

# Part 1: Introduction and Roles

## Overview

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**In this part**

This Part covers the following topics

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# Section 1: Introduction

## Overview

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

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**Purpose** The purpose of the manual is to provide guidelines and supporting material for sites embarking on STEPS chronic disease risk factor surveillance, so they are able to:

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

**Intended audience** The manual is intended for all parties responsible for implementing STEPS chronic disease risk factor surveillance in their site. 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 part and sections relevant to their role in STEPS.

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**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 entry
- 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

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# Rationale for Surveillance of Chronic Disease Risk Factors

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**Introduction** Chronic, noncommunicable diseases are responsible for 60% of all deaths globally (1).

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

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**Main chronic diseases** The main chronic diseases attributable to the most common risk factors are:

- heart disease
- stroke
- cancer
- chronic respiratory diseases
- diabetes (1).

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

For STEPS surveillance, the term 'chronic diseases' is used because it emphasizes the following important shared features:

- 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;
  - health services must integrate the response to these diseases with the response to infectious diseases.
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**The evidence** Evidence of the increasing burden of chronic disease in low and middle income countries is now very clear.

- In 2005, the major chronic, noncommunicable diseases accounted for 60% of all deaths and 47% of the global burden of disease.
  - By 2020, these figures are expected to rise to 73% and 60%, respectively.
  - 80% of chronic disease deaths are already occurring in low and middle income countries (2,3).
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# Rationale for Surveillance of Chronic Disease Risk Factors, Continued

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## **Prevention**

The key to controlling the global epidemics of chronic diseases is primary prevention based on comprehensive population-wide programmes.

The aim is to avert these epidemics wherever possible and to control them as quickly as possible where they are already present.

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## **Basis of prevention**

The basis of chronic disease prevention is the identification of the major common risk factors and their prevention and control. The risk factors of today are the diseases of tomorrow.

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## **Objectives of surveillance**

The objectives of surveillance of chronic disease risk factors and selected chronic diseases are therefore to:

- collect consistent data across and within countries;
  - develop standardized tools to enable comparisons over time and across countries/sites;
  - prevent chronic disease epidemics before they occur;
  - help health services plan and determine public health priorities;
  - predict future caseloads of chronic diseases;
  - monitor and evaluate population-wide interventions.
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## Selected Risk Factors

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### Introduction

Common, preventable risk factors underlie most chronic diseases. These chronic disease risk factors are a leading cause of the death and disability burden in all countries, regardless of their economic development status (4). The leading risk factor globally is raised blood pressure, followed by tobacco use, raised total cholesterol, and low fruit and vegetable consumption. The major risk factors together account for approximately 80% of deaths from heart disease and stroke.

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### Risk factor definition

A 'risk factor' refers to any:

- attribute
- characteristic
- exposure of an individual

which increases the likelihood of developing a chronic noncommunicable disease.

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### Major behavioural risk factors

The major (modifiable) behavioural risk factors identified in the World Health Report 2002 are:

- tobacco use
  - harmful alcohol consumption
  - unhealthy diet (low fruit and vegetable consumption)
  - physical inactivity (5).
- 

### Major biological risk factors

The major biological risk factors identified in the World Health Report 2002 are:

- overweight and obesity
- raised blood pressure
- raised blood glucose
- abnormal blood lipids and its subset raised total cholesterol.

These eight major behavioural and biological risk factors are therefore included in STEPS chronic disease risk factor surveillance (5).

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## Selected Risk Factors, Continued

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**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 chronic disease 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 (6).
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## Item Rationales for Risk Factors

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### Introduction

The following paragraphs provide specific information and research findings for each of the eight major behavioural and biological risk factors that are included in STEPS chronic disease risk factor surveillance.

