



Pan American Health Organization



Regional Office of the
World Health Organization

<http://www.paho.org>

Public Health Surveillance
for Chronic Diseases and
Their Risk Factors:

The Pan American Version
of the STEPs Instrument



The Causal Chain

RFs = Risk Factors

Behavioral RFs

- * Tobacco
- * Alcohol
- * Physical inactivity
- * Nutrition

Physiological RFs

- * BMI
- * Blood pressure
- * Blood glucose
- * Cholesterol

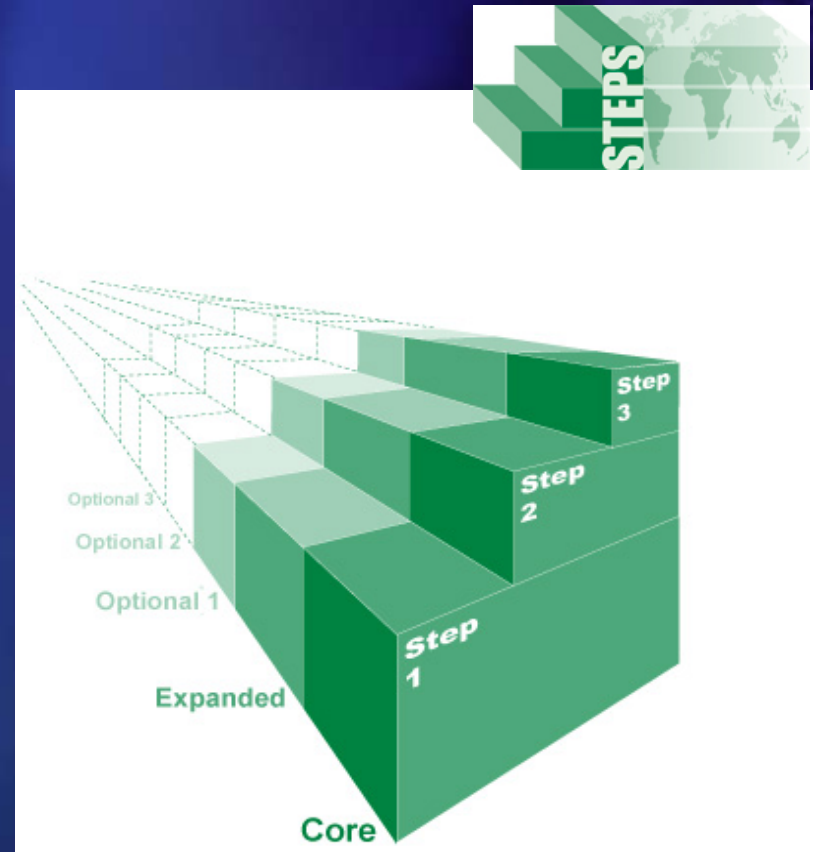
Disease Outcomes

- * Heart disease
- * Stroke
- * Diabetes
- * Cancer
- * Respiratory



Why STEPS or surveillance?

- It is a very simple system
- It is hierarchical, depending of the need of the country
- It is a method with standardized tools
- Flexible; risks, conditions, age groups geographic areas, for cultural and local adaptations
- It can be added to existing systems



