WHO STEPwise approach to chronic disease risk factor surveillance (STEPS)

Promotion of Fruits and Vegetables for Health

African Regional Workshop for Anglophone Countries

Mount Meru Hotel, Arusha, Tanzania

26 – 30 September, 2011

Abdikamal Alisalad
Health Risk Factors
WHO/AFRO, Brazzaville, Congo
Overview

- Why chronic disease risk factor surveillance?
- What is STEPS?
- What approach does STEPS use?
- Country examples and selected results
- Which countries are involved?
Chronic Non-Communicable Diseases (NCDs)

Projected main causes of death, worldwide, all ages, 2005

- Communicable diseases, maternal and perinatal conditions, and nutritional deficiencies: 30%
- Cardiovascular diseases: 30%
- Injuries: 9%
- Other chronic diseases: 9%
- Diabetes: 2%
- Chronic respiratory diseases: 7%
- Cancer: 13%

TOTAL DEATHS 2005: 58 million

Surveillance and Population-based Prevention
Department of Chronic Diseases and Health Promotion

Source: WHO, Preventing Chronic Diseases, 2005
Chronic Non-Communicable Diseases (NCDs)

Projected main causes of death, worldwide, all ages, 2005

- Communicable diseases, maternal and perinatal conditions, and nutritional deficiencies: 30%
- Cardiovascular diseases: 30%
- Injuries: 9%
- Other chronic diseases: 9%
- Diabetes: 2%
- Chronic respiratory diseases: 7%
- Cancer: 13%

TOTAL DEATHS 2005: 58 million

35 000 000 people died from chronic diseases in 2005

Source: WHO, Preventing Chronic Diseases, 2005
Chronic Non-Communicable Diseases (NCDs)

Projected main causes of death, worldwide, all ages, 2005

- Communicable diseases, maternal and perinatal conditions, and nutritional deficiencies: 30%
- Cardiovascular diseases: 30%
- Injuries: 9%
- Other chronic diseases: 9%
- Diabetes: 2%
- Chronic respiratory diseases: 7%
- Cancer: 13%

TOTAL DEATHS 2005
58 million

35 000 000 people died from chronic diseases in 2005

60% of all deaths are due to chronic diseases

Source: WHO, Preventing Chronic Diseases, 2005
Low and middle income countries are the most affected

80% of chronic disease deaths occur in low- and middle income countries
The problem has serious impact!

Chronic diseases

- Have major adverse effects on the **quality of life** of affected individuals;

- Cause **premature** deaths:
  - Half of chronic disease deaths occur at age <70 years
  - One quarter occurs at age <60 years.

- Create large adverse **economic effects** on families, communities and societies in general.
Prevention is possible

Largest part of main chronic diseases can be prevented if risk factors are eliminated

Heart disease: 80% preventable, 20% not preventable
Stroke: 80% preventable, 20% not preventable
Type 2 diabetes: 80% preventable, 20% not preventable
Cancer: 60% preventable, 40% not preventable
## Risk Factors Common to Major Chronic Disease Conditions

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Cardiovascular diseases</th>
<th>Diabetes</th>
<th>Cancer</th>
<th>Respiratory Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Alcohol</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low fruit &amp; vegetable</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Obesity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Raised blood pressure</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raised blood glucose</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Abnormal blood lipids</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Why measure these risk factors?

- These risk factors have the greatest impact on chronic disease morbidity and mortality.
- Modification is possible through effective prevention.
- Measurement of risk factors proven to be valid.
- Measurements can be obtained using appropriate ethical standards.
- Once risk factor levels are known, this information can be used to set up NCD interventions and programmes.
What is STEPS?

- System for surveillance of these chronic disease risk factors
- Designed for implementation in low- and middle income countries
Objectives of STEPS

- Gather information on chronic disease risk factors to help plan programmes and interventions
- Collect standardized risk factor data to enable comparisons, but allow flexibility
- Provide an entry point for low- and middle income countries to get started on chronic disease surveillance
- Build capacity in countries
- Integrated approach at low cost
STEPS methods – The risk factors

- **Behavioural Risk Factors**
  - Tobacco use
  - Harmful alcohol consumption
  - Unhealthy diet (low fruit and vegetable consumption)
  - Physical inactivity

- **Biological Risk Factors**
  - Overweight and obesity
  - Raised blood pressure
  - Raised blood glucose
  - Abnormal blood lipids
Different levels of risk factor assessment:

- STEP 1 – questionnaire
- STEP 2 – physical measurements
- STEP 3 – blood samples

Three modules:

- Core
- Expanded
- Optional
Step 1: Questionnaire

Core:
- Socio-demographic info
- Tobacco use
- Alcohol consumption
- Fruit & vegetable consumption
- Physical inactivity
- History of high BP and diabetes

Expanded:
- Past smoking, smokeless tobacco, ETS
- Drinking with meals, past 7 days drinking
- Oil consumption, meals outside a home
- Sedentary behaviour
- Treatment of high BP and diabetes
Step 1, continued

Diet questions

- **Core** diet questions:
  - Intake of fruit and vegetables in a typical week

- **Expanded** diet questions:
  - Oil or fat used for cooking
  - Meals outside the home
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.