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### Tobacco use

- About 1.3 billion people worldwide smoke and the number of smokers continues to rise. Among these, about 84% live in developing and transitional economy countries (7).
- Tobacco is the fourth most common risk factor for disease and the second major cause of death worldwide. It is currently responsible for the death of one in ten adults worldwide (about 4.9 million deaths each year) (5).
- If the current smoking pattern continues, it is estimated that deaths from tobacco consumption will be about 10 million people per year by 2020 (5).
- 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 (8).
- Intra Uterine Growth Retardation, spontaneous miscarriages and low birth weight babies are known outcomes of smoking during pregnancy (8).
- A 2000 report estimated that productive assets equal to 1% or more of global GDP are lost each year due to smoking (9). Applying this result to global GDP for 2005 suggests that over US\$ 600 thousand million in productive assets may be lost annually (10).
- 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 (11-13).
- It has also been shown that non-smokers exposed to second hand smoke have a 25 to 35% increased risk of suffering acute coronary diseases, and increased frequency of chronic respiratory conditions (14). Small children whose parents smoke at home have an increased risk of suffering lower tract respiratory infections, middle ear infection and Sudden Infant Death Syndrome (SIDS) (15).
- The World Bank estimates that in high-income countries, smoking-related healthcare accounts for between 6 and 15 percent of all annual health-care costs (16).

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## Item Rationales for Risk Factors, Continued

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### **Harmful alcohol consumption**

- In 2000, alcohol use caused 3.2% of deaths (1.8 million) worldwide, and 4% of the global disease burden (5).
- Alcohol consumption is the leading risk factor for disease burden in low mortality developing countries and the third largest risk factor in developed countries (17).
- The proportion of disease burden attributable to alcohol use in the developing world is between 2.6% to 9.8% of the total burden for males and 0.5% to 2.0% of the total burden for females (18).
- Besides the direct toxic effects of intoxication and addiction, alcohol use causes about 20% to 30% of each of esophageal cancer, liver disease, homicide, epileptic seizures, and motor vehicle accidents worldwide (17).
- Heavy alcohol use increases the risk of cardiovascular disease (19-24) and stroke (25-29).
- Alcohol consumption during pregnancy is related to various risks to the fetus, which include Fetal Alcohol Spectrum Disorders. Alcohol consumption during pregnancy can also lead to spontaneous abortion, low birth weight and prematurity, and intra-uterine growth retardation (30-45).
- Higher volume of alcohol consumption is also associated with depression (17).
- Excessive alcohol consumption can severely impair an individual's functioning in social roles such as parent, spouse or partner (17).

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## Item Rationales for Risk Factors, Continued

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- Unhealthy diet**
- Overall, 2.7 million lives could potentially be saved each year worldwide if fruit and vegetable consumption were increased (3).
  - 26.7 million (1.8%) DALYs worldwide are attributable to low fruit and vegetable intake (5).
  - Of the burden attributable to low fruit and vegetable intake, about 85% was from cardiovascular diseases and 15% from cancers (5).
  - Low intake of fruits and vegetables is estimated to cause about 19% of gastrointestinal cancer, 31% of ischemic heart disease and 11% of stroke worldwide (5).
  - The consumption of at least 400g of fruit and vegetables per day is recommended as a population intake goal, to prevent diet-related chronic diseases (46).
  - Adequate consumption of fruit and vegetables reduces the risk for cardiovascular diseases (46), stomach cancer (47) and colorectal cancer (46).
  - There is convincing evidence that high intake of high-energy foods such as processed foods high in fats and sugars promote obesity compared to low-energy foods such as fruits and vegetables (46).
  - Higher unsaturated fatty acids from vegetable sources and polyunsaturated fatty acids have been associated with a reduced risk of type 2 diabetes (48,49). Replacement of saturated and trans fatty acids by polyunsaturated vegetable oils lower coronary heart disease risk (50).
  - Partial hydrogenation to increase the shelf life of poly unsaturated fatty acids creates trans fatty acids (46). Trans fatty acids increase the risk of coronary heart disease and render the plasma lipid profile even more atherogenic than saturated fatty acids by elevating LDL cholesterol and decreasing HDL cholesterol (51).
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- Physical inactivity**
- Physical inactivity causes about 1.9 million avoidable deaths per year worldwide (5).
  - Physically inactive persons have a 20% to 30% increased risk of all-cause mortality as compared to those who adhere to 30 minutes of moderate intensity physical activity on most days of the week (52).
  - Globally, physical inactivity accounts for 21.5% of ischemic heart disease, 11% of ischemic stroke, 14% of diabetes, 16% of colon cancer and 10% of breast cancer (53).
  - Physical inactivity is a major risk factor in promoting obesity, which itself is a risk factor for other chronic diseases (52).
  - Physical activity may have a protective effect against development of cognitive impairment and dementia, and reduces severity of symptoms among the depressed (54-56).
  - Physical activity is associated with the prevention of osteoporosis and related fractures (52).
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## Item Rationales for Risk Factors, Continued

