MINIMUM, OPTIMUM AND OPTIONAL DATA SET FOR Chronic Non-Communicable Diseases, Violence and Injuries

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION

Technical specifications

This draft of ***Technical specifications*** is prepared by the Pan American Health Organization (PAHO) Inter-programmatic Chronic Non communicable Disease surveillance working group (1) in the period of March 2007 till June 2008. The work has been based on World Health Organization (WHO) chronic disease and risk factor (RF) surveillance principles and PAHO's Core Health Data initiative. The starting point was the list of chronic non communicable disease indicators prepared by the Caribbean Epidemiology Center (CAREC) in 2004 but that had not been tested or applied. The working group has consulted the following materials during its work: List of CDC indicators for chronic disease surveillance (2)**,** Canadian Primary Health Care Indicators (3), Brazil's (4) and Mexico's (5) national lists of indicators.

List includes suggestions received from epidemiologists from Montserrat, Dominica, and Barbados, as well as from Chile, Argentina, Paraguay, Uruguay and Brazil within PAHO's non communicable disease unit (NC) effort for sub regional harmonization in the English-speaking Caribbean and MERCOSUR countries, during spring of 2008.

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Summary

With a global momentum to scale up the response to the leading national and Regional public health burden in morbidity, premature mortality and disability generated by chronic non communicable diseases (CNCD) and their risk factors (RF), it became increasingly important to countries and to the Region to be able to report accurate, timely and comparable data to different national and international entities in order to secure development or expansion of health programs, strengthen the health care system, and use the information for strengthening the whole government approach for sectoral decisions and partnership building.

The existing data set has been developed through collaborative work of experts from PAHO Washington DC (WDC) programs and PAHO country offices, WHO-HQ, and CAREC. The proposed data set represents a selection of standard data that are most likely to be a part of data collection in national and international reporting and are included in the PAHO/WHO mandates related to CNCDs and RFs. It is a work in progress, and modifications will be made periodically to assure that user needs are met.

The purpose of this work was to, for the first time, offer to public health officials the opportunity to uniformly define, collect and report chronic disease data on an annual basis as part of the chronic disease surveillance process. Selection of data by experts was led by international Resolutions dedicated to CNCDs and RFs, importance to public health, and availability of national level data.

The list of data is proposing a step-wise approach through core, optimum and optional data sets. Among 44 core, 19 optimum and 12 optional data, 10 are related to cardiovascular diseases, 7 to cancer, 9 to diabetes, 2 to asthma and COPD, 3 to violence and injuries, 7 to tobacco, 6 to alcohol, 9 to fruit and vegetable consumption, 3 to physical inactivity, 3 to overweight and obesity and 6 on preventive service provision. The remaining data cover overarching socio-demographic data and conditions such as poverty, health insurance, production, import and export of selected goods.

The offered data set combines multiple data sources in one functional annual reporting system as a foundation for chronic non communicable disease surveillance. Besides national data sources, this data set uses several international studies as a source, as their methodology have been accepted and used by countries as part of national efforts for international comparability. The data set is a contribution to remedy the fragmentation of traditional country surveillance systems where each program follows its own data and indicators and does not combine data sources nor look at context and other sector information.

The proposed data set should facilitate further analysis on a national, sub regional and Regional level and generation of more complex indicators for chronic non communicable diseases.

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Section I: Mortality from CNCDs

Ischemic Heart Disease Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to Ischemic Heart Disease (ICD10 I20-I25)
Definition	Deaths <70 years due to ischemic heart disease, expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to ischemic heart disease, using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 populations (by 5 year age groupings) for deaths <70 years due to ischemic heart disease using the WHO world Standard Population.
Parameters	• Measurement Unit: per 100,000 • Type: rate • Categories: female, male; age <70 years
Data sources	obtained from corresponding mortality registries and population distributions

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Ischemic Heart Disease Mortality Rates, continued

Significance and rational

Ischemic heart disease (IHD) is one of the largest components of cause specific mortality in the region and predictions say that in the next decade this number will increase by 17%.[1] The crude mortality rate provides useful information about tendencies over time and it is valuable information if observed in connection with public health interventions in the observed population allowing comparison of tendencies.

Characteristics of indicator and data sources

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

Another indicator that can be computed and provides information on premature mortality for a specific cause is Potential Years of Life Lost (PYLL). Regarding data sources, there are countries where death certificates are not obligatory so sub registration of deaths occurs; or certificates are not filled in appropriately by health professionals. This brings the possibility of different types of errors.

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[1] World Health Organization (WHO). Preventing chronic diseases: a vital investment: WHO global report. WHO. Geneva 2005.

Ischemic Heart Disease PYLL

Name

Potential Years of Life Lost (PYLL) rate due to ischemic heart disease (ICD10 I20-I25)

Definition

PYLL is a measure of premature mortality. The PYLL due to ischemic heart diseases measures the total number of years a person would have lived additionally, had they not died prematurely from ischemic heart disease. Premature death refers to deaths occurring before the country-specific estimated life expectancy. Rate is emmmxpressed per 100,000.

Case definition

premature death due to ischemic heart diseases

Calculation method

$$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$$

Parameters

- Numerator:

$$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$$

- Denominator: population under estimated life expectancy
- Measurement unit: per 100,000
- Type: rate
- Categories: female, male; age under country-specific estimated life expectancy
- Frequency of collection: annual

Data sources

Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries.

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Ischemic Heart Disease PYLL, continued

Significance and rational	PYLL due to ischemic heart disease can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors on increasing the life expectancy of the population
Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Cerebrovascular Disease Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to cerebrovascular disease (stroke) (ICD10 I60 –I69)
Definition	Deaths <70 years due to cerebrovascular disease expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to cerebrovascular disease (stroke), using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to cerebrovascular disease (stroke) using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories: female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	Cerebrovascular disease (stroke) is one of the largest components of cause specific mortality in the region and predictions say that in the next decade this number will increase by 17%.[2]

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[2] World Health Organization (WHO). Preventing chronic diseases: a vital investment: WHO global report. 2005 op.cit

Cerebrovascular Disease Mortality Rates, continued

Characteristics of indicator and data sources

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

Another indicator that can be computed and provides information on premature mortality for a specific cause is Potential Years of Life Lost (PYLL). Regarding data sources, there are countries where death certificates are not obligatory so sub registration of deaths occurs; or certificates are not filled in by health professionals. This brings the possibility of different types of errors.

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Cerebrovascular Disease PYLL

Name

Potential Years of Life Lost (PYLL) rate due to cerebrovascular disease (stroke) (ICD10 I60-I69)

Definition

PYLL is a measure of premature mortality. The PYLL due to cerebrovascular disease (stroke) measures the total number of years persons would have lived additionally, had they not died prematurely from cerebrovascular disease (stroke). Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

Case definition

premature death due to cerebrovascular disease (stroke)

Calculation method

$$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$$

Parameters

- Numerator:
$$\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}$$
- Denominator: Population under estimated life expectancy
- Measurement unit: per 100,000
- Type: rate
- Categories**:** female, male; age under country-specific estimated life expectancy
- Frequency of collection: annual

Data sources

Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

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Cerebrovascular Disease PYLL, continued

Significance and rational	PYLL due to cerebrovascular diseases can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors on increasing the life expectancy of the population.
Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Malignant Neoplasm Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to malignant neoplasm (total) (ICD10 C00-C97)
Definition	Deaths <70 years due to malignant neoplasm (total) expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to malignant neoplasm (total), using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to malignant neoplasm (total) using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.

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Malignant Neoplasm Mortality Rates, continued

Significance and rational

It is estimated that approximately one in two males and one in three females will have a diagnosis of cancer during their lifetime and currently there are between 25.5-240.4/100,000 mortalities due to neoplasm in Latin America and the Caribbean.[3] Significant morbidity and mortality from cancer of the lung, colon and rectum, female breast, cervix, oral cavity and pharynx, and multiple other cancers can be reduced through known interventions.

Characteristics of indicator and data sources

Cancer is not a single disease, but rather numerous diseases with different causes, risks, and potential interventions and interpretation of increases or decreases in cancer mortality can only be made by examination of the specific crude mortality rates of every type of cancer.

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used. Another indicator that can be computed and provides information on premature mortality for a specific cause is Potential Years of Life Lost (PYLL).

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[3] Ferlay J. et al. GLOBOCAN 2002: Cancer incidence, mortality and prevalence worldwide. IARC CancerBase No. 5, Version 2.0. IARC*Press.* Lyon 2004

Malignant Neoplasm PYLL

Name	Potential Years of Life Lost (PYLL) rate due to malignant neoplasm (total) (ICD10- C00-C97)
Definition	PYLL is a measure of premature mortality. The PYLL due to malignant neoplasm (total) (ICD10 C00-C97) measures the total number of years persons would have lived additionally, had they not died prematurely from malignant neoplasm. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000
Case definition	premature death due to malignant neoplasm (total)
Calculation method	$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$
Parameters	• Numerator: $\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}$ • Denominator: Population under estimated life expectancy • Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age under country-specific estimated life expectancy • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries
Significance and rational	PYLL due to malignant diseases can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population

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Neoplasm PYLL, continued

Limitations of indicator and data sources

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Cervical Cancer Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to cervical cancer (ICD 10 C53)
Definition	Deaths <70 years due to cervical cancer expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to cervical cancer, using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to cervical cancer using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.

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Cervical Cancer Mortality Rates, continued

Significance and rational

Cervical cancer is one of the cancers with higher incidence, prevalence and mortality in the region of the Americas. It is estimated that in Latin America and the Caribbean the incidence rate of cervical cancer is between 28.6-32.6/100,000 and the mortality rate is between 12.9-16/100,000 and approximately 40-60% of cervical cancer deaths could be prevented by increasing screening of targeted population.[4]

Other factors that increase the risk of cervical cancer are: Cigarette smoking; infection with the high risk human papillomavirus; and certain sexual practices, including having multiple partners, early age at first intercourse and history of sexually transmitted disease.[5] Education and preventive health programs to change behavior and modify these risk factors can also be developed.

Limitations of indicator and data sources

Besides previously mentioned limitations due to reporting and vital statistics and crude and standardized mortality rate, specifically regarding cervical cancer, the prevalence of hysterectomy should be taken into account when declining death rates for cervical cancer are reported.

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so an under reporting can occur.

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[4] Ferlay J. et al. GLOBOCAN 2002: Cancer incidence, mortality and prevalence worldwide. 2004, op.cit

[5] Stewart B. W. and Kleihues P. (Eds): World Cancer Report. IARC*Press.* Lyon 2003.

Cervical Cancer PYLL

Name	Potential Years of Life Lost (PYLL) Rate due to cervical cancer (ICD10 C53)
Definition	PYLL is a measure of premature mortality. The PYLL due to cervical cancer measures the total number of years persons would have lived additionally, had they not died prematurely from cervical cancer. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000
Case definition	premature death due to cervical cancer
Calculation method	$\frac{\left(\begin{array}{c}\text{female estimated}\\ \text{life expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature female deaths}\end{array}\right) \times \begin{array}{c}\text{number of premature}\\ \text{female deaths}\end{array}}{\text{Female population under estimated life expectancy}} \times 100{,}000$
Parameters	• Numerator: $\left(\begin{array}{c}\text{female estimated}\\ \text{life expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature female deaths}\end{array}\right) \times \begin{array}{c}\text{number of premature}\\ \text{female deaths}\end{array}$ • Denominator: Population under estimated life expectancy • Measurement unit: per 100,000 • Type: rate • Categories**:** female; age under country-specific estimated life expectancy • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries.
Significance and rational	PYLL due to cervical cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors for increasing the life expectancy of the population.

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Cervical Cancer PYLL, continued

Limitations of indicator and data sources

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Lung Cancer Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to lung cancer including trachea, bronchus and lung. (ICD10 C33-C34)
Definition	Deaths <70 years due to lung cancer including trachea, bronchus and lung expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to lung cancer including trachea, bronchus and lung, using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to lung cancer including trachea, bronchus and lung using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.

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Lung Cancer Mortality Rates, continued

Significance and rational

Approximately 80%–90% of lung cancer mortality is attributable to cigarette smoking.[6] Lung cancer mortality is also associated with environmental tobacco smoke and certain workplace exposures. The 5-year relative survival rate is <15%, among one of the lowest of common cancers.[7] Therefore mortality rates can be particularly useful to detect trends and to serve for developing targeted programs and policies that limit tobacco smoke and exposure can help to decrease mortality rates due to lung cancer.

Because lung cancer has a long latency period, years might pass before changes in smoking behavior or patterns of clinical practice affect lung cancer mortality among the general population.

Characteristics of indicator and data sources

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors. The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so under reporting can occur.

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[6] World Health Organization (WHO). World health report 2002: Reducing risks, promoting healthy life. WHO. Geneva 2002.

[7] Stewart B.W. and Kleihues P. (Eds): World Cancer Report. IARC*Press.* 2003 op.cit

Lung Cancer PYLL

Name	Potential Years of Life Lost (PYLL) rate due to lung cancer including trachea, bronchus and lung (ICD10 C33- C34)
Definition	PYLL is a measure of premature mortality. The PYLL due to lung cancer including trachea, bronchus and lung measures the total number of years persons would have lived additionally, had they not died prematurely from lung cancer. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000
Case definition	premature death due to lung cancer
Calculation method	$\dfrac{\left(\begin{matrix}\text{estimated life}\\ \text{expectancy}\end{matrix} - \begin{matrix}\text{mean age at death}\\ \text{for premature deaths}\end{matrix}\right) \times \begin{matrix}\text{number of}\\ \text{premature deaths}\end{matrix}}{\text{Population under estimated life expectancy}} \times 100{,}000$
Parameters	• Numerator: $\left(\begin{matrix}\text{estimated life}\\ \text{expectancy}\end{matrix} - \begin{matrix}\text{mean age at death}\\ \text{for premature deaths}\end{matrix}\right) \times \begin{matrix}\text{number of}\\ \text{premature deaths}\end{matrix}$ • Denominator: Population under estimated life expectancy • Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age under country-specific estimated life expectancy • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries
Significance and rational	PYLL due to lung cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population.