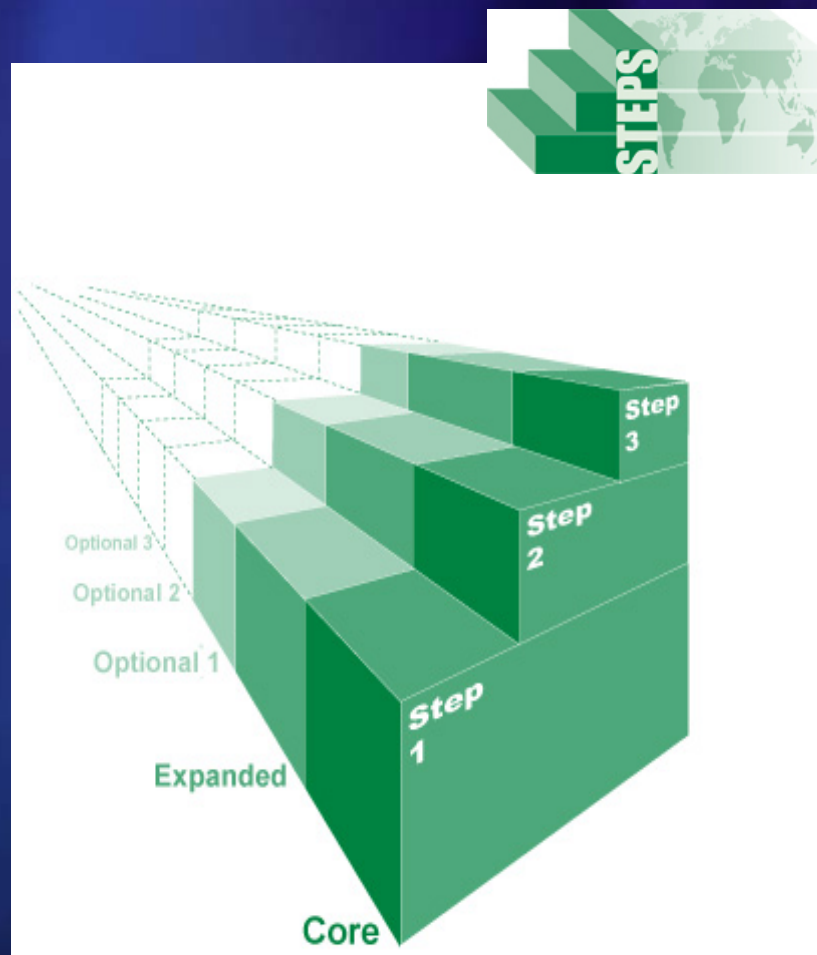
STEPS for Risk Factors

Different Levels

- Questionnaire
- Physical measurement
- Blood sample

Different Levels of Evaluation of each RF

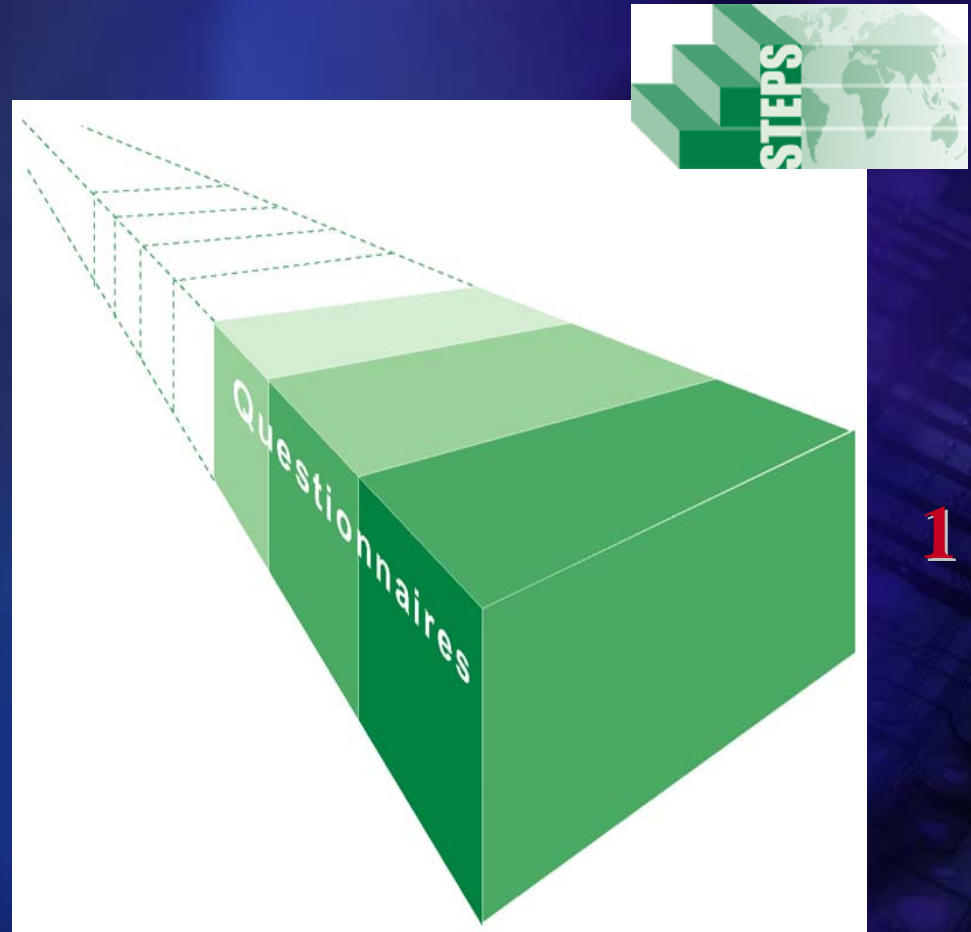
- Core-basic
- Expanded
- Optional



STEPS 1: Core-Basic

Demography and Behaviour

- **Basic sociodemographic information**
- **Tobacco use**
- **Alcohol consumption**
- **Fruit and vegetable consumption**
- **Physical inactivity**