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**Overweight and obesity** Some research findings related to overweight and obesity are as follows:

- At least 2.6 million people die each year as a result of being overweight or obese (3).
- Overweight and obesity lead to adverse metabolic effects on blood pressure, cholesterol, triglycerides and insulin resistance. Risks of coronary heart disease, ischemic stroke and type 2 diabetes mellitus increase steadily with increasing BMI (5).
- Raised BMI also increases the risks of cancer of the breast, colon, prostate, endometrium, kidney and gall bladder (5).
- Mortality rates increase with increasing degrees of overweight, as measured by BMI (46).
- To achieve optimum health, the median BMI for an adult population should be in the range of 21 to 23 kg/m<sup>2</sup>, while the goal for individuals should be to maintain BMI in the range 18.5 to 24.9 kg/m<sup>2</sup>. There is slightly increased risk of co morbidities for BMI 25.0 to 29.9, and moderate to severe risk of co morbidities for BMI greater than 30 (57).
- 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 chronic diseases (46).
- Waist circumference or waist-to-hip ratio are more powerful determinants of subsequent risk of type 2 diabetes than BMI (58-62).

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## Item Rationales for Risk Factors, Continued

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### **Raised blood pressure**

- Worldwide, raised blood pressure is estimated to cause 7.1 million deaths, about 13% of the total. This accounts for 64.3 million DALYs or 4.4% of the total (5).
- Raised blood pressure is a major risk factor for coronary heart disease and ischemic as well as hemorrhagic stroke (46).
- Blood pressure levels have been shown to be positively and continuously related to the risk of stroke and coronary heart disease (63). The risk of cardiovascular disease doubles for each increment of 20/10 mmHg of blood pressure, starting as low as 115/75 mmHg (64).
- Complications of raised blood pressure include heart failure, peripheral vascular disease, renal impairment, fundal hemorrhages, and papilloedema (65).
- Treating systolic blood pressure and diastolic blood pressure to targets that are less than 140/90 mmHg is associated with a decrease in cardiovascular complications (63).
- Stage 1/Grade 1 hypertension, is defined in a clinical setting when the mean blood pressure is equal to or above 140/90 mmHg and less than 160/100 mmHg on two or more measurements on each of two or more visits on separate days (63-65).
- Stage 2/Grade 2 hypertension is defined in a clinical setting when the mean blood pressure is equal to or more than 160/100 mmHg and less than 180/110 mmHg on two or more measurements on each of two or more visits on separate days (63-65).
- Stage 3/Grade 3 hypertension is defined in a clinical setting when the mean blood pressure is equal to or more than 180/110 mmHg during two or more measurements on each of two or more visits on separate days (63-65).

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## Item Rationales for Risk Factors, Continued

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### **Raised blood glucose**

- It is predicted that there will be at least 366 million people in the world with diabetes by the year 2030 (66).
- The excess mortality attributable to diabetes in the year 2000 was estimated to be 2.9 million deaths, equivalent to 5.2% of all deaths. In people 35-64 years old, 6-27% of deaths were attributable to diabetes (67).
- Impaired glucose tolerance and impaired fasting glycaemia are risk categories for future development of diabetes and cardiovascular disease (68).
- The age-adjusted mortality, mostly due to coronary heart disease in many populations, is 2-4 times higher than in the non-diabetic population (69). People with diabetes have a twofold increase risk of stroke (70).
- Diabetes is the leading cause of renal failure in many populations in both developed and developing countries (71).
- Lower extremity amputations are at least 10 times more common in people with diabetes than in non-diabetic individuals in developed countries, and more than half of all non-traumatic lower limb amputations are due to diabetes (72).
- Diabetes is one of the leading causes of visual impairment and blindness in developed countries (73,74).
- People with diabetes require at least 2-3 times the health care resources than people who do not have diabetes, and diabetes care accounts for up to 15% of national healthcare budgets (75,76).
- There is a long asymptomatic period during which diabetes can be detected (77,78).
- Clinical trials have shown that almost two-thirds of type 2 diabetes can be prevented or postponed (79-81).