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Lung Cancer PYLL, continued

Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Breast Cancer Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to female breast cancer (ICD10 C50)
Definition	Deaths <70 years due to female breast expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to female breast, using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to female breast cancer using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	The incidence of breast cancer in Latin America and the Caribbean is between 25.9-46/100,000 and the mortality rate is approximately 10.5-15.1/100,000.[8] As breast cancer is considered an evitable cause of death with a high survival rate, crude and standardized mortality rates as well as PYLL provides information for decisions regarding screening and strengthening secondary and tertiary health care level.

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[8] Ferlay J. et al. GLOBOCAN 2002: Cancer incidence, mortality and prevalence worldwide. 2004, op.cit

Breast Cancer Mortality Rate, continued

Characteristics of indicator and data sources

The standardized mortality rate (using world population estimation as reference) is very useful for further comparisons as it eliminates differences in age. However, when used to compare effectiveness of screening vs. non screening program, crude mortality rates fail to take into account the response capacity of the health care system as well as that some types of tumors are so aggressive that even the earliest detection will fail to eradicate them.

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so under reporting can occur.

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Breast Cancer PYLL

Name

Potential Years of Life Lost (PYLL) rate due to female breast cancer. (ICD 10 C50)

Definition

PYLL is a measure of premature mortality. The PYLL due to female breast cancer measures the total number of years persons would have lived additionally, had they not died prematurely from female breast cancer. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

Case definition

premature death due to female breast cancer

Calculation method

$$\frac{\left(\begin{array}{c}\text{female estimated}\\ \text{life expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature female deaths}\end{array}\right) \times \begin{array}{c}\text{number of premature}\\ \text{female deaths}\end{array}}{\text{Female population under estimated life expectancy}} \times 100{,}000$$

Parameters

- Numerator:

$$\left(\begin{array}{c}\text{female estimated}\\ \text{life expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature female deaths}\end{array}\right) \times \begin{array}{c}\text{number of premature}\\ \text{female deaths}\end{array}$$

- Denominator: Population under estimated life expectancy
- Measurement unit: per 100,000
- Type: rate
- Categories**:** female; age under country-specific estimated life expectancy
- Frequency of collection: annual

Data sources

Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

Significance and rational

PYLL due to breast cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population

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Breast Cancer PYLL, continued

Limitations of indicator and data sources

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Cancer of the Digestive System Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to cancers of the digestive system (ICD10 C15-C26, C48)
Definition	Deaths <70 years due to cancers of the digestive system expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to cancers of the digestive system, using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to cancers of the digestive system using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	Cancer of the colon, rectum and stomach are some of the most common in Latin America and is on increase in the Caribbean. Significant morbidity and mortality from cancer of, colon and rectum, oral cavity and pharynx, can be reduced through preventive actions and programs of early detection and treatment.

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Cancer of the Digestive System Mortality Rates, continued

Characteristics of indicator and data sources

The standardized mortality rate (using world population estimation as reference) is very useful for further comparisons as it eliminates differences in age. However, when used to compare effectiveness of screening vs. non screening program, crude mortality rates fail to take into account the response capacity of the health care system as well as that some types of tumors are so aggressive that even the earliest detection will fail to eradicate them.

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so under reporting can occur.

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Cancer of the Digestive System PYLL

Name

Potential Years of Life Lost (PYLL) rate due to cancer of the digestive system (ICD10 C15-C26, C48)

Definition

PYLL is a measure of premature mortality. The PYLL due to cancer of digestive system measures the total number of years persons would have lived additionally, had they not died prematurely from cancer of digestive system. Premature death refers to deaths occurring before the country-specific estimated life expectancy. Rate is expressed per 100,000

Case definition

premature death due to cancer of digestive system

Calculation method

$$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$$

Parameters

- Numerator: $\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}$
- Denominator: Population under estimated life expectancy
- Measurement unit: per 100,000
- Type: rate
- Categories**:** female, male; age under country-specific estimated life expectancy
- Frequency of collection: annual

Data sources

Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

Continued on the next page

Cancer of the Digestive System PYLL, continued

Significance and rational	PYLL due to digestive cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population
Characteristics of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Diabetes Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to underlying cause being diabetes (IC10 E10-E14),
Definition	Deaths <70 years due to underlying cause being diabetes expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to underlying cause being diabetes, by 100,000 population using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to underlying cause being diabetes using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	Mortality rates of diabetes are originated mostly through information of diabetes as associated cause of death due to complications of cardiovascular nature, renal insufficiency or amputation complications. Long-term complications of diabetes and premature death can be prevented through early screening and achieving good disease control. Means to prevent complications and death include improved quality of care, patient education and self management.

Continued on the next page

Diabetes Mortality Rates, continued

Characteristics of indicator and data sources

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

Continued on the next page

Diabetes PYLL

Name	Potential Years of Life Lost (PYLL) Rate due to diabetes (ICD10 E10-E14)
Definition	PYLL is a measure of premature mortality. The PYLL due to diabetes measures the total number of years persons would have lived additionally, had they not died prematurely from diabetes or a related complication. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000.
Case definition	premature death due to diabetes or a related complication
Calculation method	$\frac{\left(\begin{matrix}\text{estimated life}\\ \text{expectancy}\end{matrix} - \begin{matrix}\text{mean age at death}\\ \text{for premature deaths}\end{matrix}\right) \times \begin{matrix}\text{number of}\\ \text{premature deaths}\end{matrix}}{\text{Population under estimated life expectancy}} \times 100{,}000$
Parameters	• Numerator: $\left(\begin{matrix}\text{estimated life}\\ \text{expectancy}\end{matrix} - \begin{matrix}\text{mean age at death}\\ \text{for premature deaths}\end{matrix}\right) \times \begin{matrix}\text{number of}\\ \text{premature deaths}\end{matrix}$ • Denominator: Population under estimated life expectancy • Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age under country-specific estimated life expectancy • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

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Diabetes PYLL, continued

Significance and rational	PYLL due to diabetes can be used by public health officials and researchers to evaluate the impact of screening programs, life style changes and disease management to increase the life expectancy of the population.
Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering/quality of life involved with certain health conditions.

Chronic Lower Respiratory Diseases Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to lower respiratory diseases (ICD10 J40-J47)
Definition	Deaths <70 years due to respiratory diseases expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to lower respiratory diseases using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due respiratory diseases, using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	The mortality from lower respiratory diseases has increased by 40% in the past 2 decades and elimination of tobacco use is the most effective way to reduce the morbidity and mortality due to lower respiratory diseases because approximately 90% of chronic obstructive pulmonary disease (COPD) is attributable to smoking.[9] Other risk factors for lower respiratory diseases include occupational exposure, second hand smoke and air pollution.[9]

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[9] World Health Organization (WHO). World health report 2002. 2002 op.cit

Chronic Lower Respiratory Diseases Mortality Rates, continued

Characteristics of indicator and data sources	The accuracy of the listing of the cause of death for chronic lung diseases, including COPD and asthma, might be low, especially among decedents aged >35 years. Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors. The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.
Limitations of indicator and data sources	Causes of death and other variables listed on the death certificate might be inaccurate. The number of contributing causes of death listed on the death certificate might vary by person completing the death certificate and geographic region.

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Chronic Lower Respiratory Diseases PYLL

Name

Potential Years of Life Lost (PYLL) Rate due to chronic lower respiratory disease (ICD10 J40-J47)

Definition

PYLL is a measure of premature mortality. The PYLL due to chronic lower respiratory diseases measures the total number of years persons would have lived additionally, had they not died prematurely from chronic lower respiratory diseases. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

Case definition

premature death due to chronic lower respiratory diseases

Calculation method

$$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$$

Parameters

- Numerator: $\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}$
- Denominator: Population under estimated life expectancy
- Measurement unit: per 100,000
- Type: rate
- Categories**:** female, male; age under country-specific estimated life expectancy
- Frequency of collection: annual

Data sources

Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

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Lower Respiratory Diseases PYLL, continued

Significance and rational	PYLL due to lower respiratory diseases can be used by public health officials and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population.
Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

External Causes Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to external causes (ICD10 V01-Y89) including all type of transport accidents; accidental falls; accidental drowning; suicide and intentional self-harm; and homicide and injury purposely inflicted by another person.
Definition	Deaths <70 years due to external causes expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to external causes, using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to external causes including all type of transport accidents; accidental falls; accidental drowning; suicide and intentional self-harm; and homicide and injury purposely inflicted by another person using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	Deaths coded to external causes of death are an important part of the causes of death collection because they are used for injury surveillance and provide valuable information to support the development of policy for disease and injury prevention

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External Causes Mortality Rates, continued

Limitations of indicator and data sources	The indicator may underestimate the real number of deaths since a percentage of these deaths don't occur in hospitals and in some countries may not be recorded. Also, if the cause of death is classified to an injury code, the underlying external cause of death may not be captured.

Continued on the next page

External Causes PYLL

Name	Potential Years of Life Lost (PYLL) rate due to external causes (ICD10 V01-Y89)
Definition	PYLL is a measure of premature mortality. The PYLL due to external causes measures the total number of years persons would have lived additionally, had they not died prematurely from external causes. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000
Case definition	premature death due to external causes
Calculation method	$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$
Parameters	• Numerator: $\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}$ • Denominator: Population under estimated life expectancy • Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age under country-specific estimated life expectancy • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

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External Causes PYLL, continued

Significance and rational	PYLL due to external causes can be used by public health officials and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population
Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).

Land Transport Accidents Mortality Rates

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to Land transport accidents (ICD 10 V01-V89)
Definition	Deaths <70 years due to land transport accidents expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to land transport accidents using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to land transport accidents using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	Land transport accidents are a leading cause of injury, both fatal and non-fatal and deaths due to land transport accidents are an important part of the causes of death data collection because they are used for surveillance of injuries due to road traffic accidents and provide valuable information to support the development of policy for accidents and injury prevention.

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Land Transport Accidents Mortality Rates, continued

Limitations of indicator and data sources	The indicator may underestimate the real number of deaths since a percentage of these deaths do not occur in hospitals and in some countries may not be recorded. Also, if the cause of death is classified to an injury code, the underlying external cause of death may not be captured.

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Land Transport Accidents PYLL

Name

Potential Years of Life Lost (PYLL) rate due to Land Transport Accidents (ICD 10 V01-V89)

Definition

PYLL is a measure of premature mortality. The PYLL due to land transport accidents measures the total number of years persons would have lived additionally, had they not died prematurely from land transport accidents. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

Case definition

premature death due to land transport accidents

Calculation method

$$\frac{\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}}{\text{Population under estimated life expectancy}} \times 100{,}000$$

Parameters

- Numerator: $\left(\begin{array}{c}\text{estimated life}\\ \text{expectancy}\end{array} - \begin{array}{c}\text{mean age at death}\\ \text{for premature deaths}\end{array}\right) \times \begin{array}{c}\text{number of}\\ \text{premature deaths}\end{array}$
- Denominator: Population under estimated life expectancy
- Measurement unit: per 100,000
- Type: rate
- Categories**:** female, male; age under country-specific estimated life expectancy
- Frequency of collection: annual

Data sources

Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

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Land Transport Accidents PYLL, continued

Significance and rational	PYLL due to land transport accidents can be used by public health officials and researchers to evaluate the impact of screening programs, life style changes and disease management to increase the life expectancy of the population.
Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering/quality of life involved with certain health conditions.

Assault (homicide) Mortality Rate

Name	Age-standardized mortality rate per 100,000 population for deaths <70 years due to Assault (homicide) (ICD10 X85-Y09),
Definition	Deaths <70 years due to assault expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world's population expected over the next generation (from 2000 to 2025), will be used.
Case definition	Age-standardized mortality rates per 100,000 for deaths <70 years due to assault using the WHO World Standard Population.
Calculation method	The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to Assault using the WHO World Standard Population.
Parameters	• Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age <70 years • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and population distributions.
Significance and rational	Deaths coded to homicide are an important part of the causes of death collection because they support the development of policy for crime prevention

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Assault (homicide) Mortality Rate, continued

Limitations of indicator and data sources	The indicator may underestimate the real number of deaths since a percentage of these deaths don't occur in hospitals and in some countries may not be recorded. Also, if the cause of death is classified to an injury code, the underlying external cause of death may not be captured.

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Assault (homicide) PYLL

Name	Potential Years of Life Lost (PYLL) Rate due to assault (homicide) (ICD10 X85-Y09)
Definition	PYLL is a measure of premature mortality. The PYLL due to assault, measures the total number of years persons would have lived additionally, had they not died prematurely from assault (homicide). Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000
Case definition	premature death due to assault (homicide)
Calculation method	$\frac{\left(\begin{matrix}\text{estimated life}\\ \text{expectancy}\end{matrix} - \begin{matrix}\text{mean age at death}\\ \text{for premature deaths}\end{matrix}\right) \times \begin{matrix}\text{number of}\\ \text{premature deaths}\end{matrix}}{\text{Population under estimated life expectancy}} \times 100{,}000$
Parameters	• Numerator: $\left(\begin{matrix}\text{estimated life}\\ \text{expectancy}\end{matrix} - \begin{matrix}\text{mean age at death}\\ \text{for premature deaths}\end{matrix}\right) \times \begin{matrix}\text{number of}\\ \text{premature deaths}\end{matrix}$ • Denominator: Population under estimated life expectancy • Measurement unit: per 100,000 • Type: rate • Categories**:** female, male; age under country-specific estimated life expectancy • Frequency of collection: annual
Data sources	Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

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Assault (homicide) PYLL, continued

Significance and rational	PYLL due to assault can be used by public health officials and researchers to evaluate the impact of screening programs, life style changes and disease management to increase the life expectancy of the population.
Limitations of indicator and data sources	One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering/quality of life involved with certain health conditions.

