

Mortality (Cause of Death) Data

Mortality (cause of death) statistics are the oldest and most internationally-comprehensive health statistics. The International Classification of Diseases (ICD) has been the international mortality classification (coding) standard since late in the nineteenth century, and its use is essential for comparable cause of death statistics at the national and international levels and across time.

The current ICD, the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), includes definitions, instructions and rules for coding and tabulating cause of death. To understand and interpret ICD-10 coded mortality statistics some basic facts about how cause of death information is collected and classified are needed.

How is cause of death information collected?

The World Health Organization recommends that cause of death for mortality statistics is reported on the medical certificate of cause of death (MCCD), following the template in volume 2 of ICD-10. The certifier enters the cause/s on the MCCD in a defined sequence according to their timing in relation to death. The condition that led directly to the death is entered on the first line of Part I of the certificate. On the lines below, the certifier lists each earlier step in the train of events leading to the immediate or direct cause of death. The underlying cause, which initiated the train of events leading to death, should be entered alone on the lowest used line of Part I.

Example:

A person with carcinoma of the lung developed pneumonia which led to septic

shock, causing death. His type 2 diabetes also contributed to the death.

The medical certificate of cause of death is completed as:

1a	Septic shock	This line is for the cause that led directly to death
1b	Pneumonia	
1c	Carcinoma of lung	This cause started the sequence of events leading to death
1d		
2	Diabetes Type 2	Other causes that contributed to the death but were not directly involved in the sequence above.

How is cause of death information classified?

After the MCCD has been completed, it is coded using the mortality classification rules in Volume 2 of ICD-10. The coder analyses the certificate and selects the underlying cause of death – that is, the condition that started the sequence of morbid events leading to the death. The underlying cause is selected for statistical tabulation. In the example above, the underlying cause of death for tabulation would be the carcinoma of the lung. Many countries have special regulations for deaths that are due to accidents, violence, poisoning, suicide, etc. The ICD definition of underlying cause includes these situations, collectively called “external causes”.

Some countries use electronic mortality coding systems. These systems are based on the ICD-10 mortality classification rules and are designed to select the same underlying cause as a manual coder would.

Electronic systems require the coding of all conditions on the death certificate, in addition to the underlying cause. For the international comparison of mortality statistics the underlying cause of death is reported and used for the calculation of statistical-epidemiological indicators.

How are mortality data disseminated?

Aggregation and dissemination of cause-of-death data vary from country to country, but are mostly based on the recommended ICD-10 processes and tabulation lists. The degree of detail in statistical presentations by cause of death, sex, age, and geographical area depends on the purpose of the statistics, and on practical limits to the tabulation. Some countries limit the detail that can be published, in line with their data protection laws. Most countries report their mortality statistics on an annual basis, but some also publish quarterly, monthly or weekly statistics. For further information on your national practice, please contact your statistical office or Ministry of Health.

Mortality data are reported to WHO, Eurostat and other organizations and edited for publishing. International mortality statistics can be found at www.who.int.

What do statistics regarding underlying cause of death tell us?

Numbers and rates of death by underlying cause provide information on the health status of populations. They can be used to measure the proportion of overall and premature mortality that is attributable to each cause, and so identify priorities for health services and public health interventions. Analysis of trends in cause-specific mortality rates can be used to estimate the efficacy of public health interventions, such as vaccination and screening programs. Analysis of mortality data for a specific group of diseases can help identify higher-risk groups in the population. In countries where individual cause-of-death

data are available for academic medical research, these data are used extensively for evaluation of medical therapies and health policies.

What do underlying cause data not tell us?

By definition, international underlying cause-of-death data focus on the cause that started the sequence of events leading to death. It is not a measure of prevalence of a disease in the population. The other causes on the certificate are important for the selection of the underlying cause but are not seen in this monocausal tabulation and analysis. To analyse how often carcinoma patients die of septic shock, it is necessary to have multiple cause of death data. For multiple cause analysis, all causes of death reported on the certificate are considered and analysed according to the specific scientific or epidemiologic question.

For additional information on international classification systems, we invite you to visit the WHO-FIC website at www.who.int/classifications

This document has been produced by the *WHO Family of International Classifications Network*.