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### **Abnormal blood lipids**

- Raised cholesterol is estimated to cause 18% of the global cerebrovascular disease and 56% of global ischemic heart disease. Overall this amounts to about 4.4 million deaths (7.9% of total) and 40.4 million DALYs (2.8% of total) (5).
  - Raised total cholesterol is a major cause of disease burden in both the developed and developing world as a risk factor for Ischemic heart disease and Stroke (2).
  - A 10% reduction in serum cholesterol in men aged 40 can result in a 50% reduction in heart disease within 5 years, while an average of 20% reduction in heart disease occurs within 5 years in men aged 70 years (82).
  - A 4.6% reduction of population mean of total cholesterol had the greatest impact of all risk factors in decreasing CHD mortality in Ireland; a full 30 % reduction in mortality was attributable to this reduction alone (83).
  - Levels of plasma HDL cholesterol are inversely related to coronary artery disease incidence, and the relationship is independent of total cholesterol, LDL and triglyceride levels (84).
  - Increased triglycerides is an independent risk factor for coronary heart disease after controlling for LDL and HDL cholesterol (85).
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# WHO STEPS Overview

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## Introduction

The WHO STEPwise approach to surveillance (STEPS) is the WHO's recommended tool for surveillance of chronic diseases and their risk factors.

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

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## 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 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.
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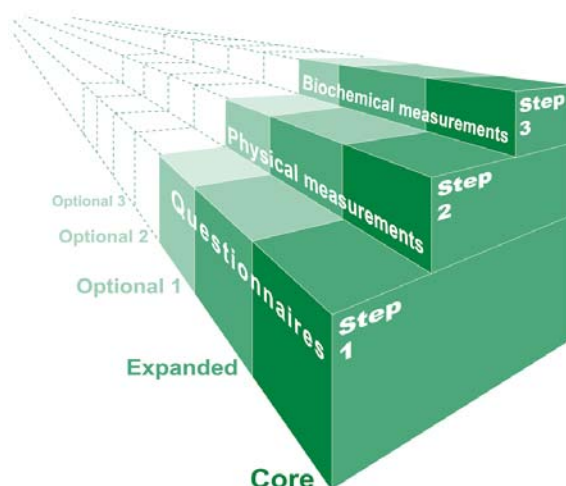
## Population focus

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

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## STEPS diagram

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



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## WHO STEPS Overview, Continued

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**STEPS Instrument** The STEPS tool used to collect data and measure chronic disease 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:

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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"><li>• socio-demographic information</li><li>• tobacco and alcohol use</li><li>• nutritional status</li><li>• physical activity.</li></ul>	All countries/sites 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"><li>• are overweight and obese</li><li>• have raised blood pressure.</li></ul>	Most countries/sites should undertake Step 2.
3	Taking blood samples in a clinic.	To measure prevalence of diabetes or raised blood glucose and abnormal blood lipids.	Only recommended for well- resourced settings.

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## 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 and clinical resources) in each country setting.

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

<b>STEPS Core, Expanded, and Optional Items</b>			
	<b>Core Items</b>	<b>Expanded Items</b>	<b>Optional Items</b>
<b>Step 1 Behavioural</b>	Basic demographic information, including age, sex, literacy, and highest level of education  Tobacco use  Alcohol consumption  Fruit and vegetable consumption  Physical activity	Expanded demographic information including years at school, ethnicity, marital status, employment status, household income  Smokeless tobacco use  Past 7 days drinking  Oil and fat consumption  History of blood pressure, treatment for raised blood pressure  History of diabetes, treatment for diabetes	Mental health, intentional and unintentional injury and violence, oral health and sexual behaviours       Objective measure of physical activity behaviour
<b>Step 2 Physical measurements</b>	Weight and height, waist circumference, blood pressure	Hip circumference	Skin fold thickness, assessment of physical fitness
<b>Step 3 Biochemical measurements</b>	Fasting blood sugar, total cholesterol	HDL-cholesterol and fasting triglycerides	Oral glucose tolerance test, urine examination, salivary cotinine

**WHO Recommendations** For countries that are just getting started with chronic disease surveillance, the core and expanded questions and measurements for Steps 1 and 2 are recommended.