Section II: Prevalence and Incidence of Selected CNCDs

Diabetes Mellitus prevalence

Name	Prevalence and Standard Deviation of Diabetes Mellitus (ICD10 E10-E14)
Definition	Diabetics registered in the population, expressed as a percentage of the corresponding mid-year population, for a given year
Case definition	An individual who reports having ever being diagnosed with diabetes[10] e.g. elevated fasting plasma glucose ≥ 7 mmol/l (126 mg/dl) or in 2-h levels of plasma glucose ≥ 11.1 mmol/l (200 mg/dl) during an OGTT (Oral Glucose Tolerance Test). Fasting is defined as no caloric intake at least 8 hours prior to measurement.
Calculation method	$\frac{\text{number of respondents who reported having ever being diagnosed with diabetes mellitus}^{10}}{\text{total number of respondents of the survey}}$
Parameters	• Numerator: number of respondents who report having ever being diagnosed with diabetes mellitus[10] e.g. elevated fasting plasma glucose ≥ 7 mmol/l (126 mg/dl) or 2-h plasma glucose ≥ 11.1 mmol/l (200 mg/dl) • Denominator: total number of respondents of the survey • Measurement unit: per 100 • Type: rate • Categories: female, male; aged 25-64 and by age group 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factors surveys. (STEPS or similar)

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[10] World Health Organization (WHO). Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia: report of a WHO/IDF consultation. WHO. Geneva 2006.

Diabetes Mellitus prevalence, continued

Significance and rational	This indicator is useful to monitor the occurrence of diabetes, to inform interventions for treatment and policy action, evaluation of diabetes prevention programs and advocacy to implement diabetes prevention programs.
Limitations of indicator and data sources	There are several limitations with this indicator. The first limitation is that approximately one third of cases of diabetes are undiagnosed. As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement.

Continued on the next page

Diabetes Mellitus incidence

Name

Incidence and Standard Deviation of diabetes mellitus (ICD10 E10-E14)

Definition

Population who report having being diagnosed with diabetes during the last year expressed as percentage of total respondents of the survey

Case definition

An individual who reports having being diagnosed with diabetes during the last year by a health professional OR
Diabetes incidence as detected for the first time through the health care system.

Diabetes mellitus is defined as elevated fasting plasma glucose ≥ 7 mmol/l (126 mg/dl) or 2-h plasma glucose ≥ 11.1 mmol/l (200 mg/dl).[11] Fasting is defined as no caloric intake at least 8 hours prior to measurement.

Calculation method

$$\frac{\text{number of respondents who have reported being diagnosed with diabetes mellitus during the last year}^{11}}{\text{total number of respondents of the survey}}$$

OR

$$\frac{\text{number of respondents who have elevated fasting plasma glucose measured in a health care center during the last year}^{11}}{\text{total number respondents (ages } 25-64\text{) whose fasting plasma glucose was measured during the last year}}$$

Parameters

- Numerator: Number of respondents who have reported being diagnosed with diabetes mellitus during the last year

OR

Number of respondents who have elevated fasting plasma glucose ≥ 7 mmol/l (126 mg/dl) or 2-h plasma glucose ≥ 11.1 mmol/l (200 mg/dl) measured in a health care center during the last year

- Denominator: total number of respondents of the survey

OR

Total number of persons (ages 25-64) whose fasting plasma glucose was measured during the last year

- Measurement unit**:** per 100
- Type**:** Rate
- Categories: Male, Female; aged 25-64 and by age group 25-34, 35-44, 45-54, 55-64
- Frequency of collection**:** Every 3-5 years

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[11] World Health Organization (WHO). Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia: report of a WHO/IDF consultations. 2006, op.cit

Diabetes Mellitus incidence, continued

Data sources	National or sub national risk factors surveys. (STEPS or similar) OR properly constituted Diabetic Registers
Significance and rational	This indicator measures the incidence of population diagnosed with diabetes in one defined geographical area and specific time point. It is useful to monitor the occurrence of diabetes, surveillance, to inform interventions for screening and policy action.
Limitations of indicator and data sources	There are several limitations with this indicator. The first limitation is that approximately one third of cases of diabetes are undiagnosed. If information is used from self reported sample surveys, data might be a subject of systematic error resulting from non coverage, non response or measurement.

Hypertension prevalence

Name	Prevalence and Standard Deviation of Hypertension (ICD10 I10-I15)
Definition	Population who reports having ever being diagnosed with hypertension by health professional expressed as percentage of total respondents of the survey, for a given year
Case definition	An individual whose blood pressure is ≥ 140/90 mmHg [12,13]
Calculation method	$\frac{\text{number of respondents who have blood pressure } \geq 140/90 \text{ mmHg (from self – reported or health care center measurement)}}{\text{total number of respondents of the survey for that given year}}$
Parameters	• Numerator: Number of respondents from the survey who have blood pressure≥140/90 mmHg (from a self-report or health care center measurement) • Denominator: total number of respondents of the survey for that given year • Measurement unit**:** per 100 • Type**:** Rate • Categories: Male, Female; age 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection**:** Every 3-5 years
Data sources	National or sub national risk factors surveys (STEPS or similar)
Significance and rational	Approximately 20%–30% of coronary heart disease and 20%–50% of strokes are attributable to uncontrolled hypertension.[13] Blood pressure-related cardiovascular complications can occur before the onset of established hypertension. Lifestyle risk factors like excessive caloric intake, physical inactivity, excessive alcohol consumption, and deficient potassium intake are related to onset or maintenance of elevated blood pressure.

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[12] A.V. Chobanian et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension.* 2003;42:1206-1252

[13] World Health Organization (WHO), International Society of Hypertension Writing Group. 2003 WHO/ISH statement of management of hypertension. *J Hypertens.* 2003;21(11):1983-1992

Hypertension prevalence, continued

Limitations of indicator and data sources

The indicator may not include persons with hypertension who have their blood pressure successfully controlled through lifestyle changes and without medication.

As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or appropriate data weighting.

Continued on the next page

Hypertension incidence

Name	Incidence and Standard Deviation of hypertension (ICD10 I10-I15)
Definition	Population who report having being diagnosed with hypertension by a health professional during the last year expressed as percentage of population surveyed.
Case definition	An individual who has been diagnosed with hypertension[14, 15] (or blood pressure 140/90 mmHg and over) by a health professional during the last year OR Hypertension incidence as detected for the first time through the health care system.
Calculation method	$$\frac{\text{number of respondents who report having being diagnosed with hypertension}\left(\text{blood pressure} \geq \frac{140}{90}\text{mmHg}\right)\text{during the last year}^{14,15}}{\text{total number of respondents of the survey}}$$ OR $$\frac{\text{number of respondents with blood pressure} \geq \frac{140}{90}\text{mmHg measured in a health care center during the last year}}{\text{total number of persons (ages } 25-64\text{) whose blood pressure was measured during the last year}}$$
Parameters	• Numerator: Number of respondents who reported having being diagnosed with hypertension by a health professional during the last year OR Number of respondents with blood pressure ≥ 140/90 mmHg measured in a heath care center during the last year • Denominator: total number of respondents of the survey OR Total number of person (ages 25-64) whose blood pressure was measured during the last year • Measurement unit: per 100 • Type: Rate • Categories: Male, female; aged 25-64 and by age group 25-34, 35-44, 45-54, 55-64 • Frequency of collection: Every 3-5 years

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[14] A.V. Chobanian et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. 2003, op.cit

[15] World Health Organization (WHO), International Society of Hypertension Writing Group. 2003 WHO/ISH statement of management of hypertension. 2003, op.cit

Hypertension incidence, continued

Data sources	National or sub national risk factors surveys. (STEPS or similar) OR properly constituted Hypertension Registers
Significance and rational	Blood pressure-related cardiovascular complications can occur before the onset of established hypertension. And approximately 20%–30% of coronary heart disease and 20%–50% of strokes[16] are attributable to uncontrolled hypertension therefore, screening and early detection can help to develop programs directed to modify Lifestyle risk factors like excessive caloric intake, physical inactivity, excessive alcohol consumption, and deficient potassium intake are related to onset or maintenance of elevated blood pressure.
Limitations of indicator and data sources	The indicator may not include persons with hypertension who have not undergone screening for blood pressure As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement.

[16] World Health Organization (WHO), International Society of Hypertension Writing Group. 2003 WHO/ISH statement of management of hypertension. 2003.op.cit

Prevalence of overweight

Name	Prevalence and Standard Deviation of overweight among adults and adolescents
Definition	Population who has a body mass index (BMI) between 25.00 and 29.99 kg/m^2 calculated from self reported weight and height or measured height and weight expressed as percentage of population surveyed.
Case definition	**Adult:** An overweight person is an individual whose BMI is between 25.00-29.99 kg/m^2 Guidelines have established additional BMI cut points for weight[17]: underweight,<18.50 kg/m^2; Normal, 18.50-24.99 kg/m^2; overweight, 25.00-29.99 kg/m^2; obesity I 30.00-34.99 kg/m^2; obesity II 35.00-39.99 kg/m^2; Obesity III ≥40.00 kg/m^2 **Adolescent**: An overweight adolescent is an individual whose weight falls in the 85th percentile according to 2007 WHO growth reference for adolescents. [18]
Calculation method	**Adults:** $\frac{\text{number of respondents who have a BMI between } 25.00-29.99\ \frac{kg}{m^2}}{\text{total number respondents whose height and weight were reported or were measured}}$ **Adolescents:** Number of adolescents whose weight falls in the 85th percentile according to 2007 WHO growth reference for adolescents

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[17] World Health Organization (WHO). Obesity: preventing and managing the global epidemic. Report of a WHO consultation. *World Health Organ Tech Rep Ser.* 2000;894:i-xii, 1-253

[18] Onis M et al. Development of a WHO growth reference for school-aged children and adolescents. *Bulletin of the World Health Organization*. 2007;85:660-667

Prevalence of overweight, continued

Parameters

- Numerator:
  - Adults: Number of respondents who have a body mass index (BMI) between 25.00 and 29.99 kg/m^2 calculated from self-reported or measured weight and height.
- Denominator: Respondents for whom BMI can be calculated from their self-reported weight and height (excluding unknowns or refusals to provide weight or height).
- Measurement unit**:** per 100
- Type**:** Rate
- Adolescents**:** Number of adolescents whose weight falls in the 85th percentile according to 2007 WHO growth reference for adolescents from self-reported or measured weight and height.
- Categories:
  - ADULT: Male, female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64.
  - ADOLESCENT: Male and female; ages 13-15 years
- Frequency of collection: every 3-5 years

Data sources

National or sub national risk factors surveys (STEPS, GSHS)

Significance and rational

The prevalence of overweight and obesity have been progressively increasing in Latin America and the Caribbean. Overweight may lead to obesity and it increases the likelihood of developing several chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancer, this is important because it is preventable and an appropriate amount, intensity and duration of regular physical activity in combination with decreased caloric, fat intake might reduce a person's BMI.

Limitations of indicator and data sources

If self reported data are used they may be subject to errors and has limitations as respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of overweight.

Additionally for data analysis appropriate data weighing needs to be done when there is not a 100% coverage/response, and errors due to measurement should also be considered.

Prevalence of obesity

Name	Prevalence and standard deviation of obesity
Definition	Population who have a body mass index (BMI over 30.00 kg/m^2 calculated from self reported weight and height or measured height and weight expressed as percentage of population surveyed.
Case definition	Adult: An obese person is an individual whose calculated BMI is 30.00 kg/m^2 and over. Guidelines have established additional BMI cut points for weight[19]: underweight,<18.50 kg/m^2; Normal, 18.50-24.99 kg/m^2; overweight, 25.00-29.99 kg/m^2; obesity I 30.00-34.99 kg/m^2; obesity II 35.00-39.99 kg/m^2; Obesity III ≥40.00 kg/m^2 Adolescent: An obese adolescent is an individual whose weight falls in 97th percentile according to 2007 WHO growth reference for adolescents.[20]
Calculation method	Adult: $\frac{\text{number of respondents who have a BMI } \geq 30.00 \frac{\text{kg}}{\text{m}^2}}{\text{total number respondents whose height and weight were reported or measured}}$ Adolescent: Number of adolescents whose weight falls in the 97th percentile according to 2007 WHO growth reference for adolescents

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[19] World Health Organization (WHO). Obesity: preventing and managing the global epidemic. Report of a WHO consultation. 2000, op.cit

[20] Onis M et al. Development of a WHO growth reference for school-aged children and adolescents. 2007, op.cit

Prevalence of obesity, continued

Parameters

- Numerator: Respondents who have a body mass index (BMI) 30.00 kg/m^2 and over, calculated from self-reported or measured weight and height.
- Denominator**:** Respondents for whom BMI can be calculated from their self-reported weight and height (excluding unknowns or refusals to provide weight or height).
- Measurement unit**:** per 100
- Type**:** Rate
- Adolescents: Number of adolescents whose weight falls in the 97th percentile according to 2007 WHO growth reference for adolescents from self-reported or measured weight and height
- Categories:
  - ADULT: Male, female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
  - ADOLESCENT: Male, female; ages 13-15
- Frequency of collection**:** Every 3-5 years

Data sources

National or sub national risk factors surveys. (STEPS, GSHS)

Significance and rational

The prevalence of overweight and obesity have been progressively increasing in Latin America. Overweight may lead to obesity and it increases the likelihood of developing several chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancer, this is important because it is preventable and an appropriate amount, intensity and duration of regular physical activity in combination with decreased caloric, fat intake might reduce a person's BMI

Limitations of indicator and data sources

If self reported data are used they may be subject to errors and has limitations as respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of overweight.