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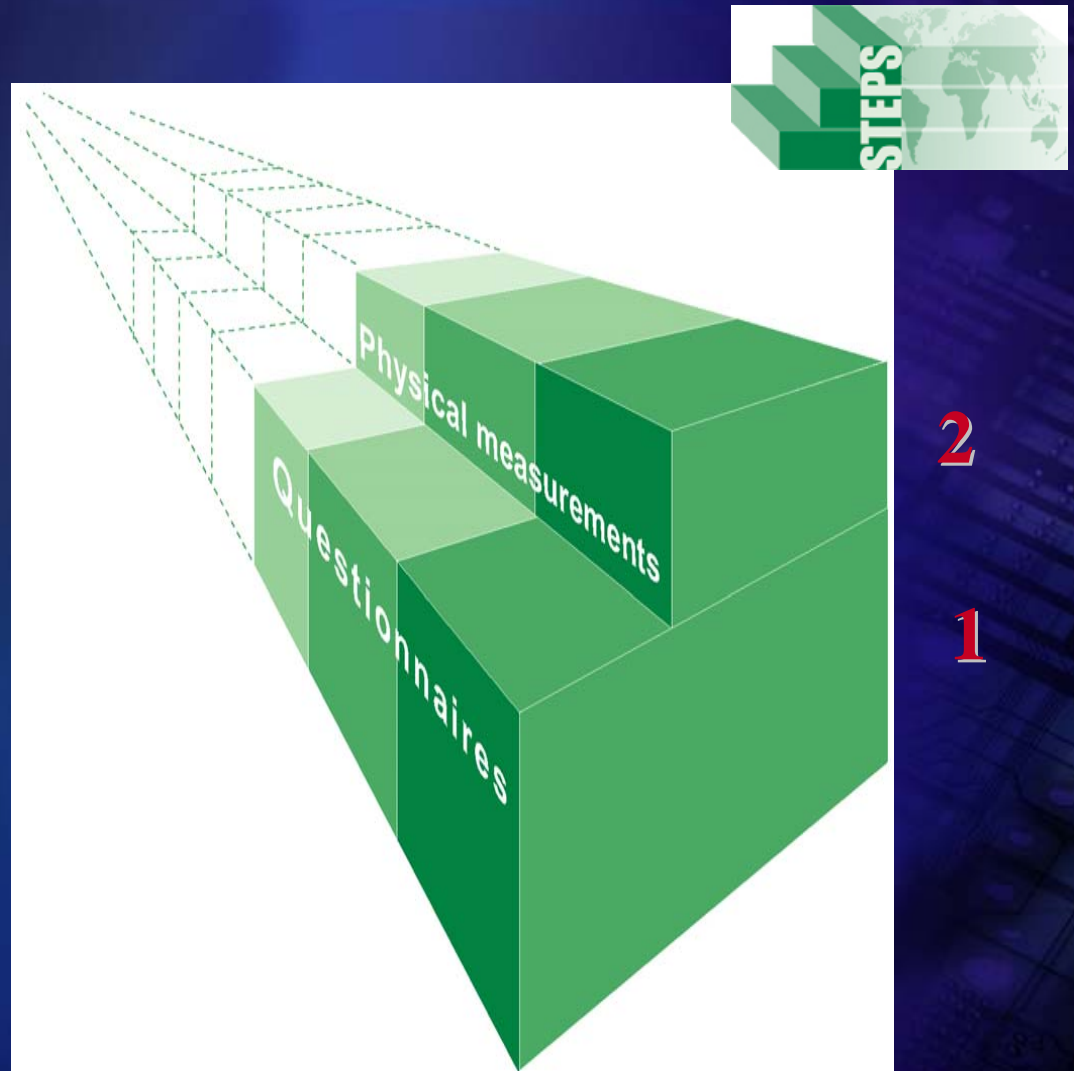