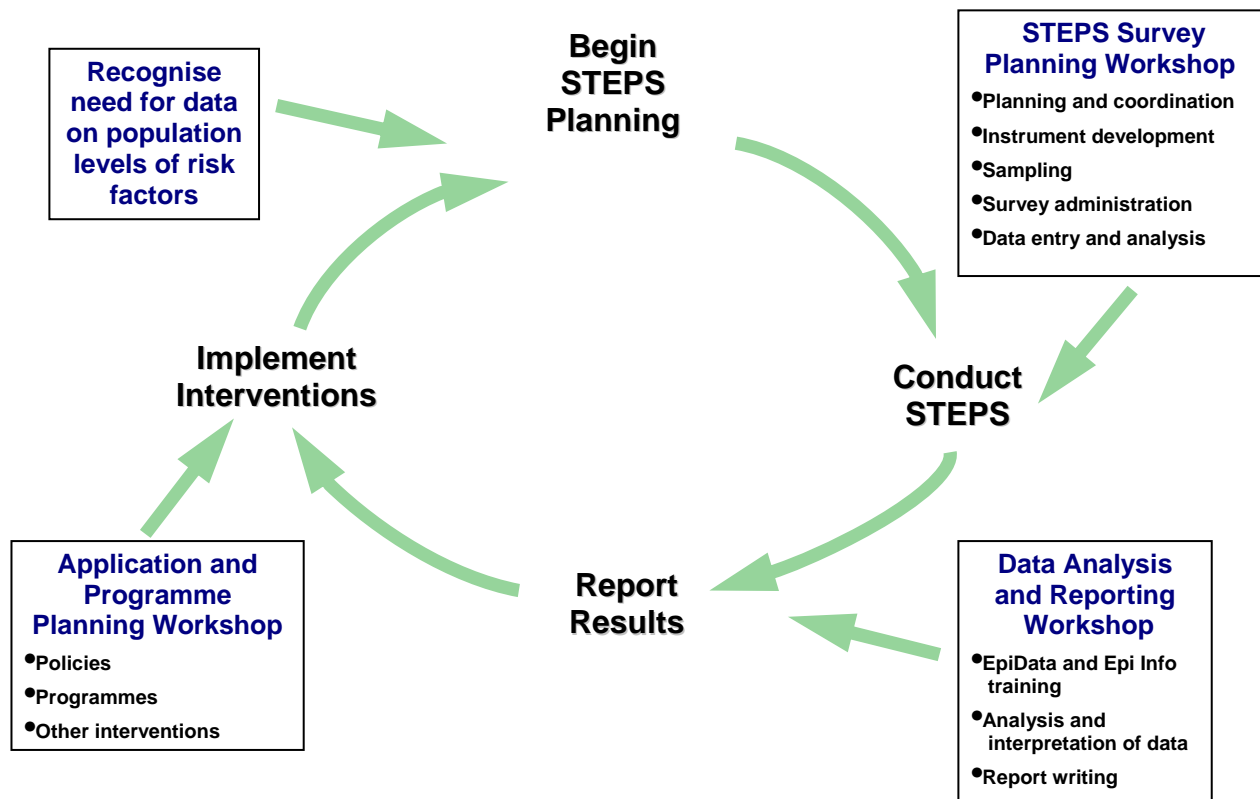
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## WHO STEPS Overview, Continued