Additionally for data analysis appropriated data weighting needs to be done when there is not a 100% coverage/response, and errors due to measurement should also be considered.

Section III: Risk Factors for CNCDs

Smoke Exposure

There are some 4,000 known chemicals in tobacco smoke. About 50 of them are known to cause cancer in humans. Tobacco smoke in enclosed areas is breathed by everyone, exposing smokers and non-smokers alike.

For Smoke Exposure, the four definitions used are as follows[21]:

Smoking any tobacco product: Smoking any form of tobacco, including cigarettes, cigars, pipes, bidis, kreteks, etc.

Current Smoking: Smoking at the time of the survey, including daily and non-daily smoking.

Daily Smoking: Smoking every day at the time of the survey.

Exposure to smoke: during the last seven days prior to the survey, people smoked at least once in the presence of the interviewee.

[21] World Health Organization (WHO). *WHO Report on the Global Tobacco Epidemic, 2008: the MPOWER package*. WHO. Geneva 2008.

Prevalence of current daily smoking of tobacco among adults

Name	Prevalence of current daily smoking of tobacco among adults
Definition	Population who report to be current daily smokers at the time of the survey, expressed as percentage of population surveyed.
Case definition	A current daily smoker is an individual who report smoking tobacco every day at the time of the survey
Calculation method	$\frac{\text{number of respondents who report being current daily smokers at the time of the survey}}{\text{total number respondents of the survey}}$
Parameters	• Numerator: Number of respondents who report being daily smokers (smoke every day) at the time of the survey • Denominator: Total number of respondents of the survey • Measurement unit**:** per 100 • Type**:** Rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection**:** Every 3- 5 years
Data sources	National or sub national risk factors surveys. (STEPS or similar)
Significance and rational	The prevalence of tobacco smoking is high in Latin America and exposure to second hand smoke is common in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health and frequent hospitalization. Smoking increases the risk of heart disease, cancer, stroke and chronic lung disease. In addition environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among non-smokers. The information will support implementation of tobacco control policies.

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Prevalence of current daily smoking of tobacco among adults, continued

Limitations of indicator and data sources

The indicator does not convey the lifetime or current amount of cigarettes smoked or smoking habits besides tobacco. The indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among non-smokers.

As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response and inadequate data weighting

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Prevalence of current smoking of tobacco among adults

Name	Prevalence of current smoking of tobacco among adults
Definition	Population reporting to be current smokers at the time of the survey, expressed as percentage of surveyed population.
Case Definition	A current smoker is an individual who reports smoking tobacco at the time of the survey, including daily and non-daily smoking
Calculation method	$\frac{\text{number of respondents who report being current smokers at the time of the survey, including daily and non-daily smoking}}{\text{total number respondents of the survey}}$
Parameters	• Numerator: Number of respondents who report being currently smokers at the time of the survey, including daily and non-daily smokers • Denominator: Total number of respondents of the survey • Measurement unit: per 100 • Type: rate • Categories: female, male; ages 25-64, and by age group 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factors surveys. (STEPS or similar)
Significance and rational	Prevalence of smoking tobacco is high in Latin America and exposure to second hand smoke is common in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health. Smoking increases the risk of heart disease, cancer, stroke and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among nonsmokers. The information will support implementation of tobacco control policies.

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Prevalence of current smoking of tobacco among adults, continued

Limitations of indicator and data sources

The indicator does not convey the lifetime or amount of cigarettes smoked or smoking other products besides tobacco. The indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among non-smokers.

As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement.

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Prevalence of tobacco consumption among adolescents

Name	Prevalence (and Standard Deviation) of tobacco consumption among adolescents
Definition	Young population who report smoking one or more times during the last 30 days at the time of the survey, expressed as percentage of surveyed population
Case definition	An individual (13-15 year old) who reports smoking one or more times during the last 30 days at the time of the survey
Calculation method	$\frac{\text{number of respondents (13 – 15 years old) who report smoking tobacco once or more times during the last 30 days at the time of the survey}}{\text{total number respondents (13 – 15 years old) of the survey}}$
Parameters	• Numerator: Number of respondents (13-15 years old) who report smoking one or more times during the last 30 days at the time of the survey • Denominator: Total number of respondents of the survey (13-15 years old) • Measurement unit: per 100 • Type: Rate • Categories: Male, female; ages 13-15 • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factors survey (GYTS, GSHS)
Significance and rational	Prevalence of smoking tobacco is high in Latin America and exposure to second hand smoke is common in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health. Smoking increases the risk of heart disease, cancer, stroke and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among nonsmokers. The information will support implementation of tobacco control policies.

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Prevalence of tobacco consumption among adolescents, continued

Limitations of indicators and data sources

The indicator does not convey the lifetime or amount of cigarettes smoked or smoking other products besides tobacco. The indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among non-smokers.

As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement.

Average age at which adult and adolescent consumers started smoking

Name	Average age started smoking (and Standard Deviation)
Definition	Average age at which surveyed individuals started smoking tobacco
Case definition	Age at which a person starts smoking tobacco
Calculation method	Adults: $\frac{\text{Sum of all ages at which adults reported they started smoking tobacco}}{\text{total number adults respondents who smoke of the survey}}$ Adolescents: $\frac{\text{Sum of all ages at which adolescents reported they started smoking tobacco}}{\text{total number adolescents respondents who smoke of the survey}}$

Parameters	• Numerator:
	  ○ Adults: Sum of all ages at which adults reported they started smoking tobacco
	  ○ Adolescents: Sum of all ages at which adolescents reported they started smoking tobacco
	• Denominator:
	  ○ Adults: Total number of adults who smoke of the survey
	  ○ Adolescents: Total number of adolescents who smoke of the survey
	• Type: mean
	• Categories:
	  ○ Adults: Male, female, ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
	  ○ Adolescents: Male and female, ages 13-15
	• Frequency of collection: every 3-5 years

Data sources	National or sub national risk factors surveys (STEPS, GHSH, GYTS)

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Average age at which adult and adolescent consumers started smoking, continued

Significance and rational	Individuals are starting to smoke at early ages in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health and frequent hospitalization. Individuals that start to smoke young increase their risk of heart disease, cancer, stroke and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among nonsmokers.
Limitations of indicators and data sources	The indicator does not convey the lifetime, amount of cigarettes smoked or intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among non-smokers. As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or data weighing.

Prevalence of second-hand smoke exposure among adults and adolescents

Name	Prevalence of (and Standard Deviation) second-hand smoke exposure among adults and adolescents
Definition	Population who report being exposed to second hand smoke at least once during the last seven days prior to the survey expressed as percentage of surveyed population
Case definition	Individual that reports exposure to second hand smoke at least once during the last seven days prior to the survey
Calculation method	$\frac{\text{number of respondents who report being being exposed to second hand smoke at least once during the last 7 days, prior to the survey}}{\text{total number respondents of the survey}}$

Parameters	• Numerator: Number of respondents that reports exposure to second hand smoke at least once during the last seven days, prior to the survey
	• Denominator: total number of respondents in the survey
	• Measurement unit: per 100
	• Type: rate
	• Categories:
	  ○ Adult: Male, female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
	  ○ Adolescent: Male, female; ages 13-15
	• Frequency of collection: every 3-5 years

Data sources	National or sub national risk factors surveys (STEPS, GSHS, GYTS)
Significance and rational	Environmental tobacco smoke has been demonstrated to increase the risk of coronary heart disease by 25-30% and lung cancer among non-smokers by 20-30% therefore it is important to identify the prevalence of second hand smoke to develop policies.[22]

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[22] U.S. Department of Health and Human Services. *The health consequences of involuntary exposure to tobacco smoke: a report of the Surgeon General.* Atlanta, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006. Available on-line at http://www.surgeongeneral.gov/library/secondhandsmoke/report/fullreport.pdf

Prevalence of second-hand smoke exposure among adults and adolescents, continued

Limitations of indicators and data sources	The indicator does not convey the length and amount of cigarettes smoke and each of these factors can affect the risk of developing cancer and other chronic diseases. As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or inadequate data weighting

Alcohol Consumption

Different drinking patterns give rise to very different health outcomes in different population groups. WHO states that though the total amount of alcohol drank in a week might be similar, the quantity and frequency is crucial in determining health risks (2004).

For alcohol consumption, the five definitions for alcohol drinking and consumption are as follow[23]:

Alcohol: extremely broad range of types of alcohol available. Most popular categories of alcohol consumed are beer from barley, wine from grapes, and certain distilled spirits.

Men who are binge drinkers: Adult male (25-64 years old) who reported drinking five or more drinks in one sitting on one or more occasions during the last month.

Women who are binge drinkers: Adult female (25-64 years old) who reported drinking four or more drinks in one sitting on one or more occasions during the last month.

Alcohol consumption among the youth: school age children, ages 13-15 years old, who reported drinking at least one drink containing alcohol in one or more days during the last 30 days.

Adult per capita alcohol consumption: generally estimated by dividing the sum of alcohol production and imports less alcohol exports by the adult population (aged 15 years or older).

[23] World Health Organization (WHO). *Global status report on alcohol 2004.* WHO. Geneva 2004. Available at http://www.who.int/substance_abuse/publications/en/global_status_report_2004_overview.pdf

Prevalence of binge drinking among men

Name	Prevalence (and Standard Deviation) of binge drinking among men
Definition	Male population who report having ≥ 5 (five or more) drinks in one sitting on one or more occasion during the last month expressed as percentage of all the male population surveyed.
Case definition	A man who has ≥ 5 (five or more) drinks in one sitting, on one or more occasions during the last month. Binge drinking refers to heavy drinking and a heavy drinker is an individual who has more than 5 drinks in one or more occasions during the last month.[24]
Calculation method	$\frac{\text{Number of male respondents who reported drinking } \geq 5 \text{ drinks in one sitting on one more more occasions during the last month}}{\text{total number of males* respondents of the survey}}$ *It only applies to male respondents who reported having a specific number, including no drinks, on one occasion during the last month and excluding unknowns and refusals.
Parameters	• Numerator: Number of male respondents who reported drinking ≥5 (five or more) drinks in one sitting on one or more occasions during the last month • Denominator: total number of male respondents who reported having a specific number, including no drinks, on one occasion during the last month (excluding unknowns and refusals) • Measurement unit: per 100 • Type: rate • Categories: Male; ages 25-64 years and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factor surveys (STEPS or similar)
Significance and rational	Alcohol abuse is strongly associated with injuries, violence, fetal alcohol syndrome, chronic liver disease, some cancers, and risk of other acute and chronic health effects. Binge drinking is an indicator that serves to estimate prevalence of alcohol abuse among the population, track changes over time and be used for alcohol control related policies.

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[24] World Health Organization (WHO). *Global status report on alcohol 2004.* WHO. Geneva, 2004. Op.cit

Prevalence of binge drinking among men, continued

Limitations of indicators and data sources	The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed. As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement

Prevalence of binge drinking among women

Name	Prevalence (and Standard Deviation) of binge drinking among women
Definition	Women who report having ≥4 drinks (four or more) in one sitting on one or more occasions during the last month expressed as percentage of all women who participated in the study
Case definition	A woman who has ≥4 (four or more) drinks in one sitting, on one or more occasions during the last month. Binge drinking refers to heavy drinking and a heavy drinking female is a woman who has ≥4 drinks in one sitting on one or more occasions during the last month.[25]
Calculation method	$\frac{\text{Number of female respondents who reported drinking } \geq 4 \text{ drinks in one sitting on one more more occasions during the last month}}{\text{total number of females* respondents of the survey}}$ *It only applies to female respondents who reported drinking a specific number, including no drinks on one occasion during the previous month and excluding unknowns and refusals.
Parameters	• Numerator: Number of female respondents who reported drinking ≥4 (four or more) drinks in one sitting on one or more occasions during the last month • Denominator: Total number of female respondents who reported drinking a specific number, including no drinks on one occasion during the previous month and excluding unknowns and refusals • Measurement unit: per 100 • Type: rate • Categories: Women; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factors surveys (STEPS or similar)

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[25] World Health Organization (WHO). *Global status report on alcohol 2004.* 2004, op. cit

Prevalence of binge drinking among women, continued

Significance and rational	Alcohol abuse is strongly associated with injuries, violence, fetal alcohol syndrome, chronic liver disease, some cancers, and risk of other acute and chronic health effects. Binge drinking is an indicator that serves to estimate prevalence of alcohol abuse among the population, track changes over time and be used for alcohol control related policies.
Limitations of indicators and data sources	The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed. As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or inadequate data weighting

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Prevalence of alcohol consumption among adolescents

Name	Prevalence (and Standard Deviation) of alcohol consumption among adolescents
Definition	Adolescent population (13-15 years old) who had at least one drink containing alcohol on one or more days during the last 30 days prior to the survey
Case definition	An adolescent (13-15 years old) who reported having at least one drink containing alcohol on one or more days during the last 30 days prior to the survey
Calculation method	$\frac{\text{Number of adolescent respondents who reported drinking at least one drink on one more days during the last 30 days}}{\text{total number of adolescent respondents of the survey}}$
Parameters	• Numerator: Number of adolescent respondents (13-15 years old) who reported drinking at least one rink containing alcohol on one or more days during the last 30 days prior to the survey. • Denominator: total number of adolescent respondents of the survey • Measurement unit: per 100 • Type: rate • Categories: male, female; ages 13-15 • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factors surveys (GSHS)
Significance and rational	Alcohol use and abuse is strongly associated with injuries, violence, fetal alcohol syndrome, chronic liver disease, and risk of other acute and chronic health effects. This data can be used to evaluate trends and promote alcohol policy initiatives.
Limitations of indicators and data sources	The indicator does not convey the frequency or the specific amount of alcohol consumed. As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or inadequate data weighting