Pan American
Health
Organization

STEPS 2 Core-Basic

Physical Measurement

- Height
- Weight
- Waist circumference
- Blood pressure

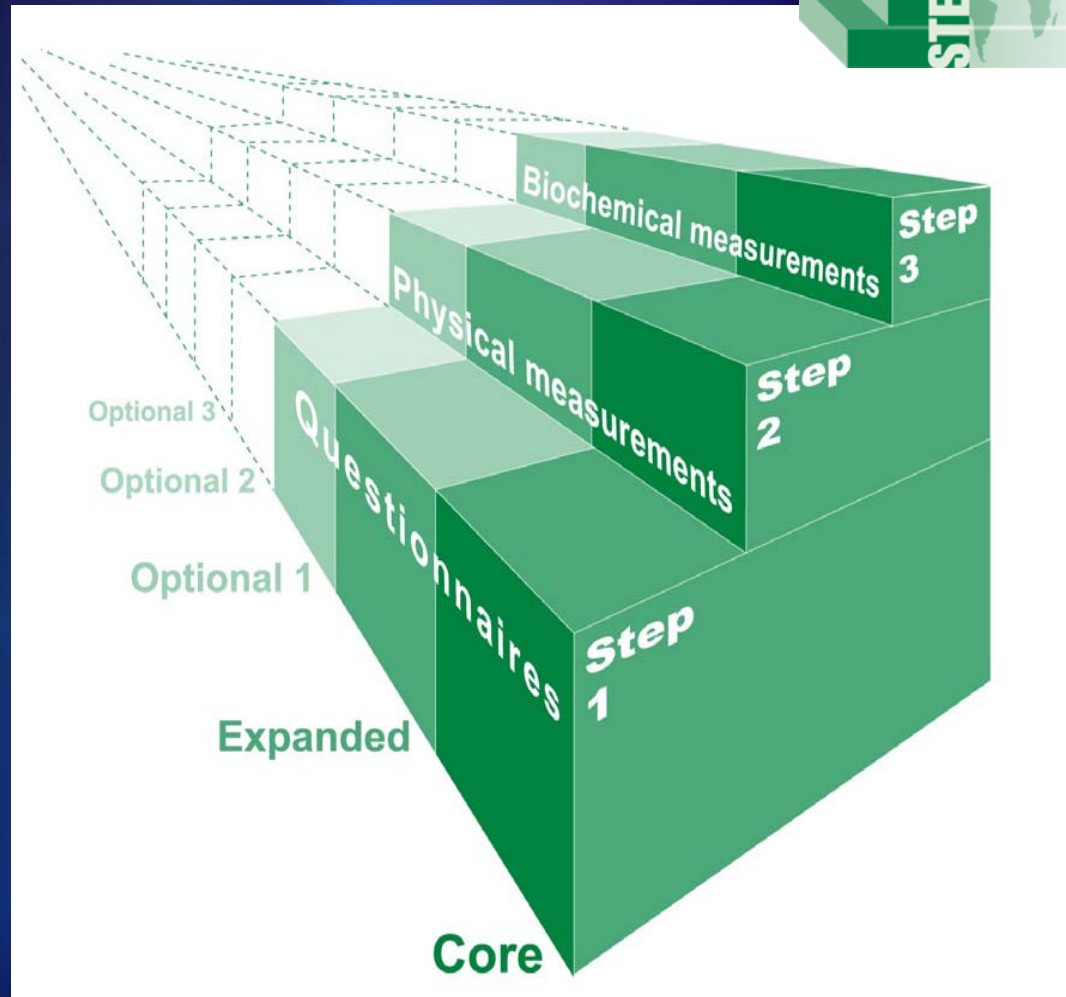


STEPS 3: Core-Basic



Biochemical Measurements

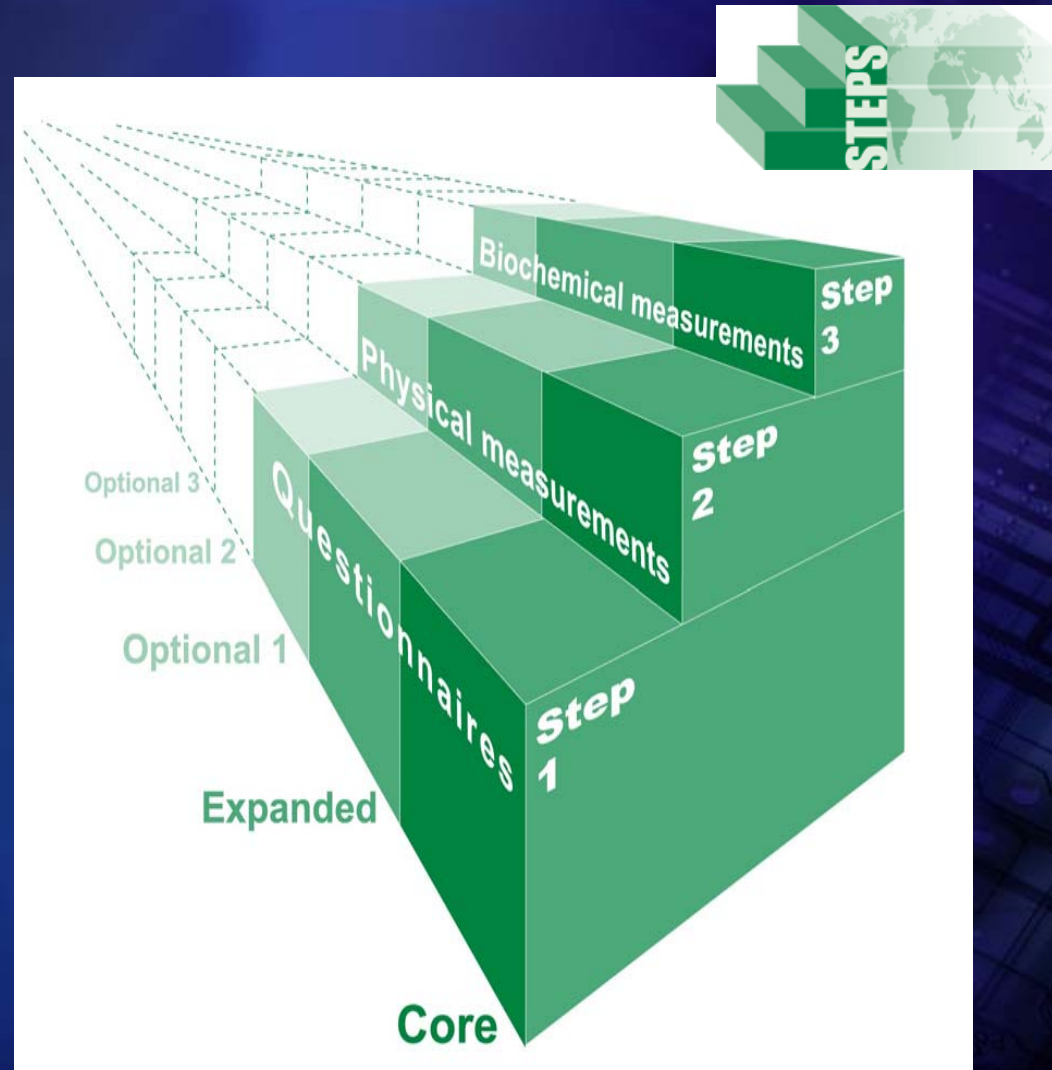