### 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.



## 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 you plan your STEPS survey.

### Key stages, tasks and timeframes

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

Task Name	Duration	M1	M2	M3	M4	M5	M6	M7	M8
Planning and Preparations	8 weeks	[Gantt chart bar from M1 to M2]							
Recruitment and Training	2 weeks	[Gantt chart bar from M2 to M3]							
Data Collection	8 weeks	[Gantt chart bar from M3 to M4]							
Data Entry	8 weeks	[Gantt chart bar from M4 to M5]							
Data Analysis	8 weeks	[Gantt chart bar from M5 to M6]							
Reporting and Disseminating Results	8 weeks	[Gantt chart bar from M6 to M7]							

### eSTEPS

WHO STEPS now has software and supporting materials to implement STEPS using a Personal Digital Assistant (PDA). This electronic version of STEPS is called eSTEPS. As a PDA-based data collection tool, eSTEPS provides the following benefits:

- 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 (one PDA vs. hundreds of paper instruments);
- no data entry needed
  - no cost for data entry;
  - fewer errors arising from data entry;
  - final dataset can be created quickly following completion of data collection.

While the STEPS Manual has been written with paper-based data collection in mind, much of it still applies for those sites wishing to implement eSTEPS. For these sites, there are two additional documents which will be of particular use as they prepare for data collection and data analysis. These are:

- The eSTEPS Installation Guide
- The eSTEPS User Manual.

Both of these documents are available on the STEPS CD and STEPS website.



## Section 2: Roles and Responsibilities

### Overview

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

- country (national or subnational)
- regional
- global.

They all have key roles, which are described below.

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**Purpose** The purpose of this section is to:

- provide an overview of the relationships between all those involved in a STEPS surveillance study;
  - provide a description of each of the core roles involved.
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**In this section** This section contains information outlining the responsibilities for the following:

<b>Topic</b>	<b>See Page</b>
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STEPS Site Coordinator	1-2-3
STEPS Coordinating Committee	1-2-5
Data Collection Team	1-2-6
Data Entry Team	1-2-9
Statistical Adviser	1-2-11
Data Analyst	1-2-12
WHO Offices	1-2-13

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# Relationships Between Survey Team and WHO

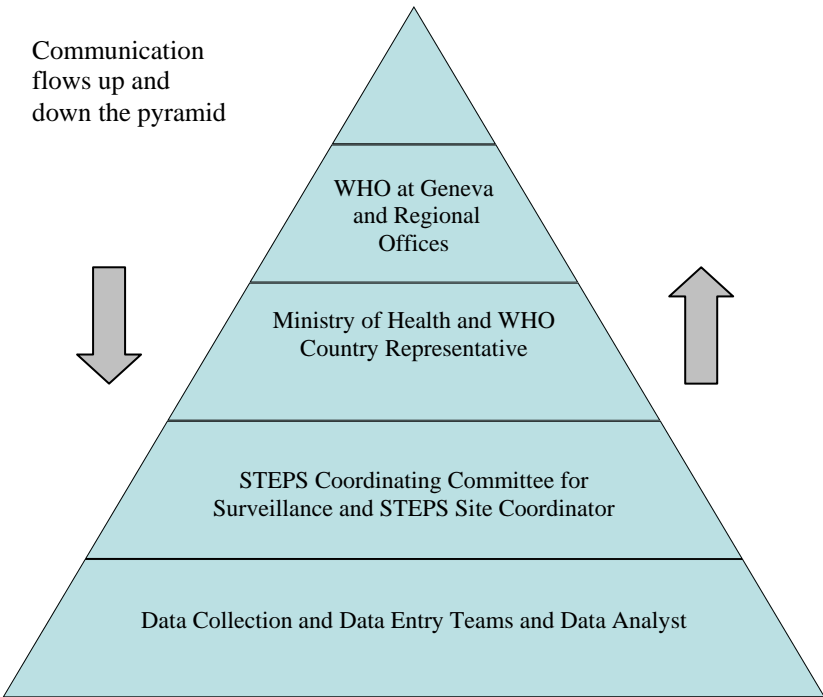
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**Introduction** The survey team is all those involved in the data collection, entry and analysis processes.

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

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**Roles and Relationships** The diagram below shows the lines of communication between all the players in a WHO STEPS Surveillance.