Annual per capita alcohol consumption

Name	Annual per capita alcohol consumption
Definition	The annual per capita alcohol consumption is the total estimated alcohol consumption in a country in a given year per liter of pure alcohol
Case definition	per capital alcohol consumption
Calculation method	$\frac{\text{Alcohol production + alcohol imports – alcohol exports}}{\text{Adult population (aged 15 years or older)}}$
Parameters	• Numerator: alcohol production + alcohol imports - alcohol exports • Denominator: adult population (aged 15 years or older) • Frequency of collection: every 3-5 years
Data sources	National information from government agencies or data sets of FAO and UN Statistical office
Significance and rational	Estimates of per capita alcohol consumption of adult population are the best available for monitoring trends. Among those who drink at all, the heaviest drinking 10% consume over 50% or more of alcohol consumed.[26] The estimates can be a good proxy for problems of chronic heavy drinking such as cirrhosis of the liver. They can also be indicative of the extent of alcohol related problems and in that way valuable in order to assist with patterns that require attention from policy makers.
Limitations of indicators and data sources	The information tends to underestimate consumption within countries with larger populations bellow age of 15 as case in many developing counties. Also it does not include informal production, duty free sales, variation in beverage strength are some of the things that are not taking in to account in the calculation

[26] World Health Organization (WHO). *Global status report on alcohol 2004.* 2004, op. cit

Fruit and vegetable consumption

Fruits and vegetables are important components of a healthy diet. Sufficient daily consumption could help prevent major CNCDs. An estimate of 2.7 million lives could potentially be saved each year if fruits and vegetables consumption were increased to a sufficient amount.[27] The Joint FAO/WHO Expert Consultation on diet, nutrition and prevention of chronic diseases (2003) recommends the intake of a minimum of 400g of fruit and vegetables per day (excluding potatoes and other starchy tubers) for the prevention of chronic diseases. [28]

From the nutritional point of view, fruit and vegetables are low energy-dense foods relatively rich in vitamins, minerals and other bioactive compounds as well as being sources of fiber.[29] Although the definitions of fruit and vegetables vary significantly between countries and regions, the following are proposed:[30]

Fruit: refers to the mature ovary of a plant which encloses the seeds. This definition includes both fleshy fruits and dry fruits such as cereal grains, pulses and nuts, with specific characteristics of the ripened ovary wall unless they are classified as vegetables regardless of their high energy content, such as avocados, olives, and nuts. Only fruit juices that are 100% pure should be considered as fruit.

Vegetable: refers to the edible part of a plant commonly considered as vegetables, as well as foods used as vegetables such as fresh green pulses and sprouts, fresh sweetcorn, botanical fruits used as vegetables such as tomatoes, peppers, cucumbers or eggplants, as well as mushrooms and seaweed.

[27] World Health Organization (WHO). World Health Report 2002. 2002, op.cit.
[28] World Health Organization (WHO). Diet, nutrition and the prevention of chronic diseases. Report of a Joint FAO/WHO Expert Consultation. *WHO Technical Report Series No. 916* Geneva 2003.
[29] World Cancer Research Fund, American Institute for Cancer Research. Food, nutrition and the prevention of cancer: A global perspective. Washington DC, WCRF/AICR, 1997.
[30] Agudo, A. Measuring intake of fruit and vegetables. Background paper for the Joint FAO/WHO Workshop on Fruit and Vegetables for Health, 1-3 September 2004, Kobe, Japan. WHO. Geneva 2005. Available on-line at: http://www.who.or.jp/AHP/docs/FVPaper_4.pdf

Mean number of servings of fruits

Name	Mean number (and Standard Deviation) of servings of fruits per day
Definition	Average of the number of serving of fruit consumed per day by the population.
Case definition	A serving size of fruit is defined as[31]: • ½ cup fresh cut, cooked, frozen or canned fruits (in 100% pure juice); OR • ¼ cup dried fruit; OR • ½ cup of 100% pure fruit juice; OR • 1 whole fruit* *It applies for medium-sized fruit (e.g. apple, banana, orange, etc.)
Calculation method	$\frac{\text{Sum of total number of fruit servings consumed by respondents per day}}{\text{Total number of respondents of the survey}}$

Parameters	• Numerator: Sum of total number of fruit servings consumed by respondents per day
	• Denominator: total number of respondents of the survey
	• Type: mean
	• Categories:
	  ○ Adult: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
	  ○ Adolescent: Male, female; ages 13-15 years
	• Frequency of collection: every 3-5 years

Data sources	Obtained from National or sub risk factors surveys (GSHS, STEPS)

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[31] World Health Organization (WHO). STEPS Field Manual Guidelines for Field Staff. The WHO STEPwise Approach to Surveillance of Non-communicable Diseases (STEPS). Geneva 2003.

Mean number of servings of fruits, continued

Significance and rational	A diet of ≥5 servings of fruits and vegetables per day is associated with reduced risk of coronary heart disease and certain types of cancer, including cancer of colon, rectum, oral cavity, pharynx, stomach, and esophagus.[32] The mean of the serving of fruits in the population provides an overview of the current diet of the population and can be used for planning or evaluating effects of health promotion policies and programs.
Limitations of indicators and data sources	It conveys the average number of daily servings of fruits consumed. There can be errors in the measurement of serving sizes As with all self reported sample surveys, data might be subject to errors resulting from non response, inadequate data weighting.

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[32] He F.J., et al. Increased consumption of fruit and vegetables is related to a reduced risk of coronary heart disease: meta-analysis of cohort studies. *J Hum Hypertens.* 2007;21:717-28

Mean number of servings of vegetables

Name	Mean number (and Standard Deviation) of servings of vegetables per day
Definition	Average of the number of servings of vegetables consumed by the population per day
Case definition	A serving size is[33]: • ½ cup (4 oz.) 100% pure vegetable juice; OR • ½ cup cooked, canned or frozen chopped cruciferous vegetables (e.g. broccoli, kale, etc.), taproot vegetables (e.g. carrots), legumes (beans and peas), and other vegetables; OR • 1 cup of raw, green leafy (e.g. spinach, artichoke, lettuce, etc.); excluding potatoes and other starchy tubers
Calculation method	$\frac{\text{Sum of total number of vegetable servings consumed by respondents per day}}{\text{Total number of respondents of the survey}}$

Parameters	• Numerator: Sum of total number of vegetable servings consumed by respondents per day
	• Denominator: total number of respondents of the survey
	• Type: Mean
	• Categories:
	  ○ Adult: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
	  ○ Adolescent: Male, female; ages 13-15
	• Frequency of collection: every 3-5 years

Data sources	Obtained from National or sub risk factors surveys (GHSH, STEPS)

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[33] World Health Organization (WHO). STEPS Field Manual Guidelines for Field Staff. The WHO STEPwise Approach to Surveillance of Non-communicable Diseases (STEPS). 2003, op. cit.

Mean number of servings of vegetables, continued

Significance and rational	A diet of ≥5 servings of fruits and vegetables/day is associated with reduced risk of coronary heart disease and certain types of cancer, including cancer of colon, rectum, oral cavity, pharynx, stomach, and esophagus.[34] The mean of the serving of fruits in the population provides an overview of the current diet of the population and can be used for planning or evaluating effects of health promotion policies and programs.
Limitations of indicators and data sources	It conveys the average number of daily servings of vegetables consumed. There can be an error regarding measurement of serving sizes. As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non response or data weighting.

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[34] He F.J., et al. Increased consumption of fruit and vegetables is related to a reduced risk of coronary heart disease: meta-analysis of cohort studies. *J Hum Hypertens.* 2007, op.cit.

Percentage of population who eats five or more servings of fruits and vegetables a day

Name	Percentage of population (and Standard Deviation) who eats ≥5 (five or more) servings of fruit and vegetable a day
Definition	Population who reported eating ≥5 (five or more) servings of fruits and vegetables a day, expressed as percentage of all persons surveyed.
Case definition	An individual who consumes ≥ 5 (five or more) servings of fruit and vegetables a day
Calculation method	$\frac{\text{Number of respondents who reported eating } \geq 5 \text{ servigs of fruit and vegetables a day}}{\text{Total number of respondents of the survey}^*}$ *The total of respondents of the survey must include those who reported eating no servings of fruits and vegetables.

Parameters	• Numerator: Number of respondents who reported eating ≥5 (five or more) servings of fruit and vegetables a day
	• Denominator: Total number of respondents of the survey, including those who report eating no servings of fruits and vegetables
	• Measurement unit: per 100
	• Type: rate
	• Categories:
	  ○ Adult: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
	  ○ Adolescent: Male, female; ages 13-15 years
	• Frequency of collection: every 3-5 years

Data sources	National or sub national risk factors surveys (STEPS, GSHS, GYTS)

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Percentage of population who eats five or more servings of fruits and vegetables a day, continued

Significance and rational	A diet of ≥5 servings of fruits and vegetables per day is proved to be a protective factor for development of any of chronic non communicable diseases, particularly coronary heart disease and certain types of cancer, including cancer of colon, rectum, oral cavity, pharynx, stomach, and esophagus.[35] The percentage of population that eats five or more servings of fruit is useful information for developing programs to improve nutrition and dietary habits in the population and increase consumption of fruits and vegetables.
Limitations of indicators and data sources	The indicator conveys the percentage of the adult population who report, on average consuming five or more servings of fruits and vegetables a day. Self reported sample surveys may be subjected to different type of errors resulting from non-coverage, non response or data weighting.

[35] He F.J., et al. Increased consumption of fruit and vegetables is related to a reduced risk of coronary heart disease: meta-analysis of cohort studies. *J Hum Hypertens.* 2007, op.cit.

Physical Activity

Surveillance of population levels of physical activity using a standardized protocol is an important and necessary part of public health response to current concerns regarding the lack of physical activity in many populations. Surveillance of physical activity in populations is most often undertaken using questionnaires, as these are relatively inexpensive and easy to administer compared to objective measurement techniques.

The levels of physical activity used were defined according to the GPAQ guidelines[36]:

- **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 per week
    OR
  - 7 or more days of any combinations 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.

Metabolic Equivalents (METs) are commonly used to express the intensity of physical activities. MET is the ratio of a person's working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1kcal/kg/hour. For the calculation of this indicator the total time spent in physical activity during a typical week, the number of days as well as intensity of the physical activity is taken into account.

[36] World Health Organization (WHO). Global Physical Activity Questionnaire (GPAQ): Analysis Guide. Geneva 2002. Available on-line at http://www.who.int/chp/steps/resources/GPAQ_Analysis_Guide.pdf

Prevalence of high levels of physical activity

Name

Prevalence (and Standard Deviation) of the population of adults with high levels of physical activity (defined as ≥1500 Met-minutes/week).

Definition

Population with high levels of physical activity expressed as percentage of all the population surveyed.

Case definition

Any 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 combinations of walking, moderate- or vigorous-intensity activities achieving a minimum of at least 3,000 MET-minutes per week

Calculation method

$$\frac{\text{Number of respondents whose physical activity is assessed as high}^{*}}{\text{Total number of respondents of the survey}^{\dagger}}$$

*For definitions of high levels of physical activity see the case definition above.
†It applies to the total number of respondents of the survey whose level of physical activity was assessed.

Parameters

- Numerator: Number of respondents whose physical activity was assessed as high (see case definition above)
- Denominator: Total number of survey respondents whose level of physical activity was assessed
- Measurement unit: per 100
- Type: rate
- Categories: Male, female,; ages 25-64 years and by age group 25-34, 35-44, 45-54, 55-64
- Frequency of collection: every 3-5 years

Data sources

Obtained from National or sub national Risk factor studies using instrument G-PAQ, or instruments that express the estimated levels of physical activity using continuous indicator as MET –minutes per week or time spent in physical activity

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Prevalence of high levels of physical activity, continued

Significance and rational	Physical activity reduces the risk for heart disease, colon cancer, stroke, type 2 diabetes and its complications, as well as for overweight, and osteoporosis. Information about the population with low levels of physical activity is used to implement policies and develop strategies to increase physical activity.
Limitations of indicators and data sources	The calculation of the MET minutes has to be done and it can lead to errors in measurement. As with all self reported sample surveys, data might be subject to error resulting from recall bias, non-coverage, non-response or inadequate data weighting

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Prevalence of moderate levels of physical activity

Name

Prevalence (and Standard Deviation) of the population of adults with moderate levels of activity (defined as at least 600 MET-minutes/week but less than 1500 Met-minutes/week).

Definition

Population with moderate levels of physical activity expressed as percentage of all population surveyed.

Case definition

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 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.

Calculation method

$$\frac{\text{Number of respondents whose physical activity is assessed as moderate}^{*}}{\text{Total number of respondents of the survey}^{\dagger}}$$

*For definitions of moderate levels of physical activity see the case definition above.

†It applies to the total number of respondents of the survey whose level of physical activity was assessed.

