If...	Then...	Notes
Terminology	The terms used in some core questions do not fit the cultural setting (e.g. occupations).	Alter the term for local relevance, but ensure the original meaning is retained.	Changing the wording can easily alter the meaning of a question. Seek advice before changing questions.
Additional information	You require additional data on certain risk factors (e.g. exposure to indoor smoke at public places) and you have available resources.	Add selective, but limited questions as optional items.	Inserting them in the middle of the core/expanded sections may alter the meaning of the questions. Insert them where they best fit so that they work with the flow of the other questions.
Link to previous data	You require specific data to link to previous surveys.	Add selective, but limited questions as expanded or optional items.	Insert the questions where they best fit so that they work with the flow of the other questions.
Questions that are considered less relevant	Questions asking about a particular health behaviour that is less relevant in your setting, (e.g. type of smokeless tobacco).	Drop these questions.	Look first at the fact sheet analysis guide and data book to see the impact on removing questions on the analysis.

Continued on next page

Adapting the STEPS Instrument, Continued

- Rules** The list below provides some fundamental rules that must be observed when tailoring the STEPS Instrument to create your country-specific instrument.
- Never delete a question or measure from the core sections (unless question is not applicable in your setting).
 - Never change the standard coding numbers (last column in the survey instrument).
 - Place additional questions or measures where they best fit within relevant section as an expanded or optional item.
 - Do not place additional questions or measures in between core questions or measures.
 - Code all added questions or measures with the letter 'X' plus a number (e.g. X1, X2...).
 - Remove the expanded sections and Steps (i.e. Step 3) that are not being covered by your country from the Instrument.
 - Amend the skip instructions if expanded or optional items are removed from or added to any section.
 - Review all skip instructions.
 - Send a draft of your adapted STEPS Instrument to the WHO Regional Office and the Geneva STEPS team for review before finalizing.
-

Process The process of adapting the STEPS Instrument involves the following key stages:

Stage	Description
1	Identifying questions that require local adaptation.
2	Adapting wording or adding questions or response options and adjusting skip instructions.
3	Adapting other forms as appropriate.
4	Seeking feedback and advice.
5	Translating and back translating the country-specific instrument.
6	Pilot testing the country-specific instrument.
7	Adapting the data analysis code and reporting templates as appropriate.

Note: Further details on each of these stages are provided in the following pages.

Available support The WHO STEPS team is available at all stages of this process for consultation and technical advice. To enable the WHO STEPS team to assist with data analyses and weighting of the data, please ensure that they receive a copy of the Instrument prior to finalization.

Continued on next page

Adapting the STEPS Instrument, Continued

Common questions for adaptation

The table below provides information on questions and items in the STEPS Instrument that most commonly require local adaptation:

Question Code	Standard wording	Guidance for adaptation
I6	Interview language	<ul style="list-style-type: none"> • Insert languages as appropriate. • Question can be removed if all interviews will be conducted in one language.
C5	What is the highest level of education you have completed?	<ul style="list-style-type: none"> • The education categories (taken from the World Health Survey) are designed to translate national education programmes into an internationally comparable set of categories. • If you use other categories you should document the definitions and how they relate to those in the Instrument.
C6	What is your <i>[insert relevant ethnic group/racial group/cultural subgroup/others]</i> background?	<ul style="list-style-type: none"> • Insert a list of terms that best define differences in health and health related outcomes in your country, e.g. race, religion, ethnicity, etc. • Base ethnic groups on the census definition.
C8	Which of the following best describes your main work status over the past 12 months?	<ul style="list-style-type: none"> • Insert categories appropriate to your setting. • Document the list of the new categories and how they relate to the Instrument.
C11	If you don't know the amount, can you give an estimate of the annual household income if I read some options to you? Is it less than... <i>[Insert Quintile Values]</i> ?	Insert 20, 40, 60, 80% of average national income distribution obtained from an authentic source (e.g. National Income and Expenditure surveys, etc).
T1, T5	<ul style="list-style-type: none"> • Do you currently smoke any tobacco products, such as cigarettes, cigars or pipes? • On average, how many of the following products do you smoke each day/week? 	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that covers all smoked tobacco products used in your country (see example in Part 5, Section 3).
T12, T14	<ul style="list-style-type: none"> • Do you currently use any smokeless tobacco products, such as <i>[snuff, chewing tobacco, betel]</i>? • On average, how many times a day/week do you use...? 	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that covers all smokeless tobacco products used in your country (see example in Part 5, Section 3).

Continued on next page

Adapting the STEPS Instrument, Continued

Question Code	Standard wording	Guidance for adaptation
A1	Have you ever consumed any alcohol such as beer, wine, spirits or <i>[add other local examples]</i> ?	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that covers all alcoholic products used in your country (see example in Part 5, Section 3).
A11, A12	<ul style="list-style-type: none"> • During the past 7 days, did you consume any homebrewed alcohol, any alcohol brought over the border/from another country, any alcohol not intended for drinking or other untaxed alcohol? • On average, how many standard drinks of the following did you consume during the past 7 days? 	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that covers all alcoholic products used in your country that are untaxed (see example in Part 5, Section 3).
D7	How often do you eat processed food high in salt? By processed food high in salt, I mean foods that have been altered from their natural state, such as packaged salty snacks, canned salty food including pickles and preserves, salty food prepared at a fast food restaurant, cheese, bacon and processed meat <i>[add country specific examples]</i> .	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that shows processed food high in salt typically consumed in your country (see example in Part 5, Section 3).
P1	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like <i>[carrying or lifting heavy loads, digging or construction work]</i> for at least 10 minutes continuously?	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that shows examples of typical local vigorous-intensity activities at work (see example in Part 5, Section 3).
P4	Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate such as brisk walking <i>[or carrying light loads]</i> for at least 10 minutes continuously?	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that shows examples of typical local moderate-intensity activities at work (see example in Part 5, Section 3).

Continued on next page

Adapting the STEPS Instrument, Continued

Question Code	Standard wording	Guidance for adaptation
P10	Do you do any vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause large increases in breathing or heart rate like <i>[running or football]</i> for at least 10 minutes continuously?	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that shows examples of typical local vigorous-intensity activities during leisure time (see example in Part 5, Section 3).
P13	Do you do any moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause a small increase in breathing or heart rate such as brisk walking <i>[cycling, swimming, volleyball]</i> for at least 10 minutes continuously?	<ul style="list-style-type: none"> • Add/modify examples as appropriate. • Develop a show card that shows examples of typical local moderate-intensity activities during leisure time (see example in Part 5, Section 3).
B5, B8, B16, B17	Measurements of <ul style="list-style-type: none"> • Fasting blood glucose • Total cholesterol • Triglycerides • HDL cholesterol 	<ul style="list-style-type: none"> • Choose if measurements will be reported in mmol/l or in mg/dl.

Note: For further guidance and details about each item in the STEPS Instrument, please see the Question-by-Question Guide in Part 5, Section 2.

Skip patterns If the content of the Instrument has been adapted, you will need to review and update all the skip instructions to ensure they are accurate.

Note: The skip instructions may look complicated on paper, however, skips are performed automatically by the Android STEPS app.

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Adapting the STEPS Instrument, Continued

Adapting forms, procedures and show cards

Some forms, procedures and show cards may also require tailoring to ensure local relevance.

The table below shows some common adaptations that may be required.

Item	What to adapt (or create)
Show Cards	Adapt (or create) examples used for: <ul style="list-style-type: none">• list of work status;• tobacco products;• standard drink sizes for alcohol consumption;• local fruit and vegetables with standardized servings;• local foods that are high in salt;• physical activities. See Part 5, Section 3 for examples.
Interview Tracking Form	May require adjustment according to variations in sampling design.

Note: The Interview Tracking Form needs to be used during the interview process. This form is needed to weight the data during data analysis.

Translating STEPS Documents

Introduction Many countries will require that the most important STEPS documents are available in more than one language. These materials are to be translated into the language(s) used in the countries by a translator and then back-translated into the original language by a different translator to ensure accurate reproduction of meanings.

Documents to translate The table below lists some of the documents that may need translating and includes the reference to their location in the manual.

Documents	Manual reference
STEPS Instrument	Part 5, Section 1
Question-by-Question Guide	Part 5, Section 2
Show Cards	Part 5, Section 3
Training and Practical Guides	Part 3
Forms for STEPS Field Work	Part 6, Section 2

Purpose The purpose of translation and back-translation is primarily to produce a locally-understandable country-specific Instrument and all supporting documents, and that the original intent of the questions is maintained.

This will ensure that all interviewers ask the questions in a standardised way and all STEPS documents are clear and understandable to participants.

Language selection There may be several recognised languages within a country. In this situation:

- interviewing materials may need to be translated into each of these languages
- trained translators and interviewers will have to be available.

Notes:

- Check if another country has already translated the STEPS Instrument into your local language and is willing to share it.
 - Your census office or another government department may help with determining other languages you need to use.
-

Continued on next page

Translating STEPS Documents, Continued

Translation process

Follow the guidelines below to select appropriate translators and ensure accurate and appropriate translation of the country-specific Instrument and all other interviewing materials.

- Initial translation of material should be conducted by at least one translator, ideally a linguistic expert who can explain the terms used and suggest alternatives and has experience in health surveys.
 - The Instrument must then be back-translated into the original language by another translator to ensure accurate reproduction of meanings.
 - Do not use ‘interpreters of convenience’, such as members of the participant’s family or household, the village headman or any other convenient person present, as it may lead to incorrect data being recorded.
-

Quality standards for translation

Recommended guidelines for translation are listed below.

- Translate the original intent of the questions with the most appropriate equivalent term in the local language.
 - Develop an inventory of local expressions used as well as comparisons of expressions in other languages.
 - Where there are many dialects and/or languages that are not available in written format, carefully plan specific translation protocols.
-

Applying for Ethical Approval

Introduction Every STEPS survey proposal should undergo technical and ethical review and approval. This is to ensure that the STEPS survey:

- is conducted in a technically and ethically sound manner
 - recognizes and protects the rights of participants
 - obtains access to information used in the sampling frame.
-

Process Ideally, ethical approval should be sought by submission of a proposal and application to a national ethics review committee or other relevant body.

Where no such established process exists, it is recommended that an application for ethical review be prepared and submitted through an ad hoc local mechanism within the Ministry of Health.

Informed consent Informed consent needs to be obtained from every survey participant before conducting the interviews. See Part 4, Section 1 for more details on gaining informed consent.

Making a submission Follow the steps below to make a submission.

Step	Action
1	Determine if the ethics committee has a template for proposals which they require researchers to use.
2	Draft a formal submission (See Part 6, Section 1 for guidance on what to include in an ethical clearance submission).
3	Identify and contact the relevant committees, seeking guidance on rules, submission processes and procedures, and committee sitting times.
4	Adapt submission as necessary and submit to the appropriate committee, requesting guidance on expected timeframe for approval.
5	Follow up with the committee to gain clearance.

Note: The STEPS regional focal points and the WHO Geneva STEPS team can provide further advice on making a submission.

Expected timeframes Preparing and obtaining approval for submissions to ethics committees can take weeks and even months depending on their rules of operation in the country and how often the committees sit.

Equipment and Supplies for Step 1 and 2

Introduction Most countries will conduct Step 1 and 2 within households, although in rare cases, countries may choose to invite participants to attend a central location for Step 2.

General supplies for the household interviews For the interviews, the following general supplies should be prepared for the interviewer to take with him/her when collecting the data:

Materials	Quantity	Location of template
<ul style="list-style-type: none"> • district and maps of the selected clusters; • household lists for each selected cluster; • name tags for interviewers; • pens, pencils; • clipboards. 	1 of each	
• Interview Tracking Forms	2-3 per interviewer, depending on the number of interviews	Part 6, Section 2
• Notification Cards of WHO STEPS survey visit	1 per participant	Part 6, Section 2
• Script for Data Collectors	1 per interviewer	Part 6, Section 2
• Participant Information Forms	1 per participant	Part 6, Section 2
• Consent Forms Step and 2 and Step 3	2 per participant, one stays with the participant	Part 6, Section 2
• STEPS Instruments	2-3 per interviewer as a back-up	Part 5, Section 1
• Question-by-Question Guides	1 per interviewer	Part 5, Section 2
• Show cards	1 per interviewer	Part 5, Section 3
• Participant Feedback Forms Step 2	1 per participant	Part 6, Section 2
• Body Mass Index Classification Charts	1 per interviewer	Part 6, Section 2
• Step 3 Appointment Cards	1 per participant	Part 6, Section 2
• Instructions for Spot Urine Collection	1 per participant	Part 6, Section 2
• Fasting Instructions	1 per participant	Part 6, Section 2

Continued on next page

Equipment and Supplies for Step 1 and 2, Continued

General supplies for the household interviews (cont.)

The following documents should be prepared and partly filled in prior to the field work:

- Notification Cards of WHO STEPS survey visit (it is helpful for the interviewer if the contact details on the Notification Cards are already filled in prior to data collection);
- Interview Tracking Forms;
- Instructions for urine sample collection;
- Step 3 Appointment Cards.

Note: See Part 2, Section 2 for instructions on how to prepare the Interview Tracking Forms, and Step 3 Appointment Cards.

Stickers with Quick Response (QR) codes

Due to the fasting requirement for Step 3 measurements, data collection for Step 1 and 2 generally takes place a day before data collection for Step 3. The unique ID of the participant (see Part 2, Section 2, for assigning IDs) will help match the Step 1 and 2 data with Step 3 data. In order to exclude errors during this matching process, it is recommended to also use Quick Response (QR) codes.

In preparation of the field work, the codes are printed on stickers. It is recommended to put one sticker on each container for urine collection or on each Step 3 Appointment Card as they are prepared, before handing them out to the interviewers.

During data collection, the QR codes are scanned for each participant with the Android device: once during data collection for Step 1 and 2, and once during data collection for Step 3.

Continued on next page

Equipment and Supplies for Step 1 and 2, Continued

Equipment and supplies for Step 2 measurements

For Step 2, you will need the following specific equipment:

- digital, automatic blood pressure monitors with universal cuffs, or sets of small, medium, large and extra-large cuffs (e.g. Bosch & Sohn Medicus UNO with universal cuff, or OMRON M6);
- adult, portable height-length measuring devices and weighting scales (e.g. SECA); or a BMI scale measuring both height and weight;
- constant tension tape measures (e.g. MyoTape Body Tape Measure or Figure Finder Tape Measure);
- spare batteries for each of the above-mentioned devices.

Note: A document with specific recommendations on equipment to be used for Step 2 is available from the STEPS team upon request.

Note: Use of mercury sphygmomanometers is **not recommended** for general use but may be made available for use if the digital blood pressure monitor:

- is not functioning properly;
- needs calibration;
- if the largest cuff available on the digital device is too small for the participant.

Location for Step 2 measurements

Where STEPS is conducted entirely in a household setting, equipment and all supplies must be carried and set up as best as possible in each household. Each data collection team will carry the sets of equipment which are required.

If it is not possible to conduct the survey in each household, you may be able to identify a central location and schedule participants to visit at specified times.

Room setup for Step 2 measurements

Where a central location or public hall for taking Step 2 measurements is available, set up tables, chairs and equipment to optimize the flow of participants through the following steps:

Step	Action
1	Registration
2	Blood pressure measurement (and heart rate, if applicable)
3	Height measurement
4	Weight measurement
5	Waist circumference measurement
6	Hip circumference measurement, if applicable
7	Handover of the participant feedback form with filled information
8	Check out (to ensure all measures are complete and that participants are properly thanked for their participation before departure)

Note: Provide seating near where blood pressure will be measured to allow 15 minutes of relaxation before blood pressure measurement.

Continued on next page

Equipment and Supplies for Step 1 and 2, Continued

Other factors to consider Some other factors to consider include:

Topic	Factors to consider
Equipment availability	Equipment necessary for collecting physical measurements should be readily available and in good condition to ensure results are as accurate as possible.
Lighting	Lighting needs to be adequate to read tape-measures, scales and blood pressure meters.
Weighing scales	Weighing scales need to be set up on a flat, hard surface. Some households may have uneven floors in which case an alternative location may need to be found or a rigid board should be placed under the scales.
Privacy	Areas used for taking measurements should be screened off or separated in some way to provide some privacy for participants.

Pre-survey cluster visits

It is advised that all proposed clusters/data collection sites are visited prior to conducting the survey.

This will allow a thorough understanding of operational issues that may impact the survey, and initiate the communication strategy with the communities and other local stakeholders.

Equipment and Supplies for Step 3

Introduction

Step 3 of the STEPS survey includes urine and blood testing. Due to fasting requirements for glucose and triglycerides measurements, blood testing is usually done in the morning of the day after Step 1 and 2 were done. A convenient central community location is necessary for the blood tests. This could be a community center, a local health facility, school, place of worship or house of the local health worker. Urine samples will have to be collected in a non-fasting state, and it is therefore recommended that the participants collect them in the evening before they commence the fasting.

Room and location requirements

The following table lists the general requirements and set up considerations for the room and location chosen for taking the blood samples of Step 3.

Item	Description
1	The room needs to be of adequate size to accommodate staff and the flow of the expected number of participants (and accompanying people).
2	Separate areas (if possible) for: <ul style="list-style-type: none">• registration• waiting• blood tests• checkout
3	Consider privacy requirements for taking blood tests
4	Provide hand washing and toilet facilities for participants and data collection staff
5	Clearly signpost the area of blood collection
6	Ensure easy and adequate parking or transport provision for participants (if necessary)
7	Set up the room according to the sequence of tests and for proper disposal of the sharps and bio-hazard materials.

General equipment

General equipment required for Step 3 is listed in the following table:

Material	Item
Stationery	<ul style="list-style-type: none">• pens• pencils• paper
Paperwork	<ul style="list-style-type: none">• Step 3 Registration Form (partly filled in, see Part 6, Section 2) for each participant;• Participant Feedback Form Step 3 (see Part 6, Section 2) for each participant;• Labels for Urine Samples with Participant ID for each participant.

Continued on next page

Equipment and Supplies for Step 3, Continued

General equipment (cont.)

General equipment required for Step 3 is listed in the following table (cont.):

Material	Item
Office equipment	<ul style="list-style-type: none">• filing systems• clipboard
Furniture	<ul style="list-style-type: none">• tables• chairs

Equipment for urine sample collection

The equipment required for the urine samples of Step 3 should be handed over to the participant after Step 1 and 2 have been completed in the household, along with the instructions for the spot urine collection and the fasting instructions. The equipment needed for the urine samples is listed in the following table:

Material	Item
Urine sample collection	<ul style="list-style-type: none">• Plastic container with lid, pre-labeled with Participant ID, name, age and sex of the participant;• Zip closable plastic bag.

Analysis of urine samples

The urine samples will need to be shipped to a previously identified location that is in possession of an analyser, such as the Medica EasyLyte Analyser 2121, Beckman Synchron CX5 ISE chemistry analyser, or ADIVA 1800 or 2400 Chemistry system.

Continued on next page

Equipment and Supplies for Step 3, Continued

Equipment and supplies for blood tests

Different equipment is required depending on which type of chemistry has been selected for biochemical measurements. For further information about types of chemistry see the next paragraph.

The table below provides a list of supplies required for the dry and wet chemistry methods.

Type	Supplies
Dry	<ul style="list-style-type: none">• devices for blood testing• batch of sufficient reagent test strips• one time use lancets• capillary tubes and plungers for collection of the right amount of blood• cotton balls• swabs• disposable gloves• disposable container for sharp disposal
Wet	<ul style="list-style-type: none">• source of electric power• ice chests (and ice) for temporary storage• tourniquets• needles• syringes• primary and secondary specimen tubes• pipettes• gloves and possibly protective eyewear• centrifuge• facilities for safe disposal of used equipment particularly sharp needles and bloodied swabs etc.• transport of specimens

Choosing a Chemistry Screening Method for Step 3

Introduction Blood chemistry screening methods are widely used in community-based screening programs and public health surveillance for measurements of:

- glucose
- cholesterol
- triglycerides
- high density lipoproteins (HDL).

Dry or wet chemistry? Decide whether dry (blood collection from the fingertip) or wet ('gold standard', laboratory-based measurement of blood samples) chemistry will be used.

Staff, training and equipment for blood tests will be dependent on the choice.

The table below lists the advantages and disadvantages of both dry and wet chemistry.

Type	Advantages	Disadvantages
Dry	<ul style="list-style-type: none"> • rapid results available on-site • small sample volumes • no sample transport required • no pre-analytical variables • convenient to participants • viable option for less-resourced and unstable settings. 	<ul style="list-style-type: none"> • operators need good training and supervision • may be less accurate as compared to wet methods
Wet	<ul style="list-style-type: none"> • accurate results • centralized laboratory with trained staff and good internal and external quality control 	<ul style="list-style-type: none"> • more costly than dry methods • logistically more challenging due to transport of specimens • lower response rates

Devices for dry chemistry The table below lists a selection of dry chemistry devices, along with information on which of the Step 3 measurements they perform. Please note that this selection is just a list of examples. For more information on these and other devices, please contact the WHO Geneva STEPS team.

Device	Measurement
Cardiochek PA	Blood glucose, total cholesterol, triglycerides and HDL cholesterol
Cholestech LDX	Blood glucose, total cholesterol, triglycerides and HDL cholesterol
Reflotron Plus	Blood glucose, total cholesterol, triglycerides and HDL cholesterol
HemoCue 201 DM	Blood glucose
Accu-Check	Blood glucose

Timeframes and Data Collection Considerations

Introduction Data collection should be carefully planned to take place over a defined period of time and within appropriate seasons.

General timeframes The table below provides a guide to estimated timeframes for each phase in a STEPS survey.

Phase	Suggested timeframes
Planning and scoping	4-6 weeks
Recruitment and training	3-4 weeks
Data collection	10-12 weeks
Data analysis and reporting	4-8 weeks

Data collection If possible, you should aim to complete data collection within a period of ten to twelve weeks.

Some key factors to consider when identifying an appropriate time to conduct the survey include:

Factors to consider	Guidelines
Seasons	<ul style="list-style-type: none">• Confine the survey period to one season to avoid dietary changes.• Avoid festive seasons (Ramadan, Christmas, and other national holidays).• Avoid rainy seasons where it may be physically difficult to get to individual clusters and households.• Avoid seasons when food is in unusually short supply.
Calendar year	Confine the data collection period to one calendar year.
Major events	Avoid data collection during periods prior to local, regional or national elections to avoid confusion with political campaigners.
Civil unrest, turmoil, famine, etc.	It is not appropriate to conduct STEPS during times when more pressing matters occupy the minds and lives of the population. Sometimes it may be necessary to defer or cease a STEPS survey because of an intervening event or natural calamity.
Collection timeframe	Keep timeframe as close as possible (within reason) to the recommended timeframe.

Continued on next page

Timeframes and Data Collection Considerations, Continued

Data collection locations It is recommended that both Step 1 and Step 2 are conducted in household settings.

Step 3 should be conducted in a convenient setting in the cluster. This is recommended for:

- geographical convenience for the fasting respondents
 - better response rate
 - hygiene standards when taking blood samples
 - quality control
 - more accurate results.
-

Scheduling Data Collection

Introduction To ensure data collection is completed within the planned 10 to 12 week timeframe, interviews will need to be scheduled carefully.

When to schedule data collection Ideally, as soon as the implementation plan and funding have been approved, the STEPS materials have been translated, equipment has been acquired, and the sample has been drawn, participant lists should be collated and data collection scheduled.

Considering the size of this task, however, in practical terms it is recommended that data collection is conducted as soon as possible after the recruitment and training of data collection staff takes place. This way trained interviewers can be used to compile the lists and establish contact with individual households.

Step 1 and Step 2 household settings In some settings, evenings and weekends are generally preferred for interviewing, especially in urban areas.

This needs to be adapted on an individual country basis, as weekends in some countries are not the same days as in others.

Step 3 setting Schedule participants for blood collection into early morning slots at the chosen setting. This is because of the fasting requirement.

Section 2: Preparing the Sample

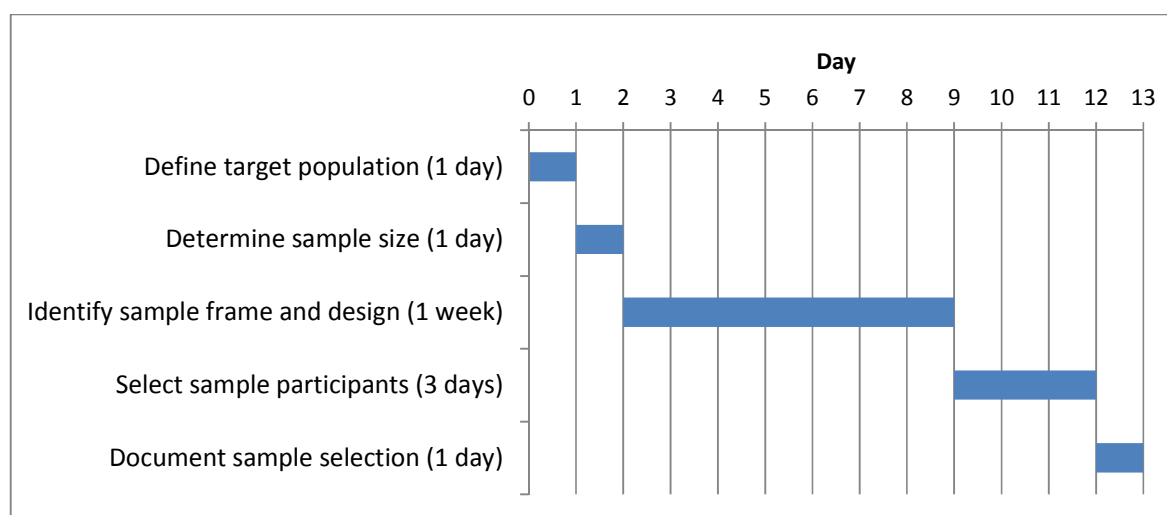
Overview

Introduction This section covers the principles, methods, and tasks needed to prepare, design, and select the sample for your STEPS survey.

Intended audience This section is primarily designed to be used by those fulfilling the following roles:

- statistical adviser
 - STEPS Survey Coordinator
 - STEPS Coordinating Committee.
-

Tasks and timeframes The sample is prepared as part of the process of planning and preparing the survey. This process should take between two days to one week, depending on the methods chosen and availability of information needed to draw the sample. The chart below lists the main tasks and timeframes covered in this section.



In this section This section covers the following topics:

Topic	See Page
Sampling Guidelines	2-2-2
Determining the Sample Size	2-2-3
Identifying the Sampling Frame	2-2-10
Choosing the Sample Design	2-2-12
Selecting the Sample	2-2-20
Documenting the Sample Design	2-2-24
Preparing Data Collection Forms	2-2-25

Sampling Guidelines

Introduction High quality survey techniques can provide a good picture of risk factors for NCDs in a population by using a scientifically selected sample of that population. The sample will represent the entire target population if the sample is drawn correctly. High standards of sample design and selection are essential to achieve valuable and useful results from STEPS.

Reflecting the survey scope in the sample To achieve a sample that reflects the scope of the survey it is essential to:

- define a target population;
- scientifically select a sample of the population that is representative of the target population;
- plan ahead for reporting of survey results by sex and desired age groups.

Define the target population Each country needs to define the target population for their STEPS Survey. To define the population, the purpose and use of the survey data need to be taken into account. For example, should the survey be representative of the entire population or a specific region?

It is recommended that the target population for a STEPS NCD risk factor survey be at minimum all adults aged 18 to 69 years residing in the survey area. The age range may be expanded to include additional age groups, but it is not recommended to have a smaller age range.

Sample population The sample population is a scientifically selected subset of the target population. Once the target population has been defined, the sample of participants within the target population will be selected.

Estimates for age-sex groups The prevalence of most NCD risk factors tends to increase with age and vary by sex. Therefore it is recommended that survey results include estimates for specific age groups for each sex, in addition to the total survey population estimates, in order to provide a more nuanced picture of the prevalence of NCD risk factors in your target population.

To ensure that precise estimates for each age-sex group can be calculated from the survey data, the total number of age-sex groups must be taken into consideration when calculating the sample size. Reporting estimates for a greater number of age groups will require a larger sample size. The STEPS recommended age groups are based on the Global Burden of Disease (GBD) age groups and are as follows:

- 4 age groups per gender: 18-29, 30-44, 45-59, and 60-69 years
- 3 age groups per gender: 18-29, 30-44, and 45-69 years
- 2 age groups per gender: 18-44 and 45-69 years.

If resources are extremely limited, estimates may be obtained only for the entire age span of the survey (e.g. 18-69). The next topic explains how to incorporate the number of age-sex groups into sample size calculation.

Determining the Sample Size

Introduction

In order to ensure a sufficient level of precision of the survey results, an adequate sample must be drawn from the target population. To calculate the sample size needed, the following factors must be taken into consideration:

- desired level of confidence of the survey results;
- acceptable margin of error of the survey results;
- design effect of the sampling methodology;
- estimated baseline levels of the behaviours or indicators to be measured.

Additionally, the sample size must be adjusted for:

- number of age-sex estimates
 - anticipated non-response.
-

Helpful Terminology

The following table provides a brief description of several key statistical terms. It is important to develop a good understanding of this terminology before proceeding to calculate the sample size.

Term	Description
Sample Mean / Prevalence	The estimated mean or prevalence of a given population parameter (e.g. mean number of days fruit was consumed in a given week) that is calculated from the survey data.
Population Mean / Prevalence	The true mean or prevalence of a given parameter for the entire target population. The sample mean is an estimate of the population mean.
Confidence Intervals	A range of values around the sample mean or prevalence in which the population mean or prevalence is likely to fall. For example, a 95% confidence interval indicates that for 95 out of 100 surveys, the population mean would fall into this range of values around the sample mean.

Continued on next page

Determining the Sample Size, Continued

Variables used for calculating sample size

The table below provides a description of the variables used in calculating the sample size as well as the recommended values for each variable.

Variable	Description	Recommended Value
Level of Confidence	<ul style="list-style-type: none"> Probability value that is associated with a given confidence interval. Describes the level of uncertainty in the sample mean or prevalence as an estimate of the population mean or prevalence. The higher the level of confidence, the larger the sample size needed. 	<ul style="list-style-type: none"> 1.96 Note: 1.96 is the probability value associated with a 95% confidence interval.
Margin of Error	<ul style="list-style-type: none"> The expected half-width of the confidence interval. The smaller the margin of error, the larger the sample size needed. 	<ul style="list-style-type: none"> 0.05 Note: If the estimated baseline levels of the behaviours or indicators you wish to measure is very low (e.g. <0.10), then the Margin of Error should be decreased to 0.02 or smaller.
Design Effect (Deff)	<ul style="list-style-type: none"> Describes the loss of sampling efficiency due to using a complex sample design. The design effect for a simple random sample is 1.00. Sample designs more complex than a simple random sample require a larger sample to achieve the same level of precision in survey results as a simple random sample. Thus the design effect increases as the sample design becomes more complex. 	<ul style="list-style-type: none"> 1.50 Note: The value 1.50 is recommended for most STEPS surveys with complex sample designs. If design effect information is available from previous national surveys of a similar design to the proposed STEPS survey, it is recommended to use the previous estimates for design effect.
Estimated baseline levels of the behaviours or indicators we want to measure	<ul style="list-style-type: none"> The estimated prevalence of the risk factors within the target population. Values closest to 50% are the most conservative, requiring the largest sample size. 	<ul style="list-style-type: none"> 0.50, if no previous data are available on the target population. The value closest to 0.50, if previous data is available on the target population.

Equation for calculating sample size

The equation for calculating sample size is as follows:

$$n = Z^2 \frac{P(1-P)}{e^2}$$

where:

- Z = level of confidence
- P = baseline level of the indicators
- e = margin of error

Continued on next page

Determining the Sample Size, Continued

Example calculation

Using the above recommendations for each variable, the **initial** calculation for sample size would be:

$$n = 1.96^2 \frac{0.5 (1-0.5)}{0.05^2} = 384$$

However, this number **must** be adjusted to account for the design effect of the sample design, the number of age-sex estimates to be reported, and the anticipated non-response.

Adjusting for design effect

To adjust for the design effect of the sample design simply **multiply** the sample size by the design effect. For more information on choosing the sample design for your survey, see page 2-2-12.

Adjusting for number of age-sex estimates

As discussed previously, it is recommended that survey results be reported separately for specific age groups for each sex. In order to have an adequate level of precision for each age-sex estimate, the sample size must be **multiplied** by the number of age-sex groups for which estimates will be reported.

The number of age-sex estimates will vary according to the target age range of the survey and the resources available for the survey. For surveys covering the age range of 18-69, the number of age-sex estimates may be **8** (18-29, 30-44, 45-59, and 60-69 years for men and women), may be **6** (18-29, 30-44, and 45-69 years for men and women), or **4** (18-44 and 45-69 years for men and women).

If the age range of your survey extends beyond the recommended 18-69 years, the total number of age-sex estimates may need to be adjusted accordingly. For example, if the age range of 70+ years were also to be included in the survey, the total number of age-sex estimates would have to be increased accordingly.

Adjusting for anticipated non-response

To adjust for anticipated non-response **divide** by the anticipated **response rate**.

A response rate of 80% is the recommended rate to anticipate. This is a conservative estimate based on response rates of previous STEPS surveys. If response rates have been consistently higher in the country for similar household surveys, a less conservative (i.e. smaller) response rate may be used, such as 90%.

Example: For an anticipated response rate of 80%, divide the sample size by 0.80.

Continued on next page

Determining the Sample Size, Continued

Summary of sample size calculation

The table below provides a summary of the above steps to calculate sample size.

Step	Description
1	Determine the value of all variables needed to calculate sample size.
2	Use the level of confidence, margin of error, and baseline level of the indicators in the above equation to get an initial estimate for n (sample size).
3	Multiply n by the design effect and by the number of age-sex estimates.
4	Divide the result from step 3 by the anticipated response rate to attain the final sample size.

Sample Size Calculation Example 1 (4 age groups)

In this example, the recommended values for all parameters of the sample size equation will be used. Thus, the initial calculation proceeds as follows:

$$n = 1.96^2 * \frac{0.5 (1-0.5)}{0.05^2} = 384$$

This initial n is then multiplied by the design effect of 1.5 and, for example, 8 age-sex estimates desired for the survey results:

$$n = 384 * 1.5 * 8 = 4,608$$

Finally, n is divided by 0.80 to adjust for the anticipated 20% non-response rate:

$$n = 4,608 \div 0.80 = 5,760$$

5,760 is the final sample size.

Sample Size Calculation Example 2 (3 age groups)

In this example, the recommended values for all parameters of the sample size equation will be used and the initial calculation proceeds just as in the previous example:

$$n = 1.962 * \frac{0.5 (1-0.5)}{0.05^2} = 384$$

However, in this example the estimates will only be reported for 2 age groups for each sex as the sample size required for 4 age groups per sex is too large for the resources available. Thus, the initial n is then multiplied by the design effect of 1.5 and 3 age-sex estimates desired for the survey results:

$$n = 384 * 1.5 * 6 = 3,456$$

Finally, n is divided by 0.80 to adjust for the anticipated 20% non-response rate:

$$n = 3,456 \div 0.80 = 4,320$$

4,320 is the final sample size.

Continued on next page

Determining the Sample Size, Continued

Sample Size Calculation Example 3 (2 age groups)

In this example, the recommended values for all parameters of the sample size equation will be used and the initial calculation proceeds just as in the previous example:

$$n = 1.96^2 * \frac{0.5 (1-0.5)}{0.05^2} = 384$$

However, in this example the estimates will only be reported for 2 age groups for each sex as the sample size required for 4 age groups per sex is too large for the resources available. Thus, the initial n is then multiplied by the design effect of 1.5 and 4 age-sex estimates desired for the survey results:

$$n = 384 * 1.5 * 4 = 2,304$$

Finally, n is divided by 0.80 to adjust for the anticipated 20% non-response rate:

$$n = 2,304 \div 0.80 = 2,880$$

2,880 is the final sample size.

Sampling very small populations

When the target population is very small (appx. <50,000 people) the sample size can be reduced using a Finite Population Correction (FPC). The steps below describe how to check if the FPC is appropriate for a country and how to apply it to reduce the sample size.

Step	Description										
1	Complete only steps 1 and 2 in the preceding table to obtain the n for each estimate.										
2	Calculate the target population size for each estimate using available census data or a similar reliable data source. Example: If 8 age-sex groups will be the estimates, the number of individuals in each age-sex group (e.g. number of males aged 18-29) must be calculated.										
3	The FPC should only be applied when the sample to be drawn represents more than 10% of the target population. Thus for each estimate the n calculated in Step 1 must be divided by the target population size for that estimate to check to see if the FPC can be applied. Example: n has been calculated as 384. Eight age-sex estimates are desired. The table below shows the target population size for the first four estimates. <table border="1" data-bbox="574 1627 1203 1808"> <thead> <tr> <th>Desired Estimates</th> <th>Target Population Size</th> </tr> </thead> <tbody> <tr> <td>Males, 18-29</td> <td>2548</td> </tr> <tr> <td>Females, 18-29</td> <td>2641</td> </tr> <tr> <td>Males, 30-44</td> <td>3465</td> </tr> <tr> <td>Females, 30-44</td> <td>3356</td> </tr> </tbody> </table>	Desired Estimates	Target Population Size	Males, 18-29	2548	Females, 18-29	2641	Males, 30-44	3465	Females, 30-44	3356
Desired Estimates	Target Population Size										
Males, 18-29	2548										
Females, 18-29	2641										
Males, 30-44	3465										
Females, 30-44	3356										

Continued on next page

Determining the Sample Size, Continued

3 (cont.)	Divide n by the target population for each estimate: $384/2548 = 0.15$ $384/2641 = 0.15$ $384/3465 = 0.11$ $384/3356 = 0.11$
4	If most or all of the quotients from step 3 are 0.10 or higher, then the FPC can be applied (continue to next step). Otherwise, return to step 3 in the preceding table and continue to calculate the total sample size using the n already calculated.
5	Apply the FPC to the n for each estimate using the following equation: $\text{new } n = \frac{n}{1 + \frac{n}{\text{population}}}$ <p>where "population" refers to the target population for a given estimate, not the entire target population.</p>
6	Sum all the "new n 's" together and multiply the sum by the design effect.
7	Divide the result from step 6 by the anticipated response rate to attain the final sample size.

Further modifications to sample size

There are a variety of situations which may require an adjustment to the sample size resulting from the calculations above. The table below describes some of these situations with directions on how to adjust the sample size. For any other situation not listed here, or if any other additional assistance is required, please contact the STEPS team.

If ...	Then ...						
Data for specific subgroups are required (e.g. ethnic groups, urban vs. rural dwellers).	There are two ways to proceed depending on the information desired:						
	<table border="1"> <thead> <tr> <th>If ...</th> <th>Then ...</th> </tr> </thead> <tbody> <tr> <td>Data will only be reported for all individuals in each subgroup.</td> <td>Set the number of estimates to the larger of: <ul style="list-style-type: none"> the number of age-sex estimates desired the number of new subgroups. </td> </tr> <tr> <td>Data will be reported for each age-sex group within each subgroup.</td> <td>Multiply the number of age-sex groups by the total number of new subgroups (e.g. total number of ethnic groups) to determine the total number of estimates.</td> </tr> </tbody> </table>	If ...	Then ...	Data will only be reported for all individuals in each subgroup.	Set the number of estimates to the larger of: <ul style="list-style-type: none"> the number of age-sex estimates desired the number of new subgroups. 	Data will be reported for each age-sex group within each subgroup.	Multiply the number of age-sex groups by the total number of new subgroups (e.g. total number of ethnic groups) to determine the total number of estimates.
	If ...	Then ...					
Data will only be reported for all individuals in each subgroup.	Set the number of estimates to the larger of: <ul style="list-style-type: none"> the number of age-sex estimates desired the number of new subgroups. 						
Data will be reported for each age-sex group within each subgroup.	Multiply the number of age-sex groups by the total number of new subgroups (e.g. total number of ethnic groups) to determine the total number of estimates.						
Note: It is important to keep these subgroups in mind when allocating the sample to ensure a sufficient number of participants can be drawn from each subgroup (see next topic).							

Continued on next page

Determining the Sample Size, Continued

Oversampling is desired for very small sub-populations.	Increase the overall n by increasing the n for the specific estimate(s) by 10%.
Oversampling is desired for specific sub-populations with higher than average non-response.	Increase the overall n by increasing the n for the specific estimate(s) by 10 to 20%.
Oversampling of the 60-69 year age group is desired because obtaining sufficient numbers of respondents from this age group is expected to be difficult due to high non-response and/or small size of this sub-population.	Increase the overall n by increasing the specific estimates for males and females in this age group by 10 to 20%. Oversampling 60-69 year olds within households can be done with the Android STEPS app.

Note: If oversampling is desired, adjustments usually must also be made when allocating the sample (see next topic). Often in addition to increasing the sample size, the sample allocation must take into consideration the location of hard-to-reach groups and allocate a greater proportion of the sample to these areas.

Sample Size Calculator

There is an Excel workbook, [sample_size_calculator.xls](#), that can assist in the calculations needed to determine the sample size for a survey. It is available on the STEPS website. The calculator allows to adjust all variables discussed here and also provides assistance in determining whether the Finite Population Correction (FPC) is applicable to a survey and, if so, how to correctly apply the FPC.