- **Glucose**
- **Cholesterol total**



STEPS 1: Expanded

Demography and Behaviour

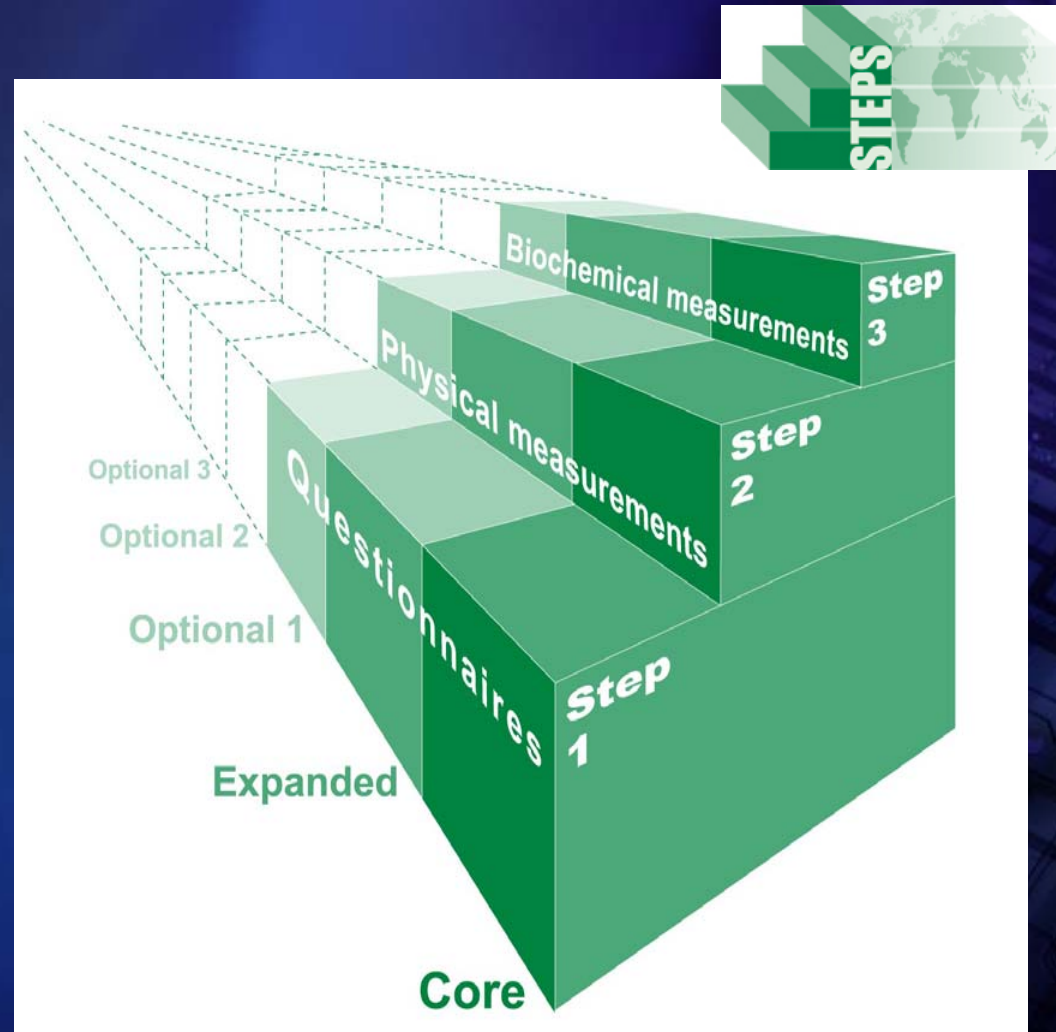
- Use of other types of tobacco
- Tobacco cessation
- Excessive use of alcohol
- Consumption of fat
- Family history