Parameters

- Numerator: Number of people whose physical activity was assessed as moderate (see case definition above)
- Denominator: total number of respondents of the survey whose level of physical activity was assessed
- Measurement unit: per 100
- Type: rate
- Categories: Male, female.; ages 25-64 years and by age group 25-34, 35-44, 45-54, 55-64
- Frequency of collection: every 3-5 years

Continued on the next page

Prevalence of moderate levels of physical activity, continued

Data sources	Obtained from National or sub risk factors surveys using instrument G-PAQ, STEPS, GSHS or instruments that express the estimated levels of physical activity using continuous indicator as MET-minutes per week or time spent in physical activity.
Significance and rational	Physical activity reduces the risk for heart disease, colon cancer, stroke, Type 2 diabetes and its complications, overweight, and osteoporosis. Therefore information on levels of physical activity is important to develop strategies to increase physical activity among the population.
Limitations of indicators and data sources	The calculation of the MET minutes has to be done and it can lead to errors in measurement. As with all self reported sample surveys, data might be subject to error resulting from, recall bias, non-response or inadequate data weighing.

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Prevalence of low levels of physical activity

Name

Prevalence (and Standard Deviation) of the population of adults with low levels of physical activity (defined as <600 MET-minutes per week OR less than 30 minute of walking a day on less than 5 days a week).

Definition

Population with low levels of physical activity expressed as percentage of all population surveyed.

Case definition

A person meeting neither the "high" nor the "moderate" criteria falls in this category:

- An individual whose physical activity is <600 MET-minutes per week OR
- Less than 30 minutes of walking a day on less than 5 days a week

Calculation method

$$\frac{\text{Number of respondents whose physical activity is assessed as low}^{*}}{\text{Total number of respondents of the survey}^{\dagger}}$$

*For definitions of low levels of physical activity see the case definition above.

†It applies to the total number of respondents of the survey whose level of physical activity was assessed.

Parameters

- Numerator: Number of people whose physical activity was assessed as low (see case definition above)
- Denominator: total number of respondents of the survey whose level of physical activity was assessed
- Measurement unit: per 100
- Type: rate
- Categories: Female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
- Frequency of collection: every 3-5 years

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Prevalence of low levels of physical activity, continued

Data sources	Obtained from National or sub national Risk factor studies using instrument GPAQ, GSHS, STEPS or instruments that express the estimated levels of physical activity using continuous indicator as MET-minutes per week or time spent in physical activity.
Significance and rational	Physical activity reduces the risk for heart disease, colon cancer, stroke, Type 2 diabetes and its complications, overweight, and osteoporosis. Therefore information on levels of physical activity is important to develop strategies to increase physical activity among the population.
Limitations of indicators and data sources	The calculation of the MET minutes has to be done and it can lead to errors in measurement. As with all self reported sample surveys, data might be subject to systematic error resulting from recall bias, non-response or inadequate data weighting

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Prevalence of physical inactivity among adolescents

Name	Prevalence (and Standard Deviation) of physical inactivity among adolescents
Definition	Adolescents (13-15 years old) who reported not having any type of physical activity for at least 60 minutes per day during the last 7 days prior to the survey, expressed as percentage of all the population surveyed
Case definition	A young individual whose physical activity is less than 60 minutes per day during the last 7 days prior to the survey
Calculation method	$\frac{\text{Number of adolescent respondents who reported not having any type of physical activity for at least 60 minutes per day, during the last 7 days prior to the survey}}{\text{Total number of adolescent respondents of the survey}}$
Parameters	• Numerator: number of adolescent respondents who reported not having any type of physical activity for at least 60 minutes per day, during the last 7 days prior to the survey • Denominator: total number of adolescent respondents of the survey • Measurement unit: per 100 • Type: rate • Categories: Female, male; ages 13-15 • Frequency of collection: every 3-5 years
Data sources	Obtained from National or sub national risk factor studies like GSHS
Significance and rational	Physical activity reduces the risk for heart disease, colon cancer, stroke, type 2 diabetes and its complications, overweight, and osteoporosis. Therefore information on levels of physical activity is important to develop strategies to increase physical activity among youth.
Limitations of indicators and data sources	As with all self reported sample surveys, data might be subject to recall bias or, systematic error resulting from, non-response or inadequate data weighting

Mean level of systolic blood pressure

Name	Mean (and Standard Deviation) level of systolic blood pressure in the population
Definition	Average level of systolic blood pressure levels in the surveyed population
Case definition	level of systolic blood pressure
Calculation method	$\frac{\text{Sum of all the measurements of systolic blood pressure}}{\text{Total number of adult respondents of the survey who had their blood pressure measured}}$
Parameters	• Numerator: Sum of all the measurement of systolic blood pressure • Denominator: Total number of respondents who had their blood pressure measured • Type: Mean • Categories: Female, male; ages 25 -64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5
Data sources	National of sub national risk factors survey (STEPS or similar)
Significance and rational	Blood pressure control among adults is important in preventing or delaying the onset or progression of hypertensive disease and its complications (e.g., cardiovascular disease, stroke, and end-stage renal disease). Systolic BP is a reliable marker of age-related vascular target organ damage therefore the mean level of systolic pressure provides valuable information for assessment of BP control programs in population. It is also useful for comparing trends and track changes in the population over time.
Limitations of indicators and data sources	Data might be subject to measurement errors.

Mean level of diastolic blood pressure

Name	Mean level of diastolic blood pressure in the population
Definition	Average level of diastolic blood pressure measured in the surveyed population
Case definition	Level of diastolic blood pressure
Calculation method	$\frac{\text{Sum of all the measurements of diastolic blood pressure}}{\text{Total number of adult respondents of the survey who had their blood pressure measured}}$
Parameters	• Numerator: Sum of all the measurements of diastolic blood pressure • Denominator: total number of adults respondents who had their blood pressure measured • Type: Mean • Categories: Female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National of sub national risk factors survey (STEPS or similar)
Significance and rational	Blood pressure control among adults is important in preventing or delaying the onset or progression of hypertensive disease and its complications (e.g., cardiovascular disease, stroke, and end-stage renal disease).
Limitations of indicators and data sources	Data might be subject to measurement errors.

Mean blood glucose

Name	Mean (and Standard Deviation) of fasting blood glucose in the population
Definition	Average of the levels of fasting blood glucose measured in the surveyed population
Case definition	Level of fasting blood glucose
Calculation method	$\frac{\text{Sum of all the measurements of fasting blood glucose taken from the surveyed population}}{\text{Total number of adult respondents of the survey who had their fasting blood glucose taken}}$
Parameters	• Numerator: Sum of all the measurements of fasting blood glucose taken from the surveyed population • Denominator: Total number of adult respondents who had their fasting blood glucose taken • Type: Mean • Categories: Female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National of sub national risk factors survey (STEPS or similar)
Significance and rational	Glycemic control among adults is important in preventing or delaying the onset or progression of diabetes and diabetes related complications (e.g., retinopathy, lower extremity amputations, and end-stage renal disease). A mean blood glucose level is useful to provide information about the level in the population and support the development of programs to improve management of blood glucose levels.
Limitations of indicators and data sources	Data might be subject to error resulting from measurement or variation depending on the test and the method used.

Mean Body Mass Index (BMI)

Name	Mean (and Standard Deviation) of BMI in the population
Definition	BMI average in the surveyed population.
Case definition	Level of BMI
Calculation method	$\frac{\text{Sum of all BMIs calculated from the surveyed population}}{\text{Total number of adult respondents of the survey who had their BMI calculated iether from self reported or measured height and weights}}$
Parameters	• Numerator: Sum of all BMIs calculated from surveyed population • Denominator: Total number of adult respondents whose BMI was calculated either from self reported or measured height and weights • Type: Mean • Categories: Female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factors survey (STEPS or similar)
Significance and rational	BMI is a derived indicator and most common measure to classify overweight (BMI 25.00 -29.99 kg/m^2) and obesity (BMI 30.00 kg/m^2 and more).[37] The mean BMI for an adult population should be in the range of 21.00 to 23.00 kg/m^2. The Prevalence of obesity has been increasing in the Region of the Americas and obesity increases the risk for multiple chronic diseases, including heart disease, stroke, and hypertension, type 2 diabetes etc. It is important to follow trends of mean BMI in population so preventive programs are intensified.

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[37] World Health Organization (WHO). Obesity: preventing and managing the global epidemic. Report of a WHO consultation. 2000, op.cit

Mean Body Mass Index (BMI), continued

Limitations of indicators and data sources	If not measured but used self reported data to assess BMI, this might be subject to errors and has limitations as respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of overweight. Additionally for data analysis, appropriated data weighting needs to be done when there is not a 100% coverage/response, and errors due to measurement should also be considered.

Median waist circumference

Name	Median of Waist Circumference in the population
Definition	Measure of central tendency for waist circumference that divides the distribution of surveyed population in two equal parts.
Case definition	Size of Waist circumference
Calculation method	Arrange the levels of waist circumference in order according to their value on a measurement scale. If *n* is an odd number the median will be the value corresponding to the middle observation. If *n* is the even number the median will be the average of the two middle waist circumferences.
Parameters	• Type: Median • Categories: Male, female,; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National of sub national risk factors survey (STEPS or similar)
Significance and rational	Changes in waist circumference reflect changes in risk factors for cardiovascular disease and other forms of chronic diseases. Waist circumference is more powerful determinant of subsequent risk of type 2 diabetes than BMI.

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Section IV: Health System Performance

Percentage of the adults covered by health insurance

Name	Percentage of the population covered by health insurance
Definition	Percentage of population who reports having any kind of health insurance, whether is private or social coverage
Case definition	An individual who has any kind of health insurance, whether is private or social coverage. Please specify percentage of people who have social insurance, private insurance and prepaid plans
Calculation method	$\frac{\text{Number of residents who have any kind of health insurance (social, private, prepaid plans, etc.)}}{\text{Mid year resident population}}$
Parameters	• Numerator: Number of people who have any kind of health insurance (social, private, prepaid plans, etc) • Denominator: Midyear resident population • Measurement unit: per 100 • Type: rate • Categories: Female. Male; ages 25 -64 and older, groups by age 25-34, 35-44, 45-54, 55-64 • Frequency of collection: annual
Data sources	Obtained from National or sub national studies or health insurance data
Significance and rational	Lack of health insurance remains a major determinant of access to necessary health services, including preventive health care in many countries. Certain socioeconomic conditions, including a lack of health insurance coverage and poverty, are associated with poor health status and chronic disease. This information can be used to develop strategies to increase health insurance coverage in the population or detect sections of the population who may be at risk.

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Percentage of the adults covered by health insurance, continued

Limitations of indicators and data sources

Coverage for health care procedures and services can vary across insurance and other health plans. Required payments and copayments by patients can vary across insurance and other health plans, thereby affecting the financial ability of patients to receive services.

Because individual persons might move in and out of health insurance, this indicator might underestimate the prevalence of a lack of health insurance. Self reported sample surveys, data might be subject to errors resulting from non appropriate data weighting

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Percentage of the adults covered by social health insurance

Name	Percentage of the population covered by social health insurance
Definition	Percentage of population who reports having social health insurance, government-mandated
Case definition	An individual whose financing of health care costs are through a (government-mandated) social insurance program
Calculation method	$\frac{\text{Number of residents whose financing of health care costs are through a (government – mandated) social insurance program}}{\text{Mid year resident population}}$
Parameters	• Numerator: Number of residents whose financing of health care costs are through a (government-mandated) social insurance program • Denominator: Midyear resident population • Measurement unit: per 100 • Type: rate • Categories: Female. Male; ages 25 and older, groups by age 25-34, 35-44, 45-54, 55-64 • Frequency of collection: annual
Data sources	Obtained from National or sub national health accounts
Significance and rational	Lack of insurance remains a major determinant of access to necessary health services, including preventive care. People covered by social health insurance have access to the services that are included in the nationally defined, benefit package therefore this information can be used to develop strategies to increase health insurance coverage in the population and quality of care in the population that is already covered

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Percentage of the adults covered by social health insurance, continued

Limitations of indicators and data sources	Covered health care procedures and services can vary across different types of insurances and other health plans affecting the financial ability of patients to receive services and although in social Health insurance there is a predefined benefit package and the financing health care costs are defined through the government, variability can exist Because social health insurance has difficulties covering workers in the informal sector until the country has reached a high level of economic development, and individual persons might move in and out of health insurance, this indicator might underestimate the prevalence of a lack of social health insurance.

Percentage of women who have had a pap smear within the last three years

Name	Percentage of women who have had a pap smear within the last 3 years
Definition	Female population who reports having a pap smear done within the last 3 years prior to the survey, expressed as percentage of all female population screened.
Case definition	A woman who has had a pap smear within the last 3 years, prior to the survey.
Calculation method	$\frac{\text{number of female respondents who reports having a pap smear done during the last three years, prior to the survey}}{\text{total number of female respondents of the survey}}$
Parameters	• Numerator: Number of female respondents who report having a pap smear done during the last 3 years, prior to the survey • Denominator: Total number of female respondents of the survey • Measurement unit: per 100 • Type: rate • Categories: female,; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National of sub national risk factors surveys (STEPS or similar)
Significance and rational	Cervical cancer is one of the leading causes of death among women in the region of the Americas. It is estimated that in Latin America and the Caribbean the incidence rate of cervical cancer is between 28.6-32.6/100,000 and the mortality rate is between 12.9-16/100,000.[38] Approximately 40-60% of cervical cancer deaths can be prevented by increased use of the Pap test and effective, timely treatment. Therefore it is important to develop initiatives and programs to increase the proportion of women who undergo screening for cervical cancer.
Limitations of indicators and data sources	Recommendation for screening age groups and frequency varies by country, depending of capacity of health care system to perform screening as well as of distribution of risk groups. As with all self reported sample surveys, data might be subject to error resulting from non-response or inadequate data weighting.