Smaller sample sizes

If the sample size calculations result in a sample size too large for the resources available, consider reducing the number of age-sex estimates desired for reporting of the results. Reducing the age-sex estimates can significantly reduce the sample size required for a survey.

Identifying the Sampling Frame

Introduction A sampling frame is a list of units or elements that defines the target population. It is from this list that the sample is drawn. A sampling frame is essential for any survey.

Finding available sampling frames To identify available sampling frames and determine which is best for a country, search for updated lists, databases, registers or other sources that give good coverage of the population to be surveyed. For example, look for population registers or census lists.

Various government departments and national bodies should be consulted to establish what frames exist in a country and, if suitable, whether they may be accessed for STEPS.

Enumeration areas (EAs) Most often the sampling frame will use enumeration areas (EAs) which are small- to medium-sized geographic areas that have been defined in a previous census. Most countries have this information and it is usually preferable to incorporate this into the sampling frame.

Factors to consider A sampling frame, or a collection of them, should cover all of the population in the surveyed country. Good coverage means that every eligible person in the population has a chance of being included in the survey sample.

Representativeness for all sub-populations should be considered when deciding which frame(s) to use, since there is a possibility that particular age, gender or ethnic groups or geographical areas are more or less likely to be included in the sampling frame. Bias will occur if there is poorer coverage for some groups.

Multiple Sampling Frames Due to logistical and financial limitations, most national surveys employ multi-stage sampling, which is discussed in detail in the following topic. A multi-stage sample design will require a sampling frame for each stage of sampling.

Continued on next page

Identifying the Sampling Frame, Continued

Features of a good sampling frame

Some features of a good sampling frame are:

- it does not contain duplicates, or if present they can easily be identified and removed;
- it does not contain blanks, such as empty houses or a deceased individual;
- it contains information enabling all units to be distinguished from all others and to be easily located (e.g. a complete street address);
- at minimum, it contains information about the number of households or total number of individuals;
- it could be made accessible to the STEPS country team within a reasonable timeframe and at no large expense.

Note: Sampling frames must be assessed for all the above features, but particularly for **completeness** and **potential bias**.

Choosing the Sample Design

Introduction The selection of the sample design is highly dependent on a variety of factors, most importantly the size of the population, the geography of the area to be covered, and the resources available for the survey. All factors must be kept in mind in selecting the sample design for the survey.

Stratification Stratification is the process of dividing the sampling frame into mutually exclusive subgroups or strata. The sample is then drawn either proportionately or disproportionately from **all** strata. How the target population is stratified depends on the information that is available for the sampling frame and the information that is desired from the survey results.

Strata are often based on the physical location of the sampling units. Some examples of these types of strata are:

- enumeration areas (EAs) or other well-defined geographic regions
- urban vs. rural areas.

Less often, strata are based on the characteristics of the individuals in the sampling frame. This is less common in large national surveys due to a lack of precise data on all individuals in the target population and the difficulties of developing sampling frames for each strata. Some examples of these types of strata are:

- ethnicity
- socioeconomic status
- gender.

Stratification is not required but is recommended for the following reasons:

- increased precision of survey estimates
- guaranteed coverage of all strata
- administrative convenience.

Stratification can be applied in conjunction with other sampling strategies. This section discusses simple random sampling and multi-stage cluster sampling, both of which can be used along with stratification, as described later in this topic.

Stratification and sample allocation If the decision has been made to stratify the population, it must then be decided whether to sample proportionately from all strata or to sample a larger proportion of individuals from some strata and a smaller proportion of individuals from other strata (disproportional allocation).

Continued on next page

Choosing the Sample Design, Continued

Stratification and sample allocation (cont.)

Proportional allocation means sampling the same proportion of individuals from each strata so that the resulting sample is distributed across the strata similarly to the underlying target population. This type of sample allocation is the appropriate method for surveys which will only be reporting data for all strata combined.

Disproportional allocation means sampling some strata at a higher rate than other strata. Often this is implemented by drawing an equal sized sample from each strata. This type of sample allocation is appropriate when survey results are desired for each individual strata. In this situation, a larger sample size is usually required to ensure adequate precision in the strata-specific estimates. The primary drawback to this method is a loss of sampling efficiency for the estimates for all strata combined.

Note: In some cases where very small strata exist, proportional allocation may be done but oversampling may be required for the very small strata.

Proportional Allocation Example

Because proportional allocation is more likely to be used for a STEPS survey, an example is provided here.

In this example, the sample size has been calculated to be 2,880. The target population has been divided into the 4 government districts of the country. These districts will serve as strata. The target population within each strata has been listed in the table below along with the proportion each comprises of the total target population.

Strata	Target Pop.	Proportion of Pop.
District 1	25,955	0.24 ← = 25,955 ÷ 108,155
District 2	30,568	0.28
District 3	32,578	0.30
District 4	19,054	0.18
Total	108,155	1.00

To compute the number of individuals from the total sample to be drawn from each strata, multiply the total sample size by the proportion for each strata.

Strata	Target Pop.	Proportion of Pop.	Sample
District 1	25,955	0.24	691 ← = 0.24 x 2,880
District 2	30,568	0.28	807
District 3	32,578	0.30	864
District 4	19,054	0.18	518
Total	108,155	1.00	2,880

Continued on next page

Choosing the Sample Design, Continued

Simple random sampling In a small number of settings simple random sampling may be feasible. For household surveys, the following characteristics generally should be met:

- small target population;
- small survey area, the entirety of which can be covered by the resources available;
- detailed sampling frame is available, listing, at minimum, all households in the survey area, or, at best, all eligible individuals in the survey area.

Simple random sampling can be combined with stratification. In stratified random sampling, the population is first stratified and then a random sample is drawn from each strata.

Note: If simple or stratified random sampling is deemed to be feasible in a country, a smaller sample size can be used. In the calculation for sample size a design effect of 1 should be used.

Multi-stage cluster sampling Multi-stage cluster sampling is one of the most common sample designs for national surveys and it is the recommended method for most STEPS surveys.

"Multi-stage" indicates that sampling is done in several steps. First larger sampling units are selected then smaller sampling units are selected within the selected larger units. "Cluster" refers to the fact that the sampling units are subdivided into mutually-exclusive clusters and, unlike stratification, only a **sample** of these clusters is selected for the survey.

Why use multi-stage cluster sampling? The table below highlights two primary reasons for using multi-stage cluster sampling. These are very common problems in national surveys that can be overcome with the use of multi-stage cluster sampling.

Problem	Solution
Detailed information does not exist for all households or individuals in the sample population and it is not feasible to create a detailed sampling frame for the entire survey area.	Multi-stage cluster sampling allows for the selection of larger sampling units (e.g. villages) that require less detailed information about the target population. It is only at the final stage of sampling (most often the selection of households) that detailed information needs to be available. However, because only a selection of clusters will be chosen at each stage of sampling, the detailed sampling frames are only needed for a subset of the entire target population.

Continued on next page

Choosing the Sample Design, Continued

Why use multi-stage cluster sampling? (cont.)

Problem	Solution
The survey area is too large and/or travel costs are too high to draw a sample from the entire country or all regions of interest.	<p>Because the sample is only drawn from selected clusters, multi-stage cluster sampling allows for a reduced area to be surveyed while maintaining a sample that is nationally (or subnationally) representative.</p> <p>Note: Using multi-stage cluster sampling does not <i>guarantee</i> a representative sample. If done incorrectly, it will not result in a representative sample. The design of the clusters and the selection of clusters at every stage must be done carefully and consistently and must be documented in detail.</p>

Preparing a Multi-stage Cluster Sample

In order to implement multi-stage cluster sampling, the population must be divided into clusters, each of which contain either a number of smaller clusters or, at the final stage, households or individuals.

The flowchart to the right is one example of the multiple sampling stages that could be defined for a country.

Most often the first stage uses enumeration areas (EAs) from census information. The intermediary stages, if any, may be comprised of existing geopolitical units (e.g. villages) or artificially-created units (e.g. a specified collection of city blocks).

Population



District



Village



Household



Individual

Important: The number of sampling units at the initial stage must be fairly numerous (i.e. >100) so at least 50-100 of them can be selected. Selecting a smaller number of sampling units at the initial stage of sampling results in more clustered data and a loss of precision in survey estimates.

A sampling frame will need to be constructed for all clusters in the first stage of sampling. At minimum these sampling frames must contain the total number of households or total number of target individuals in the cluster.

Sampling frames will only be needed for **selected** clusters at all subsequent stages of sampling, with detailed information (i.e. lists of households or eligible individuals) only needed for the sampling frames for the last stage of sampling.

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Choosing the Sample Design, Continued

Multi-stage Cluster Sampling Terminology

The table below describes some key terminology for multi-stage cluster sampling.

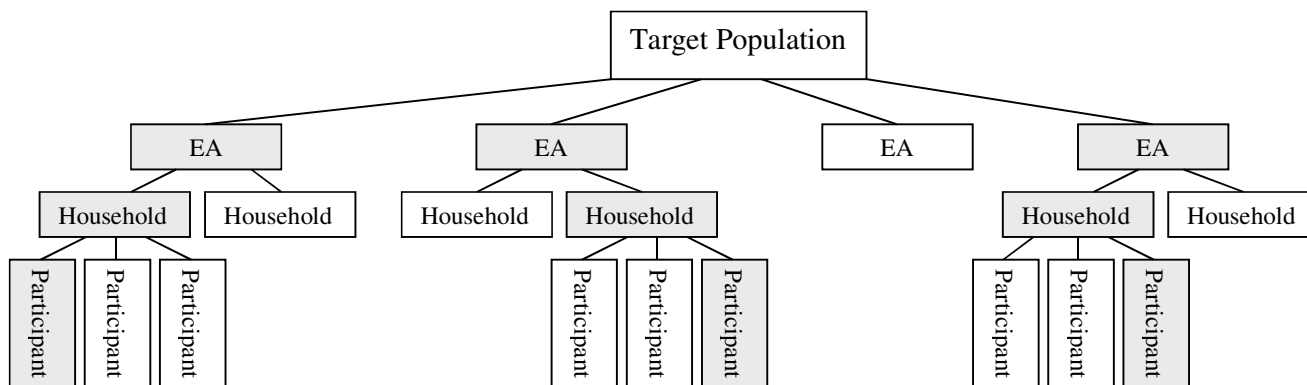
Term	Definition
Primary Sampling Unit (PSU)	These are the clusters that are selected first. Most often the PSUs are enumeration areas (EAs) from a recent census.
Secondary Sampling Unit (SSU)	The clusters that are selected second, separately within each selected PSU.
Tertiary Sampling Unit (TSU)	The clusters that are selected third, separately within each selected SSU.

The list of terms could be extended to describe more levels of sampling as needed.

Example 1

In the following example, there are three stages of sampling. EAs are serving as the PSUs. For each selected PSU, a sampling frame was created comprised of a list of households in the EA. Households were then selected within each PSU and then one participant was selected within each household.

Shaded boxes indicate that the cluster or participant was selected.



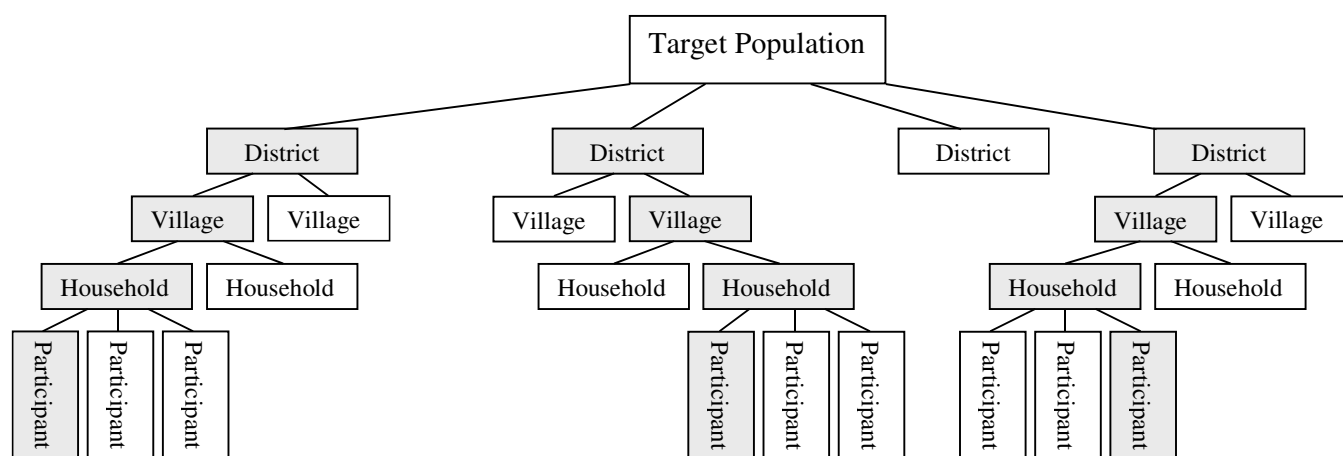
Continued on next page

Choosing the Sample Design, Continued

Example 2

In this example, there are four stages of sampling. Districts are serving as the PSUs. For each selected PSU, a sampling frame was created comprised of a list of all villages (the SSUs) with the target population of each village. For each selected village, a sampling frame was also created, comprised of a list of all households in the village. If a detailed list of all eligible individuals were available for any selected village, this list could be used in place of the household list and selection could proceed directly from the village level to the participant level.

Shaded boxes indicate that the cluster or participant was selected.



Qualities of a Good Multi-stage Cluster Design

One very important check to perform on the multi-stage cluster design is that every individual in the target population is included in only one sampling unit per stage. This means that the clusters at each level of sampling must cover the entire target population and be mutually exclusive (non-overlapping).

Additionally, it is important to check the characteristics of the PSUs. The first two items in the table below can be used to check the SSUs, TSUs, etc. as well, but given the nature of multi-stage cluster designs, these checks are most critical for the PSUs.

If ...	Then ...
PSUs exist that are very small.	Combine these PSUs with a neighboring PSU before selecting the sample.
PSUs exist that are very large.	Split these PSUs into two or more smaller PSUs that are more similar in size to other PSUs.
Total number of PSUs is small (i.e. <100).	Begin sampling at the SSU level (the SSUs would then become PSUs) or subdivide the existing PSUs to ensure that at least 50-100 PSUs can be selected.

Continued on next page

Choosing the Sample Design, Continued

Sample Allocation and Multi-stage Cluster Design

Once the sampling units to be used for PSUs, SSUs, etc. have been determined, the allocation of the sample must be decided. That is, the total number of PSUs to be selected, the total number of SSUs to be selected per PSU, etc. must be determined.

The table below describes the steps to take to determine how to allocate the sample.

Step	Description
1	Calculate the total sample size.
2	Assess the resources available and determine the total number of PSUs to be sampled, keeping in mind that at least 50 to 100 PSUs should be selected.
3	Divide the total sample size by the number of PSUs to be sampled to determine the number of individuals to be sampled per PSU.
4	Continue subdividing the sample size at each stage of sampling according to the number of sampling units to be selected at each stage.

Note: As stated previously, stratification can be combined with a multi-stage cluster design. The total number of PSUs would be allocated proportionately or disproportionately (depending on the requirements of the survey results) across all strata and sample allocation would continue within each strata following the steps above.

Example

For this example, assume that the total sample size has been calculated to be 2,880 individuals. It has also been decided that regions will serve as PSUs, villages will serve as SSUs, and then households will be selected in each village. Resources will allow for 72 PSUs to be selected, meaning that 40 ($= 2880/72$) individuals will be selected per PSU.

There is some flexibility in how the 40 individuals per PSU are allocated. At this point it would be worthwhile to consider a few scenarios and select the one that is feasible yet provides a good distribution of individuals across the PSU (i.e. not too many or too few of the 40 individuals drawn from a given village). Two scenarios are presented below:

Continued on next page

Choosing the Sample Design, Continued

Scenario	Description
1	10 individuals will be selected per village, meaning that 4 villages (= 40/10) must be selected per PSU. <u>Sample allocation:</u> 72 regions x 4 villages/region x 10 individuals/village = 2880
2	5 individuals will be selected per village, meaning that 8 villages (= 40/5) must be selected per PSU. <u>Sample allocation:</u> 72 regions x 8 villages/region x 5 individuals/village = 2880

In terms of resources, the key difference between the above scenarios is the number of villages that would need to be visited within each PSU. This number will likely be a deciding factor in the allocation of the sample, keeping in mind that having a high number of individuals selected from only a few villages would result in greater clustering of survey data and a potential loss of precision in survey estimates.

Example with stratification

For this example, assume again that the total sample size has been calculated to be 2,880 individuals and that regions will serve as PSUs, villages will serve as SSUs, and then households will be selected in each village. Resources will allow for 80 PSUs to be selected. However, the survey designers wish to ensure that the sample is drawn proportionately across the 4 islands that comprise the country.

The table below shows the proportion of the total underlying population that each island represents. The right-most column shows how the number of PSUs would be proportionately allocated across these 4 islands or strata.

Island	Proportion of Total Pop.	PSUs
A	0.50	40
B	0.175	14
C	0.125	10
D	0.20	16
Total	1.00	80

Thus, 40 regions (PSUs) will be picked out of all regions on island A, 14 regions will be picked out of all regions on island B, and so on. Once the PSUs are selected per island, sample allocation continues just as in the preceding example, with the same number of villages being selected in each PSU, regardless of the island on which the PSU is located.

Selecting the Sample

Introduction Once the sample design is selected and the sampling frame has been prepared, sample selection can start. This section provides instructions for the various stages of sampling.

Available tools There is an Excel workbook entitled **STEPSSampling.xls** that includes spreadsheets for every stage of the sample selection. STEPSSampling.xls will:

- provide probability proportional to size (PPS) sampling (see description below) for primary and secondary sampling units as needed;
- randomly select households or individuals;
- provide information for weighting the data.

The spreadsheet is available on the STEPS website (www.who.int/ncds/steps).

Probability proportional to size (PPS) sampling Probability proportional to size (PPS) sampling is a method for selecting a sampling unit in which the probability of selection for a given sampling unit is proportional to its size (most often the number of individuals or households within the sampling unit).

PPS sampling is appropriate for use when sampling units are of markedly different size. In these situations, were random sampling to be used to select sampling units, those individuals in the larger sampling units would have a much smaller chance of selection than those individuals in the smaller sampling units. PPS sampling corrects this problem, therefore reducing bias in survey estimates.

Instructions for PPS sampling The table below outlines the steps required to perform PPS sampling on a list of sampling units. Before beginning, a list of sampling units and their corresponding sizes (in number of households or in population) must be compiled. It is recommended that this list be organized geographically, meaning that sampling units located near each other are also near each other on the list. Additionally, the number of sampling units (clusters) to be selected must be decided.

The **STEPSSampling.xls** tool will automatically perform Steps 3 through 8 in the table below. The instructions worksheet inside the file explains how to perform PPS sampling using either the PSU or SSU worksheet in the file.

Continued on next page

Selecting the Sample, Continued

Instructions for PPS sampling (cont.)

Step	Action
1	Create a list of all sampling units with their size (either number of households or population). If possible, order this list geographically, placing sampling units that are physically adjacent near each other on the list.
2	Determine the number of sampling units to be selected from the list.
3	Create a new column containing the cumulative size of the sampling units. The final total should match the total population across all sampling units.
4	Divide the total cumulative population size (N) by the number of sampling units to be selected (n) to obtain the sampling interval (k). $k = N/n$
5	Choose a random number (r) that is between 1 and the sampling interval (k). $1 < r < k$
6	Start at the top of the list and select the first sampling unit whose cumulative population size includes the random number (r).
7	To select the second cluster, first add the sampling interval to the random number (r). Then begin counting from the previous cluster selected until the cumulative population size includes this sum (r+k).
8	Select the remaining clusters by adding the sampling interval, multiplied by 2, then 3 and so on, to the random number. Always start counting from the previous cluster selected not the start of the list. $r+(k*2)$ $r+(k*3)$ etc
9	Continue until the end of the list is reached. Do not stop as soon as n units have been selected. To avoid bias, all units selected must be used in the survey even if the number is slightly greater than n.

Using PPS sampling with a multi-stage cluster design

PPS sampling can be applied at all stages of a multi-stage cluster design except for the final stage in which households or individuals are selected.

The **STEPSsampling.xls** tool provides worksheets for selecting PSUs and SSUs using PPS sampling. The worksheet entitled PSU allows for the selection of up to 100 PSUs from an entered list of all PSUs. The worksheet entitled SSU allows for the selection of the SSUs within each selected PSU. Therefore, the SSU worksheet must be duplicated, one for each PSU that was selected, so that an independent selection of SSUs can be performed for each PSU.

Continued on next page

Selecting the Sample, Continued

Selection of households and/or individuals

The final stage of sampling, the selection of households and/or individuals, will depend on the type of information available. The table below describes the possible scenarios for the final stage of sampling and the sample selection process for each.

If ...	Then ...
<p>A list of eligible individuals is available for the selected sampling unit (e.g. village).</p>	<p>First check that the list of eligible individuals meets the following requirements:</p> <ul style="list-style-type: none"> • the list is up to date, for example, people who have moved away or who have died are not included in the list; • the list contains specific information allowing for each selected individual to be located by the interviewers. <p>If both conditions are met, the selection of individuals can be done randomly from the list.</p>
<p>No or limited information is available about the individuals in the selected sampling unit but a list of households exists for the sampling unit.</p>	<p>First check that the list of households meets the following requirements:</p> <ul style="list-style-type: none"> • the list is up to date and each household listed represents a single dwelling; • the list contains specific information allowing for each selected household to be located by the interviewers. <p>If both conditions are met, the selection of households can be done randomly from the list. From the selected households, participants can be selected randomly using the STEPS Android app.</p> <p>If there is a concern that the list may be out of date, it is recommended that the field team first performs a quick mapping and household listing of the selected sampling units/clusters to update the list, noting abandoned/destroyed dwellings, new dwellings, or expanded dwellings (single family into multi-family).</p>

Continued on next page

Selecting the Sample, Continued

Selection of households and/or individuals (cont.)

If ...	Then ...
The number of households is known for the sampling unit but there is no information about their location.	In this situation the sampling unit should be mapped to determine the location of the households. Please contact the STEPS team for more guidance on this method or other alternatives.

In the **STEPSsampling.xls** tool, the "RandHhold" worksheet can be used to randomly select the desired number of participants from a list of eligible individuals or the desired number of households from a list of households.

It is possible that some sampling units have more detailed information available than others. In this case, the above scenarios can be used on a case-by-case basis, meaning in some sampling units with more detailed information individuals may be selected directly while in other sampling units with less detailed information households may need to be selected first.

Note: In all STEPS survey designs, sampling is non-replacement, meaning that once a unit or person is selected they are not replaced with another person/unit. If non-respondents or persons who are not at home for the interview are replaced, a convenience sample will be performed and the results will only represent the people sampled and not the target population.

Selection of an individual within a household

In most STEPS surveys, the selection of an individual within a household is only done once the STEPS data collector is in the household. The Android STEPS app has an integrated random selection procedure, whereby eligible household members are entered and one participant from this list is randomly selected by the device.

Eligibility criteria for households and members of the households to be included will need to be defined by the STEPS Coordinating Committee in advance of the fieldwork.

Oversampling for 60-69 year olds

Depending on a country's population structure it may be difficult to obtain enough respondents from the 60-69 year old age group to get precise estimates for this age group. One possible solution to this problem is to oversample this age group at the household level. Therefore, at each household with adults aged 60-69, two adults will be selected.

Documenting the Sample Design

Introduction Once the sample design and methodology have been chosen, all aspects of the sample need to be clearly documented.

Purpose The purpose of documenting the sample design is primarily for the data analyst to understand how the sample was drawn in order to appropriately adjust the results to the target population. Additionally, an abbreviated version of the documentation should always accompany any presentation of the survey data to explain how the data were collected.

Recordkeeping during data collection Sufficient records must be kept **during data collection** to ensure that the data analyst can do all possible adjustments to make the results representative of the target population. Most importantly, the data analyst must know:

- the probability of selection of each sampling unit at every stage of sampling (i.e. probability of selection for each PSU, SSU, household, individual);
- the age and sex of any non-responders.

Thus, it is critical to keep a record of the following:

- all sampling frames used at each stage of sampling
 - sample selection method used at each stage of sampling
 - stratification design, if stratification is used
 - for each respondent, the PSU, SSU, etc. from which he/she was selected.
-

Future surveys Documenting the sample design and methodology is also important for future surveys when changes in risk factors over time are being examined, since methods chosen in future surveys may differ from this one and thus affect comparability.

Archiving documents It is important that all relevant sampling materials be archived. This includes the forms discussed in the next topic of this Section, "Preparing Data Collection Forms", as well as all information used to design and draw the sample.

If the sample is drawn by another government entity (e.g. the Statistics Bureau), be sure to obtain from them all materials and information that were used to draw the sample.

Preparing Data Collection Forms

Introduction

Once the sample has been drawn, the Interview Tracking Forms and the Step 3 Appointment Cards should be prepared for the data collection team. It is recommended that the field team supervisors and the statistical adviser collaborate on this task to ensure the forms are correctly filled out and properly organized for data collection.

Assigning Unique Identifiers and preparing stickers QR codes

Before preparing the data collection forms, ID Numbers must be assigned to all interviewers and to all selected clusters from which households and/or individuals will be selected. Additionally, all households and all participants to be selected should each be assigned a unique ID.

Due to the fasting requirement for Step 3 measurements, data collection for Step 1 and 2 generally takes place a day before data collection for Step 3. The unique ID of the participant will help match the Step 1 and 2 data with Step 3 data. In order to exclude errors during this matching process, it is recommended to also use Quick Response (QR) codes.

In preparation of the field work, the QR codes are printed on stickers. It is recommended to put one sticker on each container for urine collection or on each Step 3 Appointment Card as they are prepared, before handing them out to the interviewers. The Geneva STEPS team can help print the stickers.

During data collection, the QR codes are scanned for each participant with the Android device: once during data collection for Step 1 and 2, and once during data collection for Step 3.

The table below provides further instructions for assigning ID Numbers.

Continued on next page

Preparing Data Collection Forms, Continued

Variable	Description
Interviewer ID	Every interviewer should be assigned a unique ID number.
Device ID	Every Android should be assigned a unique ID number. If a device stops working during data collection, do not re-assign its Device ID to another device. It is recommended to assign the device the same ID as the interviewer using it.
Cluster ID	<p>A unique number should be assigned to all selected sampling units from which households and/or individuals will be selected. Often these sampling units are villages, but could instead be city blocks, city districts, etc., depending on the sample design.</p> <p>Note: If household or individual selection is the <u>first or only</u> stage of sampling, it is not necessary to use Cluster IDs.</p>
Household ID	<p>All households to be visited should be assigned a unique ID. The Android STEPS app will automatically generate a unique household ID for each household visited based on a combination of the device ID and a unique number. If the app is not used and household IDs are generated manually, these numbers should be consecutive from 1 through the total number of households to be visited.</p> <p>If no interview is conducted at a selected household, the Household ID assigned to it is simply not used.</p>
Participant ID	<p>All participants should be assigned a unique ID. The Android STEPS app will automatically generate a unique participant ID for each participant based on the Household ID plus a unique number. If the app is not used and participant IDs are generated manually, these need not be consecutive and can be grouped by Cluster ID, where a sequence of participant IDs is associated with each Cluster ID (e.g. Participant IDs 101-120 are assigned to Cluster ID 1, Participant IDs 201-220 are assigned to Cluster ID 2, etc.).</p> <p>Note: In countries where no oversampling is done and IDs are generated manually, Participant and Household IDs can be the same.</p>
QR code	In addition to the Participant ID, QR codes can be used to avoid errors, and to ensure easy matching of data collected for Step 1 and 2 with data collected for Step 3. The QR codes must be unique for each survey participant and are scanned using the Android device.

Continued on next page

Preparing Data Collection Forms, Continued

Assigning Unique Identifiers (cont.)

The following identifiers will also need to be assigned and made available to the data collection team as needed:

Variable	Description
Technician ID	If Step 2 and/or Step 3 will be implemented by someone other than the interviewer (e.g. specific Step 2 and/or 3 data collectors), these individuals should be assigned a Technician ID.
Device ID	Any equipment used for Step 2 and 3 should be assigned a unique Device ID.

Interview Tracking Form

All countries should use the Interview Tracking Form (see template in Part 6, Section 2) regardless of their sample design. This information is used for calculating the weights and response proportions for Step 1, Step 2, and Step 3.

Before data collection begins, Interview Tracking Forms should be completed for each Cluster and each interviewer who will conduct interviews in that Cluster.

Before data collection begins, the following should be completed on each Interview Tracking Form:

- Cluster ID
- Interviewer ID
- Household IDs (if not using auto-generated IDs from STEPS app)
- Participant IDs (if not using auto-generated IDs from STEPS app).

Note: If household or individual selection is the first stage of sampling (i.e. Cluster IDs are not used), then prepare the Interview Tracking Forms for each interviewer without assigning Cluster IDs.

Step 3 Appointment Card

The Step 3 Appointment Card (see template in Part 6, Section 2) that serves for arranging appointments at the Step 3 location should be partly filled in before the interviewers start data collection:

- Participant ID (if not using auto-generated IDs from STEPS app)
- Centre name

If the stickers with the QR codes for each participant are not put on the containers for urine samples, these can alternatively be put on the Step 3 Appointment Card.

Part 3: Data Collection

Overview

In this Part

This Part covers the following topics

Topic	See Page
Section 1: Introduction to eSTEPS and Preparation of the Data Collection Environment	3-1-1
Section 2: Data Collectors Training and Pilot Test	3-2-1
Section 3: Data Collection Process	3-3-1
Section 4: Collecting Step 1 data: Interviews	3-4-1
Section 5: Collecting Step 2 data: Physical Measurements	3-5-1
Section 6: Collecting Step 3 data: Biochemical Measurements	3-6-1

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:

Topic	See Page
Introduction	3-1-2
Creating the electronic STEPS Instrument	3-1-3
Preparing the online eSTEPS platform	3-1-7
Preparing the Android devices	3-1-10

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'

Continued on next page

Creating the electronic STEPS Instrument, Continued

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

Continued on next page

Creating the electronic STEPS Instrument, Continued

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.

Continued on next page

Creating the electronic STEPS Instrument, Continued

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.

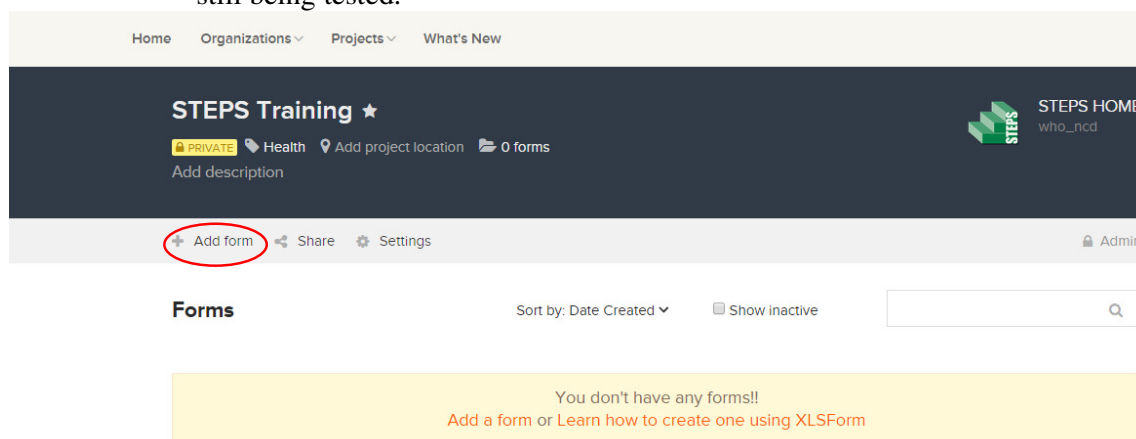
A username and password for the online household database will also be provided, where the household listing information for the survey can be accessed.

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.



The screenshot displays the eSTEPS platform interface for a project titled "STEPS Training". The top navigation bar includes "Home", "Organizations", "Projects", and "What's New". The project details section shows "PRIVATE", "Health", "Add project location", and "0 forms". A red circle highlights the "Add form" button in the bottom navigation bar. Below the navigation bar, the "Forms" section is visible, showing "Sort by: Date Created" and "Show inactive" options. A yellow message box at the bottom states: "You don't have any forms!! Add a form or Learn how to create one using XLSForm".

Continued on next page

Preparing the online eSTEPS platform, Continued

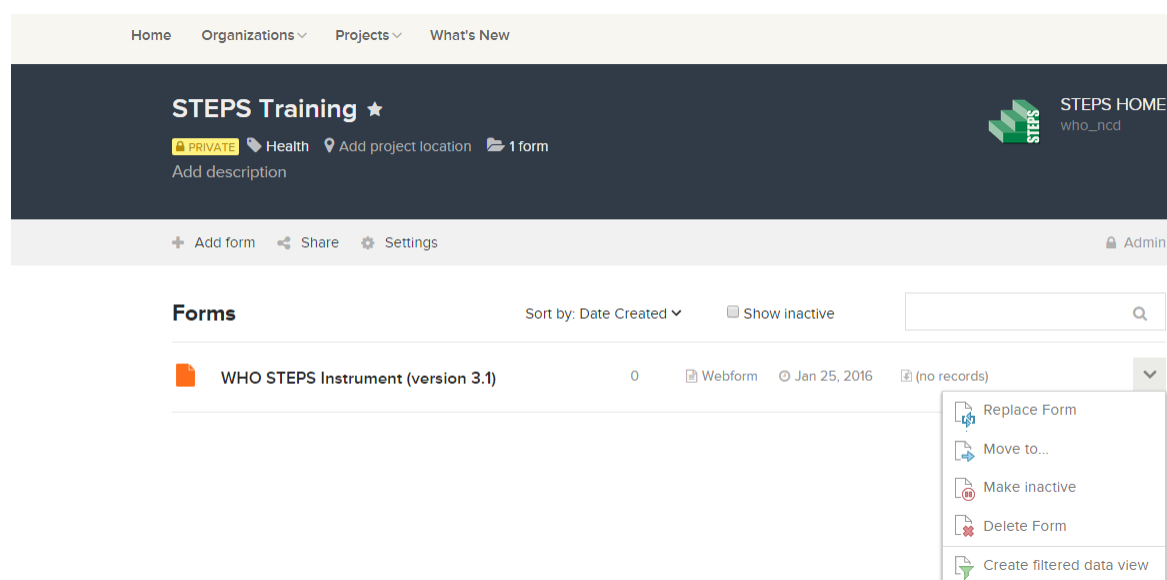
Adding forms to the eSTEPS project (cont.)

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).



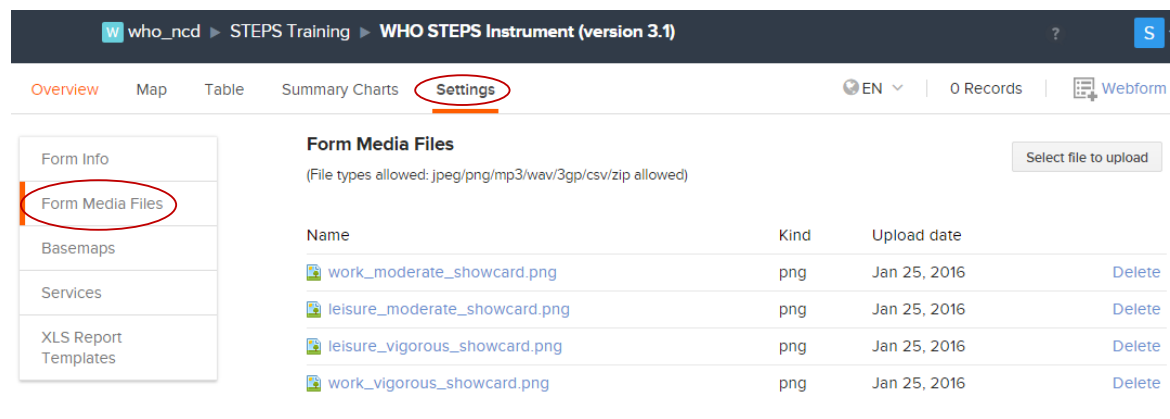
Confirm that you definitely want to replace the form and follow the instructions in the pop-up window to re-upload the XLSForm file.

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).



The screenshot shows the WHO STEPS Instrument (version 3.1) interface. The top navigation bar includes 'Overview', 'Map', 'Table', 'Summary Charts', and 'Settings' (highlighted). The left sidebar contains 'Form Info', 'Form Media Files' (highlighted), 'Basemaps', 'Services', and 'XLS Report Templates'. The main content area is titled 'Form Media Files' and includes a 'Select file to upload' button. Below this is a table of uploaded files:

Name	Kind	Upload date	
 work_moderate_showcard.png	png	Jan 25, 2016	Delete
 leisure_moderate_showcard.png	png	Jan 25, 2016	Delete
 leisure_vigorous_showcard.png	png	Jan 25, 2016	Delete
 work_vigorous_showcard.png	png	Jan 25, 2016	Delete

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.

Continued on next page

Preparing the Android devices, Continued

Setting up the STEPS app (cont.)

Setting	Description / What to Enter
Starting Household ID	<p>The starting number used to generate Household IDs on the device.</p> <p>What to enter: By default, this is automatically set to 1. Normally this should not be changed.</p>
Form ID	<p>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.</p> <p>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.</p>
Min and max age	<p>The minimum and maximum ages for participants in the survey.</p> <p>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.</p>
URL to export	<p>This provides the address of the server where the household listing data will be sent when exported from the device.</p> <p>What to enter: Do not edit. The URL of the server is automatically entered and must not be modified.</p>
URL to import	<p>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.</p> <p>What to enter: Do not edit. The URL of the server is automatically entered and must not be modified.</p>

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.

Continued on next page

Preparing the Android devices, Continued

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: <ul style="list-style-type: none">• 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:

Topic	See Page
Training Workshop	3-2-2
Training Preparation	3-2-3
Training Lesson Plan	3-2-5
Training Delivery Tips	3-2-9
Pilot Testing	3-2-13

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.

Continued on next page

Training Preparation, Continued

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
<i>Day 1</i>				
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.
<i>Lunch</i>				

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), <i>cont.</i>	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: <ul style="list-style-type: none">• 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. <p>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.</p>
4	Ask participants if they have any questions or topics they would really like to have covered in the training. <p>Note: Write the responses on the board and try and answer them during the training workshop.</p>

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

Training Delivery Tips, Continued

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

Training Delivery Tips, Continued

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

Training Delivery Tips, Continued

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

Pilot Testing, Continued

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:

Topic	See Page
Supervising Data Collection	3-3-2
Sequence of Data Collector's Tasks	3-3-5
Approaching Selected Households and Participants	3-3-7
Selecting a Participant within a Selected Household	3-3-9
Informing Participants	3-3-10
Obtaining Consent	3-3-12
Completing the Interview Tracking Form	3-3-13

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

Sequence of Data Collector's Tasks, Continued

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.

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

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

Approaching Selected Households and Participants, Continued

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: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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.

Continued on next page

Informing Participants, Continued

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: <ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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.

Step	Action								
1	<p>Use the following table to select the appropriate consent form for each person taking part:</p> <table border="1"> <thead> <tr> <th>In...</th> <th>Then use Consent Form...</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>Note: See Part 6, Section 2 for suggested drafts of consent forms.</p>	In...	Then use Consent Form...	Step 1 and 2 only	1	Step 1, 2 and 3	1 and 2		
In...	Then use Consent Form...								
Step 1 and 2 only	1								
Step 1, 2 and 3	1 and 2								
2	<p>For each participant, use two copies of the consent form(s) as follows:</p> <ul style="list-style-type: none"> • one for the participant to keep • one for the STEPS coordination office. 								
3	<p>Allow the participant to read the consent form(s) or, in case of poor eyesight or illiteracy, read it out to them.</p>								
4	<p>Use the table below to help with the following situations:</p> <table border="1"> <thead> <tr> <th>If...</th> <th>Then...</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>*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.</p>	If...	Then...	The intended participant declines to take part in the survey or parts of it.	Ask the participant whether he/she understands the purpose of the survey.	The participant does not understand the purpose of the survey or specific aspects of it.	Rephrase the purpose of the survey and try to clarify further.	The participant understands the purpose of the survey and the still declines to take part.	Circle "Refused" in the consent form and record age and sex as best you can.*
If...	Then...								
The intended participant declines to take part in the survey or parts of it.	Ask the participant whether he/she understands the purpose of the survey.								
The participant does not understand the purpose of the survey or specific aspects of it.	Rephrase the purpose of the survey and try to clarify further.								
The participant understands the purpose of the survey and the still declines to take part.	Circle "Refused" in the consent form and record age and sex as best you can.*								
5	<p>Get the participant to sign both copies.</p>								
6	<p>As the interviewer, you must sign as a witness.</p>								
7	<p>Thank him/her for agreeing to take part in the survey.</p>								

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)	<ul style="list-style-type: none">• 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.

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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	<p>Free area for interviewers to record comments. Some reasons to use this field may be that:</p> <ul style="list-style-type: none"> • 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 reflected 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:

Topic	See Page
Interview Skills	3-4-2
Recording information on the Android devices	3-4-8
Question-by-Question Guide	3-4-11
Show Cards	3-4-12
Demographic Information (Step 1)	3-4-13
Behavioural Measurements (Step 1)	3-4-14

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

Interview Skills, Continued

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	<p>Questions should be read:</p> <ul style="list-style-type: none"> • 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. <p>Do not change the:</p> <ul style="list-style-type: none"> • wording • order of the questions.
Making assumptions	<p>Don't make assumptions about the participants' answers with comments such as "I know this probably doesn't apply to you, but...".</p> <p>This practice may prevent accurate and unbiased information.</p>

Continued on next page

Interview Skills, Continued

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.
-

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Interview Skills, Continued

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: <ul style="list-style-type: none"> • 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"	<ul style="list-style-type: none"> • 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...?"