STEPS 2: Expanded

Physical Measurement

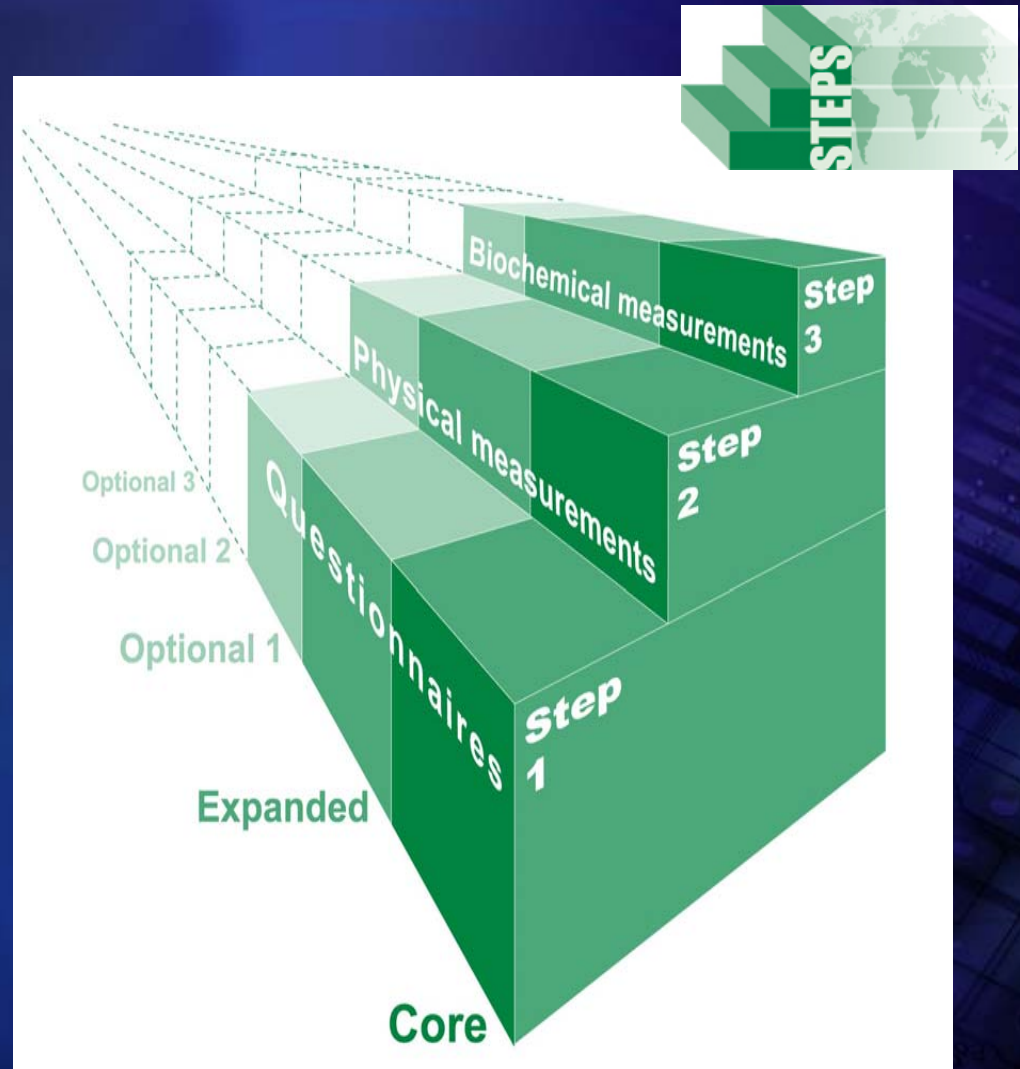
- Hip circumference
- Heart rate



STEPS 3: Expanded

Biochemical Measurements

- Triglycerides
- Cholesterol HDL



Optional Modules

- Family history
- History of diabetes, hypertension , elevated cholesterol, and elevated sugar
- Women's health
- Mental Health
- Violence
- Oral health
- Any other behavior



PAN American Version of STEPs

- Same methodology
- Added Regionally-specific core and expanded questions
- Added modules on family history, screening participation

Components

- Questionnaire in Spanish and English
- Field manual
- Sampling instructions
- Data-entry and analysis software



STEPS Methodology

- Household survey
- Biochemical measurement
 - Dry method (capillary blood)
 - Wet method (vein blood)
- Representative sample of the population 25– 64, stratified by age and sex
- Use of standardized instrument to get comparative data



Minimum Sample

<i>Age groups</i>	<i>Goal</i>		<i>Selection</i>	
	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>
25–34	250	250	275	275
35–44	250	250	275	275
45–54	250	250	275	275
55–64	250	250	275	275
Total	1,000	1,000	1,100	1,100
	2,000		2,200	



Laboratory Methods

<i>Method</i>	<i>Device</i>	<i>Advantages</i>	<i>Limitations</i>
Dry	<ul style="list-style-type: none"> ■ Reflotron SingleChannel ■ Gluc201 	<ul style="list-style-type: none"> ■ Quick results ■ Capillary blood sample ■ No transport ■ Convenient for the participant ■ Option for limited resources 	<ul style="list-style-type: none"> ■ Need training and supervision ■ Quality control documentation is limited
Wet	<ul style="list-style-type: none"> ■ Hitachi 917, 911 ■ 'Gold Standard' 	<p>Results reliable</p> <ul style="list-style-type: none"> ■ Central Lab (external and internal lab control) ■ Calibration possible ■ Option for resources that are not limited 	Costly



Available STEPS Materials

- *Data Analysis*
 - STEPS database with Epi Info programs
 - Fact Sheet Analysis Guide
 - Data Book
- *Reporting*
 - Data Book
 - Fact Sheet
 - Site Report



STEPS Database and Epi Info Programs

- There are automated analysis programs in Epi Info that will run the basic analysis (weighted and unweighted)
- These programs can be used by all sites, regardless of the version of the Instrument that was used
- The programs can be found in the Fact Sheet Analysis Guide and the Data Book.



