# INTERNATIONALLY RECOMMENDED DEFINITIONS, CONCEPTS, AND METHODOLOGIES: Core Health Indicators

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# WHY HEALTH INDICATORS

- Social wellbeing is not a single quantifiable entity

- Benchmarks are needed to illustrate to stakeholders that progress is being made, (or not being made) towards the highest possible level of social wellbeing

- Indicators facilitate the monitoring of progress, stimulate action, and assist in the decision-making progress.

# TYPE OF INDICATORS

- Count (number of)
- Proportion (percentage, number/per x)
- Rate (frequency of an event during a specified period expressed as per 1,000 or 100,000) in a defined population
- Ratio (numerator not included in the denominator)
- Average
- Index

# METADATA: information about data

- Methods used (concepts, definitions) to identify differences between national methods and international recommendations

- Sources of base data

- Methods used for estimates and adjustments

- Technical notes

# DATA QUALITY FRAMEWORK

- Assessment of product quality/integrity (based on feedback from users)
- Statistical methods used and the assumptions made
- Key production dates
- Forms of dissemination
- Availability of supporting documentation
- Changes in methodology or other circumstances

# CORE HEALTH INDICATORS: PAHO/WHO CORE INDICATOR INITIATIVE

1. Life Expectancy at Birth
2. Infant Mortality/Infant Mortality Rate
3. Maternal Mortality/Maternal Mortality Rate
4. Crude Birth Rate
5. Mortality Rate by Cause of death and Age

# LIFE EXPECTANCY AT BIRTH

**Concept and definition**

- Average number of years a newborn baby can expect to live if current mortality trends continue.

- Highly influenced by the infant mortality rate

- Differences between both sexes may be significant

- Good indicator of health and socio-economic development

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# LIFE EXPECTANCY AT BIRTH

**Methodology**

- Calculation derived form Life Tables
- PAHO uses the Life Tables at birth values that are provided by the United Nations Statistical Division (UNSD).

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# LIFE EXPECTANCY AT BIRTH

**Methodology**

Type of indicator: Index

Measure Units: Years

Categories: Total, Male and Female

# LIFE EXPECTANCY AT BIRTH

**Related issues**

- Healthy Life Expectancy (HALE) is based on life expectancy, but includes an adjustment for time spent in poor health.

- Procedures used to estimate the 2002 Life Tables differ for Member States depending on the data availability to assess child and adult mortality.

# INFANT MORTALITY and INFANT MORTALITY RATES

**Concepts and definition** (reported vs estimated)

- A measure of the yearly rate of deaths in children less than or at exact age one year.

- The sum of the neonatal mortality rate + the post-neonatal mortality rate

- Neonatal mortality: children born alive but died before the age of 28 days.

- Post neonatal mortality: children that were alive after 27 days but died before the age of one year

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# INFANT MORTALITY and INFANT MORTALITY RATES

## METHODOLOGY

Death under the age of 1 year after live birth in a given year

No of Live births in same year

Measure Units = per l,000

Type of Indicator = Rate

# INFANT MORTALITY and INFANT MORTALITY RATES

## RELATED ISSUES

- Definitions (live birth, stillbirth, abortion, low-birth weight)
- Completeness of registration
- Date of registration of death
- Adjustment for unregistered deaths

# MATERNAL MORTALITY and MATERNAL MORTALITY RATIO

**Concept and definition**

Death of a women, while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration of the pregnancy, from <u>any</u> cause aggravated by the pregnancy and its management but not from accidental or incidental causes.

# MATERNAL MORTALITY and MATERNAL MORTALITY RATIO

**Concept and definition**

- Two categories: Direct obstetric death and indirect obstetric death

- Maternal mortality is a particular sensitive indicator of inequity

# MATERNAL MORTALITY and MATERNAL MORTALITY RATIO

**Methodology**

$$\frac{\text{Maternal-related deaths in one year}}{\text{Total births in same year}}$$

Type of indicator: Ratio

Measure units = per 100,000 live births

# MATERNAL MORTALITY and MATERNAL MORTALITY RATIO

**Methodology**

- The calculation of a maternal mortality rate is not recommended for countries with an estimated annual number of live births less than 10,000.

- Less than 20 deaths results in a relative standard error ( RSE)of more than 23%. This is considered statistically unreliable.

# MATERNAL MORTALITY and MATERNAL MORTALITY RATIO

**Related issues**

- Deaths may not be registered (under registration)

- Death not identified as a maternal death

- Untimely processing of vital records

- Small areas (absolute numbers)

# CRUDE BIRTH RATE

**Concept and definition**

- Crude birth rate is the number of live births during a year per 1,000 person in the mid-year population.