Continued on next page

Interview Skills, Continued

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	<ul style="list-style-type: none">• 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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Interview Skills, Continued

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.

Continued on next page

Recording information on the Android devices, Continued

“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

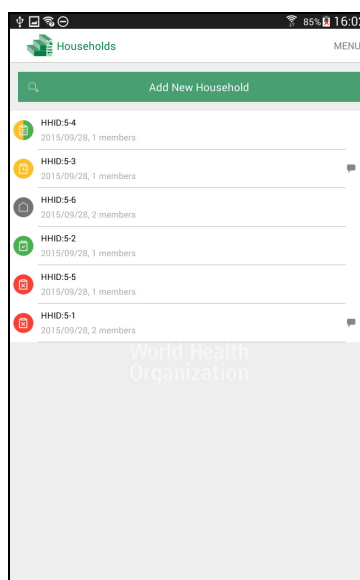
Skips are programmed into the electronic instrument and are performed automatically, thus skip instructions are not included.

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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Recording information on the Android devices, Continued

Records management (cont.)

Each of the icons is explained below:

-  Interview partially complete
-  Interview deferred
-  Empty household (i.e. selection of participant not yet done, no one ever found at household, household abandoned, non-household)
-  Interview complete
-  Interview refused

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.

Continued on next page

Behavioural Measurements (Step 1), Continued

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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Behavioural Measurements (Step 1), Continued

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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Behavioural Measurements (Step 1), Continued

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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Behavioural Measurements (Step 1), Continued

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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Behavioural Measurements (Step 1), Continued

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).

Continued on next page

Behavioural Measurements (Step 1), Continued

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.
-

Continued on next page

Behavioural Measurements (Step 1), Continued

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:

Topic	See Page
Physical Measurements Overview	3-5-2
Physical Measurements	3-5-3
Taking Blood Pressure and Recording Heart Rate	3-5-5
Measuring Height	3-5-8
Measuring Weight	3-5-9
Measuring Waist Circumference	3-5-10
Measuring Hip Circumference	3-5-12
Completing the Participant Feedback Form (Step 2)	3-5-14
Referrals and information for Step 3 Measurements	3-5-15

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.
-

Continued on next page

Physical Measurements, Continued

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.

Continued on next page

Taking Blood Pressure and Recording Heart Rate, Continued

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: <table border="1"><thead><tr><th>Arm Circumference (cm)</th><th>Cuff Size</th></tr></thead><tbody><tr><td>17 -22</td><td>Small (S)</td></tr><tr><td>22-32</td><td>Medium (M)</td></tr><tr><td>> 32</td><td>Large (L)</td></tr></tbody></table>	Arm Circumference (cm)	Cuff Size	17 -22	Small (S)	22-32	Medium (M)	> 32	Large (L)
Arm Circumference (cm)	Cuff Size								
17 -22	Small (S)								
22-32	Medium (M)								
> 32	Large (L)								
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

Taking Blood Pressure and Recording Heart Rate, Continued

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: <ul style="list-style-type: none">• footwear (shoes, slippers, sandals, etc)• head gear (hat, cap, hair bows, comb, ribbons, etc).• any fancy or high hairdos may have to be pressed. <p>Note: If it would be insensitive to seek removal of a scarf or veil, the measurement may be taken over light fabric.</p>
2	Ask the participant to stand on the board facing you.
3	Ask the participant to stand with: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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

Measuring Waist Circumference, Continued

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: <ul style="list-style-type: none">• 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.

Continued on next page

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: <ul style="list-style-type: none">• 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:

Topic	See Page
Biochemical Measurements Overview	3-6-2
Urine Collection	3-6-4
Urinary Sodium and Creatinine Measurement	3-6-6
Blood Collection	3-6-7
Measurement of Blood Glucose and Lipids	3-6-9
Completing the Participant Feedback Form (Step 3)	3-6-11

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.

Continued on next page

Biochemical Measurements Overview, Continued

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 health 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.	

Continued on next page

Urine Collection, Continued

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.

Continued on next page

Blood Collection, Continued

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:

Step	Action				
1	Fill in the following details on the Step 3 Registration Form: <ul style="list-style-type: none"> • 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. 				
2	Ask the fasting question (first question on the instrument under Step 3, Code B1) and record the answer.				
3	If the participant has not fasted correctly, then: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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. 				
4	<table border="1"> <thead> <tr> <th>If...</th> <th>Then explain to the participant that...</th> </tr> </thead> <tbody> <tr> <td>The participant has fasted correctly</td> <td> <ul style="list-style-type: none"> • 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> </tbody> </table>	If...	Then explain to the participant that...	The participant has fasted correctly	<ul style="list-style-type: none"> • 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.
If...	Then explain to the participant that...				
The participant has fasted correctly	<ul style="list-style-type: none"> • 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. 				

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.

Continued on next page

Measurement of Blood Glucose and Lipids, Continued

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.
-

Part 4: Data Management and Analysis, Reporting and Disseminating Results

Overview

In this Part

This Part covers the following topics

Topic	See Page
Section 1: Creating the Final Dataset	4-1-1
Section 2: Data Analysis	4-2-1
Section 3: Reporting and Disseminating Results	4-3-1
Section 4: Data Policies and Archiving	4-4-1

Section 1: Creating the Final Dataset

Overview

Introduction This section covers all the tasks that need to be conducted to prepare the final STEPS dataset for analysis.

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

- Field team supervisors
- STEPS Survey Coordinator
- Data analyst.

Overview of process Once data collection has been completed, one person should oversee the task of creating the final dataset. This task may be completed by the data analyst, but they may need assistance from the survey coordinator or field team supervisors to coordinate obtaining all data files from the devices used for data collection and amassing the Interview Tracking Forms.

The process for creating the final dataset is comprised of three stages:

- Downloading the data
- Cleaning the data
- Weighting the data.

While the first two stages should be able to be completed within a few hours, the time needed for weighting the data can vary from less than a day to several days or weeks, depending on the availability and cleanliness of the sampling information.

In this section This section covers the following topics:

Topic	See Page
Downloading the data	4-1-2
Cleaning the data	4-1-3
Weighting the data	4-1-5

Downloading the Data

Introduction Prior to downloading the data from the online eSTEPS platform, all Android devices should be checked to ensure that all completed questionnaires have been uploaded to the server.

On each device, tap on “Submit Records” from the STEPS home screen Menu to check if there are any records still to be submitted. Only once this check has been done on all devices should the data be downloaded.

Procedure Follow the instructions in the table below to download your STEPS data from the online eSTEPS platform.

Step	Description
1	Log into the online eSTEPS platform using your user name and login.
2	Click on the link to your survey. This will take you to a list of all instruments associated with your survey. Note: If there are two instruments for your survey (e.g. one for Step 1 and 2 data and one for Step 3 data) you will need to complete Steps 2-6 twice, once for each instrument. At the end of this process, you will have two separate datasets which will need to be merged together by matching records by Participant ID.
3	Click on the link to your instrument.
4	In the “Export data” box on the screen, choose the format in which you wish to download your data. Excel is the recommended format.
5	Click on “Show advanced export options” and make sure “Remove prefixed group names” is not selected.
6	Click on the “Prepare Excel” button just underneath the file type selection.
7	Wait for the file to be prepared. Once it is ready, you will see a “Download XLSX” button at the bottom of the Export data box on the screen. Click on this button to download your data. The file will automatically be named as follows: [your instrument file name]_[date]_[time].xlsx. Thus, the date and time of the data download are automatically included in the name of the file.

Household data While the downloaded data from the online eSTEPS platform already includes the household size information from the household listings (needed to weight the data), it is still important to download and review the household data for your survey as it contains important information pertaining to participant selection.

Log into the household database of the eSTEPS online platform using the Survey ID and password for your survey then click on “Download XLS” to download the household data to a csv file (can be read in Excel).

Cleaning the Data

Introduction While the STEPS Android app assures a very high level of data quality (i.e. skips have been properly followed and responses are internally consistent), there are still errors that can happen during data collection. Described here are a variety of checks that should be performed on your STEPS dataset.

Participant ID Participant ID (PID) is automatically generated by the STEPS app when the participant is selected at the household level. If Step 3 data collection occurs during a follow-up visit to the household or at a nearby location, this PID will need to be entered by the Step 3 data collector. It is at this point that data entry errors may occur.

PID should be unique across all records and will serve to align the Step 1 and 2 with Step 3 datasets when Step 3 data is collected separately.

Note: It is possible to incorporate into the local STEPS Instrument a barcode or QR code as an additional means to label and match records. Contact the WHO Geneva STEPS team for more information.

Location variables At the beginning of the STEPS Instrument, there are a few variables that identify the location of the survey. At minimum there is usually Cluster ID and Cluster Name, though the names of these variables may be modified in your local STEPS Instrument and additional variables may be added.

The location variables are critical for weighting the data. An error in Cluster ID (or the equivalent in your local STEPS Instrument) would mean the wrong sampling weight is assigned to a given record. Thus, location variables must be carefully reviewed to assure they are correct. It is also important that the IDs used to identify sampling units (e.g. villages) in your dataset match the IDs in the sampling documentation. You will need to review the sampling information to ensure such alignment.

Open-ended questions Throughout the STEPS Instrument, there are open-ended questions, such as the number of manufactured cigarettes smoked per day. While the electronic STEPS Instrument should have included limits on these fields, these limits are typically quite generous. Therefore, the responses to these questions should be reviewed to identify any possible errors. Keep in mind that some responses may not seem questionable in isolation, but may seem very questionable when reviewed alongside the participant's responses to related questions. For example, a person who smokes 30 manufactured cigarettes a day may not seem unusual. But if the same person claims to also smoke 30 hand-rolled cigarettes per day and 30 cigars a day, then the response becomes questionable.

Continued on next page

Cleaning the Data, Continued

Resolving errors

If possible, try to correct any errors found in the dataset. You can use existing survey documentation (e.g. sampling documentation, interview tracking forms) to double check location variables. For errors in questionnaire responses, it is best to follow up with the field team supervisor(s) to see if the relevant data collector can clarify. If possible, the participant can also be contacted to clarify their response.

Do not make any corrections to the dataset until you are certain you have the correct information. If you are unable to correct questionable data, it is recommended the data is excluded from the dataset. It is ok to exclude only part of an individual's record if the rest of their response does not appear to have any data entry errors.

Weighting the Data

Introduction If the data from your STEPS survey is analysed unweighted, the results are only representative of the sampled participants. In order to have results that are representative of your entire target population, your data must be weighted.

What is a weight A weight is a value given to a data record to adjust the importance given to it in analysis. It may be thought of as the number of persons in the population that are represented by each individual in the sample. Weights are calculated to adjust for the following aspects of a survey:

- probability of selection (sample weight);
 - non-response (non-response weight);
 - differences between the sample population and target population (population weight).
-

Sample weight The sample weight is comprised of the inverse of the probability of selection. For multi-stage sampling designs, this means calculating the probability of selection at every stage of selection and multiplying them all together. It requires knowledge of the probability of selection at all stages of sampling and is therefore the most difficult weight to calculate due to the amount of information needed.

While there are some tools available to help with the calculation of these weights, it is not possible to automate the process entirely due to differences in sample design between STEPS surveys.

If you used the STEPSsampling.xls file to draw your sample, you can use it to partially calculate the sample weights for your dataset. The worksheet "Info for Weighting" within the STEPSsampling.xls file contains directions for calculating the probability of selection up to the household or individual level (if individuals were selected directly).

If you used another means to draw your sample, it is recommended to create a summary table containing the probability of selection for each sampling unit in your sample. Contact the WHO Geneva STEPS team for help in developing a summary table.

For the probability of selection within the household (the final stage of sampling in most STEPS survey), the STEPS app automatically includes household size in the dataset.

Non-response weight The non-response weight is calculated by taking the inverse of the response rate either for the overall survey or, more often, for each subset of the survey.

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Weighting the Data, Continued

Non-response weight (cont.)

Non-response weighting is typically done for age and sex, though it can also be done for any other variables, such as location. Whatever variable is used, it must fulfil the following requirements:

- the variable should be known to be somehow related to the risk factors (for example, hair colour likely has little to do with whether or not people eat enough fruits and vegetables);
- the variable must be known for BOTH responders and non-responders (for example, years of education would probably not be available from non-responders).

In surveys like STEPS, in which the age and sex is not known until the participant is selected during a household visit, it is often difficult to have complete age and sex information for all non-responders. Therefore a non-response rate correcting for varying response rates by age-sex group often cannot be done.

However, it may be of interest in many STEPS surveys to assess response rate by location (e.g. urban vs rural areas or high vs low socioeconomic areas). Risk factors may be expected to vary by location and the location of both responders and non-responders should be known – thus location fulfils the two criteria listed above. To calculate a non-response weight for location, the response rate for each location should be calculated and the inverse of this figure would be applied as the non-response weight for all records from the location.

Population weight

The population weight allows for the correction of over- or under-representation in the sample of the targeted age-sex groups.

In order to calculate the population weight, you can first count the total number of participants in each of the age-sex groups covered by your survey. Use the sample weights to attain weighted counts for each age-sex group. You will then need to use recent Census data or similar to get these same counts for your underlying target population. Use this information to create a table like the one below, in which the population weight is shown in the last column. The columns labelled A and B show the proportion of each age-sex group in the target population or sample. These are calculated by taking the number of individuals in that age-sex group and dividing it by the total number of individuals. The population weight is derived from the ratio of these two proportions.

Continued on next page

Weighting the Data, Continued

Population weight (cont.)

<i>Example table to calculate population weight</i>	Target population	Proportion of target population (A)	Sample (sum of sample weights)	Proportion of sample (B)	Population Weight = A/B
Males, 18-29	2000	0.13	1181	0.08	1.78
Males, 30-44	1760	0.12	2214	0.15	0.78
Males, 45-59	1440	0.10	1919	0.13	0.77
Males, 60-69	1600	0.11	2214	0.15	0.71
Females, 18-29	2000	0.13	1476	0.10	1.33
Females, 30-44	1200	0.08	1919	0.13	0.64
Females, 45-59	3000	0.20	2214	0.15	1.33
Females, 60-69	2000	0.13	1919	0.13	1.07
Total	15000		15056		

Overall weight Once the sample, non-response (if needed), and population weights have been calculated and attached to your dataset, you will need to multiply these together to arrive at the overall weight for each Step of your survey. It is possible that non-response weight (if used) and population weights will vary slightly from each Step due to different response rates. It is thus recommended to calculate an overall weight for each Step of your survey. The Epi Info analysis programs provided by the WHO Geneva STEPS team (see Part 4, Section 2) have been designed so that there are different analysis weights for analyses of variables from each Step of the survey. These overall weights are named accordingly:

- WStep1
- WStep2
- WStep3.

Even if there is no difference in the overall weight for Step 1 versus Step 2, for example, you must create one analysis weight per Step in order to use the provided analysis programs.

Continued on next page

Weighting the Data, Continued

Stratum and PSU

If your sample design was anything other than a simple random sample, you will need to create variables that contain information about your sample design. These variables are conventionally named Stratum and PSU and their values depend on the sample design of your survey.

PSU typically contains the identifiers of the sampling units above the household level (e.g. villages, census blocks, or enumeration areas). PSU can usually be generated by copying the information from your Cluster ID variable.

Stratum allows you to identify a higher level of clustering in your sample design, such as province, region, or urban/rural. Using Stratum is optional. If you do not need it, simply create the Stratum variable and set it equal to 1 for all records.

Section 2: Data Analysis

Overview

Introduction The WHO STEPS team provides a suite of data analysis tools to assist you with the analysis of your STEPS data. While using these tools is not required, it is strongly recommended to use them not only to expedite the data analysis process but, more importantly, to ensure that the descriptive analysis is performed in a standardized way. Countries looking to develop their own data analysis tools or perform more complex analyses, are encouraged to use the STEPS tools to perform the standard descriptive analysis first.

This section provides a detailed overview of the data analysis tools available from the WHO STEPS team.

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

- data analyst
- statistical adviser
- STEPS Survey Coordinator.

Statistical adviser If the data analyst is not a survey statistician, it is important that he/she has access to a survey statistician for advice and support. The statistician should be a member of the STEPS Coordinating Committee and have regular contact with the data analyst.

If there is not a statistician available or further assistance is required please contact the WHO Geneva STEPS team at steps@who.int.

Data analysis software It is recommended to use Epi Info for data analysis (version 3.3 or higher), supplemented by Microsoft Access. (Note that currently Epi Info 7 does not support Microsoft Access project files containing analysis programs and therefore cannot yet be used with the STEPS analysis tools.)

Other software packages that are available to the data analysis team may be considered for statistical analyses. However, any alternative packages must be able to handle complex sample designs and will not necessarily be supported by the WHO Geneva STEPS team.

Technical support The WHO Geneva STEPS team can provide technical assistance and training for Epi Info and the use of the analysis tools to aid the data analyst in the cleaning, weighting, and analysis of the data.

Continued on next page

Overview, Continued

Tasks and timeframes

Data analysis cannot begin until the data has been cleaned and weighted (see Part 4, Section 1). Once that task is complete, the data analysis can be completed with the standard STEPS tools within the span of a week. Additional time would be needed if more complex analyses are going to be done. Note this does not include time to write the survey report (see Part 4, Section 3).

In this section

This section covers the following topics:

Topic	See Page
Preparing the Dataset	4-2-3
Epi Info Overview	4-2-5
Completing the Fact Sheet	4-2-8
Completing the Data Book	4-2-9

Preparing the Dataset

Introduction Once the dataset has been cleaned and weighted (see Part 4, Section 1), it must be prepared for analysis in Epi Info in order to use the standard STEPS analysis tools.

Epi Info Analysis Programs The standardized analysis programs provided by the STEPS team are encapsulated in an Access file containing a table of all the Epi Info analysis programs. This Access file is available on the STEPS website.

Preparing files and folders Once you have downloaded the Epi Info analysis programs, you must rename the file “STEPS.mdb”. This file must be located in the following location on your computer in order for the analysis programs to work:

C:\STEPS\EpiInfo

Additionally, you should create a folder called “Output Tables” and place it in this folder as well. This is where Epi Info will save all of your analysis output when you perform your analysis in Epi Info using the provided programs.

Create mandatory variables In order to use the Epi Info analysis programs the following variables must be in your dataset. These variables are included in most, if not all, of the data analysis programs and therefore the programs will not be able to run if they are missing. For the last 5 variables in the list, please refer to Part 4, Section 1 for more information about the development of these variables.

Variable	Description
Age	Age of the participant, calculated from date of interview and date of birth (if available, otherwise taken from the question on age of the participant).
Agerange	The age range into which the participant falls (e.g. “18-29”, “30-44”). This is a text variable.
Sex	A text variable containing the values “Men” and “Women”, generated from the variable C1 (sex) in the dataset.
Valid	A flag variable used to indicate which records should be included in all analyses. Records with either age or sex missing or age out of the age range of the survey receive a value of 2. Records with neither age or sex missing and age within the age range of the survey receive a value of 1.
WStep1	The complete analysis weight for Step 1 variables.
WStep2	The complete analysis weight for Step 2 variables.

Continued on next page

Preparing the Dataset, Continued

Create mandatory variables (cont.)

Variable	Description
WStep3	The complete analysis weight for Step 3 variables.
PSU	Unique identifiers for sampling units above the household level (e.g. villages or enumeration areas).
Stratum	Unique identifiers for sampling units above PSU (e.g. districts, urban/rural). If not needed, simply set Stratum=1 for all records.

Note that there are simple Epi Info programs included within the provided analysis programs to generate the first 4 variables in the above table, if you wish to create these within Epi Info. You will need to run **AgeRange 1869** and then **MissingAgeSex**. The next topic in this Section provides instructions on how to run programs in Epi Info.

Import data

Once the necessary folders have been created and the STEPS.mdb file has been placed in the correct location on your computer, you will need to import your data file into the STEPS.mdb file.

Prior to importing the file, count the number of variables (columns) in your dataset to confirm the number is not greater than 255 (the maximum allowable in Microsoft Access). If the number of variables is greater than 255, you will need to split your dataset into two data tables, each with Participant ID. Please contact the WHO Geneva STEPS team for help with splitting your dataset and making the necessary modifications to the analysis programs.

To import your data from Excel to Access, follow the instructions in the table below.

Step	Action
1	Open the STEPS.mdb file and go to the External Data tab. Click on “Excel” under this tab.
2	In the pop-up window, locate your Excel file and tick the option “Import the source data into a new table in the current database.” Click “OK”.
3	Click “Next” on the first screen of the Import Spreadsheet Wizard pop-up window.
4	Tick the option “First Row Contains Column Headings” and click “Next”.
5	Click “Next” on the next screen of the pop-up window. Then pick the option “No primary key” and click “Next”.
6	Enter “MasterDataSet” in the Import to Table field. Click “Finish”.

Contact the WHO STEPS team if your dataset is not already in Excel and you need assistance converting it to Excel in order to import it into Access.

Epi Info Overview

Introduction Epi Info is a free software package developed by the US Centers for Disease Control (CDC). While Epi Info has a broad range of functions, we are only referring to the Analysis module within this guide. Epi Info was chosen over a decade ago as the statistical software for which the STEPS tools were designed given that it is free, easy to use, and can appropriately adjust for complex sample designs.

This overview refers to Epi Info 3.5, which is freely available on US CDC website and on the STEPS website. (Note that currently Epi Info 7 does not support Microsoft Access project files containing analysis programs and therefore cannot yet be used with the STEPS analysis tools.)

Additional Resources This overview will only cover the basic skills needed to run the analysis programs and locate and interpret the results. There is a more in-depth Epi Info Training Guide available on the STEPS website.

Analysis settings Prior to running any analysis programs, you will need to make a slight change to the settings of the Epi Info Analysis module in order to have confidence intervals appear with your weighted analyses.

In the Epi Info Analysis module, click on “Set” at the bottom of the list of commands down the left-hand side of the screen. Change the Statistics option to “Advanced” and then click “OK” to save the change. You should only have to make this change once on your machine.

Running Analysis Programs Follow the instructions in the table below to run an analysis program located within your STEPS.mdb file.

Step	Action
1	Open the Epi Info Analysis module.
2	Click on “Open” in the Program Editor at the bottom of the screen.
3	In the Read Program pop-up window, you must check that the Project File is your STEPS.mdb file. If it is not, click on “Change Project” and locate and select your STEPS.mdb file. You should only have to make this change once on your computer until you work with another data file.
4	Select the program you wish to run from the Program drop down list and click “OK”.
5	You will now see the program code in the Program Editor. Click “Run” to run the program. It should complete in a few seconds.
6	The output of the program will have the same name as the program and be located in the C:\STEPS\EpiInfo\Output Tables folder.

Continued on next page

Epi Info Overview, Continued

Reading Epi Info Output

Nearly all output from the standard analysis programs will contain tables with results for men, then women, then both sexes. Some analyses produce multiple tables for each of these three groups.

An example prevalence table is shown below:

Men: Smoking status			
Forward			
Next			
agerange	D		
	1) daily and non-daily smokers	2) non-smoker	TOTAL
18-44	52	388	440
Row %	12.553	87.447	100.000
Col %	64.666	81.198	78.673
SE %	2.260	2.260	
LCL %	8.084	82.977	
UCL %	17.023	91.916	
Design Effect	2.042	2.042	
45-69	47	145	192
Row %	25.304	74.696	100.000
Col %	35.334	18.802	21.327
SE %	4.549	4.549	
LCL %	16.306	65.697	
UCL %	34.303	83.694	
Design Effect	2.091	2.091	
TOTAL	99	533	632
Row %	15.273	84.727	100.000
Col %	100.000	100.000	100.000
SE %	1.963	1.963	
LCL %	11.390	80.845	
UCL %	19.155	88.610	
Design Effect	1.878	1.878	

The **Total** column provides the total number of respondents included in the analysis for each age group as well as overall. In the above example, 632 men were included in the analysis, 440 men aged 18-44 and 192 age 45-69.

Row % provides the percentage of respondents in each category (column) for the age group or overall. In the above example, 12.6% of men aged 18-44 were current smokers (daily or non-daily smokers). Row % sums across the row. We generally use Row % in the STEPS reporting documents.

Col % provides the percentage of respondents within each category that fall into each age group. In the above example 64.7% of current smokers are aged 18-44. We do not generally use Col % in the STEPS reporting documents.

Continued on next page

Epi Info Overview, Continued

Reading Epi Info Output (cont.)

95% confidence intervals are provided in the **LCL%** and **UCL%** rows of the output tables. In the above example, the 95% confidence interval for the 12.6% of men aged 18-44 who currently smoke is 8.1-17.0.

Compacting the dataset

After you have run several analysis programs, your STEPS.mdb file will expand in size and become very large. When you have finished running your analysis programs (or if there is a noticeable slow down while you are in the middle of your analysis programs), close Epi Info and open your STEPS.mdb file in Access.

To compact your data file back to its usual size, go to the File tab and then click on “Compact & Repair”. After a few seconds your file should be back to its usual size.

Completing the Fact Sheet

Introduction

The STEPS Fact Sheet is a short summary of key results of the STEPS survey. It is intended to be distributed widely to draw attention to the survey results and highlight issues that will be covered in more depth in the survey report.

The STEPS Fact Sheet template and the STEPS Fact Sheet analysis guide are located in Part 6, Section 3 of the Manual.

Fact Sheet layout

The STEPS Fact Sheet contains a short paragraph that briefly describes when and where the STEPS survey has been carried out, the scope of the survey, as well as age groups covered, overall sample size and response rates, and a short description of the sampling method. Additionally, at the very end of the Fact Sheet there are contact details of the country STEPS Survey Coordinator. Be sure to complete these pieces of text as well as the data fields.

The main body of the Fact Sheet contains a small number of indicators for each of the behavioural and metabolic risk factors covered in the survey. Additionally, there are a few indicators in which behavioural and metabolic risk factors are combined. For each indicator, results are presented for the overall sample, for all males and for all females.

Fact Sheet Analysis Guide

The Fact Sheet Analysis Guide has been developed to assist data analysts in preparing the Fact Sheet. It looks similar to the STEPS Fact Sheet, but instead of the results columns, it contains one column that displays the standard question code of the question(s) required to calculate that particular indicator, and one column that includes the names of the Epi Info program that needs to be run to produce results for that indicator.

Procedure

To complete the STEPS Fact Sheet, it is recommended to first review the Fact Sheet Analysis Guide to determine which Epi Info programs needs to be run. If the relevant questions have been dropped from the local STEPS Instrument, the related line in the Fact Sheet can be removed.

Once all Epi Info analysis programs have been identified, follow the instructions provided in the Epi Info Overview earlier in this Section to run each program.

Point estimates (prevalences or means) should be rounded to one decimal point and be presented with 95% confidence intervals (also rounded to one decimal point).

Completing the Data Book

Introduction

The Data Book is a full tabulation, by age range and sex, of the data from all the questions and measurements in the STEPS Instrument. It is intended to serve as the basis for the country report, to guide the writers on what results to include and highlight in the report. While selected tables may be included in the body of the country report, it can be included in its entirety as an appendix to the report.

The template of the STEPS Data Book is located in Part 6, Section 3 of the Manual. Additional data book pages for the optional modules are available from the WHO STEPS team or can be downloaded from the STEPS website.

Data Book layout

After the title page and table of contents, the remaining pages of data book contain for each table of results a title, description of the table (including the full question text from the questionnaire) and analysis information for the data analyst. Results are presented in the same order as the questions in the questionnaire.

The analysis information contains the standard question codes for the questions required for the given analysis as well as the name of the analysis program that needs to be run to complete the table. The analysis information can be deleted once the data book has been completed.

Each of the data tables contains results for each age group for both sexes and for each sex separately. For each age-sex group in the table, the point estimate is given (prevalence or mean) along with 95% confidence interval (except for the demographic information) and the “n” (the total number of individuals included in the analysis for that age-sex group, for example, the total number of men aged 18-29 included in the analysis).

Procedure

To complete the STEPS Data Book, it is recommended to first review document to determine which Epi Info programs needs to be run. If the relevant questions have been dropped from the local STEPS Instrument, the related table(s) can be removed. Additionally, if after running an analysis program the “n” is very small (i.e. less than 50 respondents), you can either delete the entire table or, if there are enough respondents, only show results for the overall age group.

Once all Epi Info analysis programs have been identified, follow the instructions provided in the Epi Info Overview earlier in this Section to run each program.

Both the point estimates (prevalences or means) and the 95% confidence intervals should be rounded to one decimal point.

Continued on next page

Completing the Data Book, Continued

Formatting macros

There are formatting macros available from the WHO Geneva STEPS team to assist you in putting together your Data Book. These macros are located in two separate Excel files, one containing macros to format unweighted tables, the other containing macros to format weighted tables. Be sure only one of these is open on your computer at a time, else the macros may not work correctly.

To format a table from the Epi Info output, follow the instructions in the table below:

Step	Action
1	Copy the entire table from Epi Info and paste it into cell A1 in the PASTE sheet of the Excel macro file.
2	Run the macro that corresponds to your particular table. Refer to the Instructions sheet in the Excel file to see which macro should be run. Which macro to run depends on the type and size of the output table. For example, to format a means output table, press ctrl + m while on the PASTE sheet to run the macro.
3	The macro should take a few seconds to run at most. Once it is completed, you will have a formatted table you can now copy and paste directly into the corresponding table in the Data Book. Be sure to highlight all the relevant squares in the Data Book table before pasting.

Section 3: Reporting and Disseminating Results

Overview

Introduction	This section covers the tasks that are needed to prepare reports and disseminate the results of your STEPS survey.
Requirement	<p>The reports need to be produced in a timely manner after the completion of your survey. The results should be presented in a clear, concise and usable way to help:</p> <ul style="list-style-type: none">• raise awareness about preventing NCDs and their risk factors• guide public health policy and interventions to address NCDs• assist and inform future health research.
Intended audience	<p>This section is primarily designed to be used by those fulfilling the following roles:</p> <ul style="list-style-type: none">• STEPS Survey Coordinator• data analyst• STEPS Coordinating Committee.
Useful resources	<p>Some sections of the manual that may be useful in compiling and disseminating the results include:</p> <ul style="list-style-type: none">• Part 1, Section 1 : "Introduction";• Part 2, Section 2 : "Preparing the Sample";• Part 4, Section 2: "Data Analysis"• Part 6, Section 3A-D: "Report Templates" (includes Fact Sheet, Data Book, Country Report Template);• Part 7, Section 1: "Glossary".

Continued on next page

Overview, Continued

Reporting process

The table below shows each of the key stages in the reporting process once data have been checked, cleaned, weighted and analyzed.

Stage	Description
1	Preparing and distributing the Fact Sheet to cover the essential results.
2	Preparing the Data Book.
3	Extracting specific tables from the Data Book that are suitably weighted and needed for the main country report.
4	Drafting the main country report, section by section, based on the content guidelines (see Part 6, Section 3D) and Data Book.
5	Circulating drafts of the country report to members of the coordinating committee, WHO and other interested parties for comment, discussion and review.
6	Reviewing and finalizing the country report in light of comments and discussions.
7	Preparing circulation lists, preparing press releases and promotion fliers to announce results of the STEPS Survey.
8	Presenting results, through slide presentations and meetings with organizations and groups that have an interest and impact on population health including relevant government departments, sponsors, tertiary institutions and health conferences in order to widen awareness of the STEPS findings.

In this section

This section covers the following topics.

Topic	See Page
Summarizing and Displaying Data	4-3-3
Interpretation of Results	4-3-5
Preparing and Distributing the Country Report	4-3-6

Summarizing and Displaying Data

Introduction STEPS data on NCD risk factors that have been collected from individuals need to be summarized in a meaningful way in order to give relevant information on levels of risk factors in a population.

Summary statistics that are used for summarizing STEPS data include:

- mean
- median
- prevalence.

When using the STEPS EpiInfo Programs, your output tables will display these summary statistics. The three summary statistics are described in more detail below.

Mean The mean is a measure of central tendency and is computed by adding all the individual values in the group and dividing by the number of values in the group. It gives information on a population's average of a specified variable, such as waist circumference or blood sugar level.

Median The median is another measure of central tendency that is often used for non-normally distributed variables. It is the simplest division of a set of sorted measurements into two halves - the lower and the upper half. The median is often reported along with the 25th and 75th percentiles, which are the values that separate the lowest 25% and highest 75% of values, respectively, in the set of measurements.

Prevalence Prevalence is defined as the number of persons with a disease or an attribute in a given population at a designated time, e.g. % daily smoker in a country in 2015.

Standard error and Confidence Interval (CI) All results from your STEPS survey, as in all sample-based surveys, are estimates of true values, since they derive from a sample and not from the target population (for more on sampling, see Part 2, Section 2). In order to give information on how uncertain estimated values are, confidence intervals are computed around the estimate.

A standard error is usually calculated to show the amount of uncertainty, or error, in an estimated value. It takes into consideration the sample size and distribution (standard deviation) of your sample. The larger the standard error the larger the uncertainty in your estimate and the larger your confidence intervals.

Continued on next page

Summarizing and Displaying Data, Continued

Standard error and Confidence Interval (CI) (cont.)

A confidence interval shows the range of estimates that would be obtained were all possible samples used. A 95% CI suggests that if 100 samples were drawn, the estimate obtained from each (a mean or prevalence value) would fall within that interval 95 of 100 times.

It is strongly recommended to always include the confidence interval alongside any estimates when presenting your data.

Standard cut-offs for prevalence

In order to determine the prevalence of those persons in a specified population that are at risk to develop an NCD, cut-off points have been set for continuous variables to distinguish between "at risk" and "not at risk". STEPS uses cut-offs that are evidence-based, widely used and therefore recommended by the WHO. Refer to the STEPS Fact Sheet (Part 6, Section 3A) and STEPS Data Book (Part 6, Section 3C) to see the cut-offs used in the standard STEPS analysis.

Guidelines for making good tables and graphs

The general guidelines below may help when preparing tables and graphs.

- Each table or graph should contain enough information so that it can be interpreted without reference to the text.
 - Titles of tables and graphs should specifically describe the numbers included.
 - Decide on the point you wish to present, then choose the appropriate method.
 - Specify the units being used clearly.
 - Include the total number of respondents included in the analysis (i.e. the denominator or the "n").
 - Include confidence intervals, if available.
-

PowerPoint Presentation

There is a useful PowerPoint presentation available on the STEPS website that provides further information on summarizing and displaying your data. It also includes examples of poorly-designed and well-designed graphs.

Interpretation of Results

Introduction In order to deliver a meaningful message, results need to be interpreted carefully. A variety of factors such as response rates, season of data collection or potential biases need to be thought through and taken into account when interpreting results. Below are a few points to consider when interpreting the results of your survey.

Representativeness of results Results should only be applied to the surveyed target population, and not be generalized to a broader population. In addition to taking into consideration the coverage of the survey (both geographically and demographically), it is important to look at the response rate of your survey and ask if there is any pattern in the non-response, i.e. do certain regions have very low response rates?, is there a particular age-sex group severely under-represented in the sample?

Uncertainty of results Confidence intervals help to determine the uncertainty of the estimates. The smaller the interval, the better. Large intervals are generally due to small sample size (either overall or for particular age-sex groups) or poor sampling design (e.g. highly clustered sample).

Influence on results Think through carefully what could have influenced the results when interpreting them. Potential influence factors include:

- sample sizes (Are they high enough to have produced robust results for all subgroups?);
- response rates (Are they high or low? Are they the same for all subgroups, or have some subgroups lower response rates than others? If so, why?);
- social pressure (May people have answered in a specific way to certain questions because of social desirability?);
- survey methodology (Could flaws/problems in survey methods have influenced results, e.g. problems in reaching working population during data collection?);
- participant comprehension (Are there specific questions in the questionnaire that seemed not to be understood by respondents?);
- season of data collection (Do certain behaviors, such as diet or physical activity patterns, vary with the season?).

Results in a context When interpreting results, it is useful to put results in a context. As an example, you may want to find out about the amount of cigarettes being sold when looking into results for prevalence of cigarette smokers in a country. Additionally, you should seek out comparable results from other surveys of the same population.

Preparing and Distributing the Country Report

Introduction The country report is the main comprehensive report for the whole STEPS NCD risk factor survey and must be produced at the end of the STEPS survey. The STEPS Fact Sheet and STEPS Data Book should be completed prior to beginning work on the country report. Use these documents to guide the development of the country report. Additionally, be sure to have the latest copy of the implementation plan for your survey as much of the plan can be re-used in the country report.

A template that helps preparing the STEPS country report is in Part 6, Section 3D.

Purpose Use the country report to present the following information:

- the overall rationale;
- scope of the survey;
- the sampling design used;
- detailed methods of data collection;
- detailed results of the survey;
- implications for future health and planning;
- appendices including the country-specific instrument, show cards and data book.

Intended audience It is recommended that you distribute the country report widely. Consider sending copies to:

- relevant government bodies and sponsoring organizations;
- agencies and organizations that are likely to use the information to promote NCD prevention and control;
- public, governmental and institutional (university) libraries;
- press and other media (newspapers, radio and television);
- websites of any sponsoring bodies;
- WHO STEPS Regional Office and the WHO Geneva STEPS team.

Section 4: Data Policies and Archiving

Overview

Introduction This section covers data policies and procedures, as well as archiving your STEPS materials.

Intended audience This section is primarily designed to be used by those fulfilling the following roles:

- STEPS Survey Coordinator
 - STEPS Coordinating Committee.
-

Useful resources Please contact the WHO Geneva STEPS team for a copy of the STEPS Data Policy and Procedures document.

In this section This section covers the following topics:

Topic	See Page
Data Policy and Procedures	4-4-2
Archiving your STEPS Materials	4-4-3

Data Policy and Procedures

STEPS data policy and procedures document

As part of the collaboration between the implementing country, the survey team, WHO and other stakeholders, it is recommended to have all involved parties sign the STEPS Data Policy and Procedures document.

The document is available from the WHO Geneva STEPS team upon request, and provides guidance on data policy and sharing, information exchange and publication procedures.

Principles

The STEPS data and publication policies and procedures are based on the following guiding principles:

- STEPS data are owned by the official country-level agency (in most cases the MOH) conducting or sponsoring the survey. Major decisions regarding data release, data sharing, and data reporting are the responsibility of the agency in which data ownership is invested.
 - The privacy of participating subjects must be protected.
 - Data quality must be maintained.
 - Public health and scientific advancement are best served by an open and timely exchange of data and data analyses.
-

Data release

The STEPS Survey Coordinator will deal with practical issues regarding ownership and release of STEPS data. If the STEPS Survey Coordinator moves to another institution before the survey results are made public, he/she cannot take the data with him/her.

Data sharing

In the interests of advancing public health knowledge about the risk factors measured in STEPS, WHO encourages countries to make datasets and reports from STEPS surveys available in the public domain after a defined period of time after completion of the survey.

Sharing data in public domain can be done through a variety of modes, including:

- WHO Global Data Coordinating Centre
 - publications
 - websites.
-

Archiving your STEPS Materials

Introduction Once the survey is completed and before the team is disbanded, all records need to be properly stored in order to prevent loss.

Policies and systems Most governments and large organisations will have their own established archival systems, in which case their facilities are likely to be your best long-term storage option. Investigate storing your data at:

- Ministry of Health
 - WHO country office
 - WHO regional office.
-

Archival period Decide on the archival period. The duration may have been specified by your ethics authority. If not, consider twelve years. This is long enough for data to be available for further STEPS surveys, and long enough to investigate query from the results. You may wish to have a different period for soft (i.e. electronic) vs hard (i.e. printed) documents and files.

Checklist Use the checklist below to help ensure all necessary steps have been completed.

Step	Action	✓
1	Decide on the duration of storage.	
2	Include in the storage: <ul style="list-style-type: none">• At least one hard copy of all data collection forms• The completed interview tracking forms• Soft copies of all forms• Soft copies of the final dataset and all documentation of the weighting and analysis.	
3	Label the box(es) clearly with: <ul style="list-style-type: none">• name and date of the project;• contents;• names and contact details of survey coordinator and one other member of the coordinating committee.	
4	Determine who is entitled to have access to the archive.	
5	Place a copy of the form to apply for access in each box.	
6	Provide copies of electronic files (without personal identifiers) to WHO Geneva STEPS team.	
7	Inform all interested parties where the information is stored.	

Note: Make sure that participant identification information is never stored in the same location (electronically and in paper form) with the rest of the dataset.

Part 5: STEPS Instrument

Overview

In this Part

This Part covers the following topics

Topic	See Page
Section 1: The STEPS Instrument	5-1-1
Section 2: Question-by-Question Guide	5-2-1
Section 3: Show Cards	5-3-1
Section 4: Optional Modules	5-4-1

WHO STEPS Instrument

(Core and Expanded)



The WHO STEPwise approach to noncommunicable disease risk factor surveillance (STEPS)

World Health Organization
20 Avenue Appia, 1211 Geneva 27, Switzerland

For further information: www.who.int/ncds/steps



World Health
Organization

STEPS Instrument

Overview

Introduction This is the generic STEPS Instrument which countries will use to develop their tailored instrument. It contains the:

- CORE items (unshaded boxes)
 - EXPANDED items (shaded boxes).
-

Core Items The Core items for each section ask questions required to calculate basic variables. For example:

- current daily smokers
- mean BMI.