# STEPS Site Coordinator

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**Introduction** The STEPS Site Coordinator is the key person responsible for planning and implementing STEPS.

The STEPS Site Coordinator should be familiar with the entire manual to understand the whole STEPS process.

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**Skills and attributes** The STEPS Site Coordinator will need to have the following general skills and attributes:

- 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 meetings of the STEPS Coordinating Committee;
  - good understanding of the philosophy and objectives of the STEPS risk factor surveillance process.
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**Level of authority** The STEPS Site Coordinator should have sufficient authority to:

- 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.
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## STEPS Site Coordinator, Continued

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### Core roles

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

<b>Role</b>	<b>Description</b>
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 set up of a STEPS surveillance site
5	Recruiting and training field staff
6	Supervising the data collection and data entry 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 5.

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# STEPS Coordinating Committee

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

In countries where STEPS is nationally representative, a national committee will be established. In others, where STEPS is subnationally representative, a subnational committee will be set up.

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**Objectives** The main objective of the STEPS Coordinating Committee is to oversee the practical and logistic issues relating to the overall implementation of the STEPwise approach to chronic disease risk factor surveillance (STEPS).

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

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

This role is usually filled by the STEPS Site Coordinator.

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

- public health
  - epidemiology
  - survey statistics
  - clinical expertise in chronic diseases
  - experience as an advocate for preventing chronic diseases.
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## Data Collection Team

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### Introduction

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

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.

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### Data collection supervisor roles

The data collection supervisor may be the same person as the STEPS Site Coordinator.

The core roles of a data collection supervisor are listed in the table below. Specific tasks are identified in Part 2, Section 3; Part 3, Section 1; and Part 4, Section 1.

Role	Description
1	Training field staff
2	Obtaining and managing household lists and maps for each area, or other lists to be used as the sampling frame
3	Informing local authorities about the survey
4	Obtaining necessary venues, supplies and equipment
5	Supervising the interview process and recording daily activities
6	Ensuring data quality
7	Managing human resource performance and issues
8	Sending progress reports to STEPS Site Coordinator or regional focal point
9	Providing completed instruments to data entry supervisor at the end of each day

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### Skills and attributes

The data collection 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.
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## Data Collection Team, Continued

### Interviewer 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.

The core roles of an interviewer include:

Role	Description
1	Door knock selected households
2	Brief household members on purpose of the survey
3	Record all eligible participants on the Kish Household Coversheet and select one using the Kish method
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	Double check completed Step 1 questions
8	Take measurements and record results for Step 2 (if applicable)
9	Double check completed Step 2 information
10	Fill in Participant Feedback Form on results of Step 2 measurements for the participant
11	Make appointment for Step 3 (if applicable) and inform participant on fasting
12	Check all completed forms and hand to supervisor
13	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.

### Clinic health professional's roles

Clinic health professionals are those people recruited to take biochemical measurements in a clinic setting 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 a survey clinic health professional include:

Role	Description
1	Checking for appropriate participant consent
2	Taking blood samples from participants and recording results for Step 3
3	Labeling samples and recording Participant Identification Numbers (PIDs)

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## Data Collection Team, Continued

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### Laboratory technicians

Laboratory technicians are the people responsible for analysing the tests taken in the clinic setting for Step 3.

The core roles of a laboratory technician include:

Role	Description
1	Testing samples for glucose and lipids
2	Recording results and passing records on for data entry
3	Identifying out-of-range results for clinical attention
4	Ordering supplies

**Note:** In rare cases, Step 3 is done within the participants' households. In these cases, the interviewers should be trained to conduct Step 3.

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### Administrative staff

Administrative staff are required to:

- 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.
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# Data Entry Team

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**Introduction** The data entry team includes all those who have been recruited to enter, check, and validate the data gathered by the data collection team.

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**Supervisor** The data entry supervisor is responsible for planning and organizing staff and workloads to ensure work proceeds smoothly.

The data entry supervisor role may sometimes be filled by the STEPS Site Coordinator or the STEPS data analyst.

The core roles of a data entry supervisor are listed in the table below. Specific tasks are identified in Part 2, Section 4; Part 3, Section 5; and Part 4, Section 2.