[38] Ferlay J. et al. GLOBOCAN 2002: Cancer incidence, mortality and prevalence worldwide. 2004, op.cit

Percentage of women who have ever had a mammogram

Name	Percentage of women (ages 45-64) who have ever had a mammogram
Definition	Female population (ages 45-64) who reports having ever had a mammogram, expressed as percentage of all female population surveyed.
Case definition	A woman (ages 45-64) who has ever had a mammogram
Calculation method	$\frac{\text{number of female respondents (ages 45-64) who reports having ever had a mammogram}}{\text{total number of female respondents (ages 45-64)}}$
Parameters	• Numerator: Number of female respondents 45-64 years who report having ever had a mammogram • Denominator: Total number of female Respondents between 45-64years old • Measurement unit: per 100 • Type: rate • Categories: Female; ages 45-64 and by age groups 45-54, 55-64. • Frequency of collection: every 3-5 years
Data sources	National or sub national risk factors surveys, or disease specific register (STEPS or similar)
Significance and rational	Breast cancer is the most common cancer among women. Mammography screening with or without clinical breast examination can reduce breast cancer deaths by 30% in women aged >40 years, risk reduction is greater among women aged >50. [39] Therefore it is useful to keep track of the trends in the percentage of women that undergo screening for breast cancer.
Limitations of indicators and data sources	Recommendations for mammography screening of age groups and frequency varies by country, depending of capacity of health care system to perform screening as well as of distribution of risk groups. As with all self reported sample surveys, data might be subject to errors resulting from, non-response or inadequate data weighting

[39] Stewart B. W. and Kleihues P. (Eds): World Cancer Report. IARC*Press*. 2003 op.cit.

Percentage of adults who have had their blood pressure checked in the last year

Name	Percentage of adults who have had their blood pressure checked in the last year
Definition	Population who report having their blood pressure checked in the last year prior to the survey, expressed as percentage of population surveyed.
Case definition	An individual who reports having had his or her blood pressure checked in the last year, prior to the survey
Calculation method	$\frac{\textit{Number of adult respondents who reports having ever had his or her blood pressure checked in the last year, prior to the survey}}{\textit{total number of adult respondents}}$
Parameters	• Numerator: Number of adult respondents who reports having ever had his or her blood pressure checked in the last year, prior to the survey • Denominator: Total number of adult respondents • Measurement unit: per 100 • Type: rate • Categories: Male, female,; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National of sub national studies, reports done by NGOs, or other partners
Significance and rational	Blood Pressure control among adults is important in preventing or delaying the onset or progression of hypertensive disease and its complications (e.g., cardiovascular disease, stroke, and end-stage renal disease). The data would ultimately be used to develop programs to increase screening activities on hypertension detection.
Limitations of indicators and data sources	As with all self reported sample surveys, data might be subject to errors resulting from non-response or inadequate measurement.

Percentage of adults who have had their blood glucose checked in the last year

Name	Percentage of adults who have had their blood glucose checked in the last year
Definition	Population who reports having their blood glucose checked in the last year prior to the survey, expressed as percentage of all population surveyed.
Case definition	An individual who reports having had his or her blood glucose checked in the last year, prior to the survey
Calculation method	$\frac{\text{number of adult respondents who reports having his or her blood glucose checked in the last year, prior to the survey}}{\text{total number of adult respondents}}$
Parameters	• Numerator: Number of respondents who report having his or her blood glucose checked in the last year, prior to the survey • Denominator: Total number of respondents • Measurement unit: per 100 • Type: rate • Categories: Male, female,; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National of sub national studies, reports done by NGOs or other partners
Significance and rational	Glycemic control among adults is important in preventing or delaying the onset or progression of metabolic syndrome, diabetes or diabetes -related complications (e.g., retinopathy, lower extremity amputations, and end-stage renal disease). Monitoring of blood glucose can assist to develop programs to increase the proportion of adults that undergo blood glucose check up.
Limitations of indicators and data sources	The reliability and validity of this indicator is unknown. As with all self reported sample surveys, data might be subject to systematic error resulting from, non-response or inadequate measurement and data weighting

Percentage of adults who have had their blood cholesterol checked in the last year

Name	Percentage of adults who had their blood cholesterol checked in the last year
Definition	Population who reports having their blood cholesterol checked in the last year prior to the survey, expressed as percentage of population surveyed
Case definition	An individual who reports having had his or her blood cholesterol checked in the last year
Calculation method	$\frac{\textit{Number of adult respondents who report having had his or her blood cholesterol checked in the last year, prior to the survey}}{\textit{total number of adult respondents}}$
Parameters	• Numerator: Number of adults respondents who report having had hi or her blood cholesterol checked in the last year, prior to the year • Denominator: Total number of respondents of the survey • Measurement unit: per 100 • Type: rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	National of sub national studies, reports done by NGOs or other partners
Significance and rational	Although rates of cholesterol checkups have increased, there are still a large percentage of adults that have not had it. Elevated levels of serum cholesterol can lead to development of atherosclerosis. Approximately 56% of coronary heart disease and 18% of strokes are attributable to elevated serum cholesterol. [40] Elevated serum cholesterol has been associated with physical inactivity, high fat intake, smoking cigarettes, diabetes, and obesity. Lifestyles changes and medications can reduce cholesterol and prevent heart disease among persons with elevated serum cholesterol .The information obtained in this indicators can be used to develop programs to increase the proportion of adults that undergo blood cholesterol check up.

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[40] World Health Organization (WHO). The World health report 2002. 2002, op.cit

Percentage of adults who have had their blood cholesterol checked in the last year, continued

Limitations of indicators and data sources	Validity and reliability of this indicator can be low because patients might not be aware of specific tests conducted on their blood samples collected in clinical settings. As with all self reported sample surveys, data might be subject to systematic error resulting from, non-response or inadequate measurement.

Percentage of diabetics who had an eye exam in the last year

Name	Percentage of diabetics who had an eye exam in the last year
Definition	Population of diabetics who report having received at least one clinical eye examination in the last year prior to the survey, expressed as percentage of diabetics in the population surveyed.
Case definition	An individual with diabetes who report having a clinical eye examination in the last year prior to the survey
Calculation method	$\frac{\text{Number of diabetics who report having an eye exam in the last year, prior to the survey}}{\text{total number of diabetic respondents}}$
Parameters	• Numerator: Number of diabetics who report having an eye exam in the last year, prior to the survey • Denominator: Total number of diabetic respondents • Measurement unit: per 100 • Type: rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Obtained from National or sub risk factors surveys (STEPS or similar)
Significance and rational	Persons with diabetes are at increased risk for blindness as a result of retinopathy. Diabetes is the leading cause of new cases of blindness among adults aged 20–74 years.[41] This indicator is useful for developing strategies and prevention programs to increase quality of care among adults with diabetes.
Limitations of indicators and data sources	The reliability and validity of the indicator are unknown As with all self reported sample surveys, data might be subject to systematic error resulting from, non-response or inadequate data collection.

[41] Resnikoff S. et al. Global data on visual impairment in the year 2002. *Bulleting of the World Health Organization,* 2004, 52:844-851.

Percentage of diabetics who had a foot exam in the last year

Name	Percentage of diabetics who had a foot exam in the last year
Definition	Population of diabetics who reports having received a foot exam in the last year prior to the survey, expressed as percentage of population surveyed who are diabetics.
Case definition	A person with diabetes who had a foot exam in the last year, prior to the survey
Calculation method	$\frac{\text{number of diabetics who report having a foot exam in the last year, prior to the survey}}{\text{number of total diabetic respondents}}$
Parameters	• Numerator: Number of diabetics who report having a foot exam in the last year, prior to the survey • Denominator: Total number of diabetic respondents • Measurement unit: per 100 • Type: rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Obtained from National or sub risk factors surveys (STEPS)
Significance and rational	People with diabetes are at increased risk for vascular peripheral complications that cause pathologic changes of their lower extremities that, when combined with minor trauma and infection, can lead to serious foot problems, including amputation. Routine and periodic foot examination can enable early detection of peripheral vascular complications. Diabetes is the leading cause of non-traumatic amputation and observing the trends in the percentage of amputations can help to develop strategies and prevention programs to increase clinical foot examination among adults with diabetes
Limitations of indicators and data sources	The reliability and validity of the indicator are not well known. Self reported sample surveys, data might be subject to error resulting from non-coverage and inappropriate data weighting.

Percentage of hospital discharges with diagnosis myocardial infarction in a given year

Name	Percentage of hospital discharges with diagnosis myocardial infarction (MI) in a given year (ICD10 I21-I22)
Definition	Hospitalized **c**ases with a principal diagnosis myocardial infarction (MI), expressed as percentage of all hospitalization in the given year.
Case definition	Hospital discharge with a diagnosis of MI in a given year
Calculation method	$\frac{\text{number of cases discharged from the hospital with a diagnosis MI in a given year}}{\text{total number of hospitalizations during a given year}}$
Parameters	• Numerator: Number of cases discharged from the hospital with a diagnosis MI in a given year • Denominator: total number of hospitalizations during a given year • Measurement unit: per 100 • Type: rate • Categories: male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Substantial differences in coronary heart disease (CHD) death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors therefore records from hospitalizations can help to keep track of high risk groups as well as to identify success of preventive programs and primary health care (PHC) interventions aimed to control and reduce hospitalizations due to coronary heart disease.

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Percentage of hospital discharges with diagnosis myocardial infarction (MI) in a given year, continued

Limitations of indicators and data sources

Substantial numbers of persons with acute myocardial infarction die before reaching a hospital. Because heart disease is a chronic disease that can have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population morbidity and mortality. A substantial number of misdiagnoses, particularly among women, have been reported.

Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients. Multiple admissions for an individual patient can falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.

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Average length stay in a hospital because of myocardial infarction

Name	Average length of stay in hospital because of myocardial infarction (MI) (ICD10 I21-I22)
Definition	Mean of hospital day bed occupancy in a given year with cases of MI
Case definition	Hospital stay because MI
Calculation method	$\frac{\text{sum of all the bed days used by cases of MI in a given year}}{\text{number of cases of MI discharged in a given year}}$
Parameters	• Numerator: Sum of all the bed days used by cases of MI in a given year • Denominator: number of cases of MI discharged in a given year. • Measurement unit: per 100 • Type: mean • Categories: male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Hospital bed utilization can be obtained through admission rates, length of stay and bed day use for inpatients. Following trends of average length of stay due to MI contributes to the assessment of overall performance, resource utilization and can support resource planning.

Percentage of hospital discharges with diagnosis stroke in a given year

Name	Percentage of hospital discharges with diagnosis stroke in a given year (ICD10 I60-I69)
Definition	Hospitalized cases with a diagnosis of stroke, expressed as percentage of all hospitalization in the given year.
Case definition	Hospital cases discharged with a diagnosis of stroke in a given year.
Calculation method	$\frac{\text{number of cases discharged from the hospital with a diagnosis stroke in a given year}}{\text{total number of hospitalizations in a given year}}$
Parameters	• Numerator: Number of cases discharged from the hospital with a diagnosis stroke in a given year • Denominator: total number of hospitalizations in a given year • Measurement unit: per 100 • Type: rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Substantial differences in cerebrovascular disease death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors therefore records from hospitalizations can help to keep track of high risk groups as well as of success of preventive programs and primary health care (PHC) interventions aimed to control and reduce hospitalizations due to stroke.

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Percentage of hospital discharges with diagnosis stroke in a given year, continued

Limitations of indicators and data sources	Substantial numbers of persons with acute stroke die before reaching a hospital. Although the two major types of stroke — hemorrhagic (approximately 10% of stroke) and ischemic (approximately 65% of stroke) share certain risk factors, their treatment varies. It is important to notice that distinction because it can lead to coding errors. Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients. Multiple admissions for an individual patient can falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete

Average length of stay in a hospital because of stroke

Name	Average length of stay in a hospital because of stroke (ICD10 I60-I69)
Definition	Mean of hospital day bed occupancy in a given year with cases of stroke
Case definition	Hospital stay because of stroke
Calculation method	$\frac{\text{sum of all the bed days used by cases of stroke in a given year}}{\text{number of cases of stroke discharged in a given year}}$
Parameters	• Numerator: Sum of all the bed days used by cases of stroke in a given year • Denominator: number of cases of stroke discharged in a given year. • Measurement unit: per 100 • Type: mean • Categories: male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Hospital bed utilization can be obtained through admission rates, length of stay and bed day use for inpatients. Following trends of average length of stay due to stroke contributes to the assessment of overall performance, resource utilization and can support resource planning.

Percentage of hospital discharges with diagnosis chronic obstructive pulmonary disease in a given year

Name	Percentage of hospital discharges with diagnosis of chronic obstructive pulmonary disease (COPD) (ICD10 J40-J47) in a given year
Definition	Hospital cases with a principal diagnosis of COPD, expressed as part of overall hospitalization in the given year
Case definition	Hospital case discharged with a principal diagnosis of COPD during a given year.
Calculation method	$\frac{\text{number of cases discharged from the hospital with a diagnosis COPD in a given year}}{\text{total number of hospitalizations in a given year}}$
Parameters	• Numerator: Number of cases discharged from the hospital with a diagnosis of COPD during a given year • Denominator: Total number of cases hospitalized during a given year • Measurement unit: per 100 • Type: rate • Categories: Female, male; ages 25-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Mortality from COPD has increased by 40% in the past 2 decades. Elimination of tobacco use is the most effective way to reduce COPD because approximately 90% of COPD is attributable to smoking.[42] Other risk factors for COPD include occupational exposure and ambient air pollution if preventive programs are developed to modify risk factors it should be possible to see a decrease in the amount of hospitalizations.[42]

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[42] World Health Organization (WHO). World health report 2002. 2002, op.cit

Percentage of hospital discharges with diagnosis COPD in a given year, continued

Limitations of indicators and data sources	Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms could affect decisions by health-care providers to hospitalize patients. Multiple admissions for an individual patient can falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.

