Assessing birth and death data quality: Essential Resource Kit for countries

Improving the quality and reliability of birth and death data collected through a country's civil registration and vital statistics (CRVS) system is an essential first step to ensure usable evidence exists to guide social development and public health planning. Policy formulation and evaluation should be based on high quality data, as poor quality data can seriously bias subsequent data analyses, potentially misleading public health efforts and resource allocation. Hence, before undertaking any analysis of birth and death data, the reliability (and timeliness) of the data must **first** be thoroughly evaluated if it is to be relied upon for national health decision-making.

This Resource Kit has been prepared with the objective of providing countries with an essential set of tools and materials to analyse and improve the quality of *birth, death, and cause of death (COD) data*, by helping countries to achieve three broad outcomes:

1. Assess the completeness and quality of birth and death data
2. Interpret and assess the quality of cause of death data
3. Better target efforts to improve mortality and cause of death data quality.

Underpinning each of these outcomes is a set of resources containing *empirical evidence and country examples.*

How to use this Resource Kit:

This Kit contains all of the key resources countries need to assess the quality of their mortality data **prior** to analysing them for policy and monitoring purposes. It provides tools and guidance materials to help countries: a) assess the completeness and coverage of birth and death registration; b) assess the quality of mortality and COD data; and, c) take steps to improve the quality of data based on the outcomes of these assessments. It is recommended that countries review the resources in the order provided, starting with Outcome 1.

Resources under 'Empirical evidence and country examples' provide real-world examples and evidence to support the application of methods, tools and strategies referenced in this Kit.

Two categories of resources are provided for each outcome: (1) *Key resources*, which are vital to understanding the basic principles required to achieve each outcome, and (2) *Recommended resources*, which provide further detail, and build on the key resources.

This Resource Kit provides countries with a list of essential resources to comprehensively assess and improve the quality of their vital statistics. Additional resources can be found on the CRVS Knowledge Gateway, at: https://crvsgateway.info/resources. Information on available in-country training to support data quality improvement efforts, including the integration and use of the tools and methods listed in this Kit, can be found at: https://crvsgateway.info/training.

Outcome 1: Assess the completeness and quality of birth and death data

The quality of vital statistics is highly dependent on how well the data cover the entire country and various population groups, and the extent to which vital events are recorded and registered. All countries should aim to have a birth and death completeness rate of 100 per cent – in other words, to ensure all births and deaths are registered and captured by the country's CRVS system. *This set of resources will help countries to understand why data quality is important, present examples of the application of data quality assessment methods, and introduce simple methods for assessing the completeness of birth and death data.*

Outcome 2: Interpret and assess the quality of cause of death data

Even when CRVS system coverage and completeness are high, the statistics produced from these systems are not always accurate. Regular analyses to assess the accuracy of the data are therefore essential. *This set of resources builds on the principles introduced in Outcome 1, providing guidance and tools about how to interpret, present, and analyse the quality of mortality.*

Empirical evidence and country examples

These resources provide real-world examples of data analysis and quality-improvement interventions in countries, presenting evidence to support the application of strategies and tools provided in Outcomes 1-3.

Outcome 3: Better target efforts to improve mortality and cause of death data quality

The key result of regular interrogation and quality analysis of mortality data should be the ability for countries to identify and pinpoint data gaps and errors, thereby providing the essential evidence to address such gaps. *This set of resources provides countries with guidance to identify and address the main challenges influencing the quality of mortality data.*

Expected outcome: Improved quality and utility of birth and death data for sound public health policy-making and planning

Assessing birth and death data quality: Resource list

Outcome 1: Assess the completeness and quality of birth and death data

Improving vital statistics for informed policy: the importance of data quality [1.26MB]
Outlines the importance of data quality, and introduces some simple procedures for data quality assessment

Summary: A global systematic assessment of the availability and quality of birth registration data [661KB]
Provides a global assessment of the quality and policy utility of birth registration data based on a new metric, the Vital Statistics Performance Index (VSPI) for Births, developed to assess completeness and quality of birth data

Estimating the completeness of death registration: An empirical method [2.21MB]
Describes a simple empirical method to estimate death registration completeness at both national and subnational levels using widely available data inputs

Supporting:
A global assessment of civil registration and vital statistics systems: monitoring data quality and progress [4.85MB]
This study provides a global assessment of the completeness and accuracy of mortality and COD data in 2015 using the VSPI applied to deaths

Outcome 2: Interpret and assess the quality of cause of death data

Guidelines for interpreting verbal autopsy data [4.33KB]
Describes five steps countries should follow to assess the plausibility of their verbal autopsy (VA) data

Verbal Autopsy Interpretation, Performance and Evaluation Resource (VIPER) [11.6MB]
A Microsoft Excel tool to assist countries to understand and use COD data generated by VA

ANACONDA [Windows and Mac versions available]
ANACONDA (ANAlysis of Causes Of National Death for Action) is a tool for comprehensively checking the quality and plausibility of mortality and COD data. ANACONDA helps users to identify probable errors, misdiagnoses and inconsistencies in mortality and COD data

Supporting:
ANACONDA mortality and cause of death report template [405KB]
Template to assist countries in writing a report about the quality of their mortality and COD data

Understanding uncertainty in ANACONDA results due to small numbers of deaths: Guidance for users [844KB]
Guidance for ANACONDA users about the amount of statistical uncertainty in their ANACONDA results that will arise from application of the tool to data sets (deaths) of small to medium size

Outcome 3: Better target effort to improve mortality and cause of death data quality

Summary: redefining "garbage codes" for public health policy [446KB]
Describes the alternative classification of "garbage codes" used in ANACONDA that better aligns with public health priorities

Strategies for improving the quality of cause of death data in hospitals [716KB]
Describes eight key action areas to improve the quality of COD data in hospitals

Supporting:
Action guide on improving the quality of cause of death data in hospitals [449KB]
Concise overview of the eight key action areas to improve the quality of COD data in hospitals

Empirical evidence and country examples

ANACONDA: a new tool to improve mortality and cause of death data [2.02MB]
Discusses how ANACONDA can help countries improve their mortality data by identifying key data quality issues

Are cause of death data fit for purpose? Evidence from 20 countries at different levels of socio-economic development [1.34 MB]
Reports on the application and interpretation of ANACONDA to mortality data from countries at different levels of statistical development