

Bloomberg Data for Health Initiative

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Assessment of the completeness of registration should be a routine activity of CRVS systems:
assist in monitoring CRVS system performance
adjust registration data to produce fertility and mortality statistics.

This presentation describes recent experiences with the assessment of the completeness of death registration in the Data for Health Initiative and considers some of the lessons learned from these activities.

Jointly funded by Bloomberg Philanthropies
and the Australian Department of Foreign
Affairs and Trade

Primary objective is to strengthen birth and
death registration systems

Partners:

University of Melbourne

Vital Strategies (Formerly Union North
America)

CDC

18 countries/cities:

- Malawi
- Rabat (Morocco)
- Rwanda
- Tanzania
- Zambia
- Ghana
- Brazil
- Ecuador
- Peru
- Bangladesh
- Mumbai (India)
- Indonesia
- Myanmar
- Papua New Guinea
- Philippines
- Shanghai (China)
- Sri Lanka
- Solomon Islands

Direct linkage with other data source (assuming sources are independent)

Can make use of existing data sources (e.g. HDSS, census/survey reporting of household deaths)

Need high quality data especially age reporting

Can make completeness estimates at sub-national level or by demographic group (e.g. age)

Potentially more timely than indirect methods

Readily interpretable by policy makers

Can be time and resource intensive

Can't be applied in all settings

Use multiple data sources (surveys, census, SRS) to estimate total deaths (i.e. denominator in completeness calculation):

- 5q0 (summary and complete birth histories)

- 45q15 (household deaths, sibling survival, application of indirect completeness methods)

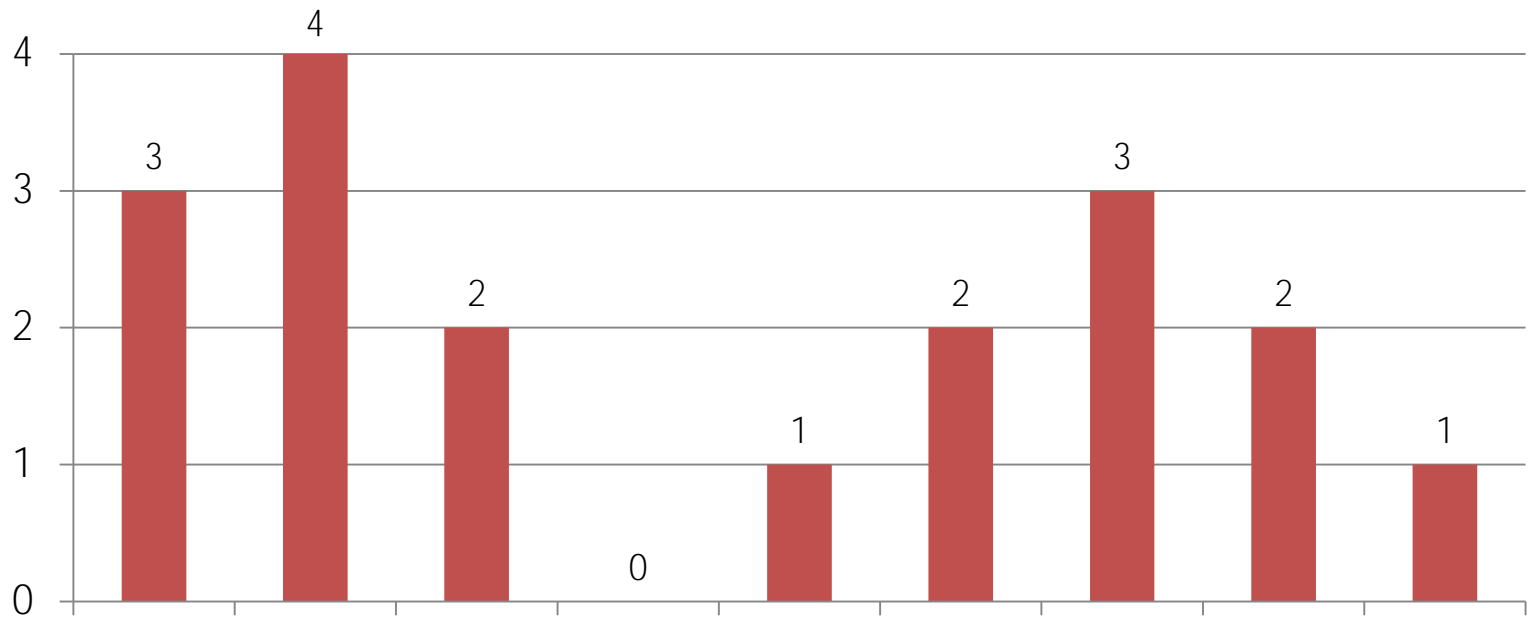
- Limitations of methods to estimate 5q0 and 45q15 – e.g. age reporting in household deaths