Note: All the core questions should be asked, removing core questions will impact the analysis.

Expanded items The Expanded items for each section ask more detailed information. Examples include:

- use of smokeless tobacco
 - sedentary behaviour.
-

Guide to the columns The table below is a brief guide to each of the columns in the Instrument.

Column	Description	Country Tailoring
Question	Each question is to be read to the participants	<ul style="list-style-type: none">• Select sections to use.• Add expanded and optional questions as desired.
Response	This column lists the available response options which the interviewer will be circling or filling in the text boxes. The skip instructions are shown on the right hand side of the responses and should be carefully followed during interviews.	<ul style="list-style-type: none">• Add country-specific responses for demographic responses (e.g. C6).• Change skip question identifiers where necessary.
Code	The column is designed to match data from the instrument into the data entry tool, data analysis syntax, data book, and fact sheet.	This should never be changed or removed. The code is used as a general identifier for the data entry and analysis.

Step 1 Demographic Information

CORE: Demographic Information		
Question	Response	Code
Sex (<i>Record Male / Female as observed</i>)	Male 1 Female 2	C1
What is your date of birth? <i>Don't Know 77 77 7777</i>	_ _ _ _ _ _ _ _ _ _ <i>If Known, Go to C4</i> dd mm year	C2
How old are you?	Years _ _	C3
In total, how many years have you spent at school and in full-time study (excluding pre-school)?	Years _ _	C4

EXPANDED: Demographic Information		
What is the highest level of education you have completed? <i>[INSERT COUNTRY-SPECIFIC CATEGORIES]</i>	No formal schooling 1 Less than primary school 2 Primary school completed 3 Secondary school completed 4 High school completed 5 College/University completed 6 Post graduate degree 7 Refused 88	C5
What is your <i>[insert relevant ethnic group / racial group / cultural subgroup / others]</i> background ?	<i>[Locally defined]</i> 1 <i>[Locally defined]</i> 2 <i>[Locally defined]</i> 3 Refused 88	C6
What is your marital status ?	Never married 1 Currently married 2 Separated 3 Divorced 4 Widowed 5 Cohabiting 6 Refused 88	C7
Which of the following best describes your main work status over the past 12 months? <i>[INSERT COUNTRY-SPECIFIC CATEGORIES]</i> <i>(USE SHOWCARD)</i>	Government employee 1 Non-government employee 2 Self-employed 3 Non-paid 4 Student 5 Homemaker 6 Retired 7 Unemployed (able to work) 8 Unemployed (unable to work) 9 Refused 88	C8
How many people older than 18 years, including yourself, live in your household?	Number of people _ _ <i>If Not Known, Go to C11</i>	C9

EXPANDED: Tobacco Use		
Question	Response	Code
How old were you when you stopped smoking?	Age (years) Don't Know 77 _ _ <i>If Known, go to T12</i>	T10
How long ago did you stop smoking? (RECORD ONLY 1, NOT ALL 3) Don't Know 77	Years ago _ _ <i>If Known, go to T12</i>	T11a
	OR Months ago _ _ <i>If Known, go to T12</i>	T11b
	OR Weeks ago _ _	T11c
Do you currently use any smokeless tobacco products such as [snuff, chewing tobacco, betel]? (USE SHOWCARD)	Yes 1 No 2 <i>If No, go to T15</i>	T12
Do you currently use smokeless tobacco products daily ?	Yes 1 No 2 <i>If No, go to T14aw</i>	T13
On average, how many times a day/week do you use (IF LESS THAN DAILY, RECORD WEEKLY) (RECORD FOR EACH TYPE, USE SHOWCARD) Don't Know 7777	DAILY↓ WEEKLY↓	
	Snuff, by mouth _ _ _ _ _ _ _ _	T14a/ T14aw
	Snuff, by nose _ _ _ _ _ _ _ _	T14b/ T14bw
	Chewing tobacco _ _ _ _ _ _ _ _	T14c/ T14cw
	Betel, quid _ _ _ _ _ _ _ _	T14d/ T14dw
	Other _ _ _ _ _ _ _ _ <i>If Other, go to T14other, if T13=No, go to T16, else go to T17</i>	T14e/ T14ew
	Other (please specify): _ _ _ _ _ _ _ _ <i>If T13=No, go to T16, else go to T17</i>	T14other/ T14otherw
In the past , did you ever use smokeless tobacco products such as [snuff, chewing tobacco, or betel]?	Yes 1 No 2 <i>If No, go to T17</i>	T15
In the past , did you ever use smokeless tobacco products such as [snuff, chewing tobacco, or betel] daily ?	Yes 1 No 2	T16
During the past 30 days, did someone smoke in your home ?	Yes 1 No 2	T17
During the past 30 days, did someone smoke in closed areas in your workplace (in the building, in a work area or a specific office)?	Yes 1 No 2 Don't work in a closed area 3	T18

CORE: Alcohol Consumption, continued		
I have just asked you about your consumption of alcohol during the past 7 days. The questions were about alcohol in general, while the next questions refer to your consumption of homebrewed alcohol, alcohol brought over the border/from another country, any alcohol not intended for drinking or other untaxed alcohol. Please only think about these types of alcohol when answering the next questions.		
Question	Response	Code
During the past 7 days , did you consume any homebrewed alcohol, any alcohol brought over the border/from another country , any alcohol not intended for drinking or other untaxed alcohol? <i>[AMEND ACCORDING TO LOCAL CONTEXT]</i> <i>(USE SHOWCARD)</i>	Yes 1 No 2 <i>If No, go to A13</i>	A11
On average, how many standard drinks of the following did you consume during the past 7 days ? <i>[INSERT COUNTRY-SPECIFIC EXAMPLES]</i> <i>(USE SHOWCARD)</i> <i>Don't Know 77</i>	Homebrewed spirits, e.g. moonshine _ _	A12a
	Homebrewed beer or wine, e.g. beer, palm or fruit wine _ _	A12b
	Alcohol brought over the border/from another country _ _	A12c
	Alcohol not intended for drinking, e.g. alcohol-based medicines, perfumes, after shaves _ _	A12d
	Other untaxed alcohol in the country _ _	A12e

EXPANDED: Alcohol Consumption		
During the past 12 months , how often have you found that you were not able to stop drinking once you had started?	Daily or almost daily 1 Weekly 2 Monthly 3 Less than monthly 4 Never 5	A13
During the past 12 months , how often have you failed to do what was normally expected from you because of drinking?	Daily or almost daily 1 Weekly 2 Monthly 3 Less than monthly 4 Never 5	A14
During the past 12 months , how often have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Daily or almost daily 1 Weekly 2 Monthly 3 Less than monthly 4 Never 5	A15
During the past 12 months , have you had family problems or problems with your partner due to someone else's drinking?	Yes, more than monthly 1 Yes, monthly 2 Yes, several times but less than monthly 3 Yes, once or twice 4 No 5	A16

CORE: Diet		
The next questions ask about the fruits and vegetables that you usually eat. I have a nutrition card here that shows you some examples of local fruits and vegetables. Each picture represents the size of a serving. As you answer these questions please think of a typical week in the last year.		
Question	Response	Code
In a typical week, on how many days do you eat fruit ? (USE SHOWCARD)	Number of days Don't Know 77 _ _ If Zero days, go to D3	D1
How many servings of fruit do you eat on one of those days? (USE SHOWCARD)	Number of servings Don't Know 77 _ _	D2
In a typical week, on how many days do you eat vegetables ? (USE SHOWCARD)	Number of days Don't Know 77 _ _ If Zero days, go to D5	D3
How many servings of vegetables do you eat on one of those days? (USE SHOWCARD)	Number of servings Don't know 77 _ _	D4
Dietary salt		
With the next questions, we would like to learn more about salt in your diet. Dietary salt includes ordinary table salt, unrefined salt such as sea salt, iodized salt, salty stock cubes and powders, and salty sauces such as soy sauce or fish sauce (see showcard). The following questions are on adding salt to the food right before you eat it, on how food is prepared in your home, on eating processed foods that are high in salt such as <i>[insert country specific examples]</i> , and questions on controlling your salt intake. Please answer the questions even if you consider yourself to eat a diet low in salt.		
How often do you add salt or a salty sauce such as soy sauce to your food right before you eat it or as you are eating it? (SELECT ONLY ONE) (USE SHOWCARD)	Always 1 Often 2 Sometimes 3 Rarely 4 Never 5 Don't know 77	D5
How often is salt, salty seasoning or a salty sauce added in cooking or preparing foods in your household?	Always 1 Often 2 Sometimes 3 Rarely 4 Never 5 Don't know 77	D6
How often do you eat processed food high in salt ? By processed food high in salt, I mean foods that have been altered from their natural state, such as packaged salty snacks, canned salty food including pickles and preserves, salty food prepared at a fast food restaurant, cheese, bacon and processed meat <i>[add country specific examples]</i> . <i>[INSERT EXAMPLES]</i> (USE SHOWCARD)	Always 1 Often 2 Sometimes 3 Rarely 4 Never 5 Don't know 77	D7
How much salt or salty sauce do you think you consume?	Far too much 1 Too much 2 Just the right amount 3 Too little 4 Far too little 5 Don't know 77	D8

CORE: Physical Activity, Continued		
Question	Response	Code
Recreational activities		
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure), <i>[Insert relevant terms]</i> .		
Do you do any vigorous-intensity sports, fitness or recreational (leisure) activities that cause large increases in breathing or heart rate like <i>[running or football]</i> for at least 10 minutes continuously? <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes 1 No 2 <i>If No, go to P 13</i>	P10
In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (leisure) activities?	Number of days 	P11
How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes : hrs mins	P12 (a-b)
Do you do any moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate such as brisk walking, <i>[cycling, swimming, volleyball]</i> for at least 10 minutes continuously? <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes 1 No 2 <i>If No, go to P16</i>	P13
In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (leisure) activities?	Number of days 	P14
How much time do you spend doing moderate-intensity sports, fitness or recreational (leisure) activities on a typical day?	Hours : minutes : hrs mins	P15 (a-b)

EXPANDED: Physical Activity		
Sedentary behaviour		
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television, but do not include time spent sleeping. <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>		
How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes : hrs mins	P16 (a-b)

Step 2 Physical Measurements

CORE: Blood Pressure		
Question	Response	Code
Interviewer ID	_ _ _ _	M1
Device ID for blood pressure	_ _	M2
Cuff size used	Small 1 Medium 2 Large 3	M3
Reading 1	Systolic (mmHg) _ _ _ _	M4a
	Diastolic (mmHg) _ _ _ _	M4b
Reading 2	Systolic (mmHg) _ _ _ _	M5a
	Diastolic (mmHg) _ _ _ _	M5b
Reading 3	Systolic (mmHg) _ _ _ _	M6a
	Diastolic (mmHg) _ _ _ _	M6b
During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?	Yes 1 No 2	M7
CORE: Height and Weight		
For women: Are you pregnant?	Yes 1 <i>If Yes, go to M 16</i> No 2	M8
Interviewer ID	_ _ _ _	M9
Device IDs for height and weight	Height _ _	M10a
	Weight _ _	M10b
Height	in Centimetres (cm) _ _ _ _ _ _ _	M11
Weight <i>If too large for scale 666.6</i>	in Kilograms (kg) _ _ _ _ _ _ _	M12
CORE: Waist		
Device ID for waist	_ _	M13
Waist circumference	in Centimetres (cm) _ _ _ _ _ _ _	M14

EXPANDED: Hip Circumference and Heart Rate		
Hip circumference	in Centimeters (cm) _ _ _ _ _ _ _	M15
Heart Rate		M16a
Reading 1	Beats per minute _ _ _ _	
Reading 2	Beats per minute _ _ _ _	
Reading 3	Beats per minute _ _ _ _	M16c

WHO STEPS Instrument Question-by-Question Guide (Core and Expanded)



**The WHO STEPwise approach to
noncommunicable disease risk factor
surveillance (STEPS)**

World Health Organization
20 Avenue Appia, 1211 Geneva 27, Switzerland

For further information: www.who.int/ncds/steps



STEPS Question-by-Question (Q-by-Q) Guide

Overview

Introduction The Question-by-Question Guide presents the STEPS Instrument with a brief explanation for each of the questions.

Purpose The purpose of the Question-by-Question Guide is to provide background information to the interviewers and supervisors as to what is intended by each question.

Interviewers can use this information when participants request clarification about specific questions or they do not know the answer.

Interviewers and supervisors should refrain from offering their own interpretations.

Guide to the columns The table below is a brief guide to each of the columns in the Q-by-Q Guide.

Column	Description	Country Tailoring
Question	Each question is to be read to the participants	<ul style="list-style-type: none">• Select sections to use.• Add expanded and optional questions as desired.
Response	This column lists the available response options which the interviewer will be circling or filling in the text boxes. The skip instructions are shown on the right hand side of the responses and should be carefully followed during interviews.	<ul style="list-style-type: none">• Add country-specific responses for demographic responses (e.g. C6).• Change skip question identifiers where necessary.
Code	The column is designed to match data from the instrument into the data entry tool, data analysis syntax, data book, and fact sheet.	This should never be changed or removed. The code is used as a general identifier for the data entry and analysis.

EXPANDED: Demographic Information, Continued		
Question	Response	Code
Taking the past year , can you tell me what the average earnings of the household have been? (RECORD ONLY ONE, NOT ALL 3) <i>Enter the average earnings of the household by week, month, or year. If refused to answer, skip to C11.</i>	Per week _ _ _ _ _ _ _ _ _ _ _ _ _ _ Go to T1	C10a
	OR per month _ _ _ _ _ _ _ _ _ _ _ _ _ _ Go to T1	C10b
	OR per year _ _ _ _ _ _ _ _ _ _ _ _ _ _ Go to T1	C10c
	Refused 88	C10d
Can you give an estimate of the annual household income if I read some options to you? Is it [INSERT QUINTILE VALUES IN LOCAL CURRENCY] (READ OPTIONS) <i>Select the appropriate quintile value for the annual household income.</i>	≤ Quintile (Q) 1 1 More than Q 1, ≤ Q 2 2 More than Q 2, ≤ Q 3 3 More than Q 3, ≤ Q 4 4 More than Q 4 5 Don't Know 77 Refused 88	C11

Step 1 Behavioural Measurements

CORE: Tobacco Use		
Now I am going to ask you some questions about tobacco use.		
Question	Response	Code
Do you currently smoke any tobacco products, such as cigarettes, cigars or pipes? (USE SHOWCARD) <i>Ask the participant to think of any tobacco products he/she is smoking currently.</i>	Yes 1 No 2 <i>If No, go to T8</i>	T1
Do you currently smoke tobacco products daily ? <i>This question is only for current smokers of tobacco products.</i>	Yes 1 No 2	T2
How old were you when you first started smoking? <i>For current smokers only. Ask the participant to think of the time when he/she started to smoke any tobacco products.</i>	Age (years) Don't know 77 <input type="text"/> <i>If Known, go to T5a/T5aw</i>	T3
Do you remember how long ago it was? (RECORD ONLY 1, NOT ALL 3) Don't know 77 <i>If the participant doesn't remember his/her age when started smoking, then record the time in years, months or weeks as appropriate.</i>	In Years <input type="text"/> <i>If Known, go to T5a/T5aw</i>	T4a
	OR in Months <input type="text"/> <i>If Known, go to T5a/T5aw</i>	T4b
	OR in Weeks <input type="text"/>	T4c
On average, how many of the following products do you smoke each day/week ? (IF LESS THAN DAILY, RECORD WEEKLY) (RECORD FOR EACH TYPE, USE SHOWCARD) Don't Know 7777 <i>For current smokers only. Specify zero if no products were used in each category instead of leaving categories blank. Record daily consumption for daily smokers. If products are smoked less than daily by daily smokers, enter weekly consumption. Also enter weekly consumption for current, non-daily smokers.</i>	DAILY↓ WEEKLY↓	
	Manufactured cigarettes <input type="text"/> <input type="text"/>	T5a/T5aw
	Hand-rolled cigarettes <input type="text"/> <input type="text"/>	T5b/T5bw
	Pipes full of tobacco <input type="text"/> <input type="text"/>	T5c/T5cw
	Cigars, cheroots, cigarillos <input type="text"/> <input type="text"/>	T5d/T5dw
	Number of Shisha sessions <input type="text"/> <input type="text"/>	T5e/T5ew
	Other <input type="text"/> <input type="text"/> <i>If Other, go to T5other, else go to T6</i>	T5f/T5fw
Other (please specify): <input type="text"/>	T5other/ T5otherw	
During the past 12 months, have you tried to stop smoking ? <i>For current smokers only. Ask the participant to think of any quit attempt during the past 12 months.</i>	Yes 1 No 2	T6
During any visit to a doctor or other health worker in the past 12 months, were you advised to quit smoking tobacco? <i>For current smokers only. Ask the participant to think of visits to a doctor or other health worker during the past 12 months. If no visit, select "no visit during the past 12 months".</i>	Yes 1 <i>If T2=Yes, go to T12; if T2=No, go to T9</i> No 2 <i>If T2=Yes, go to T12; if T2=No, go to T9</i> No visit during the past 12 months 3 <i>If T2=Yes, go to T12; if T2=No, go to T9</i>	T7
In the past, did you ever smoke any tobacco products? (USE SHOWCARD) <i>Ask the participant to think of the time when he/she may have been smoking tobacco products.</i>	Yes 1 No 2 <i>If No, go to T12</i>	T8
In the past, did you ever smoke daily ? <i>Ask the participant to think of the time when he/she may have been smoking tobacco products on a daily basis.</i>	Yes 1 <i>If T1=Yes, go to T12, else go to T10</i> No 2 <i>If T1=Yes, go to T12, else go to T10</i>	T9

CORE: Alcohol Consumption, continued		
Question	Response	Code
During each of the past 7 days , how many standard drinks did you have each day? (USE SHOWCARD) Don't Know 77 <i>Ask the participant to think of each of the past 7 days. Use the showcard that shows standard alcoholic drinks to help the participant report the number of standard drinks for each of the past 7 days.</i> <i>Record for each day the number of standard drinks. If no drinks record 0.</i>	Monday _ _	A10a
	Tuesday _ _	A10b
	Wednesday _ _	A10c
	Thursday _ _	A10d
	Friday _ _	A10e
	Saturday _ _	A10f
	Sunday _ _	A10g
I have just asked you about your consumption of alcohol during the past 7 days. The questions were about alcohol in general, while the next questions refer to your consumption of homebrewed alcohol, alcohol brought over the border/from another country, any alcohol not intended for drinking or other untaxed alcohol. Please only think about these types of alcohol when answering the next questions.		
During the past 7 days , did you consume any homebrewed alcohol, any alcohol brought over the border/from another country , any alcohol not intended for drinking or other untaxed alcohol? (USE SHOWCARD) [AMEND ACCORDING TO LOCAL CONTEXT] <i>Ask the participant to only think of homebrewed alcohol, any alcohol brought over the border/from another country, any alcohol not intended for drinking or other untaxed alcohol.</i>	Yes 1 No 2 <i>If No, go to A13</i>	A11
On average, how many standard drinks of the following did you consume during the past 7 days ? [INSERT COUNTRY-SPECIFIC EXAMPLES] (USE SHOWCARD) Don't Know 77 <i>Ask the participant to think of the past 7 days. Use the showcard that specifies what standard drinks are for each type of alcohol. Alcohol not intended for drinking should be treated like spirits.</i> <i>Record for each type of alcohol the number of standard drinks. If no drinks record 0.</i>	Homebrewed spirits, e.g. moonshine _ _	A12a
	Homebrewed beer or wine, e.g. beer, palm or fruit wine _ _	A12b
	Alcohol brought over the border/from another country _ _	A12c
	Alcohol not intended for drinking, e.g. alcohol-based medicines, perfumes, after shaves _ _	A12d
	Other untaxed alcohol in the country _ _	A12e
EXPANDED: Alcohol Consumption		
During the past 12 months , how often have you found that you were not able to stop drinking once you had started? <i>Ask the participant to think of the past 12 months. Read out all the answer options.</i>	Daily or almost daily 1 Weekly 2 Monthly 3 Less than monthly 4 Never 5	A13
During the past 12 months , how often have you failed to do what was normally expected from you because of drinking? <i>Ask the participant to think of the past 12 months. Read out all the answer options.</i>	Daily or almost daily 1 Weekly 2 Monthly 3 Less than monthly 4 Never 5	A14
During the past 12 months , how often have you needed a first drink in the morning to get yourself going after a heavy drinking session? <i>Ask the participant to think of the past 12 months. Read out all the answer options.</i>	Daily or almost daily 1 Weekly 2 Monthly 3 Less than monthly 4 Never 5	A15
During the past 12 months , have you had family problems or problems with your partner due to someone else's drinking? <i>Ask the participant to think of the past 12 months. Read out all the answer options.</i> <i>The participant should not think of his/her own drinking, but of someone else's drinking.</i>	Yes, more than monthly 1 Yes, monthly 2 Yes, several times but less than 3 Yes, once or twice 4 No 5	A16

CORE: Physical Activity		
<p>Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person.</p> <p>Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. <i>[Insert other examples if needed]</i>. In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.</p> <p><i>Read this opening statement out loud. It should not be omitted. The respondent will have to think first about the time he/she spends doing work (paid or unpaid work, household chores, harvesting food, fishing or hunting for food, seeking employment [Insert other examples if needed]), then about the time he/she travels from place to place, and finally about the time spent in vigorous as well as moderate physical activity during leisure time.</i></p> <p><i>Remind the respondent when he/she answers the following questions that 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate. Don't forget to use the showcard which will help the respondent when answering to the questions.</i></p>		
Question	Response	Code
Work		
<p>Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like <i>[carrying or lifting heavy loads, digging or construction work]</i> for at least 10 minutes continuously?</p> <p><i>[INSERT EXAMPLES] (USE SHOWCARD)</i></p> <p><i>Ask the participant to think about vigorous-intensity activities at work only. Activities are regarded as vigorous intensity if they cause large increases in breathing and/or heart rate.</i></p>	<p>Yes 1</p> <p>No 2 <i>If No, go to P 4</i></p>	P1
<p>In a typical week, on how many days do you do vigorous-intensity activities as part of your work?</p> <p><i>"Typical week" means a week when the participant is engaged in his/her usual activities. Valid responses range from 1-7.</i></p>	<p>Number of days</p> <p> _ </p>	P2
<p>How much time do you spend doing vigorous-intensity activities at work on a typical day?</p> <p><i>Ask the participant to think of a typical day he/she can recall easily in which he/she engaged in vigorous-intensity activities at work. The participant should only consider those activities undertaken continuously for 10 minutes or more. Probe very high responses (over 4 hrs) to verify.</i></p>	<p>Hours : minutes</p> <p> _ : _ </p> <p>hrs mins</p>	P3 (a-b)
<p>Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking <i>[or carrying light loads]</i> for at least 10 minutes continuously?</p> <p><i>[INSERT EXAMPLES] (USE SHOWCARD)</i></p> <p><i>Ask the participant to think about moderate-intensity activities at work only. Activities are regarded as moderate intensity if they cause small increases in breathing and/or heart rate.</i></p>	<p>Yes 1</p> <p>No 2 <i>If No, go to P 7</i></p>	P4
<p>In a typical week, on how many days do you do moderate-intensity activities as part of your work?</p> <p><i>"Typical week" means a week when the participant is engaged in his/her usual activities. Valid responses range from 1-7.</i></p>	<p>Number of days</p> <p> _ </p>	P5
<p>How much time do you spend doing moderate-intensity activities at work on a typical day?</p> <p><i>Ask the participant to think of a typical day he/she can recall easily in which he/she engaged in moderate-intensity activities at work. The participant should only consider those activities undertaken continuously for 10 minutes or more. Probe very high responses (over 4 hrs) to verify.</i></p>	<p>Hours : minutes</p> <p> _ : _ </p> <p>hrs mins</p>	P6 (a-b)
Travel to and from places		
<p>The next questions exclude the physical activities at work that you have already mentioned.</p> <p>Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship. <i>[Insert other examples if needed]</i></p> <p><i>The introductory statement to the following questions on transport-related physical activity is very important. It asks and helps the participant to now think about how they travel around getting from place-to-place. This statement should not be omitted.</i></p>		
<p>Do you walk or use a bicycle (<i>pedal cycle</i>) for at least 10 minutes continuously to get to and from places?</p> <p><i>Select the appropriate response.</i></p>	<p>Yes 1</p> <p>No 2 <i>If No, go to P 10</i></p>	P7
<p>In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?</p> <p><i>"Typical week" means a week when the participant is engaged in his/her usual activities. Valid responses range from 1-7.</i></p>	<p>Number of days</p> <p> _ </p>	P8

CORE: Physical Activity, Continued		
Question	Response	Code
<p>How much time do you spend walking or bicycling for travel on a typical day?</p> <p><i>Ask the participant to think of a typical day he/she can recall easily in which he/she engaged in transport-related activities. The participant should only consider those activities undertaken continuously for 10 minutes or more. Probe very high responses (over 4 hrs) to verify.</i></p>	<p>Hours : minutes</p> <p> _ _ : _ _ </p> <p>hrs mins</p>	P9 (a-b)
Recreational activities		
<p>The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure) <i>[Insert relevant terms]</i>. <i>This introductory statement directs the participant to think about recreational activities. This can also be called discretionary or leisure time. It includes sports and exercise but is not limited to participation in competitions. Activities reported should be done regularly and not just occasionally. It is important to focus on only recreational activities and not to include any activities already mentioned. This statement should not be omitted.</i></p>		
<p>Do you do any vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause large increases in breathing or heart rate like <i>[running or football]</i> for at least 10 minutes continuously?</p> <p><i>[INSERT EXAMPLES] (USE SHOWCARD)</i></p> <p><i>Ask the participant to think about recreational vigorous-intensity activities only. Activities are regarded as vigorous intensity if they cause large increases in breathing and/or heart rate.</i></p>	<p>Yes 1</p> <p>No 2 If No, go to P 13</p>	P10
<p>In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities?</p> <p><i>"Typical week" means a week when the participant is engaged in his/her usual activities. Valid responses range from 1-7.</i></p>	<p>Number of days</p> <p> _ </p>	P11
<p>How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?</p> <p><i>Ask the participant to think of a typical day he/she can recall easily in which he/she engaged in recreational vigorous-intensity activities. The participant should only consider those activities undertaken continuously for 10 minutes or more. Probe very high responses (over 4 hrs) to verify.</i></p>	<p>Hours : minutes</p> <p> _ _ : _ _ </p> <p>hrs mins</p>	P12 (a-b)
<p>Do you do any moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause a small increase in breathing or heart rate such as brisk walking, <i>[cycling, swimming, volleyball]</i> for at least 10 minutes continuously?</p> <p><i>[INSERT EXAMPLES] (USE SHOWCARD)</i></p> <p><i>Ask the participant to think about recreational moderate-intensity activities only. Activities are regarded as moderate intensity if they cause small increases in breathing and/or heart rate.</i></p>	<p>Yes 1</p> <p>No 2 If No, go to P16</p>	P13
<p>In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities?</p> <p><i>"Typical week" means a week when the participant is engaged in his/her usual activities. Valid responses range from 1-7.</i></p>	<p>Number of days</p> <p> _ </p>	P14
<p>How much time do you spend doing moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities on a typical day?</p> <p><i>Ask the participant to think of a typical day he/she can recall easily in which he/she engaged in recreational moderate-intensity activities. The participant should only consider those activities undertaken continuously for 10 minutes or more. Probe very high responses (over 4 hrs) to verify.</i></p>	<p>Hours : minutes</p> <p> _ _ : _ _ </p> <p>hrs mins</p>	P15 (a-b)

EXPANDED: Physical Activity		
Sedentary behaviour		
<p>The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television, but do not include time spent sleeping.</p> <p><i>[INSERT EXAMPLES] (USE SHOWCARD)</i></p>		
<p>How much time do you usually spend sitting or reclining on a typical day?</p> <p><i>Ask the participant to consider total time spent sitting at work, in an office, reading, watching television, using a computer, doing hand craft like knitting, resting etc. The participant should not include time spent sleeping.</i></p>	<p>Hours : minutes</p> <p> _ _ : _ _ </p> <p>hrs mins</p>	P16 (a-b)

Step 2 Physical Measurements

CORE: Blood Pressure		
Interviewer ID <i>Record interviewer ID (in most cases interviewer would be the same as for behavioural measurements).</i>	_ _ _	M1
Device ID for blood pressure <i>Record device ID.</i>	_ _	M2
Cuff size used <i>Select cuff size used.</i>	Small 1 Medium 2 Large 3	M3
Reading 1 <i>Record first measurement after the participant has rested for 15 minutes. Wait 3 minutes before taking second measurement.</i>	Systolic (mmHg) _ _ _	M4a
	Diastolic (mmHg) _ _ _	M4b
Reading 2 <i>Record second measurement. Ask the participant to rest for another 3 minutes before taking the third measurement.</i>	Systolic (mmHg) _ _ _	M5a
	Diastolic (mmHg) _ _ _	M5b
Reading 3 <i>Record third measurement.</i>	Systolic (mmHg) _ _ _	M6a
	Diastolic (mmHg) _ _ _	M6b
During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker? <i>Select appropriate response.</i>	Yes 1 No 2	M7
CORE: Height and Weight		
Question	Response	Code
For women: Are you pregnant? <i>Pregnant women skip over height, weight, waist and hip measurements.</i>	Yes 1 <i>If Yes, go to M16</i> No 2	M8
Interviewer ID <i>Record interviewer ID (in most cases interviewer would be the same as for behavioural and blood pressure measurements).</i>	_ _ _	M9
Device IDs for height and weight <i>Record device IDs.</i>	Height _ _	M10a
	Weight _ _	M10b
Height <i>Record participant's height in cm with one decimal point.</i>	in Centimetres (cm) _ _ _ _ _ _	M11
Weight <i>If too large for scale 666.6</i> <i>Record participant's weight in kg with one decimal point.</i>	in Kilograms (kg) _ _ _ _ _ _	M12
CORE: Waist		
Device ID for waist <i>Record device ID.</i>	_ _	M13
Waist circumference <i>Record participant's waist circumference in centimetres with one decimal point.</i>	in Centimetres (cm) _ _ _ _ _ _	M14
EXPANDED: Hip Circumference and Heart Rate		
Hip circumference <i>Record participant's hip circumference in centimetres with one decimal point.</i>	in Centimeters (cm) _ _ _ _ _ _	M15
Heart Rate <i>Record the three heart rate readings.</i>		
Reading 1	Beats per minute _ _ _	M16a
Reading 2	Beats per minute _ _ _	M16b
Reading 3	Beats per minute _ _ _	M16c

Step 3 Biochemical Measurements

CORE: Blood Glucose		
Question	Response	Code
During the past 12 hours have you had anything to eat or drink, other than water? <i>It is essential that the participant has fasted.</i>	Yes 1 No 2	B1
Technician ID <i>Record ID of the person taking the measurement.</i>	_ _ _ _	B2
Device ID <i>Record device ID.</i>	_ _	B3
Time of day blood specimen taken (24 hour clock) <i>Enter time measurement started.</i>	Hours : minutes _ _ : _ _ hrs mins	B4
Fasting blood glucose [CHOOSE ACCORDINGLY: MMOL/L OR MG/DL] <i>Double check that the participant has fasted.</i>	mmol/l _ _ . _ _ mg/dl _ _ _ . _	B5
Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker for raised blood glucose? <i>Select appropriate response.</i>	Yes 1 No 2	B6
CORE: Blood Lipids		
Device ID <i>Record device ID.</i>	_ _	B7
Total cholesterol [CHOOSE ACCORDINGLY: MMOL/L OR MG/DL] <i>Record value for total cholesterol.</i>	mmol/l _ _ . _ _ mg/dl _ _ _ . _	B8
During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker? <i>Select appropriate response.</i>	Yes 1 No 2	B9
CORE: Urinary sodium and creatinine		
Had you been fasting prior to the urine collection? <i>It is essential that the participant did not fast prior to urine collection.</i>	Yes 1 No 2	B10
Technician ID <i>Record technician ID.</i>	_ _ _ _	B11
Device ID <i>Record device ID.</i>	_ _	B12
Time of day urine sample taken (24 hour clock) <i>Record time of day urine sample taken as reported by the participant.</i>	Hours : minutes _ _ : _ _ hrs mins	B13
Urinary sodium <i>Record value for urinary sodium.</i>	mmol/l _ _ _ . _	B14
Urinary creatinine <i>Record value for urinary creatinine.</i>	mmol/l _ _ . _ _	B15
EXPANDED: Triglycerides and HDL Cholesterol		
Triglycerides [CHOOSE ACCORDINGLY: MMOL/L OR MG/DL] <i>Record value for triglycerides.</i>	mmol/l _ _ . _ _ mg/dl _ _ _ . _	B16
HDL Cholesterol [CHOOSE ACCORDINGLY: MMOL/L OR MG/DL] <i>Record value for HDL cholesterol.</i>	mmol/l _ . _ _ mg/dl _ _ _ . _	B17

Tobacco Show Card

Smoked tobacco products



Manufactured cigarettes



Hand-rolled cigarettes



Pipe



Cigars, e.g., cigarillos, double coronas, cheroots, stumpen, chutts and dhuntis



Shisha

Smokeless tobacco products



Snuff, available in wet and dry form



Chewing tobacco



Betel nut, quid

Alcohol - Standard drink

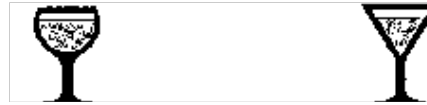
1 standard drink =



1 standard bottle
of **regular beer**
(285ml)



1 single measure
of **spirits** (30ml)





1 medium size
glass of wine
(120ml)

1 measure of
aperitif (60ml)

Note: net alcohol content of a **standard drink is approximately 10g** of ethanol.

Typical Fruit and Vegetables and Serving Sizes

FRUIT Is considered to be:	1 Serving =	Examples
Apple, banana, orange	1 medium size piece	
Chopped or cooked fruit	½ cup	

VEGETABLES are considered to be:	1 Serving =	Examples
Raw green leafy vegetables	1 cup	Spinach, salad, etc.
Other vegetables, cooked or chopped raw	½ cup	Tomatoes, carrots, pumpkin, corn, Chinese cabbage, fresh beans, onion, etc. 

Serving size

One standard serving = 80 grams (translated into different units of cups depending on type of vegetable and standard cup measures available in the country).

Note: Fruit or vegetable juice, or canned fruit should not be included. Tubers such as potatoes and cassava should not be included.

Dietary Salt

Table salt and sea salt



Salty stock cubes and powders



Soya sauce and fish sauce



Examples for processed food high in salt

Packaged salty food and snacks, canned salty food, salty food prepared at a fast food restaurant.



Physical Activity

Vigorous Physical Activity at Work

Examples for
vigorous
activities at
WORK

VIGOROUS Intensity Activities
Make you breathe much harder than normal



**Other examples
for
VIGOROUS
activities at
WORK**

- Forestry (cutting, chopping, carrying wood)
 - Sawing hardwood
 - Ploughing
 - Cutting crops (sugar cane)
 - Gardening (digging)
 - Grinding (with pestle)
 - Labouring (shovelling sand)
 - Loading furniture (stoves, fridge)
 - Instructing spinning (fitness)
 - Instructing sports aerobics
 - Sorting postal parcels (fast pace)
 - Cycle rickshaw driving
-

Moderate Physical Activity at Work

**Examples for
MODERATE
activities at
work**

MODERATE Intensity Activities

Make you breathe somewhat harder than normal



Other examples for MODERATE activities at WORK

- Cleaning (vacuuming, mopping, polishing, scrubbing, sweeping, ironing)
 - Washing (beating and brushing carpets, wringing clothes (by hand))
 - Gardening
 - Milking cows (by hand)
 - Planting and harvesting crops
 - Digging dry soil (with spade)
 - Weaving
 - Woodwork (chiselling, sawing softwood)
 - Mixing cement (with shovel)
 - Labouring (pushing loaded wheelbarrow, operating jackhammer)
 - Walking with load on head
 - Drawing water
 - Tending animals
-

Vigorous Physical Activity during Leisure Time

Examples for VIGOROUS activities during LEISURE TIME

VIGOROUS Intensity Activities

Make you breathe much harder than normal



Other examples for VIGOROUS activities during LEISURE TIME

- Soccer
 - Rugby
 - Tennis
 - High-impact aerobics
 - Aqua aerobics
 - Ballet dancing
 - Fast swimming
-

Moderate Physical Activity during Leisure Time

Examples for
MODERATE
activities
during
LEISURE
TIME

MODERATE Intensity Activities

Make you breathe somewhat harder than normal



Other examples
for
MODERATE
activities at
WORK

- Cycling
 - Jogging
 - Dancing
 - Horse-riding
 - Tai chi
 - Yoga
 - Pilates
 - Low-impact aerobics
 - Cricket
-

Section 4: Optional Modules

Overview

Introduction

There are optional modules available that cover specific topics that can be assessed in STEPS surveys. These modules can be used if a country wishes to go beyond the core and expanded STEPS Instrument, and to describe population level indicators for these specific topics.

Data Books, a full tabulation of all the results from the questions specific to these modules, are available on the STEPS website:

<http://www.who.int/ncds/steps/resources/en/index.html>

Optional Modules

This section contains the following optional modules:

Topic	See Page
Optional Module: Cervical Cancer	5-4A-1
Optional Module: Drug Use	5-4B-1
Optional Module: Mental Health / Suicide	5-4C-1
Optional Module: Oral Health	5-4D-1
Optional Module: Sexual Health	5-4E-1
Optional Module: Tobacco Policy	5-4F-1
Optional Module: Violence and Injury	5-4G-1
Optional Module: Objective Measurement of Physical Activity	5-4H-1

Cervical Cancer

CORE and EXPANDED: Cervical cancer (expanded questions are shaded)

The next questions ask about cervical cancer prevention. Screening tests for cervical cancer prevention can be done in different ways, including Visual Inspection with Acetic Acid/vinegar (VIA), pap smear and Human Papillomavirus (HPV) test. VIA is an inspection of the surface of the uterine cervix after acetic acid (or vinegar) has been applied to it. For both pap smear and HPV test, a doctor or nurse uses a swab to wipe from inside your vagina, take a sample and send it to a laboratory. It is even possible that you were given the swab yourself and asked to swab the inside of your vagina. The laboratory checks for abnormal cell changes if a pap smear is done, and for the HP virus if an HPV test is done.

