Sources of Data

United Nations ESCAP
Workshop on the midterm reporting of the Asia-Pacific Civil Registration and Vital Statistics (CRVS) Decade, 2015-2024
Bangkok, Thailand, 20 September 2019
Sources of data for the midterm questionnaire

- Civil Registration
- Population Register
- Census or Survey
- Health sector
- International data
Population and institution based sources

- Population-based data sources are those that are representative of the whole population.
  - population surveys
  - censuses
  - civil registration

- Institution-based data sources are those collected routinely from administrative and operational activities,
  - Health Information Systems (HIS)
  - hospital discharge data
  - health facility surveys, where data are collected in an institution
Periodic vs. Routine collections

Periodic collection
- Censuses
- Surveys

Routinely collected administrative data
- CRVS
- HIS/ Hospital information
- Health facility data
Civil Registration

- **Civil registration** provides a legal basis for the recording of vital events such as live births & deaths

- In most developed countries, it is a legal requirement that:
  - vital events, such as births and deaths, are registered
  - a medical practitioner completes a *death certificate* with a cause of death whenever anybody dies

- An efficient routine CRVS system, with medical certification of cause of death, provides continuous and relatively low cost data collection
  - upheld as the “gold standard” for birth and death data

- An effective civil registration system requires coordination across Ministries and government agencies.
Complete Civil Registration

Provides
Information on all Vital Events
- Birth
- Death
- Marriage
- Divorce

Depending on country, Personal Identification Number (PIN)
- Linkages between the events

Does not include
Address
Migration
- Internal
- External
Nationality
From Civil Registration to Population Register

- Facilitate administrative processes
- Facilitate the production of vital statistics
Population Register

- Administrative purposes
  - Programme planning
  - Budgeting
  - Taxation
  - Education
  - ...

- Potential data
  - Date and place of birth
  - Sex
  - Date and place of death
  - Address
  - Date of arrival/departure
  - Citizenship(s)
  - Marital status
  - Personal Identification Number
Census collections

- A population census is a compulsory, universal and simultaneous enumeration of the national population, conducted on a periodic basis.

- Provide population denominator for completeness rates.

- Information on births and deaths may be derived directly or indirectly from changes in population (by age and sex) based on survival and migration.
  - reliant on accurate migration data.
Periodic Surveys

- Household surveys such as Demographic and Health Surveys (DHS) and the UNICEF Multi-Indicator Cluster surveys (MICS).
- Not continuous data collections, but are collected in a specific period of time and re-occur ~every 5 years.
- Collect data for a proportion of the population considered to be representative of the broader population of interest.
- The reliability of estimates from survey data is driven by how well the sample selection reflects the broader population of interest.
- May calculate direct estimation of mortality from reported deaths, or indirect estimation methods. But it should be considered that is often limited to specific age-groups & causes rather than all-ages all-causes mortality.
- Before any analysis it should be checked whether there are enough observations.
- Surveys are also subject to
  - recall bias, and
  - response bias
Health registration of vital events

- Vital events such as births and deaths are also often recorded through routine data collections within the health system.

- Compared to civil registration system, health data collections are primarily to inform operational decisions, and CoD is central to this purpose.

- Health systems for reporting death may include a vital registration system (a record of all deaths both in the health facilities and the community) based on medical certificates or community nursing reports, or facility based data.
Diagram of the reporting and registration processes for deaths

- Family
- Local Government Office (Island Council etc)
- Civil Registrars Office (Ministry of Justice)
- National Statistics Office
- Ministry of Health
- National Planning Office / Process

Example from: Pacific Community’s Data Analysis and Report Writing for Civil Registration and Vital Statistics Coursebook
Data sources to ascertain causes of death

- Cause of death data can be obtained through medical certification, hospital discharge records, verbal autopsy, nursing reports, or lay reports from family and other community representatives.

- Level of certainty of underlying cause of death by data source

  - Autopsy
  - Medical certification by qualified practitioner
  - Hospital discharge data
  - Verbal autopsy (survey or routine)
  - Other health reporting (i.e. community nursing reports)
  - Lay reporting

(Source: Carter K, 2013)

(in absence of doctors, a standardised questionnaire completed by a trained interviewer who visits family members)
# Summary of Population based Data Collection Approaches

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Periodicity</th>
<th>Sample frame</th>
<th>Period of interest</th>
<th>Data collection (mortality level data)</th>
<th>CoD Data Collected?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census</td>
<td>Periodic – 5-10 years</td>
<td>Whole Population</td>
<td>Retrospective</td>
<td>Direct - (deaths in the household) Indirect – partial birth history (CEB/CS) &amp; orphanhood data</td>
<td>No</td>
</tr>
<tr>
<td>Survey</td>
<td></td>
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<tr>
<td>DHS</td>
<td>Periodic – ~ 5 years</td>
<td>Selected sample – representative of whole population</td>
<td>Retrospective</td>
<td>Direct – complete birth history</td>
<td>No</td>
</tr>
<tr>
<td>MICS</td>
<td>Periodic – ~ 5-10 years</td>
<td>2 stage clustered sample – representative of whole population</td>
<td>Retrospective</td>
<td>Indirect - partial birth history (CEB/CS)</td>
<td>No</td>
</tr>
<tr>
<td>Other household based surveys</td>
<td>Usually once-off</td>
<td>Varies</td>
<td>Retrospective</td>
<td>Varies</td>
<td>Possible - using verbal autopsy</td>
</tr>
<tr>
<td>Routine vital registration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Registration</td>
<td>Continuous</td>
<td>Whole population (depending on coverage)</td>
<td>Current</td>
<td>Direct reporting of event</td>
<td>Yes</td>
</tr>
<tr>
<td>Health vital registration</td>
<td>Continuous</td>
<td>Whole population (depending on coverage)</td>
<td>Current</td>
<td>Direct reporting of event</td>
<td>Yes</td>
</tr>
<tr>
<td>Hospital discharge records</td>
<td>Continuous</td>
<td>Hospital cases only</td>
<td>Current</td>
<td>Direct reporting of event</td>
<td>Yes</td>
</tr>
<tr>
<td>Other routine databases</td>
<td>Various</td>
<td>Continuous</td>
<td>Current</td>
<td>Direct reporting of event</td>
<td>Usually limited</td>
</tr>
<tr>
<td>Demographic surveillance Sites</td>
<td>Continuous</td>
<td>Selected areas – usually not representative of whole population over time.</td>
<td>Current</td>
<td>Direct reporting of event</td>
<td>Yes</td>
</tr>
</tbody>
</table>
International Data

- Modelled data or data reported by countries
- Comparison purpose
- Used as the denominator of some targets if national data isn’t available

United Nations
- Population Division
- Statistics Division
- SPC
- UNICEF