Model data points of 5q0 and 45q15

Input 5q0 and 45q15 estimates into model life table

In some settings indirect and direct completeness methods cannot be applied, so reliant on this approach

Subnational estimates – availability of data, considerable uncertainty



Availability and quality of CRVS data.

Non-CRVS data sources to estimate completeness.

Methods to estimate completeness.

In-country capacity and D4H capacity building activities.

Years of data available:

3 countries/cities have no data

7 countries/cities have less than 10 years of data available

8 countries/cities have at least 10 years of data available

Implications for use of intercensal death methods

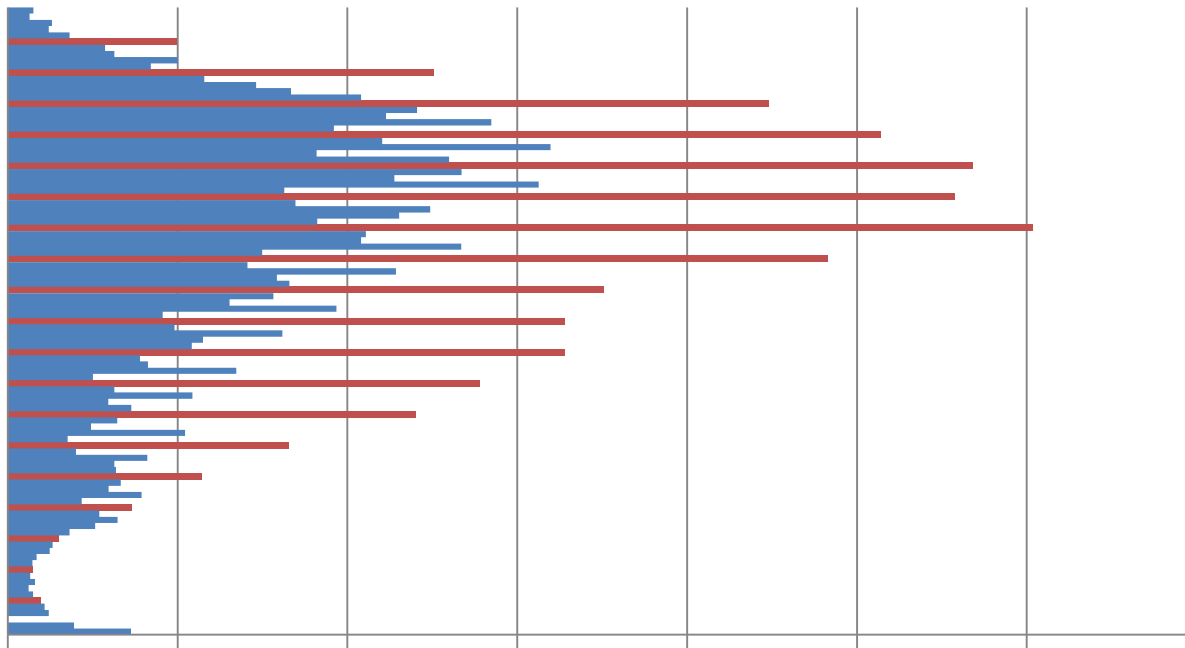
Inconsistency of definition used to classify vital events by year:

Should be year of occurrence, with information included on delayed and late registration

Year of registration used

Three countries/cities use a definition of 'deaths that occurred and were registered in the same calendar year'

- Age misreporting / heaping:
In one site, Whipple's Index >200
Registration/reporting form not using date of birth



Implications for application of indirect methods

- Definition of residency (subnational): in two cities, completeness is >100% partly due to over-reporting of deaths of non-residents

All countries/cities have 5q0 data

Some countries have no 45q15 data

e.g. Myanmar – only have household deaths collected in 2014 census, but data not released (census conducted by Ministry of Labour, Immigration and Population – different from Central Statistical Office).

Census data: Myanmar also only has 1 census conducted in last 30 years (2014)

Because of availability of both CRVS and non-CRVS data sources, we can only apply intercensal death distribution methods in 7 out of 18 countries/cities i.e. have population data from 2 censuses and registered deaths for entire intercensal period

Other countries solely reliant on modelling 5q0 and 45q15 from censuses and surveys, and inputting into model life tables

Lack of data = considerable uncertainty in completeness estimation

(GBD 2016)

Subnational areas – also significant uncertainty

Existing country methods:

Preston-Coale method – completeness estimate significantly different from the independent assessment by the D4H project

Summing the highest number of deaths reported by each of three sources in each township (stats office, Ministry of Health, Ministry of Population)

Use of capture-

Varies by country

Different institutions responsible mainly national statistical office, but can be ministry of health
different demographic capacity

In some countries demographic skills limited to life tables

Potential to be taught death distribution methods – however these are only applicable in less than half of D4H countries

Teaching more complex modelling as done in GBD / UN? Significant gap between skills to apply the most appropriate methods and existing capacity .

3-4 day training course - structure and content of the curriculum will vary depending on the existing capacity and available data sources in each country.

Target audience

Practitioners (e.g. demographers, statisticians, epidemiologists) who have routine responsibility for generating fertility and mortality estimates from the CRVS system

- National Statistics Office

- Ministry of Health

- Institution responsible for CRVS (e.g. Ministry of Internal Affairs)

- Universities – incorporate into teaching programs

Vital to ensure that countries are appropriately employing appropriate methods

After completing the course, participants will:

Understand

Topics

Purposes of estimating completeness (to adjust vital stats & for monitoring to improve system performance)

Data sources

Summary measures of mortality and fertility

Direct or capture-recapture methods

Indirect methods

Estimating total deaths/births from multiple data sources

Significant course time for participants to apply methods to own country's data

Post-training follow-up and supervision will be provided to facilitate skills learnt to be incorporated into countries' routine CRVS functions

Lack of available registration data for analysis implications for the application of death distribution methods.

Quality of age reporting is quite poor in some cases – related to no date of birth on registration forms

Lack of other data sources to estimate $45q_{15}$. Potential for linking household reporting of deaths in a census with CRVS data?

Improve the availability of death registration data for analysis by providing readily analysable unit record files of deaths with a complete list of variables.

Improve the quality of death registration data by taking steps such as adding date of birth of the deceased to the death registration form and having a clear definition of place of residence quality control mechanisms at various stages within the system.

Prioritise estimation of death registration completeness a routine activity of the CRVS system adequately resource and train staff with the responsibility to estimate completeness.

Report the level of completeness of death registration in national vital statistics publications.

Report deaths by year of occurrence, with separate reporting

Promote estimation of completeness as a core routine activity of a CRVS system.

Develop training activities to strengthen the ability of country statistical offices to estimate completeness of death registration using a range of methods.

Investigate ways to bridge the gap between appropriate methods and available capacity in settings where a lack of available data sources requires use of advanced modelling techniques.