Question	Response	Code
<i>The next questions CX2 – CX10 are administered only to those that ever had a screening test for cervical cancer (CX1=1). If CX1=2, go to CX11.</i>		
At what age were you first tested for cervical cancer?	Age <input type="text"/> Don't know 77 Refused 88	CX2
When was your last (most recent) test for cervical cancer?	Less than 1 year ago 1 1-2 years ago 2 3-5 years ago 3 More than 5 years ago 4 Don't know 77 Refused 88	CX3
What is the main reason you had your last test for cervical cancer?	Part of a routine exam 1 Following up on abnormal or inconclusive result 2 Recommended by healthcare provider 3 Recommended by other source 4 Experiencing pain or other symptoms 5 Other 6 Don't know 77 Refused 88	CX4
Where did you receive your last test for cervical cancer? <i>[INSERT COUNTRY-SPECIFIC CATEGORIES]</i>	Doctor's office 1 Mobile clinic 2 Community clinic 3 Hospital 4 Other 5 Don't know 77 Refused 88	CX5
What was the result of your last (most recent) test for cervical cancer?	Did not receive result 1 <i>If CC6=1, go to next section</i> Normal / Negative 2 <i>If CC6=2, go to next section</i> Abnormal /Positive 3 Suspect cancer 4 Inconclusive 5 Don't know 77 Refused 88	CX6

CORE and EXPANDED: Cervical cancer		
Question	Response	Code
Did you have any follow-up visits because of your test results?	Yes 1 No 2 Don't know 77 Refused 88	CX7
Did you receive any treatment to your cervix because of your test result?	Yes 1 No 2 <i>If No, go to CC10</i> Don't know 77 <i>If Don't know, go to next section</i> Refused 88 <i>If Refused, go to next section</i>	CX8
Did you receive treatment during the same visit as your last test for cervical cancer?	Yes 1 <i>If Yes, go to next section</i> No 2 <i>If No, go to next section</i> Don't know 77 <i>If Don't know, go to next section</i> Refused 88 <i>If Refused, go to next section</i>	CX9
What is the main reason you did not receive treatment?	Was not told I needed treatment 1 Did not know how/where to get treatment 2 Embarrassment 3 Too expensive 4 Didn't have time 5 Clinic too far away 6 Poor service quality 7 Fear (afraid of procedure; afraid of social stigma) 8 Cultural beliefs 9 Family member would not allow it 10 <i>If CC10=10, go to C10Spec, else go to next section</i> Don't know 77 Refused 88	CX10
	Family member (please specify) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	CX10Spec
What is the main reason you have never had a cervical cancer test?	Did not know how/where to get test 1 Embarrassment 2 Too expensive 3 Didn't have time 4 Clinic too far away 5 Poor service quality 6 Fear (afraid of procedure; afraid of social stigma) 7 Cultural beliefs 8 Family member would not allow it 9 <i>If CC11=9, go to C11Spec, else go to next section</i> Don't know 77 Refused 88	CX11
	Family member (please specify) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	CX11Spec

Drug Use

Drug Use		
The next questions ask about your use of drugs .		
Question	Response	Code
Have you ever used cannabis? (USE SHOWCARD OR SHOW EXAMPLES)	Yes 1 No 2 <i>If no, go to DU2a</i> Refused 88	DU1a
Have you used cannabis in the past 12 months ?	Yes 1 No 2 Refused 88	DU1b
How frequently have you used cannabis in the past 12 months ?	Daily or almost daily 1 1-4 times per week 2 1-3 times per month 3 Less than once a month 4 Refused 88	DU1c
Have you ever used heroin or other opioids? (USE SHOWCARD OR SHOW EXAMPLES)	Yes 1 No 2 <i>If no, go to DU3a</i> Refused 88	DU2a
Have you used heroin or other opioids in the past 12 months ?	Yes 1 No 2 Refused 88	DU2b
How frequently have you used heroin or other opioids in the past 12 months ?	Daily or almost daily 1 1-4 times per week 2 1-3 times per month 3 Less than once a month 4 Refused 88	DU2c
Have you ever used cocaine? (USE SHOWCARD OR SHOW EXAMPLES)	Yes 1 No 2 <i>If no, go to DU4a</i> Refused 88	DU3a
Have you used cocaine in the past 12 months ?	Yes 1 No 2 Refused 88	DU3b
How frequently have you used cocaine in the past 12 months ?	Daily or almost daily 1 1-4 times per week 2 1-3 times per month 3 Less than once a month 4 Refused 88	DU3c
Have you ever used amphetamines or other stimulants? (USE SHOWCARD OR SHOW EXAMPLES)	Yes 1 No 2 <i>If no, go to DU6</i> Refused 88	DU4a
Have you used amphetamines or other stimulants in the past 12 months ?	Yes 1 No 2 Refused 88	DU4b
How frequently have you used amphetamines or other stimulants in the past 12 months ?	Daily or almost daily 1 1-4 times per week 2 1-3 times per month 3 Less than once a month 4 Refused 88	DU4c
Have you used prescription medicines in the past 12 months to get high or feel good?	Yes 1 No 2 Refused 88	DU5

Question	Response	Code
Have you used synthetic cannabinoids or synthetic cathinones in the past 12 months? [INSERT COUNTRY SPECIFIC TERMS]	Yes 1 No 2 <i>If no & DU_xa =2 & DU₅=2 go to next section</i> Refused 88	DU6
Drug Use, Continued		
Question	Response	Code
Has a friend or relative or anyone else ever expressed concern about your use of the drug(s) you just mentioned?	Yes 1 No 2 Refused 88	DU7

Mental health / Suicide

Mental health / Suicide			
The next questions ask about thoughts, plans, and attempts of suicide. Please answer the questions even if no one usually talks about these issues.			
Question	Response		Code
During the past 12 months , have you seriously considered attempting suicide?	Yes	1	MH1
	No	2 <i>If No, go to MH3</i>	
	Refused	88	
Did you seek professional help for these thoughts?	Yes	1	MH2
	No	2	
	Refused	88	
During the past 12 months , have you made a plan about how you would attempt suicide?	Yes	1	MH3
	No	2	
	Refused	88	
Have you ever attempted suicide ?	Yes	1	MH4
	No	2 <i>If No, go to MH9</i>	
	Refused	88	
During the past 12 months , have you attempted suicide ?	Yes	1	MH5
	No	2	
	Refused	88	
What was the main method you used the last time you attempted suicide? (<i>SELECT ONLY ONE</i>)	Razor, knife or other sharp instrument	1	MH6
	Overdose of medication (e. g. prescribed, over-the-counter)	2	
	Overdose of other substance (e.g. heroin, crack, alcohol)	3	
	Poisoning with pesticides (e.g. rat poison, insecticide, weed-killer)	4	
	Other poisoning (e.g. plant/seed, household product)	5	
	Poisonous gases from charcoal	6	
	Other	7 <i>If Other, go to MH6other</i>	
	Refused	88	
	Other (specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	MH6other
Did you seek medical care for this attempt?	Yes	1	MH7
	No	2 <i>If No, go to MH9</i>	
	Refused	88	
Were you admitted to hospital overnight because of this attempt?	Yes	1	MH8
	No	2	
	Refused	88	
Has anyone in your close family (mother, father, brother, sister or children) ever attempted suicide?	Yes	1	MH9
	No	2	
	Refused	88	
Has anyone in your close family (mother, father, brother, sister or children) ever died from suicide?	Yes	1	MH10
	No	2	
	Refused	88	

Oral Health

Oral Health		
The next questions ask about your oral health status and related behaviours.		
Question	Response	Code
How many natural teeth do you have?	No natural teeth 1 <i>If no natural teeth, go to O4</i> 1 to 9 teeth 2 10 to 19 teeth 3 20 teeth or more 4 Don't know 77	O1
How would you describe the state of your teeth ?	Excellent 1 Very Good 2 Good 3 Average 4 Poor 5 Very Poor 6 Don't Know 77	O2
How would you describe the state of your gums ?	Excellent 1 Very Good 2 Good 3 Average 4 Poor 5 Very Poor 6 Don't know 77	O3
How would you describe the state of your mouth (mucosa) ?	Excellent 1 Very Good 2 Good 3 Average 4 Poor 5 Very Poor 6 Don't know 77	O4
Do you have any removable dentures ?	Yes 1 No 2 <i>If No, go to O7</i>	O5
Which of the following removable dentures do you have? (RECORD FOR EACH)		
An upper jaw denture	Yes 1 No 2	O6a
A lower jaw denture	Yes 1 No 2	O6b
During the past 12 months, did your teeth, gums or mouth cause any pain or discomfort ?	Yes 1 No 2	O7
How long has it been since you last saw a dentist ?	Less than 6 months 1 6-12 months 2 More than 1 year but less than 2 3 2 or more years but less than 5 years 4 5 or more years 5 Never received dental care 6 <i>If Never, go to O10</i>	O8
What was the main reason for your last visit to the dentist?	Consultation / advice 1 Pain or trouble with teeth, gums or 2 Treatment / Follow-up treatment 3 Routine check-up treatment 4 Other 5 <i>If Other, go to O9other</i>	O9
	Other (please specify) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	O9other

Sexual Health

CORE and EXPANDED: Sexual Health (expanded questions are shaded)		
The next questions ask about different experiences and behaviours that are related to sexual and reproductive health.		
Question	Response	Code
Have you ever had sexual intercourse?	Yes 1 No 2 <i>If No, go to SH16</i> Refused 88	SH1
How old were you when you first had sexual intercourse? (USE SHOWCARDS)	Age in years <input type="text"/> Don't remember 77 Refused 88	SH2
Who was this first sexual intercourse with?	Your husband or wife 1 Someone you were not married to 2 Don't know 77 Refused 88	SH3
When you first had sexual intercourse, were any of the following methods of protection against pregnancy and/or infection used? (RECORD FOR EACH)		
A condom	Yes 1 No 2 Don't remember 77	SH4a
The pill	Yes 1 No 2 Don't remember 77	SH4b
A different method	Yes 1 <i>If Yes, please specify</i> No 2 Don't remember 77	SH4c
	Other (please specify) <input type="text"/>	SH4cOther
When did you last have sexual intercourse?	In the last week 1 Between a week and a month ago 2 Between a month and a year ago 3 More than a year ago 4 <i>If More than a year ago, go to SH12</i> Don't remember 77 <i>If Don't remember, go to SH12</i> Refused 88	SH5
During the past 12 months, with how many people have you had sex (that is, oral, anal or vaginal sex)? (USE SHOWCARDS)	Number <input type="text"/> <i>If 1, go to SH8</i> Don't remember 77 Refused 88	SH6
During the last 12 months, was there a period during which you were having sex with more than one partner?	Yes 1 No 2 Don't remember 77 Refused 88	SH7
During the past 12 months, did you give money, gifts or favours in exchange for sex?	Yes 1 No 2 Don't know 77 Refused 88	SH8

CORE and EXPANDED: Sexual Health, Continued		
Question	Response	Code
The last time you had sexual intercourse, did you use any kind of protection against pregnancy and/or infection?	Yes 1 No 2 <i>If No, go to SH12</i> Don't know 77 <i>If Don't know, go to SH12</i> Refused 88	SH9
The last time you had sexual intercourse, were any of the following methods of protection against pregnancy and/or infection used? (RECORD FOR EACH)		
A condom	Yes 1 No 2 Don't remember 77	SH10a
The pill	Yes 1 No 2 Don't remember 77	SH10b
A different method	Yes 1 <i>If Yes, please specify</i> No 2 Don't remember 77	SH10c
	Other (please specify) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SH10cOther
During the past 12 months, which sources of supplies have you used for methods of protection against pregnancy and/or infection? (RECORD FOR EACH)		
Commercial (vending machine, shop)	Yes 1 No 2 Don't remember 77	SH11a
Health service (Community health worker, hospital/clinic)	Yes 1 No 2 Don't remember 77	SH11b
Family member or friend	Yes 1 No 2 Don't remember 77	SH11c
Other	Yes 1 <i>If Yes, please specify</i> No 2 Don't remember 77	SH11d
	Other (please specify) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SH11dOther
Have you ever had a disease/ infection which you got through sexual contact? (USE SHOWCARDS)	Yes 1 No 2 <i>If no, go to SH14</i> Don't know 77 Refused 88	SH12
The last time you had such a disease/ infection, did you seek any kind of advice or treatment ?	Yes 1 No 2 Don't know 77 Refused 88	SH13

EXPANDED: SEXUAL HEALTH		
Question	Response	Code
Have you ever had sexual intercourse with someone from the same sex?	Yes 1 No 2 Refused 88	SH14
During the past year, have you ever been forced to have sex?	Yes 1 No 2 Don't know 77 Refused 88	SH15
Some men or women have been circumcised . Have you been circumcised?	Yes 1 No 2 Don't know 77 Refused 88	SH16

EXPANDED: Sexual health (for women only)		
Have you ever been pregnant ?	Yes 1 No 2 <i>If no, END</i> Refused 88	SH17
How old were you when you first became pregnant?	Age in years <input type="text"/> Don't remember 77 Refused 88	SH18
Have you ever ended a pregnancy? (USE SHOWCARDS)	Yes 1 No 2 Refused 88	SH19
Thinking about your last pregnancy, which sentence best describes your situation at that time ?	I wanted to become pregnant 1 I would have preferred to put it off a while 2 I did not want to become pregnant 3 Don't know 77 Refused 88	SH20

Tobacco Policy

Tobacco Policy		
You have been asked questions on tobacco consumption before. The next questions ask about tobacco control policies. They include questions on your exposure to the media and advertisement, on cigarette promotions, health warnings and cigarette purchases.		
Question	Response	Code
During the past 30 days, have you noticed information about the dangers of smoking cigarettes or that encourages quitting through the following media? (<i>RECORD FOR EACH</i>)		
Newspapers or magazines	Yes 1 No 2 Don't know 77	TP1a
Television	Yes 1 No 2 Don't know 77	TP1b
Radio	Yes 1 No 2 Don't know 77	TP1c
During the past 30 days, have you noticed any advertisements or signs promoting cigarettes in stores where cigarettes are sold?	Yes 1 No 2 Don't know 77	TP2
During the past 30 days, have you noticed any of the following types of cigarette promotions? (<i>RECORD FOR EACH</i>)		
Free samples of cigarettes	Yes 1 No 2 Don't know 77	TP3a
Cigarettes at sale prices	Yes 1 No 2 Don't know 77	TP3b
Coupons for cigarettes	Yes 1 No 2 Don't know 77	TP3c
Free gifts or special discount offers on other products when buying cigarettes	Yes 1 No 2 Don't know 77	TP3d
Clothing or other items with a cigarette brand name or logo	Yes 1 No 2 Don't know 77	TP3e
Cigarette promotions in the mail	Yes 1 No 2 Don't know 77	TP3f
<i>The next questions TP4 – TP7 are administered to current smokers only.</i>		
During the past 30 days, did you notice any health warnings on cigarette packages ?	Yes 1 No 2 <i>If no, go to TP6</i> Did not see any cigarette packages 3 <i>If "did not see any cigarette packages", go to TP6</i> Don't know 77 <i>If Don't know, go to TP6</i>	TP4
During the past 30 days, have warning labels on cigarette packages led you to think about quitting ?	Yes 1 No 2 Don't know 77	TP5
The last time you bought manufactured cigarettes for yourself, how many cigarettes did you buy in total?	Number of cigarettes <u> </u> Don't know or Don't smoke or purchase manuf. cigarettes 7777 <i>If "Don't know or don't smoke or purchase manuf. cig.", end section</i>	TP6
In total, how much money did you pay for this purchase? (<i>DIGITS TO BE ADAPTED TO COUNTRY NEEDS</i>)	Amount <u> </u> Don't know 7777 Refused 8888	TP7

Violence and Injury

CORE: Injury		
The next questions ask about different experiences and behaviours that are related to road traffic injuries.		
Question	Response	Code
In the past 30 days, how often did you use a seat belt when you were the driver or passenger of a motor vehicle?	All of the time 1 Sometimes 2 Never 3 Have not been in a vehicle in past 30 days 4 No seat belt in the car I usually am in 5 Don't Know 77 Refused 88	V1
In the past 30 days, how often did you wear a helmet when you drove or rode as a passenger on a motorcycle or motor-scooter?	All of the time 1 Sometimes 2 Never 3 Have not been on a motorcycle or motor-scooter in past 30 days 4 Do not have a helmet 5 Don't Know 77 Refused 88	V2
In the past 12 months, have you been involved in a road traffic crash as a driver, passenger, pedestrian, or cyclist?	Yes (as driver) 1 Yes (as passenger) 2 Yes (as pedestrian) 3 Yes (as a cyclist) 4 No 5 <i>If No, go to V5</i> Don't know 77 <i>If don't know, go to V5</i> Refused 88 <i>If Refused, go to V5</i>	V3
Did you have any injuries in this road traffic crash which required medical attention?	Yes 1 No 2 Don't know 77 Refused 88	V4
The next questions ask about the most serious accidental injury you have had in the past 12 months.		
In the past 12 months, were you injured accidentally, other than the road traffic crashes which required medical attention?	Yes 1 No 2 <i>If No, go to V8</i> Don't know 77 <i>If don't know, go to V8</i> Refused 88 <i>If Refused, go to V8</i>	V5
Please indicate which of the following was the cause of this injury.	Fall 1 Burn 2 Poisoning 3 Cut 4 Near-drowning 5 Animal bite 6 Other (specify) 7 Don't know 77 Refused 88	V6
	Other (please specify) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

CORE: Injury, Continued		
Question	Response	Code
Where were you when you had this injury?	Home 1	V7
	School 2	
Workplace 3		
Road/Street/Highway 4		
Farm 5		
Sports/athletic area 6		
Other (specify) 7		
Don't know 77		
Refused 88	V7other	
Other (please specify) <input type="text"/>		

EXPANDED: Unintentional Injury		
The next questions ask about behaviours related to your safety and whether or not you drink alcohol while driving or being a passenger.		
Question	Response	Code
In the past 30 days, how often did you wear a helmet when you rode a bicycle or pedal cycle?	Always 1 Sometimes 2 Never 3 Did not ride in the past 30 days 4 Don't Know 77 Refused 88	V8
In the past 30 days, how many times have you driven a motorized vehicle when you have had 2 or more alcoholic drinks? (USE SHOWCARD)	Number of times <input type="text"/> Don't Know 77 Refused 88	V9
In the past 30 days, how many times have you ridden in a motorized vehicle where the driver has had 2 or more alcoholic drinks? (USE SHOWCARD)	Number of times <input type="text"/> Don't Know 77 Refused 88	V10

CORE: Violence		
The following questions are about different experiences and behaviours that are related to violence.		
Question	Response	Code
In the past 12 months, how many times were you in a violent incident in which you were injured and required medical attention?	Never 1 <i>If never, go to V14</i> Rarely (1- 2 times) 2 Sometimes (3 – 5 times) 3 Often (6 or more times) 4 Don't know 77 <i>If don't know, go to V14</i> Refused 88 <i>If Refused, go to V14</i>	V11
The next questions ask about the most serious violent incidence you have had in the past 12 months.		
Please indicate which of the following caused your most serious injury in the last 12 months. (USE SHOWCARDS)	Being shot with a firearm 1 A weapon (other than a firearm) was used by the person who injured me 2 Being injured without any weapon (slapped, pushed...) 3 Don't know 77 Refused 88	V12

Question	Response	Code	Question
Please indicate the relationship between yourself and the person(s) who caused your injury.	Intimate partner	1	V13
	Parent	2	
Child, sibling, or other relative	3		
Friend or acquaintance	4		
Unrelated caregiver	5		
Stranger	6		
Official or legal authorities	7		
Other (specify)	8		
	Refused	88	
	Other (please specify)	_____	V13other
Looking back on your childhood (before age 18 years), did a parent or adult in the household ever push, grab, shove, slap, hit, burn, or throw something at you?	Never	1	V14
	Very rarely	2	
	Once a month	3	
	Once a week	4	
	Almost daily	5	
	Don't know	77	
	Refused	88	
Looking back on your childhood, did an adult or anyone at least five years older than you ever touch you sexually or try to make you touch them sexually or force you to have sex?	Yes	1	V15
	No	2	
	Refused	88	
Since your 18th birthday, have you ever experienced a sex act involving either vaginal, oral, or anal penetration against your will ?	Never	1	V16
	Once	2	
	A few times (2 to 3 times)	3	
	Many times (4 or more times)	4	
	Don't know	77	
	Refused	88	

EXPANDED: Violence			
The next questions ask about behaviours related to your safety.			
Question	Response	Code	
In the past 12 months, have you been frightened for the safety of yourself or your family because of the anger or threats of another person(s)?	Yes	1	V17
	No	2 <i>If no, go to V19</i>	
	Refused	88 <i>If refused, go to V19</i>	
Please specify of whom you were most often frightened.	Intimate partner	1	V18
	Parent	2	
Child, sibling, or other relative	3		
Friend or acquaintance	4		
Unrelated caregiver	5		
Stranger	6		
Official or legal authority	7		
Other (specify)	8		
	Refused	88	
	Other (please specify)	_____	V18other
Have you carried a loaded firearm on your person outside the home in the last 30 days?	No	1	V19
	Yes, for protection	2	
	Yes, for work	3	
	Yes, for sport (e.g. hunting target practice)	4	
	Refused	88	

Objective Measurement of Physical Activity

Introduction

Questions on physical activity are included in Step 1 of the STEPS Instrument. This ‘subjective’ measurement relies on perceptions, memory, and judgments of the participant. However, physical activity can also be assessed ‘objectively’, through quantification of movement.

Common objective measures include devices such as accelerometers (activity watches), pedometers (step-counters), or Global Positioning System (GPS) units.

Accelerometer or pedometer measurements as part of Step 2

Measurements of physical activity with accelerometers or pedometers can be integrated in Step 2 of a STEPS survey. These measurements are generally done with a sub-sample, or ideally the entire sample of the survey, whereby each participant should wear the device over a few days.

Protocols for objective measurement of physical activity

Protocols for the integration of accelerometry and pedometry in Step 2 of a STEPS survey are available from the WHO Geneva STEPS team upon request. The protocols include an introduction to the measurements, background information and objectives, methods on how to implement the measurements, including survey logistics, as well as plans for data analysis and reporting.

Instructions and training materials for data collectors

Instructions for data collectors, as well as training materials for objective measurement of physical activity as part of STEPS are also available from the WHO Geneva STEPS team upon request. These instructions include a quick check list, information on device preparation, data collection procedures, data recording as well as device cleaning and storage.

Instructions for participants

Instructions for participants included in objective physical activity measurement with accelerometers or pedometers have also been developed, and are available from the WHO Geneva STEPS team upon request. They include guidelines on how to use the devices and frequently asked questions.

Devices at WHO Geneva

Countries interested in including objective measurement of physical activity in their STEPS survey may wish to contact the WHO Geneva STEPS team for loan of pedometers or accelerometers.

Part 6: Templates and Forms

Overview

In this Part

This Part covers the following topics

Topic	See Page
Section 1: Planning and Set Up Templates	6-1-1
Section 2: Forms for STEPS Field Work	6-2-1
Section 3: Reporting Templates (Fact Sheet, Data Book and Country Report Templates)	6-3-1

Section 1: Planning and Set Up Templates

Overview

Introduction This section includes some document templates that can be used during the stage that involves planning and preparing a STEPS survey.

Intended audience This section is primarily designed to be used by those fulfilling the following roles:

- STEPS Survey Coordinator
 - STEPS Coordinating Committee
-

In this section This section contains the following topics.

Topic	See Page
STEPS Implementation Plan	6-1-2
Budget Template	6-1-7
Ethical Approval Form	6-1-10

STEPS Implementation Plan

Executive Summary

Introduction

Current situation

Goals

Scope and methods

Resources

Budget

Current Situation

Introduction

Previous NCD risk factor surveys

Specify if an NCD risk factor survey has already been conducted in this country.

Data availability

Specify NCD risk factor data availability in this country.

Infrastructure and capacity

Specify if there is already an infrastructure (human capacity, equipment, other) on which STEPS could be built.

Rationale

Specify the rationale for conducting NCD risk factor surveillance. (See Part 1, Section 1, Rationale for Surveillance).

Goals and Objectives

Introduction

Goals Identify the planned goals or use for the information gathered. For example, as a contribution to ongoing data collection to:

- Describe the current levels of risk factors for NCDs in this population
- Track the direction and magnitude of trends in risk factors
- Plan or evaluate a health promotion or preventive campaign
- Collect data from which to predict likely future demands for health services.

Objectives Specify objectives that support gathering 'essential' information only.

Scope and Methods

Introduction

Overview of scope Specify the scope of the survey to be conducted over time, ie Step 1, Step 2 and Step 3, plus coverage of core, expanded and optional items.

Geographical coverage Identify geographical coverage.

Sampling Identify the sample size and sample frame that will be used. Describe the sampling methodology.

Timeframe Describe the broad timeframes.

Sustainability and future surveys Specify if STEPS sustainability can be assured and plans for future surveys.

Organization of field work

Number of field staff Describe the number and roles of the field staff as well as the composition of the field teams.

Logistics of field work Describe the logistics of the field work, in particular, where, when and how Step 3 measurements will be organized, and how the information will be recorded and matched with Step 1 and 2 data.

Equipment Specify the equipment to be used for electronic data collection, as well as for Step 2 and 3.

Training of field staff and pilot test Describe how the training of the field staff and the pilot test will be organized.

Data management

Quality checks during field work Describe how data quality will be checked during field work, e.g. through regular, systematic data downloads from electronic devices for data collection.

Data management and analysis Describe organization of compiling the final dataset, data management, analysis and reporting.

Resources

Introduction

Personnel required Specify required resources in terms of all personnel required for the surveillance.

Equipment Specify required resources in terms of all equipment required for the surveillance.

Facilities Specify required resources in terms of all facilities required for the surveillance.

**Resources
already
committed**

Describe resources that have already been committed or which are expected, including support from WHO.

**Resources
required from
other
organizations**

Specify resources required from other organizations involved.

Action Plan

Introduction

Plan

Provide a chart of the main tasks with estimated start dates and timeframes for completion of each phase.

Communication Strategy and Publicity

Introduction

Publicity plan

Specify methods for informing and involving community leaders and community groups in the STEPS survey project.

Reporting and Disseminating Results

Introduction

Reporting Describe to whom and how the results will be reported and disseminated.

Budget

Introduction

Budget Provide a detailed budget that includes:

- total funds required for each year planned to implement all STEPS activities as identified in the scope,
- source of funds, and
- funding gap.

Item	USD

Budget Template

Budget template

The items and subline items that should be covered in the calculation of a realistic and detailed budget are listed in the Budget Template below. However, items or subline items may need to be added or removed as the template is adapted to the local context.

An excel tool with integrated formula and examples is available on the WHO STEPS website, and on request from the WHO STEPS team.

Use of the template

For each subline item, the following information should be listed in a table:

- quantity or number required (units)
- unit cost (in local currency)
- unit cost (converted to USD)
- total cost (in USD)
- responsible organization
- comments.

Phase 1 – STEPS Planning and Preparation		
Line item	Subline item	Cost
Personnel	Preparation of the STEPS implementation plan	
	Sample design development	
	Adaptation of the STEPS Instrument and testing	
STEPS Implementation workshop (3 days) or planning meetings	Transportation costs	
	Accommodation (for out-of-town participants)	
	Venue	
	Food/refreshments	
	Audio-visual equipment	
	Supplies and stationary	
Supplies and services	Translation costs	
	Communication costs	
Subtotal		
Phase 2 – STEPS Field Work		
Personnel	Trainers	
	IT specialist/Data Manager	
	Translators if required during the training	
	Salary or per diem for interviewers (including mapping and listing, and data collection)	
	Salary or per diem for field team supervisors (including mapping and listing, and data collection)	
	Salary or per diem for Step 3 data collectors (blood testing) and lab technician (urine testing)	
	Honoraria for field guides or village councilors	
	Salary or per diem for drivers	
	Salary or per diem for additional staff hired for the survey	

Phase 2 – STEPS Field Work, <i>continued</i>		
Line item	Subline item	Cost
Data collector's training	Transportation costs for training	
	Venue of the training	
	Accommodation of the training participants	
	Meals and refreshments during the training	
	Photocopying/printing of training materials, forms for field work and show-cards	
Transportation	Transportation costs (bus, train, planes etc.)	
	Vehicle Rental for the household mapping and listing	
	Vehicle Rental for the pretest	
	Vehicle Rental for the full survey data collection - Field Teams	
	Vehicle Rental for the full survey data collection - Monitoring	
	Petrol	
Survey equipment	Android devices for data collection with cables	
	External battery packs	
	Laptops for data checks	
	Carry bags for equipment	
	Devices for height and weight measurement	
	Constant tension tape	
	Digital blood pressure monitor	
	Devices for blood testing	
	Test strips for blood testing	
	Lancets, capillary tubes for collection of the right amount of blood, cotton balls, gloves, disposable containers	
	Containers for urine samples	
	Carrier boxes for transport of urine samples	
	Spare batteries for equipment	
	Transport of urine samples to laboratory	
	Additional costs for urine analysis	Urine sample analysis

Line item	Subline item	Cost
Phase 3 – STEPS Data Management, Analysis and Report writing		
Personnel	Trainers	
	IT specialist/Data Manager and Analysis Team	
	Technical focal points for report writing and proof reading	
	Layout of the report	
	Translators	
Data analysis and reporting workshop	Transportation costs for workshop	
	Venue of the workshop	
	Accommodation of the workshop participants	
	Meals and refreshments during the workshop	
	Supplies and stationary	
Data dissemination	Report/Fact Sheet layout and printing	
	Translation of the Fact Sheet and Report	
	Costs related to an official Fact Sheet/release event	
Subtotal		
Phase 4 – Application and Program Planning Workshop (Data to Action)		
Line item	Subline item	Cost
Personnel	Workshop organizers	
	Workshop participants	
Application and Program Planning Workshop	Transportation costs for workshop	
	Venue of the workshop	
	Accommodation of the workshop participants	
	Meals and refreshments during the workshop	
	Supplies and stationary	
	Communication costs	
	Workshop report printing and layout	
Subtotal		
GRAND TOTAL		

Ethical Approval Form

General Information

Introduction

Survey title

The title of the proposed survey is:

[Country name] STEPS NCD Risk Factor Survey.

Key personnel

A STEPS coordinating committee has been set up to oversee and manage the planning, preparation and implantation of the proposed survey and includes the following people.

Name	Organization and qualifications

Dates

The proposed survey dates are:

Phase	Dates
Start Date	
Completion Date	
Survey duration (including planning, field work, analysis and reporting)	6 - 9 months

Scientific Assessment

Introduction

Scientific basis

**Summary of
report**

Survey Scope

Introduction

Goals Identify the planned goals or use for the information gathered. For example, as a contribution to ongoing data collection to:

- Describe the current levels of risk factors for NCDs in this population
- Track the direction and magnitude of trends in risk factors
- Plan or evaluate a health promotion or preventive campaign
- Collect data from which to predict likely future demands for health services

Objectives Specify objectives that support gathering 'essential' information only.

Overview of scope Specify the scope of survey to be conducted i.e. Step 1, Step 2 and Step 3, plus coverage of core, expanded and optional items.

Sampling Identify the sample size and sample frame that will be used. Describe the sampling methodology.

Geographical coverage Identify geographical coverage of the survey.

Resources Describe resources that:

- are required,
- have already been committed, and
- are expected, including support from WHO.

Cultural/ethical issues Describe any aspects of the survey that might raise specific cultural or ethical issues.

Reporting and use of results Describe:

- To whom and how the results will be reported and disseminated;
- Any restrictions on results;
- Confidentiality of personal identification information;
- Use of results once the survey is complete;
- Methods for informing and involving community leaders and community groups in the STEPS survey project.

Continued on next page

Survey Scope, Continued

Budget

Provide a detailed budget that includes:

- total funds required for each year planned to implement all STEPS activities as identified in the Scope;
- source of funds;
- funding gap.

Item	USD

Declarations

Introduction

Declaration by principal investigator

The information supplied in this application is, to the best of my knowledge and belief, accurate. I have considered the ethical issues involved in this research and believe that I have adequately addressed them in this application. I understand that if the protocol for this research changes in any way I must inform the Research Ethics Review Committee.

Name: _____

Signature: _____

Date: _____

Declaration by head of department

I have read the application and believe it to be scientifically and ethically sound. I approve the research design. I give my consent for the application to be forwarded to the Ethics Committee.

Name: _____

Signature: _____

Date: _____

Note: Where the head of department is also one of the investigators, the head of department declaration must be signed by the appropriate Dean, or relevant senior officer.

Section 2: Forms for STEPS Field Work

Overview


Introduction This section includes some document templates that can be used during the STEPS Field Work.

In this section This section contains the following forms for use during the survey.


Topic	See Page
Notification of WHO STEPS Survey Visit	6-2-2
Script for Data Collectors	6-2-3
Interview Tracking Form	6-2-4
Participant Information Form (Step 1, 2 and 3)	6-2-5
Consent Form 1 (Steps 1 and 2)	6-2-8
Consent Form 2 (Step 3)	6-2-9
Participant Feedback Form (Step 2)	6-2-10
Participant Feedback Form (Step 3)	6-2-11
BMI Classification Chart	6-2-13
Step 3 Appointment Card	6-2-14
Instructions for Spot Urine Collection (Step 3)	6-2-15
Fasting Instructions (Step 3)	6-2-17
Step 3 Registration Form	6-2-18

Notification of WHO STEPS Surveillance Visit



 Notification of WHO STEPS Survey Visit		
<p>Today Ministry of Health employees visited your household to conduct a survey of people between the ages of 18 to 69 on health issues. We will try to return on the date indicated below. If this is not convenient, please contact us to make a suitable time for the survey.</p>		
Date of Visit		
Household Number		
Next Visit	Day/Date:	Time:
Contact		
[name of country] Ministry of Health, [address]		



 Notification of WHO STEPS Survey Visit		
<p>Today Ministry of Health employees visited your household to conduct a survey of people between the ages of 18 to 69 on health issues. We will try to return on the date indicated below. If this is not convenient, please contact us to make a suitable time for the survey.</p>		
Date of Visit		
Household Number		
Next Visit	Day/Date:	Time:
Contact		
[name of country] Ministry of Health, [address]		

Script for Data Collectors

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 house 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)?

Participant Information Form (Step 1, 2 and 3)

Introduction This form describes what participation in the WHO STEPS survey means.

Title of survey The title of this survey is the STEPS Survey of Risk Factors for Noncommunicable Diseases (NCDs)

Aim of the survey This survey will determine the extent in [name of country] of several of the major risk factors for major NCDs (e.g. diseases not caused by infections). These diseases and their risk factors include:

- Tobacco use
 - Alcohol consumption
 - Low intake of fruit and vegetables
 - Diet high in salt
 - Physical inactivity
 - Raised blood pressure
 - Obesity
 - Raised blood glucose
 - High levels of fat in the blood
-

Data collection methods We will collect information from [insert sample size] participants throughout the area in which the survey is being conducted.

Information will be gathered through 3 steps of data collection:

- Step 1 - Interview questions
 - Step 2 - Measurements of blood pressure, height, weight, waist and hip
 - Step 3 – Urine tests for salt and blood tests for sugar and fats
-

What's involved The table below shows each of the steps involved. You will be given time to consider your participation.

Step	Action
1	We will describe the STEPS survey to you.
2	You may ask any questions you may have.
3	We will ask you to sign a consent form.

Continued on next page

Participant Information Form (Step 1, 2 and 3), Continued

What's involved (cont.)

Step	Action
4	You will be asked to participate in Step 1. This will involve a data collector asking you some questions about your: <ul style="list-style-type: none">• Age• Education• Employment and income• Tobacco and alcohol use• Fruit and vegetable intake• Consumption of salt• Physical activity• History of raised blood pressure, diabetes, raised cholesterol, and cardio-vascular diseases• Lifestyle advice• Cervical cancer screening
5	You will then be asked to participate in Step 2. This will involve a data collector taking some simple measurements of your: <ul style="list-style-type: none">• Blood pressure• Height• Weight• Waist and hip circumference
6	You will also be asked to participate in Step 3. This will involve you collecting a urine sample that will be tested for salt, and health staff taking a small amount of blood from the tip of your finger to test for sugar and fat levels in your blood after you have fasted overnight. This may cause some mild pain.

Timeframe It is estimated that Step 1 and 2 of the survey will take approximately 1 hour.

Community benefits The results of this study will be used to assist the Ministry of Health in developing public health programmes that target efforts to lower the risk factors that lead to NCDs.

Your rights It is your right to:

- decline to take part in the study;
- withdraw your consent at any time;
- decline to answer any question in the interview that you do not wish to answer.

Continued on next page

Participant Information Form (Step 1, 2 and 3), Continued

Confidentiality You will be asked to provide your name and contact information so that you can be contacted if there is any need to follow up with you after the survey is conducted.

Your participation and data provided will be completely confidential.

Your name will not be used in any report of the study.

Results The results of this survey will be used to help plan strategies in reducing the risk factors that contribute to NCDs in your community.

The results will be published in research publications, media briefings, fact sheets, and reports and can be made available to you through the local researchers.

Ethical approval This study has received ethical approval from the Research Ethics Review Committee of [insert name of institution and of location].

Consent Form 1 (Steps 1 and 2)

Dear Participant,

Random selection

You have been randomly selected to be part of this survey and this is why we would like to interview you. This survey is conducted by the World Health Organization in collaboration with the Ministry of Health and the WHO Regional Office and will be carried out by professional interviewers from [name of institution]. This survey is currently taking place in several countries around the world.

Confidentiality

The information you provide is totally confidential and will not be disclosed to anyone. It will only be used for research purposes. Your name, address, and other personal information will be removed, and only a code will be used to connect your name and your answers without identifying you. You may be contacted by the survey team again only if it is necessary to complete the information on the survey.

Voluntary participation

Your participation is voluntary and you can withdraw from the survey after having agreed to participate. You are free to refuse to answer any question that is asked in the questionnaire. If you have any questions about this survey you may ask me or contact [name of institution and contact details] or [STEPS Survey Coordinator].

Consent to participate

Signing this consent indicates that you understand what will be expected of you and are willing to participate in this survey.

Read by Participant		Interviewer	
Agreed		Refused	

Signatures

I hereby provide INFORMED CONSENT to take part in Steps 1 and 2 of the Risk Factors Study.

Name: _____

Sign: _____

Witness: _____

Sign: _____

Consent Form 2 (Step 3)

Dear Participant

Random selection You have been randomly selected to be part of this survey and this is why we would like to interview you. This survey is conducted by the World Health Organization in collaboration with the Ministry of Health and the WHO Regional Office and will be carried out by professional interviewers from [name of institution]. This survey is currently taking place in several countries around the world.

Confidentiality The information you provide is totally confidential and will not be disclosed to anyone. It will only be used for research purposes. Your name, address, and other personal information will be removed, and only a code will be used to connect your name and your answers without identifying you. You may be contacted by the Survey Team again only if it is necessary to complete the information on the survey.

Voluntary participation Your participation is voluntary and you can withdraw from the survey after having agreed to participate. You are free to refuse to answer any question that is asked in the questionnaire. If you have any questions about this survey you may ask me or contact [name of institution and contact details] or [STEPS Survey Coordinator].

What's involved You will be asked to collect a urine sample to be tested for salt, and you will have a small amount of blood taken from the tip of your finger to be tested for sugar and fat after you have fasted overnight. This may cause some mild pain. You will be informed about the results of the test with your blood sample.

Consent to participate Signing this consent indicates that you understand what will be expected of you and are willing to participate in this survey.

Read by Participant		Interviewer	
Agreed		Refused	

Signatures I hereby provide INFORMED CONSENT to take part in Step 3 of the Risk Factor Study.

Name: _____ Sign: _____

Witness: _____ Sign: _____

Participant Feedback Form (Step 2)

Dear Participant,

We thank you very much for participating in the STEPS Survey of Risk Factors for Noncommunicable Diseases in [name of country], conducted by [name of institution]. This study was undertaken in order to gather information on the following risk factors for noncommunicable diseases in [name of country]: tobacco use, alcohol consumption, low intake of fruit and vegetables, diet high in salt, physical inactivity, raised blood pressure, obesity, raised blood glucose, and high levels of blood cholesterol.

We would like to provide you with an overview of your results from the physical measurements.

Blood pressure Systolic: _____ mmHg (reading 3)

Diastolic: _____ mmHg (reading 3)

Blood pressure classification

- Normal (SBP < 140 and DBP < 90)
- Elevated (SBP 140-159 and/or DBP 90-99)
- Raised (SBP \geq 160 and/or DBP \geq 100)
- Currently on medication

Heart rate Beats per minute: _____ (reading 3)

Height Height: _____ cm

Weight Weight: _____ kg

Body Mass Index BMI: _____ kg/m² (weight in kg divided by height in meters squared; ex. for height 170 cm and weight 68 kg BMI = $(68/(1.7^2))=23.5$)

BMI classification

- Underweight (BMI < 18.5)
 - Normal weight (BMI 18.5-24.9)
 - Overweight (BMI 25-29.9)
 - Obese (BMI \geq 30)
-

Waist circumference Waist: _____ cm

Hip circumference Hip: _____ cm

Participant Feedback Form (Step 3 – mmol/L)

Dear Participant,

We thank you very much for participating in the STEPS Survey of Risk Factors for Noncommunicable Diseases in [name of country], conducted by [name of institution]. This study was undertaken in order to gather information on the following risk factors for noncommunicable diseases in [name of country]: tobacco use, alcohol consumption, low intake of fruit and vegetables, diet high in salt, physical inactivity, raised blood pressure, obesity, raised blood glucose, and high levels of blood cholesterol.

We would like to provide you with an overview of your results from the biochemical measurements.

Fasting blood glucose Fasting blood glucose: _____ mmol/l

- Fasting blood glucose classification**
- Normal (< 6.1 mmol/l)
 - Raised (\geq 6.1 mmol/l)
 - Currently on medication
-

Total blood cholesterol Total cholesterol: _____ mmol/l

- Total blood cholesterol classification**
- Normal (<5.0 mmol/l)
 - Elevated (5.0-6.1 mmol/l)
 - High (\geq 6.2 mmol/l)

HDL cholesterol HDL cholesterol: _____ mmol/l

- HDL cholesterol classification**
- Normal (\geq 1.03 mmol/l for Men, \geq 1.29 mmol/l for Women)
 - Low (< 1.03 mmol/l for Men, < 1.29 mmol/l for Women)

Triglycerides Triglycerides: _____ mmol/l

- Triglycerides classification**
- Normal (<1.7 mmol/l)
 - Raised (\geq 1.7 mmol/l)
-

Participant Feedback Form (Step 3 – mg/dL)

Dear Participant,

We thank you very much for participating in the STEPS Survey of Risk Factors for Noncommunicable Diseases in [name of country], conducted by [name of institution]. This study was undertaken in order to gather information on the following risk factors for noncommunicable diseases in [name of country]: tobacco use, alcohol consumption, low intake of fruit and vegetables, diet high in salt, physical inactivity, raised blood pressure, obesity, raised blood glucose, and high levels of blood cholesterol.

We would like to provide you with an overview of your results from the biochemical measurements.