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a typical week, on how many days do you eat fruit? (USE SHOWCARD)</td>
<td>Number of days</td>
<td>D1</td>
</tr>
<tr>
<td></td>
<td>Don’t Know 77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If Zero days, go to D3</td>
<td></td>
</tr>
<tr>
<td>How many servings of fruit do you eat on one of those days? (USE SHOWCARD)</td>
<td>Number of servings</td>
<td>D2</td>
</tr>
<tr>
<td></td>
<td>Don’t Know 77</td>
<td></td>
</tr>
<tr>
<td>In a typical week, on how many days do you eat vegetables? (USE SHOWCARD)</td>
<td>Number of days</td>
<td>D3</td>
</tr>
<tr>
<td></td>
<td>Don’t Know 77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If Zero days, go to D5</td>
<td></td>
</tr>
<tr>
<td>How many servings of vegetables do you eat on one of those days? (USE SHOWCARD)</td>
<td>Number of servings</td>
<td>D4</td>
</tr>
<tr>
<td></td>
<td>Don’t know 77</td>
<td></td>
</tr>
</tbody>
</table>
### EXPANDED: Diet

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>What type of <strong>oil or fat is most often</strong> used for meal preparation in your household? <strong>(USE SHOWCARD)</strong> <strong>(SELECT ONLY ONE)</strong></td>
<td>Vegetable oil 1, Lard or suet 2, Butter or ghee 3, Margarine 4, Other 5, None in particular 6, None used 7, Don’t know 77</td>
<td>D5</td>
</tr>
<tr>
<td>On average, how many meals per week do you eat that were not prepared at a home? <strong>By meal, I mean breakfast, lunch and dinner.</strong></td>
<td>Number, Don’t know 77</td>
<td>D6</td>
</tr>
</tbody>
</table>

*If Other, go to D5 other*
# Fruit and vegetable serving size Show Card, example

<table>
<thead>
<tr>
<th>VEGETABLES are considered to be:</th>
<th>1 Serving =</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw green leafy vegetables</td>
<td>1 cup</td>
<td>Spinach, salad, etc.</td>
</tr>
<tr>
<td>Other vegetables, cooked or chopped raw</td>
<td>½ cup</td>
<td>Tomatoes, carrots, pumpkin, corn, Chinese cabbage, fresh beans, onion, etc.</td>
</tr>
<tr>
<td>Vegetable juice</td>
<td>½ cup</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FRUIT Is considered to be:</th>
<th>1 Serving =</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple, banana, orange</td>
<td>1 medium size piece</td>
<td></td>
</tr>
<tr>
<td>Chopped, cooked, canned fruit</td>
<td>½ cup</td>
<td></td>
</tr>
<tr>
<td>Fruit juice</td>
<td>½ cup</td>
<td>Juice from fruit, not artificially flavoured</td>
</tr>
</tbody>
</table>

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: Tubers such as potatoes and cassava should not be included.
Step 2: Physical measurements

- **Core:**
  - Blood pressure
  - Height
  - Weight
  - Waist circumference

- **Expanded:**
  - Hip circumference
  - Heart rate
Step 3: Biochemical measurements

- **Core:**
  - Fasting blood sugar
  - Fasting total cholesterol

- **Expanded:**
  - Triglycerides
  - HDL cholesterol
Optional modules

- Violence and injury
- Oral health
- Sexual behaviours
Why a STEPwise framework to surveillance?

- Standard methods and tools, but also
- Flexible for adaptation to cultural and local needs
- Simple
- Hierarchical
- Can add on to existing systems
STEPS methods – recommendations

- Targets a scientific sample of adults aged 25 – 64
- Household surveys conducted using trained interviewers for STEP 1 (questionnaire) and STEP 2 (physical measures)
- Clinic based for STEP 3 (biochemical measures)
- Countries should at least do core questions STEP 1 and 2
- Repeat surveys every 3 - 5 years
Recognize need for data on chronic disease risk factors

Begin STEPS Planning

Implement Interventions

Conduct STEPS

Report Results

STEPS Implementation Workshop

STEPS Data Collection Workshop

STEPS Data Analysis & Reporting Workshop

Application and Program Planning Workshop

STEPS methods – the Surveillance loop
STEPS methods – the workshops

- STEPS implementation workshop
  Overview, proposal, preparation, roles, sampling, tools

- STEPS data collection workshop
  Field work procedures

- STEPS data analysis and reporting workshop
  EpiInfo training, data management, result interpretation, report writing

- Application and planning workshop
  Intervention planning, policies
## Status of STEPS Implementation

<table>
<thead>
<tr>
<th>Region</th>
<th># countries active (attended ≥ 1 workshop) (123)</th>
<th># countries finished data collection (83)</th>
<th># countries with &gt; 1 survey (19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFRO</td>
<td>46</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>AMRO</td>
<td>23</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>EMRO</td>
<td>18</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>EURO</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SEARO</td>
<td>10</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>WPRO</td>
<td>25</td>
<td>22</td>
<td>5</td>
</tr>
</tbody>
</table>
Website and contact

STEPS website:

http://www.who.int/chp/steps/en/

STEPS team Geneva:

Leanne Riley  rileyl@who.int
Melanie Cowan  cowanm@who.int
Regina Guthold  gutholdr@who.int

STEPS Focal Person in AFRO:

Abdikamal Alisalad  alisalada@afro.who.int
**STEPwise approach to surveillance (STEPS)**

The WHO STEPwise approach to Surveillance (STEPS) is a simple, standardized method for collecting, analysing and disseminating data in WHO member countries.

By using the same standardized questions and protocols, all countries can use STEPS information not only for monitoring within-country trends, but also for making comparisons across countries. The approach encourages the collection of small amounts of useful information on a regular and continuing basis.

There are currently two primary STEPS surveillance systems: the STEPwise approach to risk factor surveillance and the STEPwise approach to stroke surveillance.