# CRUDE BIRTH RATE

**Methodology**

$$\frac{\text{Number of live births in a given year}}{\text{Population at middle of the year}}$$

Type of indicator: Rate

Measure Unit: Per 1,000 inhabitants

# CRUDE BIRTH RATE

**Methodology**

- Population data correspond to the mid-year estimated values, obtained from the United Nations.

# CRUDE BIRTH RATE

**Related issues**

- The count of births must include all live-born products of pregnancy and exclude pregnancies not terminating in a live birth

- There is a failure to register a child who dies shortly after birth or who dies before the parents have registered the birth.

- In some cases, newborn infants who die within 24 hours after birth are excluded from the tabulations of live birth.

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# MORTALITY RATES BY CAUSE OF DEATH AND AGE

**Concept and definition**

- Measures mortality in a population from a specific disease

- A high death rate will indicate the public health importance of the particular disease.

# MORTALITY RATES BY CAUSE OF DEATH AND AGE

**Methodology**

Number of deaths attributed by specific **cause** in population during during period

Population at risk at mid-point of period

Type of indicator: Rate

Measure unit: per I00,000

Categories: total, male, female

# MORTALITY RATES BY CAUSE OF DEATH AND AGE

**Methodology**

<u>Number of death in **age** group during the period</u>
Population of the age group at the mid-point of the period

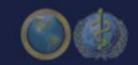Type of indicator:  Rate

Measure units: per 1,000 in the age group

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# MORTALITY RATES BY CAUSE OF DEATH AND AGE

**Methodology**

- Death rate from an infrequent disease will require observations in a large population (to calculate a rate)

- Rates should be based on at least 100 deaths from a specific diseases in order to keep the effect of random fluctuations at an insignificant level.

- Importance of data disaggregated by sex

# MORTALITY RATES BY CAUSE OF DEATH AND AGE

**Related issues**

- Original source of data (death certificate) may not be properly completed

- Inaccurate International Classification of Disease (10th revision) coding

- Under-registration and "garbage coding"

- Ill-defined deaths

# Small Numbers and Small Areas

Small numbers vs. small areas

- Criteria to small areas: geographical and demographical approach. (around 100,000 or fewer)

- Criteria to small numbers: statistical approach (fewer than 20 cases)

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# WOMEN, HEALTH AND DEVELOPMENT

The 26th Pan American Sanitary Conference, 54th Session of the Regional Committee (September 2002) requested the Director to, among other things:

- Stimulate and support the production, dissemination, and analysis of data disaggregated by sex, incorporating data on interventions in the areas of gender, social class, and ethnicity.

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# SUMMARY CHART

- Name of indicator
- Definition
- Interpretation
- Limitations
- Uses
- Sources
- Method of Calculation
- Suggested categories
- Observed values
- Notes
- References

# DATA QUALITY ISSUES: national level

- Availability of data
- Comprehensiveness of coverage
- Relevance of concepts and methods
- Timeliness of data
- Comparability of different sources
- Accessibility to the data
- Validity

# DATA QUALITY ISSUES: international level

- Lack of data at the national level
- Non-response from countries
- Absence of systematic international effort to compile indicators on specific topics which may exist at the country level
- Lack of use of international classifications
- Overlap in international work on indicators, resulting in duplications either in the collection or in the dissemination process.

# DATA QUALITY ISSUES: international level

Some frequent inconsistencies:

- Identical indicators provided by different organizations appear with different numerical values in international publications as official data

- Lack of coordination and harmonization in the different agencies

- Indicators may in fact reflect distinct phenomena even though they seem to be the same

- Different definitions applied to the same indicator

# DATA QUALITY ISSUES: international level

- Data discrepancies are inherited from the national level where there are inconsistent national source.
- Different compilation or estimation techniques are used at the international level; international agencies oftentimes make their own estimates of country indicators when the information is not readily available.
- Imputation
- Absence of metadata, particularly, at the sub-national level

# DATA QUALITY ISSUES: international level

- Base line data comes from different points in time of the processing cycle
- National averages are not an adequate measure of the health situation in a country

# HARMONIZATION

- Implies national coordination (as is modeled in Brazil, Red Interagencial de Produccion de datos en Salud. (RIPSA) (This is an inter-agency network that is responsible for the production of official health information)

- Requires common definitions and methodologies

- Requires coordination with CARICOM, United Nations (UNSD)  , U.S. Government, international lending agencies, and PAHO/WHO.

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