Fasting blood glucose Fasting blood glucose: _____ mg/dl

- Fasting blood glucose classification**
- Normal (<110 mg/dl)
 - Raised (\geq 110 mg/dl)
 - Currently on medication
-

Total blood cholesterol Total cholesterol: _____ mg/dl

- Total blood cholesterol classification**
- Normal (<190 mg/dl)
 - Elevated (190-239 mg/dl)
 - High (\geq 240 mg/dl)

HDL cholesterol HDL cholesterol: _____ mg/dl

- HDL cholesterol classification**
- Normal (\geq 40 mg/dl for Men, \geq 50 mg/dl for Women)
 - Low (<40 mg/dl for Men, <50 mg/dl for Women)

Triglycerides Triglycerides: _____ mg/dl

- Triglycerides classification**
- Normal (<150 mg/dl)
 - Raised (\geq 150 mg/dl)
-

BMI Classification Chart

Weight (kg)

Height (cm)

	30	32.5	35	37.5	40	42.5	45	47.5	50	52.5	55	57.5	60	62.5	65	67.5	70	72.5	75	77.5	80	82.5	85	87.5	90	92.5	95	97.5	100	102.5	105	107.5	110	112.5	115	117.5	120	122.5	125	127.5	130
140	15	17	18	19	20	22	23	24	26	27	28	29	31	32	33	34	36	37	38	40	41	42	43	45	46	47	48	50	51	52	54	55	56	57	59	60	61	63	64	65	66
142	15	16	17	19	20	21	22	24	25	26	27	29	30	31	32	33	35	36	37	38	40	41	42	43	45	46	47	48	50	51	52	53	55	56	57	58	60	61	62	63	64
144	14	16	17	18	19	20	22	23	24	25	27	28	29	30	31	33	34	35	36	37	39	40	41	42	43	45	46	47	48	49	51	52	53	54	55	57	58	59	60	61	63
146	14	15	16	18	19	20	21	22	23	25	26	27	28	29	30	32	33	34	35	36	38	39	40	41	42	43	45	46	47	48	49	50	52	53	54	55	56	57	59	60	61
148	14	15	16	17	18	19	21	22	23	24	25	26	27	29	30	31	32	33	34	35	37	38	39	40	41	42	43	45	46	47	48	49	50	51	53	54	55	56	57	58	59
150	13	14	16	17	18	19	20	21	22	23	24	26	27	28	29	30	31	32	33	34	36	37	38	39	40	41	42	43	44	46	47	48	49	50	51	52	53	54	56	57	58
152	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	29	30	31	32	34	35	36	37	38	39	40	41	42	43	44	45	46	48	49	50	51	52	53	54	55	56
154	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	50	51	52	53	54	55
156	12	13	14	15	16	17	18	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
158	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
160	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	
162	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
164	11	12	13	14	15	16	17	18	19	20	20	21	22	23	24	25	26	27	28	29	30	31	32	33	33	34	35	36	37	38	39	40	41	42	43	44	45	46	46	47	48
166	11	12	13	14	15	15	16	17	18	19	20	21	22	23	24	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	44	45	46	47	
168	11	12	12	13	14	15	16	17	18	19	19	20	21	22	23	24	25	26	27	27	28	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42	43	43	44	45	46
170	10	11	12	13	14	15	16	16	17	18	19	20	21	22	22	23	24	25	26	27	28	29	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42	42	43	44	45
172	10	11	12	13	14	14	15	16	17	18	19	19	20	21	22	23	24	25	25	26	27	28	29	30	30	31	32	33	34	35	35	36	37	38	39	40	41	41	42	43	44
174	10	11	12	12	13	14	15	16	17	17	18	19	20	21	21	22	23	24	25	26	26	27	28	29	30	31	31	32	33	34	35	35	36	37	38	39	40	40	41	42	43
176	10	10	11	12	13	14	15	15	16	17	18	19	19	20	21	22	23	23	24	25	26	27	27	28	29	30	31	31	32	33	34	35	36	36	37	38	39	40	40	41	42
178	9	10	11	12	13	13	14	15	16	17	17	18	19	20	21	21	22	23	24	24	25	26	27	28	28	29	30	31	32	32	33	34	35	36	36	37	38	39	39	40	41
180	9	10	11	12	12	13	14	15	15	16	17	18	19	19	20	21	22	22	23	24	25	25	26	27	28	29	29	30	31	32	32	33	34	35	35	36	37	38	39	39	40
182	9	10	11	11	12	13	14	14	15	16	17	17	18	19	20	20	21	22	23	23	24	25	26	26	27	28	29	29	30	31	32	32	33	34	35	35	36	37	38	38	39
184	9	10	10	11	12	13	13	14	15	16	16	17	18	18	19	20	21	21	22	23	24	24	25	26	27	27	28	29	30	30	31	32	32	33	34	35	35	36	37	38	38
186	9	9	10	11	12	12	13	14	14	15	16	17	17	18	19	20	20	21	22	22	23	24	25	25	26	27	27	28	29	30	30	31	32	33	33	34	35	35	36	37	38
188	8	9	10	11	11	12	13	13	14	15	16	16	17	18	18	19	20	21	21	22	23	23	24	25	25	26	27	28	28	29	30	30	31	32	33	33	34	35	35	36	37
190	8	9	10	10	11	12	12	13	14	15	15	16	17	17	18	19	19	20	21	21	22	23	24	24	25	26	26	27	28	28	29	30	30	31	32	33	33	34	35	35	36
192	8	9	9	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	22	22	23	24	24	25	26	26	27	28	28	29	30	31	31	32	33	33	34	35	35
194	8	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28	28	29	30	31	31	32	33	33	34	35
196	8	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	21	22	23	23	24	25	25	26	27	27	28	29	29	30	31	31	32	33	33	34
198	8	8	9	10	10	11	11	12	13	13	14	15	15	16	17	17	18	18	19	20	20	21	22	22	23	24	24	25	26	26	27	27	28	29	29	30	31	31	32	33	33
200	8	8	9	9	10	11	11	12	13	13	14	14	15	16	16	17	18	18	19	19	20	21	21	22	23	23	24	24	25	26	26	27	28	28	29	29	30	31	31	32	33
202	7	8	9	9	10	10	11	12	12	13	13	14	15	15	16	17	17	18	18	19	20	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	29	30	31	31	32
204	7	8	8	9	10	10	11	11	12	13	13	14	14	15	16	16	17	17	18	19	19	20	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	29	30	31	31

Underweight (<18.5)
Normal weight (18.5-24.9)
Overweight (25-29.9)
Obese (30-39.9)
Morbidly Obese (≥ 40)

Step 3 Appointment Card

APPOINTMENT TIME

Thank you for agreeing to participate in the STEPS survey.

Participant ID: _____

APPOINTMENT

Centre: _____

Date: _____

Time: _____

**PLEASE BRING THIS FORM WITH YOU
WHEN YOU COME FOR AN APPOINTMENT**

Instructions for Spot Urine Collection (Step 3)

Participant ID: _____

INSTRUCTIONS FOR SPOT URINE COLLECTION

DATE: _____

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).



Write down the time you collect your sample

TIME OF COLLECTION: ____ ____

3

Place container filled with urine (pee) in a zip closable plastic bag and store upright in a cool, dark place.



4

Bring your container filled with urine in the zip closable plastic bag and this instruction sheet to the collection centre



If there is anything you are unsure about please contact: _____

**Frequently
Asked
Questions**

Why do I have a participant identification number (ID)?

An ID number will be assigned to your information and samples to ensure confidentiality.

Why is it important to complete a spot urine sample?

The spot sample will allow us to determine information related to the salt intake in your diet.

What are you testing in the urine sample?

A number of nutritional factors including sodium and creatinine [optional potassium/iodine].

Will the urine sample be tested for drugs?

No. Your urine sample will only be analysed for nutritional markers.

What happens if I spill some urine?

It is important that spillages do not occur, however simply clean up the spillage.

I take prescribed medications - can I still take part?

Yes you can.

Do I still take my medications on the day I provide my urine sample?

Yes, absolutely.

Do I need to fill up the container?

No, half full is perfect.

What if I have my period?

We ask that you use a tampon, if available, when collecting your urine samples; otherwise we ask you not to participate.

What if I am feeling sick?

Please collect the urine sample if you are able to.

Is there any health risks involved in providing a urine sample?

No - there is no risk to your health or the health of others.

Where do I keep my urine container?

It is best to keep the container and contents in a cool, dark place.

Will insurance companies or any other body find out my results?

No.

Fasting Instructions (Step 3)

Introduction To get accurate results from the blood test it is very important that you have fasted.

Fasting instructions Please ensure that you DO NOT have anything to eat or drink including chewing gum (except plain water) for at least 8 hours (12 hours if triglycerides are also measured) BEFORE blood collection. This means that if you have your appointment in the morning, please do not eat or drink after 10:00 PM the night before the appointment.

Note for diabetics If you have diabetes controlled with tablets and/or insulin, please AVOID taking these on the morning of your appointment, but bring them with you to take after testing is completed. Please take any other morning medications as usual.

Section 3: Reporting Templates (Fact Sheet, Fact Sheet Analysis Guide, Data Book and Country Report Template)

Overview

Introduction This section includes templates that can be used to report both the comprehensive and summary results of the STEPS survey.

In this section This section contains the following Report Templates:

Topic	See Page
Fact Sheet Template	6-3A-1
Fact Sheet Analysis Guide	6-3B-1
Data Book Template	6-3C-1
Country Report Template	6-3D-1



<Country> STEPS Survey <year>

Fact Sheet

The STEPS survey of noncommunicable disease (NCD) risk factors in [country name] was carried out from [insert month and year] to [insert month and year]. [country name] carried out Step 1, Step 2 and Step 3. Socio demographic and behavioural information was collected in Step 1. Physical measurements such as height, weight and blood pressure were collected in Step 2. Biochemical measurements were collected to assess blood glucose and cholesterol levels in Step 3. The survey was a population-based survey of adults aged 18-69 [adjust as necessary]. A [insert type of sampling design] sample design was used to produce representative data for that age range in [insert country name]. A total of [insert sample size] adults participated in the survey. The overall response rate was [insert response rate (x%)]. A repeat survey is planned for [insert year] if funds permit.

Results for adults aged 18-69 years (incl. 95% CI) (adjust if necessary)	Both Sexes	Males	Females
Step 1 Tobacco Use			
Percentage who currently smoke tobacco	77.1% (66.2 – 88.1)	77.2% (66.2 – 88.1)	77.4% (66.2 – 88.1)
Percentage who currently smoke tobacco daily			
<i>For those who smoke tobacco daily</i>			
Average age started smoking (years)			
Percentage of daily smokers smoking manufactured cigarettes			
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)			
Step 1 Alcohol Consumption			
Percentage who are lifetime abstainers			
Percentage who are past 12 month abstainers			
Percentage who currently drink (drank alcohol in the past 30 days)			
Percentage who engage in heavy episodic drinking (6 or more drinks on any occasion in the past 30 days)			
Step 1 Diet			
Mean number of days fruit consumed in a typical week			
Mean number of servings of fruit consumed on average per day			
Mean number of days vegetables consumed in a typical week			
Mean number of servings of vegetables consumed on average per day			
Percentage who ate less than 5 servings of fruit and/or vegetables on average per day			
Percentage who always or often add salt or salty sauce to their food before eating or as they are eating			
Percentage who always or often eat processed foods high in salt			
Step 1 Physical Activity			
Percentage with insufficient physical activity (defined as < 150 minutes of moderate-intensity activity per week, or equivalent)*			
Median time spent in physical activity on average per day (minutes) (presented with inter-quartile range)			
Percentage not engaging in vigorous activity			

* For complete definitions of insufficient physical activity, refer to the GPAQ Analysis Guide (<http://www.who.int/chp/steps/GPAQ/en/index.html>) or to the WHO Global recommendations on physical activity for health (http://www.who.int/dietphysicalactivity/factsheet_recommendations/en/index.html)



<Country> STEPS Survey <year >

Fact Sheet

Results for adults aged 18-69 years (incl. 95% CI) (adjust if necessary)	Both Sexes	Males	Females
Step 1 Cervical Cancer Screening			
Percentage of women aged 30-49 years who have ever had a screening test for cervical cancer			
Step 2 Physical Measurements			
Mean body mass index - BMI (kg/m ²)			
Percentage who are overweight (BMI ≥ 25 kg/m ²)			
Percentage who are obese (BMI ≥ 30 kg/m ²)			
Average waist circumference (cm)			
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP			
Mean diastolic blood pressure - DBP (mmHg), including those currently on medication for raised BP			
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)			
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) who are not currently on medication for raised BP			
Step 3 Biochemical Measurement			
Mean fasting blood glucose, including those currently on medication for raised blood glucose [choose accordingly: mmol/L or mg/dl]			
Percentage with impaired fasting glycaemia as defined below <ul style="list-style-type: none"> • plasma venous value ≥6.1 mmol/L (110 mg/dl) and <7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥5.6 mmol/L (100 mg/dl) and <6.1 mmol/L (110 mg/dl) 			
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose <ul style="list-style-type: none"> • plasma venous value ≥ 7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥ 6.1 mmol/L (110 mg/dl) 			
Mean total blood cholesterol, including those currently on medication for raised cholesterol [choose accordingly: mmol/L or mg/dl]			
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)			
Mean intake of salt per day (in grams)			
Cardiovascular disease (CVD) risk			
Percentage aged 40-69 years with a 10-year CVD risk ≥ 30%, or with existing CVD**			
Summary of combined risk factors			
<ul style="list-style-type: none"> • current daily smokers • less than 5 servings of fruits & vegetables per day • insufficient physical activity 		<ul style="list-style-type: none"> • overweight (BMI ≥ 25 kg/m²) • raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) 	
Percentage with none of the above risk factors			
Percentage with three or more of the above risk factors, aged 18 to 44 years			
Percentage with three or more of the above risk factors, aged 45 to 69 years			
Percentage with three or more of the above risk factors, aged 18 to 69 years			

** A 10-year CVD risk of ≥30% is defined according to age, sex, blood pressure, smoking status (current smokers OR those who quit smoking less than 1 year before the assessment), total cholesterol, and diabetes (previously diagnosed OR a fasting plasma glucose concentration >7.0 mmol/l (126 mg/dl)).

**For additional information, please contact:
STEPS Survey Coordinator [name, email addresses]**



Country STEPS Survey <year>

Fact Sheet Analysis Guide

Please use this as a guide when you are altering your instrument as it will provide you with a guideline for which questions are needed in order to calculate these basic indicators.

To calculate the basic indicators that are presented on the Fact Sheet refer to the Data Analysis section of the user manual (Part 4, Section 3)

Results for adults aged 18-69 years (incl. 95% CI) (<i>adjust if necessary</i>)	Questions required to calculate result (based on coding column)	Epi Info Program Name
Step 1 Tobacco Use		
Percentage who currently smoke tobacco	T1, T2, T8	TsmokestatusWT
Percentage who currently smoke tobacco daily	T1, T2, T8	TsmokestatusWT
<i>For those who smoke tobacco daily</i>		
Average age started smoking (years)	T1, T2, T3, T4a-c	TsmokeageWT
Percentage of daily smokers smoking manufactured cigarettes	T1, T2, T5a	TsmokemanWT
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	T1, T2, T5a	TsmoketypeWT
Step 1 Alcohol Consumption		
Percentage who are lifetime abstainers	A1, A2, A5	AconsumptionWT
Percentage who are past 12 month abstainers	A1, A2, A5	AconsumptionWT
Percentage who currently drink (drank alcohol in the past 30 days)	A1, A2, A5	AconsumptionWT
Percentage who engage in heavy episodic drinking (6 or more drinks on any occasion in the past 30 days)	A1, A2, A5, A9	AepisodicWT
Step 1 Diet		
Mean number of days fruit consumed in a typical week	D1, D3	DdaysWT
Mean number of servings of fruit consumed on average per day	D1, D2, D3, D4	DservingsWT
Mean number of days vegetables consumed in a typical week	D1, D3	DdaysWT
Mean number of servings of vegetables consumed on average per day	D1, D2, D3, D4	DservingsWT
Percentage who ate less than 5 servings of fruit and/or vegetables on average per day	D1, D2, D3, D4	DfiveormoreWT
Percentage who always or often add salt or salty sauce to their food before eating or as they are eating	D5	DeatingWT
Percentage who always or often eat processed foods high in salt	D7	DprocessedWT
Step 1 Physical Activity		
Percentage with insufficient physical activity (defined as < 150 minutes of moderate-intensity activity per week, or equivalent)*	P1-P15b	PnotmeetingrecsWT
Median time spent in physical activity on average per day (minutes)	P1-P15b	PtotalmedianWT
Percentage not engaging in vigorous activity	P1-P15b	PnovigorousWT
Step 1 Cervical Cancer Screening		
Percentage of women aged 30-49 years who have ever had a screening test for cervical cancer	CX1	HcervcancerWT

* For complete definitions of low and high levels of physical activity, other conditions are specified in the GPAQ Analysis Guide, available at: <http://www.who.int/chp/steps/GPAQ/en/index.html>



Country STEPS Survey <year>

Fact Sheet Analysis Guide

Results for adults aged 18-69 years (incl. 95% CI) (adjust if necessary)	Questions required to calculate result (based on coding column)	Epi Info Program Name
Step 2 Physical Measurements		
Mean body mass index - BMI (kg/m ²)	M8, M11, M12	MbmiWT
Percentage who are overweight (BMI ≥ 25 kg/m ²)	M8, M11, M12	MbmiclassWT
Percentage who are obese (BMI ≥ 30 kg/m ²)	M8, M11, M12	MbmiclassWT
Average waist circumference (cm)	M8, M14	MwaistWT
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP	M4a, M4b, M5a, M5b, M6a, M6b	MbloodpressureWT
Mean diastolic blood pressure - DBP (mmHg), including those currently on medication for raised BP	M4a, M4b, M5a, M5b, M6a, M6b	MbloodpressureWT
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	M4a, M4b, M5a, M5b, M6a, M6b, M7	MraisedbpWT
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) who are not currently on medication for raised BP	M4a, M4b, M5a, M5b, M6a, M6b, M7	MraisedbpWT
Step 3 Biochemical Measurements		
Mean fasting blood glucose, including those currently on medication for raised blood glucose [choose accordingly: mmol/L or mg/dl]	B1, B5	BglucoseWT (mmol/L) BglucoseMgWT (mg/dl)
Percentage with impaired fasting glycaemia as defined below <ul style="list-style-type: none"> plasma venous value ≥6.1 mmol/L (110 mg/dl) and <7.0 mmol/L (126 mg/dl) capillary whole blood value ≥5.6 mmol/L (100 mg/dl) and <6.1 mmol/L (110 mg/dl) 	B1, B5, B6	BglucoseWT (mmol/L) BglucoseMgWT (mg/dl)
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose <ul style="list-style-type: none"> plasma venous value ≥ 7.0 mmol/L (126 mg/dl) capillary whole blood value ≥ 6.1 mmol/L (110 mg/dl) 	B1, B5, B6	BglucoseWT (mmol/L) BglucoseMgWT (mg/dl)
Mean total blood cholesterol, including those currently on medication for raised cholesterol [choose accordingly: mmol/L or mg/dl]	B8	BtotallipidsWT (mmol/L) BtotallipidsMgWT (mg/dl)
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)	B8, B9	BtotallipidsWT (mmol/L) BtotallipidsMgWT (mg/dl)
Mean intake of salt per day (in grams)	M8, B10, B14, B15	BsaltWT
Cardiovascular disease (CVD) risk		
Percentage aged 40-69 years with a 10-year CVD risk ≥ 30%, or with existing CVD**	See data book	CVDriskWT
Summary of combined risk factors <ul style="list-style-type: none"> current daily smokers less than 5 servings of fruits & vegetables per day low level of activity overweight (BMI ≥ 25 kg/m²) raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) 	Codes used for summary of combined risk factors: T1, T2, D1-D4, P1-P15b, M8, M11, M12, M4a-b, M5a-b, M6a-b, M7	
Percentage with none of the above risk factors	See above	RaisedriskWT
Percentage with three or more of the above risk factors, aged 25 to 44 years	See above	RaisedriskWT
Percentage with three or more of the above risk factors, aged 45 to 64 years	See above	RaisedriskWT
Percentage with three or more of the above risk factors, aged 25 to 64 years	See above	RaisedriskWT

**For additional information, please contact:
STEPS Survey Coordinator [name, email addresses]**



WHO STEPS

Noncommunicable Disease Risk Factor Survey

**DATA BOOK FOR
<INSERT COUNTRY NAME>**

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IMPORTANT:

- ALL analyses use the variables **AgeRange**, **Sex**, and **Valid**. You may use the **AgeRange1869** and **MissingAgeSex** programs to generate these variables from **C1**, **C2**, and **C3**.
- ALL weighted programs use the variables **PSU**, **Stratum**, and one of either **WStep1**, **WStep2**, or **WStep3**.
- Unweighted tables will not have confidence intervals associated with them.

Introduction

Purpose of the data book This data book is a tool used to compile a complete set of data results relating to each question and measurement in the STEPS Instrument. The STEPS data book

- Provides detailed information for the data analyst on producing the results for the tables.
- Provides examples of which tables to use in the country report.
- Provides examples and suggestions on the layout of tables.

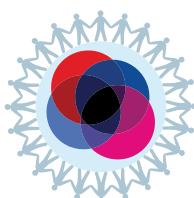
Format of the data book Each page in the data book contains a different table with:

- Title and description of the table
- Data tables for men, women and both sexes
- Questions used to produce the table (actual question text)
- Analysis information (Epi Info program name to produce the table).

Global Action Plan 2013-2020 and Global Monitoring Framework STEPS captures 11 of the 25 indicators outlined in the Global Action Plan 2013-2020 and the Comprehensive Global Monitoring Framework for the Prevention and Control of NCDs¹, relating to 7 of the 9 global targets.

Indicators captured in STEPS are marked in **bold** and *italic* in the table below.

Tables in the data book relating to the Global Monitoring Framework Tables in the data book relating to the Global Monitoring Framework are identified with this symbol:



¹ World Health Organization. Global action plan for the prevention and control of NCDs 2013-2020. Geneva: World Health Organization; 2013.

Framework Element	Target	Indicator
MORTALITY AND MORBIDITY		
Premature mortality from noncommunicable disease	1. A 25% relative reduction in the overall mortality from CVDs, cancer, diabetes, or chronic respiratory diseases	1. Unconditional probability of dying between ages of 30 and 70 from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases
Additional indicator		2. Cancer incidence, by type of cancer, per 100 000 population
BEHAVIOURAL RISK FACTORS		
Harmful use of alcohol	2. At least 10% relative reduction in the harmful use of alcohol, as appropriate, within the national context	3. Total (recorded and unrecorded) alcohol per capita (aged 15+ years old) consumption within a calendar year in litres of pure alcohol, as appropriate, within the national context 4. <i>Age-standardized prevalence of heavy episodic drinking among adolescents and adults</i> , as appropriate, within the national context 5. Alcohol-related morbidity and mortality among adolescents and adults, as appropriate, within the national context
Physical inactivity	3. A 10% relative reduction in prevalence of insufficient physical activity	6. Prevalence of insufficiently physically active adolescents, defined as less than 60 minutes of moderate to vigorous intensity activity daily 7. <i>Age-standardized prevalence of insufficiently physically active persons aged 18+ years (defined as less than 150 minutes of moderate-intensity activity per week, or equivalent)</i>
Salt/sodium intake	4. A 30% relative reduction in mean population intake of salt/sodium	8. <i>Age-standardized mean population intake of salt (sodium chloride) per day in grams in persons aged 18+ years</i>
Tobacco use	5. A 30% relative reduction in prevalence of current tobacco use	9. Prevalence of current tobacco use among adolescents 10. <i>Age-standardized prevalence of current tobacco use among persons aged 18+ years</i>
BIOLOGICAL RISK FACTORS		
Raised blood pressure	6. A 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstances	11. <i>Age-standardized prevalence of raised blood pressure among persons aged 18+ years (defined as systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg) and mean systolic blood pressure</i>
Diabetes and obesity	7. Halt the rise in diabetes & obesity	12. <i>Age-standardized prevalence of raised blood glucose/diabetes among persons aged 18+ years (defined as fasting plasma glucose concentration ≥ 7.0 mmol/l (126 mg/dl) or on medication for raised blood glucose)</i> 13. Prevalence of overweight and obesity in adolescents (defined according to the WHO growth reference for school-aged children and adolescents, overweight – one standard deviation body mass index for age and sex, and obese – two standard deviations body mass index for age and sex) 14. <i>Age-standardized prevalence of overweight and obesity in persons aged 18+ years (defined as body mass index ≥ 25 kg/m² for overweight and body mass index ≥ 30 kg/m² for obesity)</i>
Additional indicators		15. Age-standardized mean proportion of total energy intake from saturated fatty acids in persons aged 18+ years 16. <i>Age-standardized prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit and vegetables per day</i> 17. <i>Age-standardized prevalence of raised total cholesterol among persons aged 18+ years (defined as total cholesterol ≥ 5.0 mmol/l or 190 mg/dl); and mean total cholesterol concentration</i>

Framework Element	Target	Indicator
NATIONAL SYSTEMS RESPONSE		
Drug therapy to prevent heart attacks and strokes	8. At least 50% of eligible people receive drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes	18. Proportion of eligible persons (defined as aged 40 years and older with a 10-year cardiovascular risk $\geq 30\%$, including those with existing cardiovascular disease) receiving drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes
Essential noncommunicable disease medicines and basic technologies to treat major noncommunicable diseases	9. An 80% availability of the affordable basic technologies and essential medicines, including generics required to treat major noncommunicable diseases in both public and private facilities	19. Availability and affordability of quality, safe and efficacious essential noncommunicable disease medicines, including generics, and basic technologies in both public and private facilities
Additional indicators		<p>20. Access to palliative care assessed by morphine-equivalent</p> <p>21. Adoption of national policies that limit saturated fatty acids and virtually eliminate partially hydrogenated vegetable oils in the food supply, as appropriate, within the national context and national programmes</p> <p>22. Availability, as appropriate, if cost-effective and affordable, of vaccines against human papillomavirus, according to national programmes and policies</p> <p>23. Policies to reduce the impact on children of marketing of foods and non-alcoholic beverages high in saturated fats, trans fatty acids, free sugars, or salt</p> <p>24. Vaccination coverage against hepatitis B virus monitored by number of third doses of Hep-B vaccine (HepB3) administered to infants</p> <p>25. Proportion of women between the ages of 30–49 screened for cervical cancer at least once, or more often, and for lower or higher age groups according to national programmes or policies</p>

Sampling and Response Proportions

Response proportions Description: Summary results for overall response proportions.

Response proportions									
Age Group (years)	Men			Women			Both Sexes		
	Eligible	Responded		Eligible	Responded		Eligible	Responded	
	n	n	%	n	n	%	n	n	%
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Use the age and sex information for the non-responders (if available) plus the Epi Info program Cagesex.
-

Demographic Information Results

Age group by sex Description: Summary information by age group and sex of the respondents.

Instrument question:

- Sex
- What is your date of birth?

Age group and sex of respondents							
Age Group (years)	Men		Women		Both Sexes		
	n	%	n	%	n	%	
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: C1, C2, C3
 - Epi Info program name: Cagesex (unweighted)
-

Education Description: Mean number of years of education among respondents.

Instrument question:

- In total, how many years have you spent at school or in full-time study (excluding pre-school)?

Mean number of years of education							
Age Group (years)	Men		Women		Both Sexes		
	n	Mean	n	Mean	n	Mean	
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: C4
 - Epi Info program name: Ceduyears (unweighted)
-

Highest level of education Description: Highest level of education achieved by the survey respondents.
 Instrument question:
 • What is the highest level of education you have completed?

Highest level of education								
Age Group (years)	Men							
	n	% No formal schooling	% Less than primary school	% Primary school completed	% Secondary school completed	% High school completed	% College/University completed	% Post graduate degree completed
18-29								
30-44								
45-59								
60-69								
18-69								

Highest level of education								
Age Group (years)	Women							
	n	% No formal schooling	% Less than primary school	% Primary school completed	% Secondary school completed	% High school completed	% College/University completed	% Post graduate degree completed
18-29								
30-44								
45-59								
60-69								
18-69								

Highest level of education								
Age Group (years)	Both Sexes							
	n	% No formal schooling	% Less than primary school	% Primary school completed	% Secondary school completed	% High school completed	% College/University completed	% Post graduate degree completed
18-29								
30-44								
45-59								
60-69								
18-69								

Analysis Information:

- Questions used: C5
- Epi Info program name: Ceduhigh (unweighted)

Ethnicity Description: Summary results for the ethnicity of the respondents.

Instrument Question:

- What is your [insert relevant ethnic group/racial group/cultural subgroup/others] background?

Ethnic group of respondents					
Age Group (years)	Both Sexes				
	n	% Ethnic group 1	% Ethnic group 2	% Ethnic group 3	% Other ethnic group
18-29					
30-44					
45-59					
60-69					
18-69					

Analysis Information:

- Questions used: C6
 - Epi Info program name: Cethnic (unweighted)
-

Marital status Description: Marital status of survey respondents.

Instrument question:

- What is your marital status?

Marital status							
Age Group (years)	Men						
	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed	% Cohabiting
18-29							
30-44							
45-59							
60-69							
18-69							

Marital status							
Age Group (years)	Women						
	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed	% Cohabiting
18-29							
30-44							
45-59							
60-69							
18-69							

Marital status							
Age Group (years)	Both Sexes						
	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed	% Cohabiting
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: C7
- Epi Info program name: Cmaritalstatus (unweighted)

Employment status Description: Proportion of respondents in paid employment and those who are unpaid. Unpaid includes persons who are non-paid, students, homemakers, retired, and unemployed.

Instrument question:

- Which of the following best describes your main work status over the past 12 months?

Employment status					
Men					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
18-29					
30-44					
45-59					
60-69					
18-69					

Employment status					
Women					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
18-29					
30-44					
45-59					
60-69					
18-69					

Employment status					
Both Sexes					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
18-29					
30-44					
45-59					
60-69					
18-69					

Analysis Information:

- Questions used: C8
- Epi Info program name: Cworkpaid (unweighted)

Unpaid work and unemployed Description: Proportion of respondents in unpaid work.

Instrument question:

- Which of the following best describes your main work status over the past 12 months?

Unpaid work and unemployed							
Age Group (years)	Men					Unemployed	
	n	% Non-paid	% Student	% Home-maker	% Retired	% Able to work	% Not able to work
18-29							
30-44							
45-59							
60-69							
18-69							

Unpaid work and unemployed							
Age Group (years)	Women					Unemployed	
	n	% Non-paid	% Student	% Home-maker	% Retired	% Able to work	% Not able to work
18-29							
30-44							
45-59							
60-69							
18-69							

Unpaid work and unemployed							
Age Group (years)	Both Sexes					Unemployed	
	n	% Non-paid	% Student	% Home-maker	% Retired	% Able to work	% Not able to work
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: C8
- Epi Info program name: Cworknotpaid (unweighted)

Per capita annual income

Description: Mean reported per capita annual income of respondents in local currency.

Instrument questions:

- How many people older than 18 years, including yourself, live in your household?
- Taking the past year, can you tell me what the average earning of the household has been?

Mean annual per capita income	
n	Mean

Analysis Information:

- Questions used: C9, C10a-c
 - Epi Info program name: Cmeanincome (unweighted)
-

Estimated household earnings

Description: summary of participant household earnings by quintile.

Instrument question:

- If you don't know the amount, can you give an estimate of the annual household income if I read some options to you?

Estimated household earnings					
n	% Quintile 1: Under \$.....	% Quintile 2: \$.....-\$.....	% Quintile 3: \$.....-\$.....	% Quintile 4: \$.....-\$.....	% Quintile 5: Over \$.....

Analysis Information:

- Questions used: C11
 - Epi Info program name: Cquintile (unweighted)
-

Tobacco Use

Current smoking Description: Current smokers among all respondents.

Instrument question:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?

Age Group (years)	Percentage of current smokers								
	Men			Women			Both Sexes		
	n	% Current smoker	95% CI	n	% Current smoker	95% CI	n	% Current smoker	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2, T8
 - Epi Info program name: Tsmokestatus (unweighted); TsmokestatusWT (weighted)
-

Smoking Status Description: Smoking status of all respondents.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- In the past, did you ever smoke any tobacco products?

Smoking status									
Men									
Age Group (years)	n	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Former smoker	95% CI	% Never smoker	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Smoking status									
Women									
Age Group (years)	n	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Former smoker	95% CI	% Never smoker	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Smoking status									
Both Sexes									
Age Group (years)	n	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Former smoker	95% CI	% Never smoker	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2, T8
- Epi Info program name: Tsmokestatus (unweighted); TsmokestatusWT (weighted)

Daily smoking

Description: Percentage of current daily smokers among smokers.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?

Current daily smokers among smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2
- Epi Info program name: Tsmokefreq (unweighted); TsmokefreqWT (weighted)

Initiation and duration of smoking

Description: Mean age of initiation and mean duration of smoking, in years, among daily smokers (no total age group for mean duration of smoking as age influences these values).

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- How old were you when you first started smoking?
- Do you remember how long ago it was?

Mean age started smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean age	95% CI	n	Mean age	95% CI	n	Mean age	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean duration of smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean duration	95% CI	n	Mean duration	95% CI	n	Mean duration	95% CI
18-29									
30-44									
45-59									
60-69									

Analysis Information:

- Questions used: T1, T2, T3, T4a-c
- Epi Info program name: Tsmokeage (unweighted); TsmokeageWT (weighted)

Manufactured cigarette smokers Description: Percentage of smokers who use manufactured cigarettes among daily smokers and among current smokers.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- On average, how many of the following products do you smoke each day?

Manufactured cigarette smokers among daily smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Manufactured cigarette smokers among current smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2, T5a, T5aw
- Epi Info program name: Tsmokeman (unweighted); TsmokemanWT (weighted)

Amount of tobacco used among daily smokers by type

Description: Mean amount of tobacco used by daily smokers per day, by type.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- On average, how many of the following products do you smoke each day?

Mean amount of tobacco used by daily smokers by type									
Age Group (years)	Men								
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean amount of tobacco used by daily smokers by type									
Age Group (years)	Men								
	n	Mean # of cigars, cheerots, cigarillos	95% CI	n	Mean # of shisha sessions	95% CI	n	Mean # of other type of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean amount of tobacco used by daily smokers by type									
Age Group (years)	Women								
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean amount of tobacco used by daily smokers by type									
Women									
Age Group (years)	n	Mean # of cigars, cheerots, cigarillos	95% CI	n	Mean # of shisha sessions	95% CI	n	Mean # of other type of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean amount of tobacco used by daily smokers by type									
Both Sexes									
Age Group (years)	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean amount of tobacco used by daily smokers by type									
Both Sexes									
Age Group (years)	n	Mean # of cigars, cheerots, cigarillos	95% CI	n	Mean # of shisha sessions	95% CI	n	Mean # of other type of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2, T5a-T5f
- Epi Info program name: Tsmoketype (unweighted); TsmoketypeWT (weighted)

Smoked tobacco consumption

Description: Percentage of current smokers who smoke each of the following products.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- On average, how many of the following products do you smoke each day/week?

Percentage of current smokers smoking each of the following products									
Age Group (years)	Men								
	n	% Manuf. cigs.	95% CI	n	% Hand-rolled cigs.	95% CI	n	% Pipes of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of current smokers smoking each of the following products									
Age Group (years)	Men								
	n	% Cigars, cheroots, cigarillos	95% CI	n	% Shisha	95% CI	n	% Other	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of current smokers smoking each of the following products									
Age Group (years)	Women								
	n	% Manuf. cigs.	95% CI	n	% Hand-rolled cigs.	95% CI	n	% Pipes of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of current smokers smoking each of the following products									
Age Group (years)	Women								
	n	% Cigars, cheroots, cigarillos	95% CI	n	% Shisha	95% CI	n	% Other	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of current smokers smoking each of the following products									
Age Group (years)	Both Sexes								
	n	% Manuf. cigs.	95% CI	n	% Hand-rolled cigs.	95% CI	n	% Pipes of tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of current smokers smoking each of the following products									
Age Group (years)	Both Sexes								
	n	% Cigars, cheroots, cigarillos	95% CI	n	% Shisha	95% CI	n	% Other	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2, T5a-T5fw
- Epi Info program name: Tsmoketypeprev (unweighted); TsmoketypeprevWT (weighted)

Frequency of daily cigarette smoking Description: Percentage of daily cigarette smokers smoking given quantities of manufactured or hand-rolled cigarettes per day.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- On average, how many of the following products do you smoke each day?

Percentage of daily smokers smoking given quantities of manufactured or hand-rolled cigarettes per day											
Men											
Age Group (years)	n	% <5 Cigs.	95% CI	% 5-9 Cigs.	95% CI	% 10-14 Cigs.	95% CI	% 15-24 Cigs.	95% CI	% ≥ 25 Cigs.	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Percentage of daily smokers smoking given quantities of manufactured or hand-rolled cigarettes per day											
Women											
Age Group (years)	n	% <5 Cigs.	95% CI	% 5-9 Cigs.	95% CI	% 10-14 Cigs.	95% CI	% 15-24 Cigs.	95% CI	% ≥ 25 Cigs.	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Percentage of daily smokers smoking given quantities of manufactured or hand-rolled cigarettes per day											
Both Sexes											
Age Group (years)	n	% <5 Cigs.	95% CI	% 5-9 Cigs.	95% CI	% 10-14 Cigs.	95% CI	% 15-24 Cigs.	95% CI	% ≥ 25 Cigs.	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: T1, T2, T5a, T5b
- Epi Info program name: Tcig (unweighted); TcigWT (weighted)

Former daily smokers and former smokers

Description: Percentage of former daily smokers among all respondents and among ever daily smokers, and the mean duration, in years, since former smokers quit smoking.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- In the past did you ever smoke any tobacco products?
- In the past, did you ever smoke daily?
- How old were you when you stopped smoking?

Former daily smokers (who don't smoke currently) among all respondents									
Age Group (years)	Men			Women			Both Sexes		
	n	% Former daily smokers	95% CI	n	% Former daily smokers	95% CI	n	% Former daily smokers	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Former daily smokers (who don't smoke currently) among ever daily smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Former daily smokers	95% CI	n	% Former daily smokers	95% CI	n	% Former daily smokers	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean years since cessation									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean years	95% CI	n	Mean years	95% CI	n	Mean years	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2, T8, T9, T10, T11a-c
- Epi Info program name: Tsmokeexdaily (unweighted); TsmokeexdailyWT (weighted)

Cessation Description: Percentage of current smokers who have tried to stop smoking during the past 12 months.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- During the past 12 months, have you tried to stop smoking?

Current smokers who have tried to stop smoking											
Age Group (years)	Men				Women				Both Sexes		
	n	% Tried to stop smoking	95% CI		n	% Tried to stop smoking	95% CI		n	% Tried to stop smoking	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: T1, T2, T6
- Epi Info program name: Tcessation (unweighted); TcessationWT (weighted)

Advice to stop smoking Description: Percentage of current smokers who have been advised by a doctor or other health worker to stop smoking, among those smokers who have had a visit to a doctor or other health worker in the past 12 months.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- During any visit to a doctor or other health worker in the past 12 months, were you advised to quit smoking tobacco?

Current smokers who have been advised by doctor to stop smoking											
Age Group (years)	Men				Women				Both Sexes		
	n	% Advised to stop smoking	95% CI		n	% Advised to stop smoking	95% CI		n	% Advised to stop smoking	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: T1, T2, T7
- Epi Info program name: Tcessation (unweighted); TcessationWT (weighted)

Current users of smokeless tobacco Description: Percentage of current users of smokeless tobacco among all respondents.

Instrument question:

- Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]?

Current users of smokeless tobacco									
Age Group (years)	Men			Women			Both Sexes		
	n	% Current users	95% CI	n	% Current users	95% CI	n	% Current users	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T12, T13, T15
 - Epi Info program name: Tsmokelessstatus (unweighted); TsmokelessstatusWT (weighted)
-

Status of smokeless tobacco use Description: Status of using smokeless tobacco among all respondents.

Instrument questions:

- Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]?
- Do you currently use smokeless tobacco products daily?
- In the past, did you ever use smokeless tobacco such as [snuff, chewing tobacco, betel]?

Smokeless tobacco use									
Men									
Age Group (years)	n	Current user				Non user			
		% Daily	95% CI	% Non-daily	95% CI	% Past user	95% CI	% Never used	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Smokeless tobacco use									
Women									
Age Group (years)	n	Current user				Non user			
		% Daily	95% CI	% Non-daily	95% CI	% Past user	95% CI	% Never used	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Smokeless tobacco use									
Both Sexes									
Age Group (years)	n	Current user				Non user			
		% Daily	95% CI	% Non-daily	95% CI	% Past user	95% CI	% Never used	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T12, T13, T15
- Epi Info program name: Tsmokelessstatus (unweighted); TsmokelessstatusWT (weighted)

Former daily users of smokeless tobacco

Description: Percentage of former daily users of smokeless tobacco among all respondents and among ever daily users.

Instrument questions:

- Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]?
- Do you currently use smokeless tobacco products daily?
- In the past, did you ever use smokeless tobacco such as [snuff, chewing tobacco, betel]?
- In the past, did you ever use smokeless tobacco such as [snuff, chewing tobacco, betel] daily?

Former daily smokeless tobacco users (who don't use tobacco currently) among all respondents											
Age Group (years)	Men				Women				Both Sexes		
	n	% Former daily users	95% CI		n	% Former daily users	95% CI		n	% Former daily users	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Former daily smokeless tobacco users (who don't use tobacco currently) among ever daily users											
Age Group (years)	Men				Women				Both Sexes		
	n	% Former daily users	95% CI		n	% Former daily users	95% CI		n	% Former daily users	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: T12, T13, T15, T16
- Epi Info program name: Tsmokelessexdaily (unweighted); TsmokelessexdailyWT (weighted)

Amount of smokeless tobacco used among daily users by type

Description: Mean times per day smokeless tobacco used by daily smokeless tobacco users per day, by type.

Instrument questions:

- Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]?
- Do you currently use smokeless tobacco products daily?
- On average, how many times a day do you use...?