Data Book: Analysis

- The Data Book contains a complete list of tables that can be used to analyze the generic STEPS Instrument
- It contains the questions used in the data book tables and the Epi Info program name that will produce each table



Components of the Data Book

Smoking Status Description: smoking status among total population.

Instrument Questions

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?

Age Group	Men (N=)				Women (N=)				Both Sexes (N=)			
	Current smoker			Does not smoke	Current smoker			Does not smoke	Current smoker			Does not smoke
	Daily	Non-daily	Daily and non-daily		Daily	Non-daily	Daily and non-daily		Daily	Non-daily	Daily and non-daily	
	%	%	%	%	%	%	%	%	%	%	%	%
95% CI	95% CI	95% CI	95% CI	95% CI	95% CI	95% CI	95% CI	95% CI	95% CI	95% CI	95% CI	
25-34 years												
35-44 years												
45-54 years												
55-64 years												
25-64 years												

Information Presented

Analysis Information:

- Questions used (uses coding column as identifier): T1; T2
- Epi Info programme name: Tsmokestatus (unweighted); TsmokestatusWT (weighted)

Analysis of Information



Data Book: Reporting

- The Data Book can also be used for reporting the data; it provides:
 - Potential format for data tables and
 - Suggested analyses for inclusion in the Site Report
- The Data Book can also be included directly in the complete Site report as Annex tables.



STEPS Fact Sheet

- Information about where and when the survey was done
- Whether it included Steps 1, 2, and 3
- Details on the sample:
size, coverage, age group, etc.
- Response rates
- Basic data on each risk factor
- Where to go for more information



STEPS Fact Sheet



Results for adults aged 25-64 years (incl. 95% CI) (adjust if necessary)	Both Sexes	Males	Females
<i>Step 1: Tobacco Use</i>			
Percentage who currently smoke tobacco daily	77.1% (66.2–88.1)	77.2% (66.2–88.1)	77.4% (66.2–88.1)
<i>For those who smoke tobacco daily</i>			
Average age started smoking (years)			
Average years of smoking			
Percentage smoking manufactured cigarettes			
<i>For smokers of manufactured cigarettes</i>			
Mean number of manufactured cigarettes smoked per day			
<i>Step 1: Alcohol Consumption</i>			
Percentage of abstainers (who did not drink alcohol in the last year)			
Percentage of current drinkers (who drank alcohol in the past 30 days)			
<i>For those who drank alcohol in the last 30 days</i>			
➔ Percentage of women who had 4 or more drinks on any day in the last week			
➔ Percentage of men who had 5 or more drinks on any day in the last week			
➔ Percentage who drank alcohol on 4 or more days per week			



Fact Sheet Analysis Guide

- The Fact Sheet analysis guide provides information on how to produce the fact sheet
- It contains the code for the questions used during analysis and the Epi Info program that will run the analysis
- It can also be used as a guide when tailoring the Instrument



Components of the Fact Sheet Analysis Guide

<Site/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 25-64 years (incl. 95% CI) (adjust if necessary)	Questions required to calculate result (based on coding column), always need C1; C2 or C3	Epi Info Program Name
Step 1 Tobacco Use		
Percentage who currently smoke tobacco daily	T2	TsmokeactWT
<i>For those who smoke tobacco daily</i>		
Average age started smoking (years)	T2, T3	TsmokeageWT
Average years of smoking	T2, T4a-c	TsmokeageWT
Percentage smoking manufactured cigarettes	T2, T5a	TsmokemanWT
<i>For smokers of manufactured cigarettes</i>		
Manufactured cigarettes smoked per day	T5a	TsmokemanWT

Epi Info Program that will produce the fact

Questions used for fact in analysis (based on coding column)

Site Report

- Main comprehensive report for the survey
- Purpose is to provide the following information
 - Overall rationale
 - Scope of survey
 - Sampling design used
 - Methods of data collection
 - Detailed results of the survey
 - Implications for future health planning
 - Appendices, including Instrument used