Role	Description
1	Training data entry staff
2	Obtaining necessary hardware and software
3	Planning, preparing and setting up the computing environment
4	Supervising the data entry and validation processes
5	Managing human resource performance and data entry team issues
6	Seeking and providing advice on software support
7	Creating master data set
8	Reporting problems or interview errors to the data collection team supervisor

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**Skills and attributes**

Supervisors should have the following skills and attributes:

- ability to lead a team
  - systematic work practices
  - computer skills and operational experience.
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## Data Entry Team, Continued

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**Data entry staff** The data entry staff are all those who have been recruited to enter, check and validate the data gathered by the survey team.

The core roles of data entry staff are listed in the table below. Specific tasks are identified in Part 4, Section 2.

<b>Role</b>	<b>Description</b>
1	Logging receipt of completed instruments
2	Filing and organising paper copies of instruments
3	Entering survey data
4	Tracking instruments during data entry
5	Identifying errors and resolving problems with supervisor

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### **Skills and attributes**

Data entry staff should have the following skills and attributes:

- accurate keyboard (typing) skills;
  - computing experience or willingness to learn;
  - methodological and tidy work habits;
  - clear handwriting;
  - ability to follow instructions consistently and to raise concerns when appropriate;
  - interact efficiently with others to achieve accurate results.
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# Statistical Adviser

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**Introduction** The statistical adviser plays a key role in the sampling and data analysis process. The statistical adviser may be part of the STEPS Coordinating Committee and/or may serve as the data analyst. If a statistical adviser within a site cannot be identified, then the WHO Geneva STEPS team or the WHO Regional Office focal point will be able to advise and assist with this role.

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**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.

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**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.

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**Core roles of statistical adviser** The statistical adviser, under the guidance of the STEPS Coordinating Committee, will be responsible for:

- collecting the sample frame;
- drawing the survey sample;
- reviewing available tracking material and adapting it to the site-specific sample;
- applying weights to survey data;
- 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.

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# Data Analyst

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**Introduction** The data analyst should work closely with the STEPS Site Coordinator, the data entry team and the statistical adviser to produce results for inclusion in various STEPS site reports.

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**Data analyst** A data analyst is someone who has been assigned to undertake the descriptive and statistical analysis of data gathered using the STEPS Instrument.

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**Core roles** The core roles of the data analyst are listed in the table below. Specific tasks are identified in Part 2, Section 5; Part 3, Section 5 and Part 4, Section 3.

<b>Role</b>	<b>Description</b>
1	Importing dataset, creating database, and data guardianship*
2	Performing any needed cleaning of the dataset
3	Generating derived variables
4	Undertaking exploratory data analysis
5	Undertaking descriptive analyses (e.g. means and proportions)
6	Undertaking additional analyses if needed, under the guidance of the statistical adviser
7	Calculating weights for estimation, under the guidance of the statistical adviser
8	Producing tables and graphs for reports
9	Assisting in report preparation

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

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**Attributes and qualifications** It is desirable that the data analyst has some qualifications and experience in data analysis and statistics.

People asked to perform this role should:

- have at least a science or computing background;
  - be competent working on a computer;
  - be able to understand outputs of means, proportions and confidence intervals.
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## WHO Offices

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### Introduction

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

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### 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 STEPS Surveillance sites.

The core roles of the WHO Geneva STEPS team include:

Role	Description
1	Providing training, tools, blood pressure monitoring devices, software, guidance and advice for all aspects of STEPS planning, implementation, analysis and dissemination of data
2	Communicating with the STEPS Regional focal point and with the STEPS Site Coordinator
3	Developing a global strategy in chronic disease risk factor surveillance

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### 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 STEPS sites.

The core roles of the WHO Regional Office include:

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

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## WHO Offices, Continued

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

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

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**WHO country representative** The WHO country representative is the local facilitator, and is responsible for:

- facilitating resource mobilization for chronic disease surveillance;
- serving on the STEPS coordination committee;
- facilitating communications between the STEPS site and the WHO Regional Office.

**Note:** The WHO country representative does not usually have a technical role.

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**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.

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