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type									
Age Group (years)	Men								
	n	Snuff by mouth	95% CI	n	Snuff by nose	95% CI	n	Chewing tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type						
Age Group (years)	Men					
	n	Betel, quid	95% CI	n	Other	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type									
Age Group (years)	Women								
	n	Snuff by mouth	95% CI	n	Snuff by nose	95% CI	n	Chewing tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type						
Age Group (years)	Women					
	n	Betel, quid	95% CI	n	Other	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type									
Age Group (years)	Both Sexes								
	n	Snuff by mouth	95% CI	n	Snuff by nose	95% CI	n	Chewing tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type						
Age Group (years)	Both Sexes					
	n	Betel, quid	95% CI	n	Other	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Analysis Information:

- Questions used: T12, T13, T14a-otherw
 - Epi Info program name: Tsmokelesstype (unweighted); TsmokelesstypeWT (weighted)
-

Smokeless tobacco consumption

Description: Percentage of current users of smokeless tobacco who use each of the following products.

Instrument questions:

- Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]?
- Do you currently use smokeless tobacco products daily?
- On average, how many times a day/week do you use...?

Percentage of current users of smokeless tobacco using each of the following products									
Age Group (years)	Men								
	n	% Snuff by mouth	95% CI	% Snuff by nose	95% CI	% Chewing tobacco	95% CI	Chewing tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of current users of smokeless tobacco using each of the following products						
Age Group (years)	Men					
	n	% Betel, quid	95% CI	% Other	95% CI	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Percentage of current users of smokeless tobacco using each of the following products									
Age Group (years)	Women								
	n	% Snuff by mouth	95% CI	% Snuff by nose	95% CI	% Chewing tobacco	95% CI	Chewing tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of current users of smokeless tobacco using each of the following products						
Age Group (years)	Women					
	n	% Betel, quid	95% CI	% Other	95% CI	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Percentage of current users of smokeless tobacco using each of the following products									
Age Group (years)	Both Sexes								
	n	% Snuff by mouth	95% CI	% Snuff by nose	95% CI	% Chewing tobacco	95% CI	Chewing tobacco	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

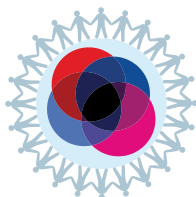
Percentage of current users of smokeless tobacco using each of the following products						
Age Group (years)	Both Sexes					
	n	% Betel, quid	95% CI	% Other	95% CI	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Analysis Information:

- Questions used: T12, T13, T14a-otherw
- Epi Info program name: Tsmokelesstypeprev (unweighted); TsmokelesstypeprevWT (weighted)

Current tobacco users

Description: Percentage of daily and current (daily plus non-daily) tobacco users, includes smoking and smokeless, among all respondents.



Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?
- Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]?
- Do you currently use smokeless tobacco products daily?

Current tobacco users									
Age Group (years)	Men			Women			Both Sexes		
	n	% Current users	95% CI	n	% Current users	95% CI	n	% Current users	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Daily tobacco users									
Age Group (years)	Men			Women			Both Sexes		
	n	% Daily users	95% CI	n	% Daily users	95% CI	n	% Daily users	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T1, T2, T12, T13
- Epi Info program name: Tdailyuser (unweighted); TdailyuserWT (weighted)

Exposure to second-hand smoke in home in past 30 days

Description: Percentage of respondents exposed second-hand smoke in the home in the past 30 days.

Instrument question:

- In the past 30 days, did someone smoke in your home?

Exposed to second-hand smoke in home during the past 30 days									
Age Group (years)	Men			Women			Both Sexes		
	n	% Exposed	95% CI	n	% Exposed	95% CI	n	% Exposed	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T17
 - Epi Info program name: Tetshome (unweighted); TetshomeWT (weighted)
-

Exposure to second-hand smoke in the workplace in past 30 days

Description: Percentage of respondents exposed to second-hand smoke in the workplace in the past 30 days.

Instrument question:

- During the past 30 days, did someone smoke in closed areas in your workplace (in the building, in a work area or a specific office)?

Exposed to second-hand smoke in the workplace during the past 30 days									
Age Group (years)	Men			Women			Both Sexes		
	n	% Exposed	95% CI	n	% Exposed	95% CI	n	% Exposed	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: T18
 - Epi Info program name: Tetswork (unweighted); TetsworkWT (weighted)
-

Alcohol Consumption

Alcohol consumption status

Description: Alcohol consumption status of all respondents.

Instrument questions:

- Have you ever consumed any alcohol such as ...?
- Have you consumed any alcohol in the past 12 months?
- Have you consumed any alcohol in the past 30 days?

Alcohol consumption status									
Men									
Age Group (years)	n	% Current drinker (past 30 days)	95% CI	% Drank in past 12 months, not current	95% CI	% Past 12 months abstainer	95% CI	% Lifetime abstainer	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Alcohol consumption status									
Women									
Age Group (years)	n	% Current drinker (past 30 days)	95% CI	% Drank in past 12 months, not current	95% CI	% Past 12 months abstainer	95% CI	% Lifetime abstainer	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Alcohol consumption status									
Both Sexes									
Age Group (years)	n	% Current drinker (past 30 days)	95% CI	% Drank in past 12 months, not current	95% CI	% Past 12 months abstainer	95% CI	% Lifetime abstainer	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A5
 - Epi Info program name: Aconsumption (unweighted); AconsumptionWT (weighted)
-

Stopping drinking due to health reasons

Description: Percentage of former drinkers (those who did not drink during the past 12 months) who stopped drinking due to health reasons, such as a negative impact of drinking on your health or as per advice of a doctor or other health worker among those respondents who drank in their lifetime, but not in the last 12 months.

Instrument questions:

- Have you consumed any alcohol in the past 12 months?
- Did you stop drinking due to health reasons, such as a negative impact of drinking on your health or as per advice of your doctor or other health worker?

Stopping drinking due to health reasons									
Age Group (years)	Men			Women			Both Sexes		
	n	% stopping due to health reasons	95% CI	n	% stopping due to health reasons	95% CI	n	% stopping due to health reasons	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A3
- Epi Info program name: Astopdrink (unweighted); AstopdrinkWT (weighted)

Frequency of alcohol consumption

Description: Frequency of alcohol consumption in the past 12 months among those respondents who drank in the last 12 months.

Instrument question:

- During the past 12 months, how frequently have you had at least one alcoholic drink?

Frequency of alcohol consumption in the past 12 months													
Age Group (years)	Men												
	n	% Daily	95% CI	% 5-6 days/week	95% CI	% 3-4 days/week	95% CI	% 1-2 days/week	95% CI	% 1-3 days/month	95% CI	% < once a month	95% CI
18-29													
30-44													
45-59													
60-69													
18-69													

Frequency of alcohol consumption in the past 12 months													
Age Group (years)	Women												
	n	% Daily	95% CI	% 5-6 days/week	95% CI	% 3-4 days/week	95% CI	% 1-2 days/week	95% CI	% 1-3 days/month	95% CI	% < once a month	95% CI
18-29													
30-44													
45-59													
60-69													
18-69													

Frequency of alcohol consumption in the past 12 months													
Age Group (years)	Both Sexes												
	n	% Daily	95% CI	% 5-6 days/week	95% CI	% 3-4 days/week	95% CI	% 1-2 days/week	95% CI	% 1-3 days/month	95% CI	% < once a month	95% CI
18-29													
30-44													
45-59													
60-69													
18-69													

Analysis Information:

- Questions used: A1, A2, A4
- Epi Info program name: Afrequency (unweighted); AfrequencyWT (weighted)

- Drinking occasions in the past 30 days** Description: Mean number of occasions with at least one drink in the past 30 days among current (past 30 days) drinkers.
- Instrument question:
- During the past 30 days, on how many occasions did you have at least one alcoholic drink?

Mean number of drinking occasions in the past 30 days among current (past 30 days) drinkers											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: A1, A2, A5, A6
 - Epi Info program name: Aoccasions (unweighted); AoccasionsWT (weighted)
-

- Standard drinks per drinking occasion** Description: Mean number of standard drinks consumed on a drinking occasion among current (past 30 days) drinkers.
- Instrument question:
- During the past 30 days, when you drank alcohol, on average, how many standard alcoholic drinks did you have during one occasion?

Mean number of standard drinks per drinking occasion among current (past 30 days) drinkers											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: A1, A2, A5, A7
 - Epi Info program name: Anumdrinkperday (unweighted); AnumdrinkperdayWT (weighted)
-

Average volume drinking levels among all respondents

Description: Percentage of respondents with different drinking levels.

A standard drink contains approximately 10g of pure alcohol.

Instrument questions:

- During the past 30 days, when you drank alcohol, on average, how many standard alcoholic drinks did you have during one occasion?

Drinking at high-end level among all respondents ($\geq 60\text{g}$ of pure alcohol on average per occasion among men and $\geq 40\text{g}$ of pure alcohol on average per occasion among women)									
Age Group (years)	Men			Women			Both Sexes		
	n	% $\geq 60\text{g}$	95% CI	n	% $\geq 40\text{g}$	95% CI	n	% high-end level	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Drinking at intermediate level among all respondents (40-59.9g of pure alcohol on average per occasion among men and 20-39.9g of pure alcohol on average per occasion among women)									
Age Group (years)	Men			Women			Both Sexes		
	n	% 40-59.9g	95% CI	n	% 20-39.9g	95% CI	n	% intermediate level	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Drinking at lower-end level among all respondents ($< 40\text{g}$ of pure alcohol on average per occasion among men and $< 20\text{g}$ of pure alcohol on average per occasion among women)									
Age Group (years)	Men			Women			Both Sexes		
	n	% $< 40\text{g}$	95% CI	n	% $< 20\text{g}$	95% CI	n	% lower-end level	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A5, A7
- Epi Info program name: Acategories (unweighted); AcategoriesWT (weighted)

Average volume drinking levels among current (past 30 days) drinkers

Description: Percentage of current (past 30 days) drinkers with different drinking levels.

A standard drink contains approximately 10g of pure alcohol.

Instrument questions:

- During the past 30 days, when you drank alcohol, on average, how many standard alcoholic drinks did you have during one occasion?

High-end, intermediate, and lower-end level drinking among current (past 30 days) drinkers							
Men							
Age Group (years)	n	% high-end (≥60g)	95% CI	% intermediate (40-59.9g)	95% CI	% lower-end (<40g)	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

High-end, intermediate, and lower-end level drinking among current (past 30 days) drinkers							
Women							
Age Group (years)	n	% high-end (≥40g)	95% CI	% intermediate (20-39.9g)	95% CI	% lower-end (<20g)	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

High-end, intermediate, and lower-end level drinking among current (past 30 days) drinkers							
Both sexes							
Age Group (years)	n	% high-end	95% CI	% intermediate	95% CI	% lower-end	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: A1, A2, A5, A7
- Epi Info program name: Acategories (unweighted); AcategoriesWT (weighted)

Largest number of drinks in the past 30 days

Description: Largest number of drinks consumed during a single occasion in the past 30 days among current (past 30 days) drinkers.

Instrument question:

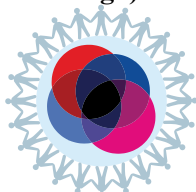
- During the past 30 days, what was the largest number of standard alcoholic drinks you had on a single occasion, counting all types of alcoholic drinks together?

Mean maximum number of standard drinks consumed on one occasion in the past 30 days									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean maximum number	95% CI	n	Mean maximum number	95% CI	n	Mean maximum number	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A5, A8
- Epi Info program name: Alargestnum (unweighted); AlargestnumWT (weighted)

Six or more drinks on a single occasion (“heavy episodic drinking”)



Description: Percentage of respondents who had six or more drinks on any occasion in the past 30 days during a single occasion among the total population.

Instrument question:

- During the past 30 days, how many times did you have **six or more** standard alcoholic drinks in a single drinking occasion?

Six or more drinks on a single occasion at least once during the past 30 days among total population									
Age Group (years)	Men			Women			Both Sexes		
	n	% ≥ 6 drinks	95% CI	n	% ≥ 6 drinks	95% CI	n	% ≥ 6 drinks	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A5, A9
- Epi Info program name: Aepisodic (unweighted); AepisodicWT (weighted)

Six or more drinks on a single occasion

Description: Mean number of times in the past 30 days on which current (past 30 days) drinkers consumed six or more drinks during a single occasion.

Instrument question:

- During the past 30 days, how many times did you have **six or more** standard alcoholic drinks in a single drinking occasion?

Mean number of times with six or more drinks during a single occasion in the past 30 days among current drinkers									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of times	95% CI	n	Mean number of times	95% CI	n	Mean number of times	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A5, A9
- Epi Info program name: Aepisodic (unweighted); AepisodicWT (weighted)

Past 7 days drinking Description: Frequency of alcohol consumption in the past 7 days by current (past 30 days) drinkers.

Instrument question:

- During each of the past 7 days, how many standard drinks of any alcoholic drink did you have each day?

Frequency of alcohol consumption in the past 7 days											
Age Group (years)	Men										
	n	% Daily	95% CI	% 5-6 days	95% CI	% 3-4 days	95% CI	% 1-2 days	95% CI	% 0 days	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Frequency of alcohol consumption in the past 7 days											
Age Group (years)	Women										
	n	% Daily	95% CI	% 5-6 days	95% CI	% 3-4 days	95% CI	% 1-2 days	95% CI	% 0 days	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Frequency of alcohol consumption in the past 7 days											
Age Group (years)	Both Sexes										
	n	% Daily	95% CI	% 5-6 days	95% CI	% 3-4 days	95% CI	% 1-2 days	95% CI	% 0 days	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: A1, A2, A5, A10a-g
- Epi Info program name: Apastweek (unweighted); ApastweekWT (weighted)

Standard drinks per day in the past 7 days Description: Mean number of standard drinks consumed on average per day in the past 7 days among current (past 30 days) drinkers.

Instrument question:

- During each of the past 7 days, how many standard drinks of any alcoholic drink did you have each day?

Mean number of standard drinks consumed on average per day in the past 7 days among current drinkers									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number	95% CI	n	Mean number	95% CI	n	Mean number	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A5, A10a-g
- Epi Info program name: Apastweek (unweighted); ApastweekWT (weighted)

Consumption of unrecorded alcohol Description: Percentage of respondents that consumed unrecorded alcohol (homebrewed alcohol, alcohol brought over the border, not intended for drinking or other untaxed alcohol) during the past 7 days among current (past 30 days) drinkers.

Instrument questions:

- Have you consumed any alcohol within the past 30 days?
- During the past 7 days, did you consume any homebrewed alcohol, any alcohol brought over the border, not intended for drinking or other untaxed alcohol?

Consumption of unrecorded alcohol									
Age Group (years)	Men			Women			Both Sexes		
	n	% consuming unrecorded alcohol	95% CI	n	% consuming unrecorded alcohol	95% CI	n	% consuming unrecorded alcohol	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: A1, A2, A5, A10a-g, A11
- Epi Info program name: Aunrecorded (unweighted); AunrecordedWT (weighted)

Standard drinks of unrecorded alcohol per day in the past 7 days

Description: Mean number of standard drinks of unrecorded alcohol consumed on average per day in the past 7 days among current (past 30 days) drinkers.

Instrument question:

- On average, how many standard drinks of the following did you consume during the past 7 days?

Mean number of standard drinks of unrecorded alcohol consumed on average per day in the past 7 days among current drinkers											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean number	95% CI		n	Mean number	95% CI		n	Mean number	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: A1, A2, A5, A10a-g, A11, A12a-e
- Epi Info program name: Ameanunrecorded (unweighted); AmeanunrecordedWT (weighted)

Percent of unrecorded alcohol from all alcohol consumed

Description: Percentage of unrecorded alcohol from all alcohol consumed during the past 7 days among current (past 30 days) drinkers.

Instrument questions:

- During each of the past 7 days, how many standard drinks did you have each day?
- During the past 7 days, did you consume any homebrewed alcohol, any alcohol brought over the border, not intended for drinking or other untaxed alcohol?
- On average, how many standard drinks of the following did you consume during the past 7 days?

Percentage of unrecorded alcohol from all alcohol consumed during past 7 days											
Age Group (years)	Men				Women				Both Sexes		
	n	% unrecorded alcohol of all alcohol	95% CI		n	% unrecorded alcohol of all alcohol	95% CI		n	% unrecorded alcohol of all alcohol	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: A1, A2, A5, A10a-g, A11, A12a-e
- Epi Info program name: Please contact the STEPS team.

Types of unrecorded alcohol

Description: Percentage of each type of unrecorded alcohol of all unrecorded alcohol consumed in the past 7 days among current (past 30 days) drinkers.

Instrument questions:

- During the past 7 days, did you consume any homebrewed alcohol, any alcohol brought over the border, not intended for drinking or other untaxed alcohol?
- On average, how many standard drinks of the following did you consume during the past 7 days?

Unrecorded alcohol consumption during the past 7 days by type											
Men											
Age Group (years)	n	% home-brewed spirits	95% CI	% home-brewed beer/wine	95% CI	% brought over border	95% CI	% surrogate alcohol	95% CI	% other	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Unrecorded alcohol consumption during the past 7 days by type											
Women											
Age Group (years)	n	% home-brewed spirits	95% CI	% home-brewed beer/wine	95% CI	% brought over border	95% CI	% surrogate alcohol	95% CI	% other	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Unrecorded alcohol consumption during the past 7 days by type											
Both Sexes											
Age Group (years)	n	% home-brewed spirits	95% CI	% home-brewed beer/wine	95% CI	% brought over border	95% CI	% surrogate alcohol	95% CI	% other	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: A1, A2, A5, A11, A12a-e
- Epi Info program name: Please contact the STEPS team.

Frequency of impaired control over drinking

Description: Frequency of not being able to stop drinking once started during the past 12 months among past 12 month drinkers.

Instrument questions:

- Have you consumed any alcohol within the past 12 months?
- How often during the past 12 months have you found that you were not able to stop drinking once you had started?

Frequency of not being able to stop drinking once started during the past 12 months among past 12 month drinkers							
Men							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of not being able to stop drinking once started during the past 12 months among past 12 month drinkers							
Women							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of not being able to stop drinking once started during the past 12 months among past 12 month drinkers							
Both Sexes							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: A1, A2, A13
- Epi Info program name: Anotabletostop (unweighted); AnotabletostopWT (weighted)

Frequency of failing to do what was normally expected because of drinking

Description: Frequency of failing to do what was normally expected from you because of drinking during the past 12 months among past 12 month drinkers.

Instrument questions:

- Have you consumed any alcohol within the past 12 months?
- How often during the past 12 months have you failed to do what was normally expected from you because of drinking?

Frequency of failing to do what was normally expected from you during the past 12 months among past 12 month drinkers							
Men							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of failing to do what was normally expected from you during the past 12 months among past 12 month drinkers							
Women							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of failing to do what was normally expected from you during the past 12 months among past 12 month drinkers							
Both Sexes							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: A1, A2, A14
- Epi Info program name: Afailexpected (unweighted); AfailexpectedWT (weighted)

Frequency of morning drinking Description: Frequency of needing a first drink in the morning to get going after a heavy drinking session during the past 12 months among past 12 month drinkers.

Instrument questions:

- Have you consumed any alcohol within the past 12 months?
- How often during the past 12 months have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Frequency of needing a first drink in the morning to get going during the past 12 months among past 12 month drinkers							
Men							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of needing a first drink in the morning to get going during the past 12 months among past 12 month drinkers							
Women							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of needing a first drink in the morning to get going during the past 12 months among past 12 month drinkers							
Both Sexes							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: A1, A2, A15
- Epi Info program name: Amorningdrink (unweighted); AmorningdrinkWT (weighted)

Frequency of problems with family/ partner due to someone else's drinking

Description: Frequency of having had problems with family or partner due to someone else's drinking in the past 12 months among all respondents.

Instrument question:

- Have you had family problems or problems with your partner due to someone else's drinking within the past 12 months?

Frequency of family/partner problems due to someone else's drinking during the past 12 months among all respondents							
Men							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of family/partner problems due to someone else's drinking during the past 12 months among all respondents							
Women							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Frequency of family/partner problems due to someone else's drinking during the past 12 months among all respondents							
Both Sexes							
Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Question used: A16
- Epi Info program name: Afamproblem (unweighted); AfamproblemWT (weighted)

Diet

Mean number of days of fruit and vegetable consumption

Description: mean number of days fruit and vegetables consumed.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- In a typical week, on how many days do you eat vegetables?

Mean number of days fruit consumed in a typical week									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean number of days vegetables consumed in a typical week									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: D1, D3
- Epi Info program name: Ddays (unweighted); DdaysWT (weighted)

Mean number of servings of fruit and vegetable consumption

Description: mean number of fruit, vegetable, and combined fruit and vegetable servings on average per day.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- How many servings of fruit do you eat on one of those days?
- In a typical week, on how many days do you eat vegetables?
- How many servings of vegetables do you eat on one of those days?

Mean number of servings of fruit on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Mean number of servings	95% CI		n	Mean number of servings	95% CI		n	Mean number of servings
18-29										
30-44										
45-59										
60-69										
18-69										

Mean number of servings of vegetables on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Mean number of servings	95% CI		n	Mean number of servings	95% CI		n	Mean number of servings
18-29										
30-44										
45-59										
60-69										
18-69										

Mean number of servings of fruit and/or vegetables on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Mean number of servings	95% CI		n	Mean number of servings	95% CI		n	Mean number of servings
18-29										
30-44										
45-59										
60-69										
18-69										

Analysis Information:

- Questions used: D1, D2 , D3, D4
- Epi Info program name: Dservings (unweighted); DservingsWT (weighted)

Fruit and vegetable consumption per day

Description: Frequency of fruit and/or vegetable consumption.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- How many servings of fruit do you eat on one of those days?
- In a typical week, on how many days do you eat vegetables?
- How many servings of vegetables do you eat on one of those days?

Number of servings of fruit and/or vegetables on average per day									
Men									
Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

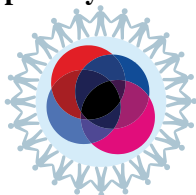
Number of servings of fruit and/or vegetables on average per day									
Women									
Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Number of servings of fruit and/or vegetables on average per day									
Both Sexes									
Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: D1, D2 , D3, D4
- Epi Info program name: Dfiveormore (unweighted); DfiveormoreWT (weighted)

Fruit and vegetable consumption per day



Description: Percentage of those eating less than five servings of fruit and/or vegetables on average per day.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- How many servings of fruit do you eat on one of those days?
- In a typical week, on how many days do you eat vegetables?
- How many servings of vegetables do you eat on one of those days?

Less than five servings of fruit and/or vegetables on average per day

Age Group (years)	Men			Women			Both Sexes		
	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: D1, D2 , D3, D4
- Epi Info program name: Dfiveormore (unweighted); DfiveormoreWT (weighted)

Adding salt at meal

Description: Percentage of all respondents who always or often add salt or salty sauce to their food before eating or as they are eating.

Instrument question:

- How often do you add salt or a salty sauce such as soya sauce to your food right before you eat it or as you are eating it?

Add salt always or often before eating or when eating											
Age Group (years)	Men				Women				Both Sexes		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Question used: D5
 - Epi Info program name: Deating (unweighted); DeatingWT (weighted)
-

Adding salt when cooking

Description: Percentage of all respondents who always or often add salt to their food when cooking or preparing foods at home.

Instrument question:

- How often is salt, salty seasoning or a salty sauce added in cooking or preparing foods in your household?

Add salt always or often when cooking or preparing food at home											
Age Group (years)	Men				Women				Both Sexes		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Question used: D6
 - Epi Info program name: Dooking (unweighted); **DcookingWT** (weighted)
-

Salty processed food consumption

Description: Percentage of all respondents who always or often eat processed foods high in salt.

Instrument question:

- How often do you eat processed food high in salt?

Always or often consume processed food high in salt											
Age Group (years)	Men				Women				Both Sexes		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Question used: D7
- Epi Info program name: Dprocessed (unweighted); DprocessedWT (weighted)

Salt consumption

Description: Percentage of all respondents who think they consume far too much or too much salt.

Instrument question:

- How much salt or salty sauce do you think you consume?

Think they consume far too much or too much salt											
Age Group (years)	Men				Women				Both Sexes		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Self-reported quantity of salt consumed											
Men											
Age Group (years)	n	% Far too much	95% CI	% Too much	95% CI	% Just the right amount	95% CI	% Too little	95% CI	% Far too little	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Self-reported quantity of salt consumed											
Women											
Age Group (years)	n	% Far too much	95% CI	% Too much	95% CI	% Just the right amount	95% CI	% Too little	95% CI	% Far too little	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Self-reported quantity of salt consumed											
Both Sexes											
Age Group (years)	n	% Far too much	95% CI	% Too much	95% CI	% Just the right amount	95% CI	% Too little	95% CI	% Far too little	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Question used: D8
- Epi Info program name: Dsaltquantity (unweighted); DsaltquantityWT (weighted)

Lowering salt Description: Percentage of respondents who think lowering salt in diet is very, somewhat or not at all important.

Instrument question:

- How important to you is lowering the salt in your diet?

Importance of lowering salt in diet							
Age Group (years)	Men						
	n	% Very important	95% CI	% Somewhat important	95% CI	% Not at all important	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Importance of lowering salt in diet							
Age Group (years)	Women						
	n	% Very important	95% CI	% Somewhat important	95% CI	% Not at all important	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Importance of lowering salt in diet							
Age Group (years)	Both Sexes						
	n	% Very important	95% CI	% Somewhat important	95% CI	% Not at all important	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Question used: D9
- Epi Info program name: Dlower (unweighted); DlowerWT (weighted)

Salt knowledge Description: Percentage of respondents who think consuming too much salt could cause a serious health problem.

Instrument question:

- Do you think that too much salt or salty sauce in your diet could cause a health problem?

Think consuming too much salt could cause serious health problem										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Analysis Information:

- Question used: D10
 - Epi Info program name: Dhealth (unweighted); DhealthWT (weighted)
-

Controlling salt intake Description: Percentage of respondents who take specific action on a regular basis to control salt intake.

Instrument question:

- Do you do any of the following on a regular basis to control your salt intake?

Limit consumption of processed foods										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Look at the salt or sodium content on food labels										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Buy low salt/sodium alternatives										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Use spices other than salt when cooking										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Avoid eating foods prepared outside of a home											
Age Group (years)	Men				Women				Both Sexes		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Do other things specifically to control your salt intake											
Age Group (years)	Men				Women				Both Sexes		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: D11a-f
 - Epi Info program name: Dcontrol (unweighted); DcontrolWT (weighted)
-

Physical Activity

Introduction A population's physical activity (or inactivity) can be described in different ways. The two most common ways are
(1) to estimate a population's mean or median physical activity using a continuous indicator such as MET-minutes per week or time spent in physical activity, and
(2) to classify certain percentages of a population in specific groups by setting up cut-points for a specific amount of physical activity.

When analyzing GPAQ data, both continuous as well as categorical indicators are used.

Metabolic Equivalent (MET) METs (Metabolic Equivalents) are commonly used to express the intensity of physical activities, and are also used for the analysis of GPAQ data.

Applying MET values to activity levels allows us to calculate total physical activity. MET is the ratio of a person's working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1 kcal/kg/hour. For the analysis of GPAQ data, existing guidelines have been adopted: It is estimated that, compared to sitting quietly, a person's caloric consumption is four times as high when being moderately active, and eight times as high when being vigorously active.

Therefore, for the calculation of a person's total physical activity using GPAQ data, the following MET values are used:

Domain	MET value
Work	<ul style="list-style-type: none">Moderate MET value = 4.0Vigorous MET value = 8.0
Transport	Cycling and walking MET value = 4.0
Recreation	<ul style="list-style-type: none">Moderate MET value = 4.0Vigorous MET value = 8.0

WHO global recommendations on physical activity for health

For the calculation of the categorical indicator on the recommended amount of physical activity for health, the total time spent in physical activity during a typical week and the intensity of the physical activity are taken into account.

Throughout a week, including activity for work, during transport and leisure time, adults should do at least

- 150 minutes of moderate-intensity physical activity OR
 - 75 minutes of vigorous-intensity physical activity OR
 - An equivalent combination of moderate- and vigorous-intensity physical activity achieving at least 600 MET-minutes.
-

Former recommendations for comparison purposes

For comparison purposes, tables presenting cut-offs from former recommendations are also included in GPAQ data analysis.

The three levels of physical activity suggested for classifying populations were low, moderate, and high. The criteria for these levels are shown below.

- **High**

A person reaching any of the following criteria is classified in this category:

- Vigorous-intensity activity on at least 3 days achieving a minimum of at least 1,500 MET-minutes/week OR
- 7 or more days of any combination of walking, moderate- or vigorous-intensity activities achieving a minimum of at least 3,000 MET-minutes per week.

- **Moderate**

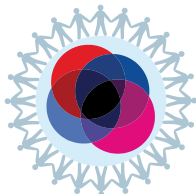
A person not meeting the criteria for the "high" category, but meeting any of the following criteria is classified in this category:

- 3 or more days of vigorous-intensity activity of at least 20 minutes per day OR
- 5 or more days of moderate-intensity activity or walking of at least 30 minutes per day OR
- 5 or more days of any combination of walking, moderate- or vigorous-intensity activities achieving a minimum of at least 600 MET-minutes per week.

- **Low**

A person not meeting any of the above mentioned criteria falls in this category.

Not meeting WHO recommendations on physical activity for health (“Insufficient physical activity”)



Description: Percentage of respondents not meeting WHO recommendations on physical activity for health (respondents doing less than 150 minutes of moderate-intensity physical activity per week, or equivalent).

Instrument questions

- activity at work
- travel to and from places
- recreational activities

Not meeting WHO recommendations on physical activity for health									
Age Group (years)	Men			Women			Both Sexes		
	n	% not meeting recs	95% CI	n	% not meeting recs	95% CI	n	% not meeting recs	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Pnotmeetingrecs (unweighted); PnotmeetingrecsWT (weighted)

Levels of total physical activity according to former recommendations

Description: Percentage of respondents classified into three categories of total physical activity according to former recommendations.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

Level of total physical activity according to former recommendations							
Age Group (years)	Men						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Level of total physical activity according to former recommendations							
Age Group (years)	Women						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Level of total physical activity according to former recommendations							
Age Group (years)	Both Sexes						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Ptotallevels (unweighted); PtotallevelsWT (weighted)

- Total physical activity-mean** Description: Mean minutes of total physical activity on average per day.
- Instrument questions
- activity at work
 - travel to and from places
 - recreational activities

Mean minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Ptotal (unweighted); PtotalWT (weighted)

- Total physical activity-median** Description: Median minutes of total physical activity on average per day.
- Instrument questions
- activity at work
 - travel to and from places
 - recreational activities

Median minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Ptotal (unweighted); PtotalmedianWT (weighted)

Domain-specific physical activity-mean

Description: Mean minutes spent in work-, transport- and recreation-related physical activity on average per day.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

Mean minutes of work-related physical activity on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Mean minutes	95% CI		n	Mean minutes	95% CI		n	Mean minutes
18-29										
30-44										
45-59										
60-69										
18-69										

Mean minutes of transport-related physical activity on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Mean minutes	95% CI		n	Mean minutes	95% CI		n	Mean minutes
18-29										
30-44										
45-59										
60-69										
18-69										

Mean minutes of recreation-related physical activity on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Mean minutes	95% CI		n	Mean minutes	95% CI		n	Mean minutes
18-29										
30-44										
45-59										
60-69										
18-69										

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Psetspecific (unweighted); PsetspecificWT (weighted)

Domain-specific physical activity - median

Description: Median minutes spent on average per day in work-, transport- and recreation-related physical activity.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

Median minutes of work-related physical activity on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Median minutes	Inter-quartile range (P25-P75)		n	Median minutes	Inter-quartile range (P25-P75)		n	Median minutes
18-29										
30-44										
45-59										
60-69										
18-69										

Median minutes of transport-related physical activity on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Median minutes	Inter-quartile range (P25-P75)		n	Median minutes	Inter-quartile range (P25-P75)		n	Median minutes
18-29										
30-44										
45-59										
60-69										
18-69										

Median minutes of recreation-related physical activity on average per day										
Age Group (years)	Men				Women				Both Sexes	
	n	Median minutes	Inter-quartile range (P25-P75)		n	Median minutes	Inter-quartile range (P25-P75)		n	Median minutes
18-29										
30-44										
45-59										
60-69										
18-69										

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Psetspecific (unweighted); PsetspecificmedianWT (weighted)

No physical activity by domain

Description: Percentage of respondents classified as doing no work-, transport- or recreational-related physical activity.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

No work-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at work	95% CI	n	% no activity at work	95% CI	n	% no activity at work	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

No transport-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

No recreation-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Pnoactivitybyset (unweighted); PnoactivitybysetWT (weighted)

Composition of total physical activity Description: Percentage of work, transport and recreational activity contributing to total activity.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

Composition of total physical activity							
Men							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Composition of total physical activity							
Women							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Composition of total physical activity							
Both Sexes							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Pcomposition(unweighted); PcompositionWT (weighted)

**No
vigorous
physical
activity**

Description: Percentage of respondents not engaging in vigorous physical activity.

Instrument questions:

- activity at work
- recreational activities

No vigorous physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: P1-P15b
- Epi Info program name: Pnovigorous(unweighted); PnovigorousWT (weighted)

Sedentary Description: Minutes spent in sedentary activities on a typical day.

Instrument question:

- sedentary behaviour

Minutes spent in sedentary activities on average per day					
Men					
Age Group (years)	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
18-29					
30-44					
45-59					
60-69					
18-69					

Minutes spent in sedentary activities on average per day					
Women					
Age Group (years)	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
18-29					
30-44					
45-59					
60-69					
18-69					

Minutes spent in sedentary activities on average per day					
Both Sexes					
Age Group (years)	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
18-29					
30-44					
45-59					
60-69					
18-69					

Analysis Information:

- Question used : P16a-b
 - Epi Info program name: Psedentary (unweighted); PsedentaryWT and PsedentarymedianWT (weighted)

History of Raised Blood Pressure

Blood pressure measurement and diagnosis

Description: Blood pressure measurement and diagnosis among all respondents.

Instrument questions:

- Have you ever had your blood pressure measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?
- Have you been told in the past 12 months?

Blood pressure measurement and diagnosis									
Men									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Blood pressure measurement and diagnosis									
Women									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Blood pressure measurement and diagnosis									
Both sexes									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H1, H2a, H2b
- Epi Info program name: Hbloodpressure (unweighted); HbloodpressureWT (weighted)

Blood pressure treatment among those diagnosed

Description: Raised blood pressure treatment results among those previously diagnosed with raised blood pressure.

Instrument questions:

- Have you ever had your blood pressure measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?
- In the past two weeks, have you taken any drugs (medication) for raised blood pressure prescribed by a doctor or other health worker?

Currently taking drugs (medication) for raised blood pressure prescribed by doctor or health worker among those diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H1, H2a, H3
- Epi Info program name: Hbloodpressure (unweighted); HbloodpressureWT (weighted)

Blood pressure advice by a traditional healer

Description: Percentage of respondents who have sought advice or received treatment from a traditional healer for raised blood pressure among those previously diagnosed with raised blood pressure.

Instrument questions:

- Have you ever had your blood pressure measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?
- Have you ever seen a traditional healer for raised blood pressure?
- Are you currently taking any herbal or traditional remedy for your high blood pressure?

Seen a traditional healer among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Currently taking herbal or traditional remedy for raised blood pressure among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H1, H2a, H4, H5
- Epi Info program name: Hraisedbptrad (unweighted); HraisedbptradWT (weighted)

History of Diabetes

Blood sugar measurement and diagnosis

Description: Blood sugar measurement and diagnosis among all respondents.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- Have you been told in the past 12 months?

Blood sugar measurement and diagnosis									
Men									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Blood sugar measurement and diagnosis									
Women									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Blood sugar measurement and diagnosis									
Both sexes									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H6, H7a, H7b
- Epi Info program name: Hdiabetes (unweighted); HdiabetesWT (weighted)

Diabetes treatment among those diagnosed Description: Diabetes treatment results among those previously diagnosed with raised blood sugar or diabetes.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker?
- Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?

Currently taking drugs (medication) prescribed for diabetes among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking insulin	95% CI	n	% taking insulin	95% CI	n	% taking insulin	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Currently taking insulin prescribed for diabetes among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H6, H7a, H8, H9
- Epi Info program name: Hdiabetes (unweighted); HdiabetesWT (weighted)

Diabetes advice by traditional healer

Description: Percentage of respondents who have sought advice or treatment from a traditional healer for diabetes among those previously diagnosed.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- Have you ever seen a traditional healer for diabetes or raised blood sugar?
- Are you currently taking any herbal or traditional remedy for your diabetes?

Seen a traditional healer for diabetes among those previously diagnosed											
Age Group (years)	Men				Women				Both Sexes		
	n	% seen trad. healer	95% CI		n	% seen trad. healer	95% CI		n	% seen trad. healer	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Currently taking herbal or traditional treatment for diabetes among those previously diagnosed											
Age Group (years)	Men				Women				Both Sexes		
	n	% taking trad. meds	95% CI		n	% taking trad. meds	95% CI		n	% taking trad. meds	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: H6, H7a, H10, H11
- Epi Info program name: Hdiabetestrad (unweighted); HdiabetestradWT (weighted)

History of Raised Total Cholesterol

Cholesterol measurement and diagnosis

Description: Total cholesterol measurement and diagnosis among all respondents.

Instrument questions:

- Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised cholesterol?
- Have you been told in the past 12 months?

Total cholesterol measurement and diagnosis									
Men									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Total cholesterol measurement and diagnosis									
Women									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Total cholesterol measurement and diagnosis									
Both sexes									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H12, H13a, H13b
- Epi Info program name: Hchol (unweighted); HcholWT (weighted)

Cholesterol treatment among those diagnosed

Description: Cholesterol treatment results among those previously diagnosed with raised cholesterol.

Instrument questions:

- Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised cholesterol?
- In the past two weeks, have you taken oral treatment (medication) for raised total cholesterol prescribed by a doctor or other health worker?

Currently taking oral treatment (medication) prescribed for raised total cholesterol among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H12, H13a, H14
- Epi Info program name: Hchol (unweighted); HcholWT (weighted)

Cholesterol advice by traditional healer

Description: Percentage of respondents who have sought advice or treatment from a traditional healer for raised cholesterol among those previously diagnosed.

Instrument questions:

- Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised cholesterol?
- Have you ever seen a traditional healer for raised cholesterol?
- Are you currently taking any herbal or traditional remedy for your raised cholesterol?

Seen a traditional healer for raised cholesterol among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Currently taking herbal or traditional treatment for raised cholesterol among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H12, H13a, H15, H16
- Epi Info program name: Hcholtrad (unweighted); HcholtradWT (weighted)

History of Cardiovascular Diseases

History of cardiovascular diseases

Description: Percentage of respondents who have ever had a heart attack or chest pain from heart disease (angina) or a stroke among all respondents.

Instrument questions:

- Have you ever had a heart attack or chest pain from heart disease (angina) or a stroke (cerebrovascular accident or incident)?

Having ever had a heart attack or chest pain from heart disease or a stroke									
Age Group (years)	Men			Women			Both Sexes		
	n	% CVD history	95% CI	n	% CVD history	95% CI	n	% CVD history	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Question used: H17
 - Epi Info program name: Hcvd (unweighted); HcvdWT (weighted)
-

Prevention and treatment of heart disease Description: Percentage of respondents who are currently taking aspirin or statins regularly to prevent or treat heart disease.

Instrument questions:

- Are you currently taking aspirin regularly to prevent or treat heart disease?
- Are you currently taking statins (Lovostatin/Simvastatin/Atorvastatin or any other statin) regularly to prevent or treat heart disease?

Currently taking aspirin regularly to prevent or treat heart disease									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking aspirin	95% CI	n	% taking aspirin	95% CI	n	% taking aspirin	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Currently taking statins regularly to prevent or treat heart disease									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking statins	95% CI	n	% taking statins	95% CI	n	% taking statins	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H18, H19
- Epi Info program name: Hcvdmeds (unweighted); HcvdmedsWT (weighted)

Lifestyle Advice

Lifestyle advice Description: Percentage of respondents who received lifestyle advice from a doctor or health worker during the past three years among all respondents.

Instrument question:

- During the past three years, has a doctor or other health worker advised you to do any of the following?

Advised by doctor or health worker to quit using tobacco or don't start									
Age Group (years)	Men			Women			Both Sexes		
	n	% advised	95% CI	n	% advised	95% CI	n	% advised	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Advised by doctor or health worker to reduce salt in the diet									
Age Group (years)	Men			Women			Both Sexes		
	n	% advised	95% CI	n	% advised	95% CI	n	% advised	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Advised by doctor or health worker to eat at least five servings of fruit and/or vegetables each day									
Age Group (years)	Men			Women			Both Sexes		
	n	% advised	95% CI	n	% advised	95% CI	n	% advised	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Advised by doctor or health worker to reduce fat in the diet									
Age Group (years)	Men			Women			Both Sexes		
	n	% advised	95% CI	n	% advised	95% CI	n	% advised	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Advised by doctor or health worker to start or do more physical activity											
Age Group (years)	Men				Women				Both Sexes		
	n	% advised	95% CI		n	% advised	95% CI		n	% advised	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Advised by doctor or health worker to maintain a healthy body weight or to lose weight											
Age Group (years)	Men				Women				Both Sexes		
	n	% advised	95% CI		n	% advised	95% CI		n	% advised	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: H20a-f
 - Epi Info program name: Hlifestyle (unweighted); HlifestyleWT (weighted)
-

Cervical Cancer Screening

Cervical cancer screening

Description: Percentage of female respondents who have ever had a screening test for cervical cancer among all female respondents.