Average length of stay in a hospital because of COPD

Name	Average length of stay in a hospital because of COPD (ICD10 J40-J47)
Definition	Mean of hospital day bed occupancy in a given year with cases of COPD
Case definition	Hospital stay because of COPD
Calculation method	$\frac{\text{sum of all the bed days used by cases of COPD in a given year}}{\text{number of cases of COPD discharged in a given year}}$
Parameters	• Numerator: Sum of all the bed days used by cases of COPD in a given year • Denominator: number of cases of COPD discharged in a given year. • Measurement unit: per 100 • Type: mean • Categories: female, male; ages 25-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Hospital bed utilization can be assessed through admission rates, length of stay and bed day use for inpatients. Following trends of average length of stay due to COPD contributes to the assessment of overall performance, resource utilization and can support resource planning.

Percentage of hospital discharges with diagnosis diabetes in a given year

Name	Percentage of hospital discharges with diagnosis diabetes (ICD10 E10-14)
Definition	Hospitalized cases with a principal or contributing diagnosis of diabetes, expressed as a percentage of all hospitalizations in a given year
Case definition	A case discharged from the hospital with a diagnosis of diabetes in a given year
Calculation method	$\frac{\text{number of cases discharged from the hospital with a diagnosis diabetes in a given year}}{\text{total number of hospitalizations in a given year}}$
Parameters	• Numerator: Number of cases from the hospital with diagnosis diabetes in a given year • Denominator: Total number of hospitalization in a given year • Measurement unit: per 100 • Type: rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Long-term complications of diabetes requiring hospitalization can be prevented through glucose, lipid, and blood pressure regulation, as well as screening and treatment for eye, foot, and kidney abnormalities. Patient education, self-management, and medical care can prevent complications. Therefore this indicator can be used to guide programs that promote screening, preventive and management services to reduce hospitalizations due to diabetes

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Percentage of hospital discharges with diagnosis diabetes in a given year, continued

Limitations of indicators and data sources

Approximately one third of cases of diabetes are undiagnosed and years might pass before improvements in patient self-management and clinical practice affect diabetes-related hospitalization rates

Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms might affect decisions by health-care providers to hospitalize patients. Multiple admissions for one person might falsely elevate the number of persons hospitalized. Because no universal availability of state hospital discharge data exists, aggregation of state data to produce nationwide estimates will be incomplete.

Average length of stay in a hospital because of diabetes

Name	Average length of stay in a hospital because of diabetes (ICD10 E10-E14)
Definition	Mean of hospital day bed occupancy in a given year with cases of diabetes
Case definition	Hospital stay because of diabetes
Calculation method	$\frac{\text{sum of all the bed days used by cases of diabetes in a given year}}{\text{number of cases of diabetes discharged in a given year}}$
Parameters	• Numerator: Sum of all the bed days used by cases of diabetes in a given year • Denominator: number of cases of diabetes discharged in a given year. • Measurement unit: per 100 • Type: mean • Categories: male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Hospital registries
Significance and rational	Hospital bed utilization can be obtained through admission rates, length of stay and bed day use for inpatients. Following trends of average length of stay due to stroke contributes to the assessment of overall performance, resource utilization and can support resource planning.

Percentage of amputations among adults with diabetes in a given year

Name	Percentage of amputations among adults with diabetes in a given year
Definition	Number of amputations among adults with diabetes, expressed as percentage of all diabetics in a given year
Case definition	An amputation due to diabetic complications
Calculation method	$\frac{\text{number of amputations with underlying cause of diabetes in a given year}}{\text{total number of population diagnosed with diabetes in a given year}}$
Parameters	• Numerator: Number of amputations with underlying cause of diabetes in a given year • Denominator: Total number of population diagnosed with diabetes in a given year • Measurement unit: per 100 • Type: rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: annual
Data sources	Obtained from hospital registries or disease specific registries
Significance and rational	Persons with diabetes are at increased risk for pathologic changes of their lower extremities that, when combined with minor trauma and infection, can lead to serious foot problems, including amputation. Routine and periodic foot examination can enable early detection of peripheral vascular complications. Diabetes is the leading cause of no traumatic amputation so it is important to keep track of the percentage to improve disease management and decrease the number of amputations
Limitations of indicators and data sources	The reliability and validity of the indicator are unknown as with all self reported sample surveys, data might be subject to error resulting from, non-response or inadequate data weighting

Percentage of patients on dialysis among adults with diabetes in a given year

Name	Percentage of patients on dialysis among adults with diabetes in a given year.
Definition	Number of diabetics on dialysis, expressed as percentage of all diabetics in a given year.
Case definition	Dialysis due to diabetic complications.
Calculation method	$\frac{\text{number of diabetics on dialysis in a given year}}{\text{total number of population diagnosed with diabetes in a given year}}$
Parameters	• Numerator: Number of diabetics on dialysis in a given year • Denominator: Total number of population diagnosed with diabetes in a given year • Measurement unit: per 100 • Type: rate • Categories: Male, female; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: annual
Data sources	Obtained from hospital registries or disease specific registries
Significance and rational	Persons with badly managed diabetes are at increased risk for kidney failure. Diabetes is the leading cause of dialysis in many counties in the Region, and severe economic burden for the country economy, so it is important to keep track of the percentage to improve disease management and decrease the number of dialysis due to diabetes.
Limitations of indicators and data sources	The reliability and validity of the indicator are unknown as with all self reported sample surveys, data might be subject to error resulting from, non-response or inadequate data weighting

Percentage of adults who have geographic accessibility to health care

Name	Percentage of adults who have geographic accessibility to health care (HC)
Definition	Population who report having a HC unit reachable within a 60 minutes distance, expressed as percentage of all the population surveyed.
Case definition	An individual who reports having a HC unit reachable within 60 minutes distance
Calculation method	$\frac{\text{number of adult who report having a HC unit reachable within a 60 min distance}}{\text{Midyear resident population}}$
Parameters	• Numerator: Number of adults who reports having a HC unit reachable within a 60 minutes distance • Denominator: Midyear resident population • Measurement unit: per 100 • Type: rate • Categories: Male, female; age 25-64, by age groups 25-34, 35-44, 45-54, 55-64 • Frequency of collection: every 3-5 years
Data sources	Obtained from National or sub national studies
Significance and rational	Geographic location of HC unit is considered to be one of the indicators that has influence and partly determines the access to necessary health services, including preventive care. It is associated with poor health status and chronic disease. Therefore it is important to develop strategies to increase access to HC in the population
Limitations of indicators and data sources	This indicator does not include other factors related to access to HC as health insurance coverage.

Section V: Socioeconomic and context indicators

Total population (Male/female ratio)

Total population usually includes all residents regardless of legal status or citizenship. It does not include refugees who are not permanently settled in the country of asylum (these are generally considered to be part of the population of their country of origin).
Population estimates are usually based on national population censuses and revised (in-between) censuses which have data on births, deaths and migration. This indicator is indispensable for calculating per capita indicators. It is important to notice that estimation errors of up to 5 percent may be observed for countries with infrequent, and/or incomplete censuses and poor registration systems for births, deaths, and migration.

Urban Population

This is the ratio of the total population that lives within "urban agglomerations" and it is expressed as a percentage of the total population. The urban and rural population are counted in national population censuses, or estimated through surveys. Between these operations, estimates are often updated through projections based on the respective growth rates previously observed for urban and rural populations. This indicator gives important information through time of how the country population shifts to the urban way of life and related economic set-up (declining share of agriculture, increasing share of industry and services). Urbanization is considered to be one of the key drivers for the changes regarding burden of diseases, environmental and behavioral influences on the adoption of new dietary habits, a sedentary lifestyle, as well as consumption of alcohol and tobacco and in that way influencing the rising prevalence of risk factors for NCDs.

Gross national income

It comprises the total value produced within a country (i.e. its Gross Domestic Product), together with its income received from other countries (notably interest and dividends), and less similar payments made to other countries. This information is very useful and is often used as the main criteria for classifying economies. The gross national income (GNI) provides a rough measure of the annual national income per person in different countries. Countries that have a sizable modern industrial sector have a much higher GNI per capita than countries that are less developed.

Population below poverty line

It refers to the percentage of the population (in rural or urban) living below the national (rural or urban) poverty line. The poverty line is a threshold figure usually defined by the World Bank as 1 USD a day below which a percentage of population is considered poor. Although different countries have different definitions of poverty, it is well-documented that people who live in poverty suffer from a higher incidence of chronic illness including diabetes, heart disease and hypertension. It is essential that all sectors take responsibility for reducing poverty including public policy action at all levels of government.

Income ratio (highest 20%/lowest 20%)

The gross national product (GNP) per capita is only a crude measure of the average income in a country most notably because the distribution of income within a country is never equal. This information can be used to compare the ratio of income in one country to the world mean and measure international inequality. Inequality between nations is commonly measured by comparing GNP/capita. This can not only affect the access to health care and quality of services provided but it can also affect the access to services and affordability of selected essential medicines for chronic diseases**.** This information can be obtained from the World Bank data.

Production of fruits

Fruits are very important for a healthy diet. To increase and assure its availability and production are of high priority for governments**.** Fruits also have a vital role in income and employment generation and diversification of agricultural production systems. Policy and other implications related to increasing fruit and vegetable production and consumption should be considered like the provision of inputs, production incentives, capacity building, marketing infrastructure and trade. The data can be expressed as the percentage of global market share in the world or in metric tons (in thousands). Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

A healthy diet is important to prevent obesity and several chronic diseases such as diabetes and cardiovascular disease. It is known that agricultural policy and production often have a great effect on national diets. Therefore, governments can influence agricultural production through many policy measures. Countries need to take healthy nutrition into account in their agricultural policies**.**

Import of fruits

The fruit industries in many Latin American & Caribbean countries have continued to expand. Fruit and vegetables are very important to ensure the nutritional and overall well being, and decrease the risk for chronic diseases. For governments, it is important to increase and assure fruit and vegetables' availability throughout the year, independently of the season. In countries where production is not enough to cover the requirements of the population, imports can be an important source to increase availability and variety among the population. The data can be expressed as Quantity, Unit or Value. Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

Export of fruits

Agricultural resources and specifically production of fruits and vegetables are an important part of the world's economy since a large portion of the agricultural production derives from the fruit and vegetable sector. Fruit export volumes have grown enormously and there is an effort to expand and diversify fruit and vegetables availability for consumption worldwide. In countries where production is limited (i.e. due to season changes), imports are especially important to assure the availability and variety among the population. The data can be expressed as Quantity,

Unit or Value. Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

Production of Vegetables

Vegetables are very important for a healthy diet and it is important to increase and assure its availability and production**.** Vegetables also have a vital role in income and employment generation and diversification of agricultural production systems. Policy and other implications related to increasing fruit and vegetable production and consumption should be considered, such as the provision of inputs, production incentives, capacity building, marketing infrastructure and trade. The data can be expressed in the percentage of global market share in the world or in metric tons (in thousands). Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

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For governments it is important to assure the fruit and vegetable availability throughout the year, independently of the season. In countries where production is not enough to cover the requirements of the population, imports can be an important source to increase availability and variety among the population. The data can be expressed as Quantity, Unit or Value. Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

Export of Vegetables

Trade is a very important part of the economy. The vegetable industry in many Latin American and Caribbean countries has continued to expand vegetable export volumes. These have grown enormously and there is an effort to expand and diversify fruit and vegetables availability for consumption. In countries where production is limited (i.e. due to season changes) exports are especially important to assure availability and variety among the population. The data can be expressed as Quantity, Unit or Value. Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

Production of Alcohol

To prevent alcohol medical and social related problems, it is important to have a clear view of their magnitude. Estimates of per capita consumption of alcohol across the national populations can provide policy makers with valuable information of the magnitude of the problem and

trends. Therefore, adult per capita consumption estimates are very useful for planning and assessment of public health policies related to alcohol. In order to be able to calculate the annual per capita consumption, information on alcohol production, alcohol imports and alcohol exports is required. As developed countries maintain high barriers regarding alcohol trade to influence the decline in consumption, there is an intensified effort for establishment of new markets in developing countries and countries in transition. The data can be expressed as Quantity, Unit or Value. Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

Import & export of alcohol

Only approximately 10% of alcoholic beverage production enters the international trade. The bulk of that trade occurs between developed countries, and thus alcohol sales generally add little to developing country export earnings. The largest importing and exporting countries are all developed nations. Products and profits in the international alcohol trade thus flow primarily into the developed countries and countries in transition. The data can be expressed as Quantity, Unit or Value. Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

Production of tobacco

Tobacco is associated with several diseases such as: Cancer of the lung, bladder, larynx, non cancerous respiratory diseases, cardiovascular diseases and some others. It is one of the most preventable sources of mobility and mortality. Total tobacco consumption can be useful for gauging the size of a tobacco market (Total tobacco consumption = production + imports-exports) and it is useful information to follow the trends and promote health policy to regulate industry and decrease consumption. Although crop substitution is often proposed as a means to reduce the tobacco supply, currently the incentives to farmers to grow tobacco are currently much greater than for most other crops. However, it may be a useful strategy where needed to aid the poorest tobacco farmers in transition to other livelihoods, as part of a broader diversification program**.** Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

Import & export of tobacco

Tobacco trade is a big business, for both the raw material (tobacco leaves) and the finished product (manufactured cigarettes). The developing countries are expected to further increase their share in world tobacco production, according to the UN (Rome, 2003). The data can be expressed as Quantity, Unit or Value. Metric tons are preferred as the unit to measure quantity. The information to fill in this indicator can be obtained from the national statistics from various ministries or international sources, as FAO.

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