Death registration completeness

Data analysis and Report writing workshop for Civil registration and vital statistics data.

Renee Sorchik
Consultant, Vital Statistics and Civil Registration Expert
Why do we care about death registration completeness?

Measuring completeness is done to evaluate:

- Overall performance of the CRVS system
- Robustness of vital statistics for analysis and if there is a need for potential correction to the data

Without complete death registration we cannot know who is dying, where they are dying, and what they are dying from.
Death registration completeness has become a key reporting indicator

- **SDG Target 17.19**
  - Indicator 17.19.2: Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100 per cent birth registration and **80 per cent death registration**
- **Indicator 3.2.1**: Under-five mortality rate
- **Indicator 3.2.2**: Neonatal mortality rate
- 17 SDG indicators will require cause-specific mortality data best generated from CRVS systems
- **ESCAP Regional Action Framework Goal 1**: Universal civil registration of births, deaths and other vital events
Methods of measurement

- Direct calculation with a deaths “gold standard” – a source that is considered to be “true”

Completeness of death registration (%) = \( \frac{\text{Number of registered deaths}}{\text{Actual number of deaths}} \times 100 \)

- Direct calculation using questions on a census or survey of registration completeness

- Indirect demographic methods to estimate deaths (Brass Growth Balance, Bennett–Horiuchi, Preston-Coale)

- Capture re-capture methods
Goal 1D: % deaths registered

Completeness of death registration (%) = \( \frac{\text{Number of registered deaths in a year}}{\text{Actual number of deaths in a year}} \times 100 \)

- **Numerator**: from civil registration data
  - Number of deaths registered that calendar year
- **Denominator (\# of deaths that year)** should come from the “best” source:
  - Census data
  - Estimates derived from census data
  - Estimates derived from surveys or sample registration systems
  - Estimates derived from indirect demographic methods
  - Global Burden of Disease Estimates
  - If no other data, use crude death rate from Census or UN Statistical yearbook
Using the crude death rate to estimate deaths

- This method is used for countries that do not have good current data on deaths, and where indirect methods may not be possible.
- Sources for the CDR may include a national census or UN Demographic Yearbook.

Completeness of death registration (%) = \( \frac{\text{Number of registered deaths in a year}}{\text{Actual number of deaths in a year}} \times 100 \)

- Crude death rate * population = number of deaths

Potential problems:
- The time period for the CDR estimate may not be the same as the period being examined. It is often older and may be not reflect current mortality patterns.
Disaggregation

If possible, completeness of death registration should be disaggregated by:

a) Sex – differences in registration of men vs. women may point to gender issues that require targeted education or services.

b) Location – geographic location, are remote areas underserved?

c) Decedent's age – deaths of infants and elderly may be less likely to be registered. This will greatly affect infant and child mortality rates as well as overall mortality rates.

Disaggregation as per SDG 17.19.2:
- Sex, age, income, place of residence, geographic location
# Death registration by age group

<table>
<thead>
<tr>
<th></th>
<th>Registered deaths</th>
<th>Completeness</th>
<th>From Estimated total deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths (Total)</td>
<td>50,000</td>
<td>57%</td>
<td>87,342</td>
</tr>
<tr>
<td>Child deaths (Age 0-4)</td>
<td>2,500</td>
<td>40%</td>
<td>6,250</td>
</tr>
<tr>
<td>Deaths (Age 5-24)</td>
<td>7,000</td>
<td>58%</td>
<td>12,069</td>
</tr>
<tr>
<td>Deaths (Age 25-74)</td>
<td>25,000</td>
<td>62%</td>
<td>40,323</td>
</tr>
<tr>
<td>Deaths (Age 75+)</td>
<td>15,500</td>
<td>54%</td>
<td>28,704</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td><strong>73.2</strong></td>
<td></td>
<td><strong>62.5</strong></td>
</tr>
</tbody>
</table>
Checking completeness of death data by age

- If a census has the projected number or percent distribution of deaths by age and sex, assess how your registration data compares to the distribution of the census.

- If you see large variation in one or more age groups between the two data sources, talk to your facilitators to determine the most appropriate course of action.
Exercise

- Using test data, determine completeness of death registration for:
  - Children aged 0-4
  - Persons aged 5-24
  - Persons aged 25-74
  - Persons aged 75+
  - Disaggregate these results by sex
  - Should you use adjusted or unadjusted data by age for these calculations?

- Determine the best source of death data and population data for your country

- If you have the data, calculate death registration completeness for your country