Instrument question:

- Have you ever had a screening test for cervical cancer, using any of these methods described above?

Age Group (years)	Women		
	n	% ever tested	95% CI
18-29			
30-44			
45-59			
60-69			
18-69			

Analysis Information:

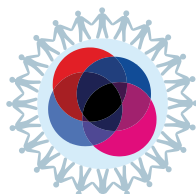
- Question used: CX1
 - Epi Info program name: Hcervcancer (unweighted); HcervcancerWT (weighted)
-

Cervical cancer screening among women aged 30-49 years

Description: Percentage of female respondents aged 30-49 years who have ever had a screening test for cervical cancer among all female respondents aged 30-49 years.

Instrument question:

- Have you ever had a screening test for cervical cancer, using any of these methods described above?



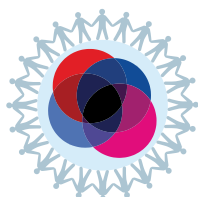
Age Group (years)	Women		
	n	% ever tested	95% CI
30-49			

Analysis Information:

- Question used: CX1
 - Epi Info program name: Hcervcancer (unweighted); HcervcancerWT (weighted)
-

Physical Measurements

Blood pressure Description: Mean blood pressure among all respondents, including those currently on medication for raised blood pressure.



Instrument question:

- Reading 1-3 systolic and diastolic blood pressure

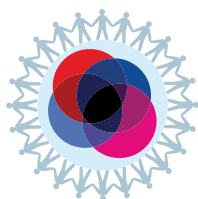
Mean systolic blood pressure (mmHg)										
Age Group (years)	Men			Women			Both Sexes			
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Mean diastolic blood pressure (mmHg)										
Age Group (years)	Men			Women			Both Sexes			
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Analysis Information:

- Questions used: M4a, M4b, M5a, M5b, M6a, M6b
 - Epi Info program name: Mbloodpressure (unweighted); MbloodpressureWT (weighted)
-

Raised blood pressure



Description: Percentage of respondents with raised blood pressure.

Instrument question:

- Reading 1-3 systolic and diastolic blood pressure
- During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?

SBP \geq 140 and/or DBP \geq 90 mmHg									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

SBP \geq 160 and/or DBP \geq 100 mmHg									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

SBP \geq 140 and/or DBP \geq 90 mmHg or currently on medication for raised blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

SBP \geq 160 and/or DBP \geq 100 mmHg or currently on medication for raised blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H1, H2a, H3, M4a, M4b, M5a, M5b, M6a, M6b, M7
- Epi Info program name: Mraisedbp (unweighted); MraisedbpWT (weighted)

Blood pressure diagnosis, treatment and control

Description: Raised blood pressure diagnosis, treatment and control among those with raised blood pressure (SBP \geq 140 and/or DBP \geq 90 mmHg) or on medication for raised blood pressure.

Instrument questions:

- Have you ever had your blood pressure measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?
- During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?
- Reading 1-3 systolic and diastolic blood pressure

Raised blood pressure diagnosis, treatment and control among those with raised blood pressure (SBP \geq 140 and/or DBP \geq 90 mmHg) or on medication for raised blood pressure									
Men									
Age Group (years)	n	% with raised blood pressure, not previously diagnosed	95% CI	% with previously diagnosed raised blood pressure, not on medication	95% CI	% with previously diagnosed raised blood pressure, on medication but not controlled	95% CI	% with previously diagnosed raised blood pressure, on medication and blood pressure controlled	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Raised blood pressure diagnosis, treatment and control among those with raised blood pressure (SBP \geq 140 and/or DBP \geq 90 mmHg) or on medication for raised blood pressure									
Women									
Age Group (years)	n	% with raised blood pressure, not previously diagnosed	95% CI	% with previously diagnosed raised blood pressure, not on medication	95% CI	% with previously diagnosed raised blood pressure, on medication but not controlled	95% CI	% with previously diagnosed raised blood pressure, on medication and blood pressure controlled	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Raised blood pressure diagnosis, treatment and control among those with raised blood pressure (SBP ≥ 140 and/or DBP ≥ 90 mmHg) or on medication for raised blood pressure									
Both Sexes									
Age Group (years)	n	% with raised blood pressure, not previously diagnosed	95% CI	% with previously diagnosed raised blood pressure, not on medication	95% CI	% with previously diagnosed raised blood pressure, on medication but not controlled	95% CI	% with previously diagnosed raised blood pressure, on medication and blood pressure controlled	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: H1, H2a, H3, M4a, M4b, M5a, M5b, M6a, M6b, M7
- Epi Info program name: Mraisedbp (unweighted); MraisedbpWT (weighted)

Mean heart rate

Description: Mean heart rate (beats per minute).

Instrument question:

- Reading 1-3 heart rate

Mean heart rate (beats per minute)											
Age Group (years)	Men			Women			Both Sexes				
	n	mean	95% CI	n	mean	95% CI	n	mean	95% CI		
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: M16a, M16b, M16c
- Epi Info program name: Mheartrate (unweighted); MheartrateWT (weighted)

Height, weight and BMI

Description: Mean height, weight, and body mass index among all respondents (excluding pregnant women).

Instrument questions:

- For women: Are you pregnant?
- Height
- Weight

Mean height (cm)							
Age Group (years)	Men				Women		
	n	Mean	95% CI		n	Mean	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

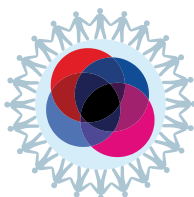
Mean weight (kg)							
Age Group (years)	Men				Women		
	n	Mean	95% CI		n	Mean	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Mean BMI (kg/m ²)											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: M8, M11, M12
- Epi Info program name: Mbmi (unweighted); MbmiWT (weighted)

BMI categories Description: Percentage of respondents (excluding pregnant women) in each BMI category.



Instrument questions:

- For women: Are you pregnant?
- Height
- Weight

BMI classifications									
Men									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

BMI classifications									
Women									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

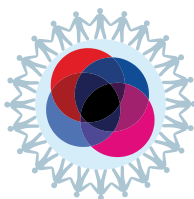
BMI classifications									
Both Sexes									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: M8, M11, M12
- Epi Info program name: Mbmiclass (unweighted); MbmiclassWT (weighted)

BMI ≥25

Description: Percentage of respondents (excluding pregnant women) classified as overweight (BMI≥25).



Instrument questions:

- For women: Are you pregnant?
- Height
- Weight

Age Group (years)	BMI≥25								
	Men			Women			Both Sexes		
	n	% BMI≥25	95% CI	n	% BMI≥25	95% CI	n	% BMI≥25	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: M8, M11, M12
- Epi Info program name: Mbmiclass (unweighted); MbmiclassWT (weighted)

Waist circumference Description: Mean waist circumference among all respondents (excluding pregnant women).

Instrument questions:

- For women: Are you pregnant?
- Waist circumference measurement

Waist circumference (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Analysis Information:

- Questions used: M8, M14
 - Epi Info program name: Mwaist (unweighted); MwaistWT (weighted)
-

Hip circumference Description: Mean hip circumference among all respondents (excluding pregnant women).

Instrument questions:

- For women: Are you pregnant?
- Hip circumference measurement

Hip circumference (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
18-29						
30-44						
45-59						
60-69						
18-69						

Analysis Information:

- Questions used: M8, M15
 - Epi Info program name: Mhip (unweighted); MhipWT (weighted)
-

Waist / hip ratio Description: Mean waist-to-hip ratio among all respondents (excluding pregnant women).

Instrument questions:

- For women: Are you pregnant?
- Waist circumference measurement
- Hip circumference measurement

Age Group (years)	Mean waist / hip ratio						
	Men			Women			
	n	Mean	95% CI	n	Mean	95% CI	
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: M8, M14, M15
 - Epi Info program name: Mwaisthipratio (unweighted); MwaisthipratioWT (weighted)
-

Biochemical Measurements

Mean fasting blood glucose

Description: mean fasting blood glucose results including those currently on medication for diabetes (non-fasting recipients excluded).

Instrument questions:

- During the last 12 hours have you had anything to eat or drink, other than water?
- Blood glucose measurement

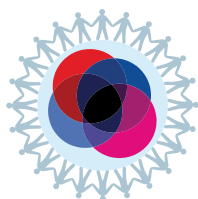
Mean fasting blood glucose (mmol/L)											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Mean fasting blood glucose (mg/dl)											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Analysis Information:

- Questions used: B1, B5
 - Epi Info program name:
 - measurement in mmol/L: Bglucose (unweighted); BglucoseWT (weighted)
 - measurement in mg/dl: BglucoseMg (unweighted); BglucoseMgWT (weighted)
-

Raised blood glucose



Description: Categorization of respondents into blood glucose level categories and percentage of respondents currently on medication for raised blood glucose (non-fasting recipients excluded).

Instrument questions:

- In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker?
- Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?
- During the last 12 hours have you had anything to eat or drink, other than water?
- Blood glucose measurement
- Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker?

Impaired Fasting Glycaemia*										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Raised blood glucose or currently on medication for diabetes**										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Currently on medication for diabetes										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

* Impaired fasting glycaemia is defined as either

- plasma venous value: ≥ 6.1 mmol/L (110mg/dl) and < 7.0 mmol/L (126mg/dl)
- capillary whole blood value: ≥ 5.6 mmol/L (100mg/dl) and < 6.1 mmol/L (110mg/dl)

** Raised blood glucose is defined as either

- plasma venous value: ≥ 7.0 mmol/L (126 mg/dl)
- capillary whole blood value: ≥ 6.1 mmol/L (110 mg/dl)

Analysis Information:

- Questions used: H8, H9, B1, B5, B6

Epi Info program name:

- measurement in mmol/L: Bglucose (unweighted); BglucoseWT (weighted)
- measurement in mg/dl: BglucoseMg (unweighted); BglucoseMgWT (weighted)

Blood glucose diagnosis and treatment

Description: Raised blood glucose diagnosis and treatment among all respondents.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker?
- Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?
- During the last 12 hours have you had anything to eat or drink, other than water?
- Blood glucose measurement
- Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker?

Raised blood glucose diagnosis and treatment among all respondents							
Men							
Age Group (years)	n	% with raised blood glucose, not previously diagnosed	95% CI	% with previously diagnosed raised blood glucose, not on medication	95% CI	% with previously diagnosed raised blood glucose, on medication	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Raised blood glucose diagnosis and treatment among all respondents							
Women							
Age Group (years)	n	% with raised blood glucose, not previously diagnosed	95% CI	% with previously diagnosed raised blood glucose, not on medication	95% CI	% with previously diagnosed raised blood glucose, on medication	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

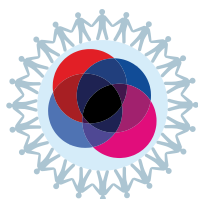
Raised blood glucose diagnosis and treatment among all respondents							
Age Group (years)	Both Sexes						
	n	% with raised blood glucose, not previously diagnosed	95% CI	% with previously diagnosed raised blood glucose, not on medication	95% CI	% with previously diagnosed raised blood glucose, on medication	95% CI
18-29							
30-44							
45-59							
60-69							
18-69							

Analysis Information:

- Questions used: H6, H7a, H8, H9, B1, B5, B6
 - Epi Info program name:
 - measurement in mmol/L: Bglucose (unweighted); BglucoseWT (weighted)
 - measurement in mg/dl: BglucoseMg (unweighted); BglucoseMgWT (weighted)
-

Total cholesterol

Description: Mean total cholesterol among all respondents including those currently on medication for raised cholesterol.



Instrument question:

- Total cholesterol measurement

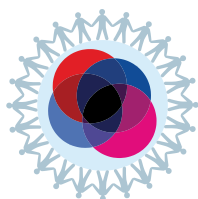
Mean total cholesterol (mmol/L)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean total cholesterol (mg/dl)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: B8
- Epi Info program name:
 - measurement in mmol/L: Btotallipids (unweighted); BtotallipidsWT (weighted)
 - measurement in mg/dl: BtotallipidsMg (unweighted); BtotallipidsMgWT (weighted)

Raised total cholesterol



Description: Percentage of respondents with raised total cholesterol.

Instrument questions:

- Total cholesterol measurement

Total cholesterol \geq 5.0 mmol/L or \geq 190 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Total cholesterol \geq 6.2 mmol/L or \geq 240 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: B8
- Epi Info program name:
 - measurement in mmol/L: Btotallipids (unweighted); BtotallipidsWT (weighted)
 - measurement in mg/dl: BtotallipidsMg (unweighted); BtotallipidsMgWT (weighted)

Raised total cholesterol Description: Percentage of respondents with raised total cholesterol and percentage of respondents currently on medication for raised cholesterol.

Instrument questions:

- Total cholesterol measurement
- During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker?

Total cholesterol \geq 5.0 mmol/L or \geq 190 mg/dl or currently on medication for raised cholesterol										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Total cholesterol \geq 6.2 mmol/L or \geq 240 mg/dl or currently on medication for raised cholesterol										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Analysis Information:

- Questions used: B8, B9
- Epi Info program name:
 - measurement in mmol/L: Btotallipids (unweighted); BtotallipidsWT (weighted)
 - measurement in mg/dl: BtotallipidsMg (unweighted); BtotallipidsMgWT (weighted)

Introduction to intake of salt per day

Levels of sodium and creatinine in spot urine samples are used in STEPS to estimate population 24 hour salt intake, using the INTERSALT equation:

Estimated 24 hour sodium (Na) intake in mmol for males: $23.51 + 0.45 * \text{spot Na concentration (mmol/L)} - 3.09 * \text{spot creatinine concentration (mmol/L)} + 4.16 * \text{BMI} + 0.22 * \text{Age}$

Estimated 24 hour sodium (Na) intake in mmol for females: $3.74 + 0.33 * \text{spot Na concentration (mmol/L)} - 2.44 * \text{spot creatinine concentration (mmol/L)} + 2.42 * \text{BMI} + 2.34 * \text{Age} - 0.03 * \text{Age}^2$

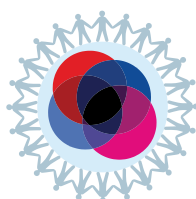
The 24 hour sodium values in mmol are divided by 17.1 in order to get grams of salt.

WHO recommendation

The WHO recommendation is less than 5 grams of salt or 2 grams of sodium per person per day.

Intake of salt per day

Description: Mean intake of salt in grams per day among all respondents



Instrument question:

- Are you pregnant?
- Had you been fasting prior to urine collection?
- Urinary sodium measurement
- Urinary creatinine measurement

Age Group (years)	Mean salt intake (g/day)									
	Men			Women			Both Sexes			
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI	
18-29										
30-44										
45-59										
60-69										
18-69										

Analysis Information:

- Questions used: M8, B10, B14, B15
- Epi Info program name: Bsalt (unweighted); BsaltWT (weighted)

High density lipoprotein (HDL)

Description: Mean HDL among all respondents and percentage of respondents with low HDL.

Instrument question:

- HDL cholesterol measurement

Mean HDL (mmol/L)											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Mean HDL (mg/dl)											
Age Group (years)	Men				Women				Both Sexes		
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI
18-29											
30-44											
45-59											
60-69											
18-69											

Percentage of respondents with HDL <1.03mmol/L or <40 mg/dl			
Age Group (years)	Men		
	n	%	95% CI
18-29			
30-44			
45-59			
60-69			
18-69			

Percentage of respondents with HDL <1.29mmol/L or <50 mg/dl			
Age Group (years)	Women		
	n	%	95% CI
18-29			
30-44			
45-59			
60-69			
18-69			

Analysis Information:

- Questions used: B16
- Epi Info program name:
 - measurement in mmol/L: Bhdlipids (unweighted); BhdlipidsWT (weighted)
 - measurement in mg/dl: BhdlipidsMg (unweighted); BhdlipidsMgWT (weighted)

Triglycerides Description: Mean fasting triglycerides among all respondents and percentage of respondents with raised fasting triglycerides (non-fasting recipients excluded).

Instrument questions:

- During the last 12 hours have you had anything to eat or drink, other than water?
- Triglyceride measurement

Mean fasting triglycerides (mmol/L)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Mean fasting triglycerides (mg/dl)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of respondents with fasting triglycerides ≥ 1.7 mmol/L or ≥ 150 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Percentage of respondents with fasting triglycerides ≥ 2.0 mmol/L or ≥ 180 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29									
30-44									
45-59									
60-69									
18-69									

Analysis Information:

- Questions used: B1, B17
- Epi Info program name:
 - measurement in mmol/L: Btriglyceride (unweighted); BtriglycerideWT (weighted)
 - measurement in mg/dl: BtriglycerideMg (unweighted); BtriglycerideMgWT (weighted)

Cardiovascular disease risk

CVD risk of $\geq 30\%$ or existing CVD Description: Percentage of respondents aged 40-69 years with a 10-year cardiovascular disease (CVD) risk* $\geq 30\%$ or with existing CVD

Instrument questions: combined from Step 1, 2 and 3

- Gender, age
- Current and former smoking
- History of diabetes, CVD
- Systolic blood pressure measurements
- Fasting status, glucose and total cholesterol measurements.

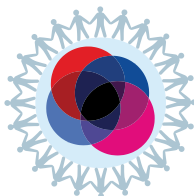
Percentage of respondents with a 10-year CVD risk $\geq 30\%$ or with existing CVD										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
40-54										
55-69										
40-69										

* A 10-year CVD risk of $\geq 30\%$ is defined according to age, sex, blood pressure, smoking status (current smokers OR those who quit smoking less than 1 year before the assessment), total cholesterol, and diabetes (previously diagnosed OR a fasting plasma glucose concentration >7.0 mmol/l (126 mg/dl)).

Analysis Information:

- Questions used: C1, C2, C3, T1, T8T10, T11a-c, H6, H7a, H17, M4a, M5a, M6a, M7, B1, B5, B8
- Epi Info program name: CVDrisk (unweighted); CVDriskWT (weighted)

Drug therapy and counseling for those with CVD risk $\geq 30\%$ or existing CVD



Description: Percentage of eligible persons (defined as aged 40-69 years with a 10-year cardiovascular disease (CVD) risk* $\geq 30\%$, including those with existing CVD) receiving drug therapy and counseling** (including glycaemic control) to prevent heart attacks and strokes.

Instrument questions: combined from Step 1, 2 and 3

- Gender, age
- Current and former smoking
- History of diabetes, CVD
- Lifestyle advice
- Systolic blood pressure measurements
- Fasting status, glucose and total cholesterol measurements.

Percentage of eligible persons receiving drug therapy and counseling to prevent heart attacks and strokes										
Age Group (years)	Men			Women			Both Sexes			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
40-54										
55-69										
40-69										

* A 10-year CVD risk of $\geq 30\%$ is defined according to age, sex, blood pressure, smoking status (current smokers OR those who quit smoking less than 1 year before the assessment), total cholesterol, and diabetes (previously diagnosed OR a fasting plasma glucose concentration >7.0 mmol/l (126 mg/dl)).

**Counseling is defined as receiving advice from a doctor or other health worker to quit using tobacco or not start, reduce salt in diet, eat at least five servings of fruit and/or vegetables per day, reduce fat in diet, start or do more physical activity, maintain a healthy body weight or lose weight.

Analysis Information:

- Questions used: C1, C2, C3, T1, T8T10, T11a-c, H6, H7a, H8, H9, H13a, H14, H17, H18, H19, H20a-f, M4a, M5a, M6a, M7, B1, B5, B8
- Epi Info program name: CVDrisk (unweighted); CVDriskWT (weighted)

Summary of Combined Risk Factors

Summary of Combined Risk Factors

Description: Percentage of respondents with 0, 1-2, or 3-5 of the following risk factors:

- Current daily smoking
- Less than five servings of fruit and/or vegetables per day
- Not meeting WHO recommendations on physical activity for health (<150 minutes of moderate activity per week, or equivalent)
- Overweight or obese (BMI \geq 25 kg/m²)
- Raised BP (SBP \geq 140 and/or DBP \geq 90 mmHg or currently on medication for raised BP).

Instrument questions: combined from Step 1 and Step 2

Summary of Combined Risk Factors							
Men							
Age Group (years)	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
18-44							
45-69							
18-69							

Summary of Combined Risk Factors							
Women							
Age Group (years)	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
18-44							
45-69							
18-69							

Summary of Combined Risk Factors							
Both Sexes							
Age Group (years)	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
18-44							
45-69							
18-69							

Analysis Information:

- Questions used: T1, T2, D1-D4, P1-P15b, M4a-M6b, M7, M8, M11, M12
- Epi Info program name: Raisedrisk (unweighted); RaisedriskWT (weighted)

[Country] STEPS Report [year]

Cover and Content Pages

Introduction The cover and content pages at the front of the STEPS country report provide the formal information needed for library indexing and purchasing, and give the reader an idea of the structure and content of the report.

Content guide Follow the guidelines in the table below to help prepare the title page and other leading pages.

Part	Include
Title page	<ul style="list-style-type: none">• title of the report• authors' names• institution(s) involved• release date
Publication details	<ul style="list-style-type: none">• copyright details• publishing and indexing information• address to obtain further copies• citation of the report
Table of Contents	<ul style="list-style-type: none">• part and/or section headings with page numbers• sub level headings• appendices• list of tables• list of figures
Other leading pages (optional)	<ul style="list-style-type: none">• list of abbreviations or terms used• brief notes about the authors• preface or foreword from a leading authority who endorses the report
Acknowledgments	<ul style="list-style-type: none">• all sponsors, including government and other bodies• consultants and advisers• staff who have contributed to the survey and the report• others providing services and/or support• participants in the survey

Executive Summary

Introduction The executive summary provides an overview of the entire report in one to two pages. It should outline the rationale, methodology, key results and recommendations.

Content guide Follow the guidelines in the table below to help complete the sections of the executive summary.

Heading	Guidelines for completion
Rationale	Outline the main reasons for the STEPS survey.
Methodology	Briefly describe: <ul style="list-style-type: none">• the scope of the survey;• the sampling method used;• methods of data collection and data analysis;• how the results are presented, for example "weighted to represent the total national population aged 18 to 69 years".
Key results	<ul style="list-style-type: none">• Briefly describe the study population and its characteristics.• Mention response-rates.• Select the most important variables (chosen according to those of most relevance to NCDs in your country) and present the key results for those variables.• Mention the other variables that are also included in the report, but limit results for them.
Conclusion / Recommendations	<ul style="list-style-type: none">• Identify the reasons why the findings are important, and the impact they are likely to be having on the health of the population.• Briefly discuss how the results may be useful and recommended actions.

Introduction

Introduction The introduction should include introductory comments to the report, outlining the background and purpose for your STEPS survey, and provide a brief description of STEPS and what the survey results will be used for.

Content guide Follow the guidelines in the table below to help complete the sections of the introduction.

Heading	Guidelines for completion
Introduction	<ul style="list-style-type: none">• Introduce the STEPS Country Report as the main report of your STEPS survey.
Background	<ul style="list-style-type: none">• Provide the reader with background information on NCDs and their risk factors in your country.• Include previous surveys that have been done as well as gaps in knowledge with regards to NCDs and their risk factors.• Describe the relevance of each risk factor/item that will be captured by your STEPS survey.
Description of STEPS	<ul style="list-style-type: none">• Provide a brief description of what STEPS is (i.e. surveillance of key risk factors for NCDs).
Purpose	<ul style="list-style-type: none">• Explain the general purpose as well as specific objectives of the STEPS survey in your country.

Methods

Introduction The methods should explain the scope of the STEPS survey, the methods used for data collection, and the implementation process. Also describe the sample and analytical methods in sufficient detail to demonstrate that the survey results are reliable and represent the intended population(s).

Content guide Follow the guidelines in the table below to help complete the methods section.

Heading	Guidelines for completion
Scope	<ul style="list-style-type: none">• Identify which core Steps (1-3) were covered and if any expanded and optional items have been added.
Study population	<ul style="list-style-type: none">• Explain who the results/findings will be representative for (Geographical coverage, age-groups, general population).• Mention inclusion/exclusion criteria (e.g., pregnant women excluded for height and weight measurements).• If the whole country was not covered, explain the reasons.
Sample size	<ul style="list-style-type: none">• Explain how the initial sample size was calculated.
Sampling	<ul style="list-style-type: none">• Describe the sampling method used for the survey• Mention what sampling frame was used.• Describe how the sampling units were derived, and how this was applied in the field.• Detail the use of clusters (if relevant).
Timeframes	<ul style="list-style-type: none">• Include information on the overall starting and completion dates of the survey.• Specify dates/seasons of data collection.
Staff recruitment and training	<ul style="list-style-type: none">• Describe the training programmes provided for the survey personnel, the number of persons trained, and the background of trainees.• Describe the format, content and duration of the training provided for the survey.
Pilot study	<ul style="list-style-type: none">• Mention whether a pilot study was done before conducting the actual survey.• Explain how the pilot study has been conducted.

Continued on next page

Methods, Continued

Content guide (cont.)

Heading	Guidelines for completion
Instrument and data collection	<ul style="list-style-type: none"> • Describe the STEPS Instrument used. • Describe how the measurements (Step 2 and 3) were done. • Outline which core and expanded items were covered. • Describe any adaptations made to the standard STEPS Instrument and any optional items added. • Mention if/add pictures of show-cards that have been used. • Specify languages used (and translation issues) in the survey. • Describe the organization of data collection teams including supervision, numbers involved, quality control, timeframe for data collection, etc. • Explain how and where the data collection teams made contact with survey participants. Describe the data collection setting(s). • Describe electronic devices for data collection, including automatic skip patterns and error checks.
Data downloading	<ul style="list-style-type: none"> • Describe the data download processes during the field work for data quality checking. • Describe the data download processes at the end of the field work to compile the final dataset.
Analysis information	<ul style="list-style-type: none"> • Describe the data analysis processes, methods (such as cleaning of data), timeframes and software used. Refer to the software capability to handle complex sampling design. • Explain that most results generated are presented as means or percentages, with associated standard errors and derived confidence intervals. • Describe which methods (i.e. weighting) were used to adjust the results for non-response, population structure and the sampling design so they represent the population. • Insert the weighting formulas used. • Describe which statistical tests were used, if any, to test for differences between groups.
Response proportions	<ul style="list-style-type: none"> • Describe how response proportions were calculated.

Results

Introduction

The results should describe the actual sample obtained and the levels of participation achieved. Describe the demographic characteristics of the participants, as well as the results for each risk factor covered in the Instrument.

Demographic and response information

Follow the guidelines in the table below to help prepare information on demographics and response proportions of the results section.

Heading	Guidelines for completion
Demographic characteristics	<ul style="list-style-type: none">• Describe the demographic characteristics of the participants, using the data book for examples.• Include:<ul style="list-style-type: none">– age-sex distribution– geographic distribution– ethnic groups.
Population distribution	<ul style="list-style-type: none">• Show the age groups and sex distribution of the population at the last census if available, e. g., in a pyramid chart.
Response proportions	<ul style="list-style-type: none">• Present the response proportions achieved for Step 1, 2, and 3 as appropriate, using the data book for examples.

Continued on next page

Results, Continued

Risk factors Present results for each of the following individual risk factors covered in the Instrument:

- tobacco use
 - alcohol consumption
 - unhealthy diet (low fruit and vegetable consumption, diet high in salt)
 - insufficient physical activity
 - overweight and obesity
 - raised blood pressure
 - raised blood glucose
 - abnormal blood lipids.
-

Risk factor content guide Follow the guidelines in the table below to help prepare content for each of the risk factors listed above.

Heading	Guidelines for completion
Text description of main findings	<ul style="list-style-type: none">• State the main findings in relation to each risk factor.• Describe any key subgroup differences, e.g., based on confidence intervals.• Refer for detail to specific tables from the data book.
Tables and figures	<ul style="list-style-type: none">• Present in tables, plots or graphs as appropriate the results, by age and sex groups. Use the data book as a guide on how to present information in tables.• Include sample sizes (n) for all age- and sex groups presented.• Label carefully to identify if the data are weighted.• Include measures of confidence when appropriate (confidence intervals or standard errors).
Additional description	<ul style="list-style-type: none">• Describe in words any interesting results.• If these vary by age or sex, then consider presenting separately.

Continued on next page

Results, Continued

Combined risk factors Follow the guidelines in the table below to help prepare content on combined risk factors.

Heading	Guidelines for completion
Relevance of combining risk factors	<ul style="list-style-type: none">• Briefly outline the relevance of looking at a combination of risk factors in your country.• See data book and fact sheet for the risk factors to combine.
Text description of main findings	<ul style="list-style-type: none">• State the main findings in relation to both low risk (none of the risk factors present) and raised risk (presence of three or more of the selected risk factors).• Describe any key subgroup differences. Refer for detail to specific tables from the data book.
Tables	<ul style="list-style-type: none">• Present in tables, plots or graphs as appropriate the results, by age and sex group. Use the data book as a guide on how to present information in tables.• Include sample sizes (n) for all age- and sex groups presented.• Label carefully to identify if the data are weighted.• Include measures of confidence when appropriate (confidence intervals or standard errors).
Additional description	<ul style="list-style-type: none">• Describe in words any interesting results.• If these vary by age or sex, then consider presenting separately.

Discussion

Introduction In this part of the STEPS report, any new knowledge derived from the STEPS survey as well as importance of the findings should be discussed. Discuss the strengths and weaknesses of the methods used and the results presented, and any reservations in their interpretation or use.

Content guide Follow the guidelines in the table below to help prepare content of the discussion.

Heading	Guidelines for completion
Representation	<ul style="list-style-type: none">• Comment on the extent to which the results apply to the whole population or only to the individuals who were surveyed (depends on if data are weighted).
Comment on participation	Discuss the impact on the interpretation of results of any sampling or participation issues such as: <ul style="list-style-type: none">• the participation levels varied between population groups such as older vs. younger men;• recruiting did not proceed as planned and a non-random sample was selected.
Key results and new knowledge	Repeat key results, mention their importance and how they can be used for prevention planning and to formulate policy. Include, for example: <ul style="list-style-type: none">• what was known before about these topics for this population?• what is added by this report?• what are the key new findings of importance and why are these important?• what impact will these have on the health of the population, in particular in respect to the burden of NCDs either currently or in the future?
Previous surveys	<ul style="list-style-type: none">• Mention any previous STEPS surveys or similar surveys and how the findings relate.
Limitations and strengths	<ul style="list-style-type: none">• Comment on the quality of the survey and measures, and therefore their reliability.• Identify where issues have arisen during data collection or analysis that may mean caution is needed when interpreting some results.• Also mention the strengths of the survey, such as representativeness, Step 2 and 3 measurements, etc.

Conclusions and Recommendations

Introduction The conclusion and recommendations should wrap up the STEPS report and indicate briefly how results should be used and what should be the next steps following the survey.

Content guide Follow the guidelines in the table below to help prepare the conclusion and recommendations.

Heading	Guidelines for completion
Conclusion	The conclusion should briefly summarize the most important findings and explain their importance.
Recommendations	Include, for example: <ul style="list-style-type: none">• policies that might be impacted upon by these findings;• actions that should derive from these findings;• who should be appraised of the findings• any further research that is recommended to be undertaken.

References

Introduction The reference section should contain a reference list of any sources used to write the report.

Note: All figures used in the report that are not the results of the current survey need to have accompanying references in the reference section of the report.

Appendices

Appendix A Country-specific STEPS Instrument

Appendix B Show cards used

Appendix C Survey Implementation Plan

Appendix D Fact Sheet

Appendix E Data Book

Part 7: Glossary

Overview

In this Part

This Part covers the following topic

Topic	See Page
Section 1: Glossary of Terms Used in STEPS	7-1-1

Section 1: Glossary of Terms Used in STEPS

Introduction This section provides an alphabetical list of all the terms used in a STEPS surveillance with definitions that are appropriate for STEPS.

Term	Definition
Age-standardisation	A process of statistically adjusting rates or prevalence or mean values from two or more populations with different age structures in order to facilitate comparisons or understand differences between the populations.
Archive	A depository containing records or documents.
Average	See Mean
Bias	Distortion of a population estimate away from the true value. Bias can arise for many reasons such as measurement error or non-response.
Cluster	A (usually geographical defined) group of individuals.
Cluster sampling	A sampling method where the target population is divided into clusters/groups and a subset of each cluster is selected instead of the entire cluster. Cluster sampling often uses enumeration areas for the primary cluster
Confidence interval (CI)	A range of values around the sample estimate in which the true population value is likely to fall. For example, a 95% confidence interval indicates that for 95 out of 100 surveys, the population mean would fall into this range of values around the sample mean.
Cross-sectional design	A study design based on observations at a single point in time. STEPS surveys will be cross-sectional unless they are especially being extended to follow the sample over time.
Database	A large amount of information stored in a file that is easily searched by a computer. STEPS mostly uses Microsoft Access.
Dataset	An electronic file consisting of a table in which each row contains data for one individual and each column represents one variable.
Demographic characteristics	The characteristics of a population, for example, age, sex, ethnicity and place of residence.
Distribution	The complete summary of the frequencies of the values or categories of a measurement made on a group of persons. The distribution tells either how many or what proportion of the group was found to have each value (or each range of values) out of all the possible values that the quantitative measure can have.
Enumeration Area	A small to medium sized geographic area that has been defined in a census.
EpiData	A freely available software package designed to facilitate data entry of survey data. Functions include immediate checking of ranges and legal values and ability to export data to a range of analysis packages.
Epi Info	A freely available statistical software package providing basic statistical functions and capable of handling complex sample designs.
Estimate	A calculated guess of the true value of a population characteristic deriving from data obtained from a sample of the population.
Household composition	The age and sex of all the residents in the household who are within the age range of the survey.

Term	Definition
Instrument	This refers to the STEPS Instrument which includes a questionnaire (Step 1), physical measurements (Step 2), and biochemical measurements (Step 3).
Inter-quartile range	The difference between the upper and lower quartiles (25 th and 75 th percentiles) in a set of values. They separate the lowest 25% and highest 75% of values, respectively, in the set of measurements
Mean	The arithmetic mean is the average of a set of values, that is, the sum of all the values divided by number of values. Because of its simplicity and its statistical properties, it is used more than any of the other measures of central tendency (e.g. median).
Measurement device	A tool used for measurement purposes, for example a blood pressure monitor.
Median	The median is a measure of central tendency that is often used for non-normally distributed variables. It is the simplest division of a set of sorted measurements into two halves - the lower and the upper half.
MET	Metabolic equivalent (MET) is the ratio of a person's working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1 kcal/kg/hour.
Moderate intensity physical activity	Refers to activities which take moderate physical effort and that make you breathe somewhat harder than normal. Examples include cleaning, vacuuming, polishing, gardening, cycling at a regular pace or horse-riding. Moderate intensity activities require an energy expenditure of approximately 3-6 METs.
Multi-stage sampling	Multi-stage indicates that sampling is done in several steps. First larger sampling units are selected then smaller sampling units are selected within the selected larger units.
Non-probability	Methods of sampling a population in which the probability of selection of each every individual is not known, and therefore from which reliable population estimates are not calculable. A non-probability sample is not desirable for STEPS.
Non-response	In a sample survey, the failure, for any reason, to obtain information from a designated participant.
Non-response bias	Also known as coverage bias, the error introduced by non-response.
Outlier	An observation differing so widely from the rest of the data as to lead one to suspect that a gross error may have been committed or suggesting that this value comes from a different population.
Participant	An individual who responds to the STEPS Instrument.
Pilot test	A small trial run or "dress rehearsal" of an entire process, e.g. data collection or data entry, completed before the process officially begins.
Post-stratification	A means of making sample estimates more representative of the target population after data have been collected. For STEPS surveys, it is recommended to do a post-stratification for age and sex so that differences in the age-sex distribution between the sample and the target population can be accounted for.

Term	Definition
Precision	The quality of the estimate obtained from the STEPS survey. The standard error of the estimates can be taken as an indicator of the precision of the estimates with a smaller standard error indicating greater precision. See standard error.
Prevalence	The number of persons with a disease or an attribute in a given population at a designated time, e.g. % daily smoker in a country in 2008.
Primary sampling unit (PSU)	The sampling units for the first stage of sampling in a multi-stage sample design. See multi-stage sample design.
Probability	A number between 0 and 1 which represents how likely some event is to occur. A probability of 0 means an event will never occur, while a probability of 1 means the event will always occur.
Probability sample	A sample of a population (or sub-population) that has the property that each individual has an equal and known chance of being selected, and in which the chance of one item being selected does not alter or affect the selection of any other individual. Examples of probability sampling include simple random sample, cluster sampling and stratified sampling.
Probability proportional to size (PPS)	Probability proportional to size (PPS) sampling is a method for selecting a sampling unit in which the probability of selection for a given sampling unit is proportional to its size (most often the number of individuals or households within the sampling unit).
Range	The difference between the largest and the smallest in a set of values, for example in a sample in which height was measured from 135 cm to 180 cm, the range would be 45 cm.
Rank	The position of a member within a sorted set.
Rate	The occurrence of an event over a defined time amongst a defined sample or population. It may be expressed as number of events per person-years, for example 310 injury accidents per 10,000 person-years, which may be imagined as 310 of 1000 people over 10 years, or 310 of 2000 people over 5 years.
Representativeness	The extent to which a sample has the same distribution of the characteristics of interest as the target population from which it was selected.
Response proportion	The proportion or percentage of the eligible individuals sampled who did participate.
Risk Factor	Refers to any attribute, characteristic, or exposure of an individual, which increases the likelihood of developing a disease, or other unwanted condition/event.
Sample	The subset of the target population that is selected for inclusion in the survey.
Sample design	The methodology used to select the part of the population to be included in the survey. See probability sample and non-probability sample.
Sample population	The sample population is the group of individuals who have been selected from the target population (see target population) to participate in the survey.
Sample size	Sample size is the number of people selected for the sample. It should be calculated prior to conducting the survey.

Term	Definition
Sampling error	Sampling errors arise from estimating a population characteristic by looking at only one portion of the population rather than the entire population. It refers to the difference between the estimate derived from a sample survey and the 'true' value that would result if a census of the whole population were taken under the same conditions.
Sampling frame	A list of the units in the target population, for example an electoral roll, a population register, or a telephone book. For the sample to be representative of the target population, the sampling frame should include all people in the population (or sub-population) only once, will not include people who do not belong to that population, and will be up-to-date.
Sampling unit	The objects being selected for a survey. These units must cover the whole of the population and not overlap, i.e. every element in the population belongs to one, and one only, unit. In a simple random sample, the sampling units are the individuals themselves. In cluster sampling, it may be villages or other localities. In multi-stage sampling, the sampling units differ at each level of sampling.
Sampling weight	Sampling weights are weights that denote the inverse of the probability of selection.
Secondary sampling units (SSU)	The sampling units used for selection after the primary sampling units.
Serving (of fruit or vegetable)	For vegetables this refers to one cup of raw, leafy green vegetables, (spinach, salad etc.), one half cup of other vegetables, cooked or raw (tomatoes, pumpkin, beans etc.), or a half cup of vegetable juice. For fruits, this refers to one medium-sized piece of fruit (banana, apple, kiwi etc.) or a half cup of raw, cooked or canned fruit or a half cup of juice from a fruit (not artificially flavored).
Simple random sampling (SRS)	A probabilistic sampling method with only one stage of selection in which every member of the population has an equal chance.
Skew	A distribution of values that is asymmetric and therefore non-normal. Because many of the formulae for estimation are based on assumptions about normal distributions, skewness can seriously distort population estimates, and there must be a strategy for checking and coping with skewed data.
Standard deviation (SD)	A measure of dispersion, or variation. It is equal to the positive square root of the variance. It is a summary of how widely dispersed the values are around the mean.
Standard drink	The net alcohol content of a standard drink is generally 10g of ethanol depending on the country. This is the equivalent of 1 regular beer (285ml), a single measure of spirits (30 ml), a medium-sized glass of wine (120 ml), or a measure of aperitif (60 ml).
Standard error (SE)	A standard error is the standard deviation of an estimate, e.g. a mean. It can be used to calculate confidence intervals.
Strata	The plural form of stratum.

Term	Definition
Stratification	Process of dividing the sampling frame into mutually exclusive subgroups or strata. The sample is then drawn either proportionately or disproportionately from all strata.
Stratum	A partition of the population used in stratified sampling.
Systematic error	Systematic (one-sided) variation of measurements from the true values, leading to a biased estimate.
Systematic sampling	A probability sample selection method in which the sample is obtained by selecting every kth unit of the population, where k is an integer greater than 1. For example if k is 15 and the first unit is number 13, then subsequent units are 28, 43, 58 and so on. The first member of the sample must be selected randomly from within the first k units (a random start). If the target sample size is reached before all the kth members have been surveyed, recruitment must continue until all those selected have been surveyed.
Target population	The population from which the sample population is drawn. If the sample has been drawn correctly, the estimates obtained from the survey should be representative of the target population.
Variable	One item of information stored in a dataset, for example age or sex. Variables may be categorical or continuous, but should be clearly defined and consistently recorded.
Variance	A measure of the variation shown by a set of observations. The standard deviation is calculated by taking the square root of the variance.
Vigorous intensity activity	Refers to activities which take hard physical effort and which make you breathe much harder than normal. Examples include loading furniture, digging, playing football, tennis or fast swimming. Vigorous activities require an energy expenditure of greater than 6 METs.