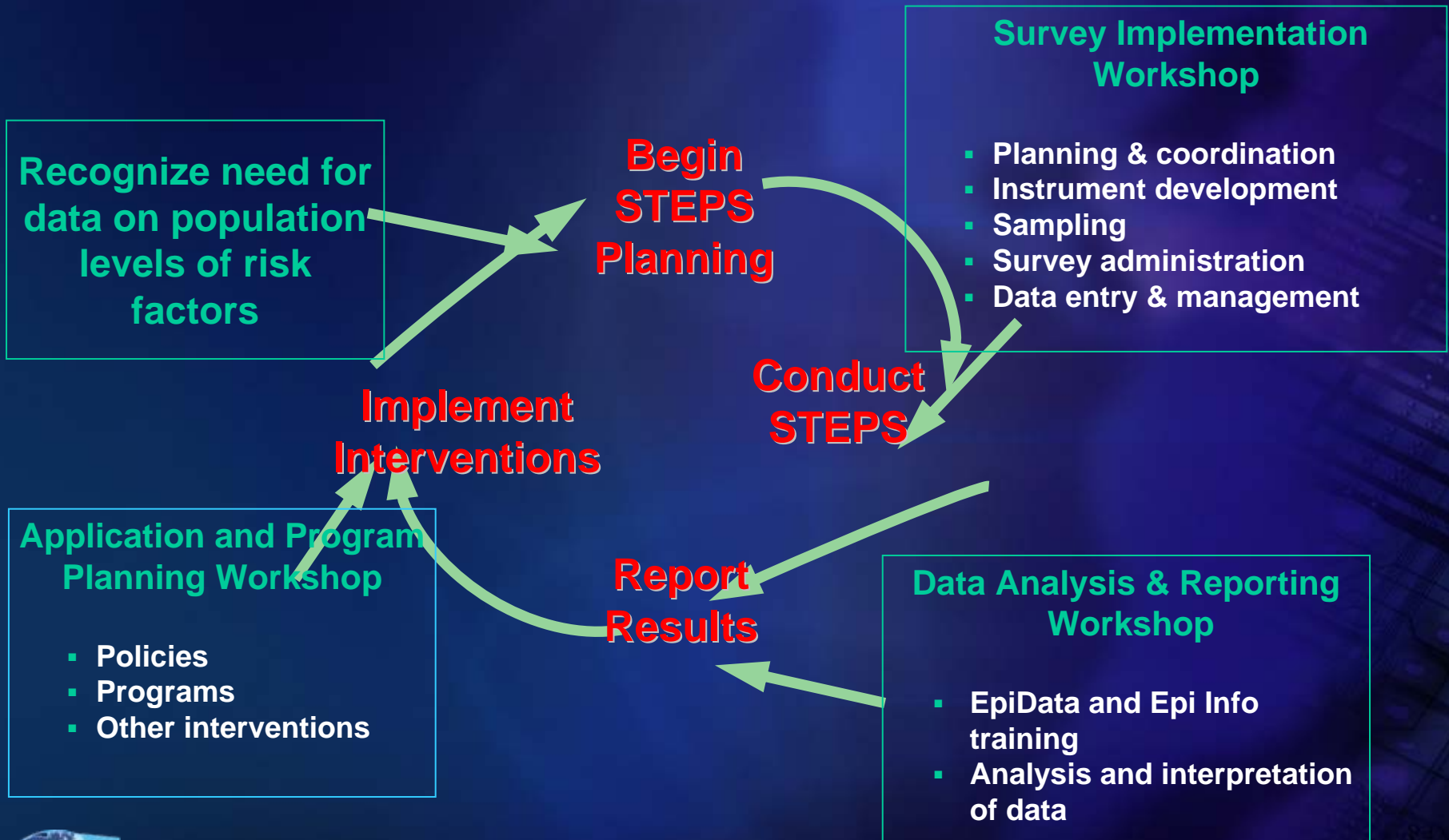
Site Report Outline

- Cover and content pages
- Executive summary
- Introduction
- Methods
- Results
- Conclusions and recommendations
- References
- Appendices

Scientific journal
articles



The STEPS Surveillance Loop



Conclusions

- There are a lot of generic tools that will guide through data analysis and reporting
- These tools can be used and adjusted as the site requires
- The STEPS team is always available to help with any data or reporting needs



STEPS Advantages

- Standardized methods
- Capacity-building on a national and international level
 - Human Resources
 - Equipment
 - Data analysis
- Continues assesses and technical support
- Comparable data at international level
- Use for policy and planning



What do we as PAHO/WHO offer?

- Instrument and standardized methodology, proved in over 70 countries; flexible to respond to various needs
- STEPS Manual
- Tools STEPS (software for data entry, data analysis, and report templates)
- Workshop for planning and field work and data management
- Workshop for data analysis and interpretation



WEB Pages

- PAHO-WHO RF Surveillance Methodology
<http://www.paho.org/english/AD/DPC/NC/panam-steps.htm>
- WHO Surveillance Strategy
http://www.who.int/ncd_surveillance/strategy/en/print.html
- PAHO Basic/Core Data initiative
<http://www.paho.org/english/dd/ais/coredata.htm>
- CDC BRFS Surveillance System
http://wonder.cdc.gov/wonder/sci_data/surveys/brfs/brfs.asp

