Vital Strategies

Pacific Community
Communauté du Pacifique

Quality Assurance and Improvement Framework for Medical Certification of Cause of Death and International Classification of Diseases Mortality Coding

OCTOBER 2025

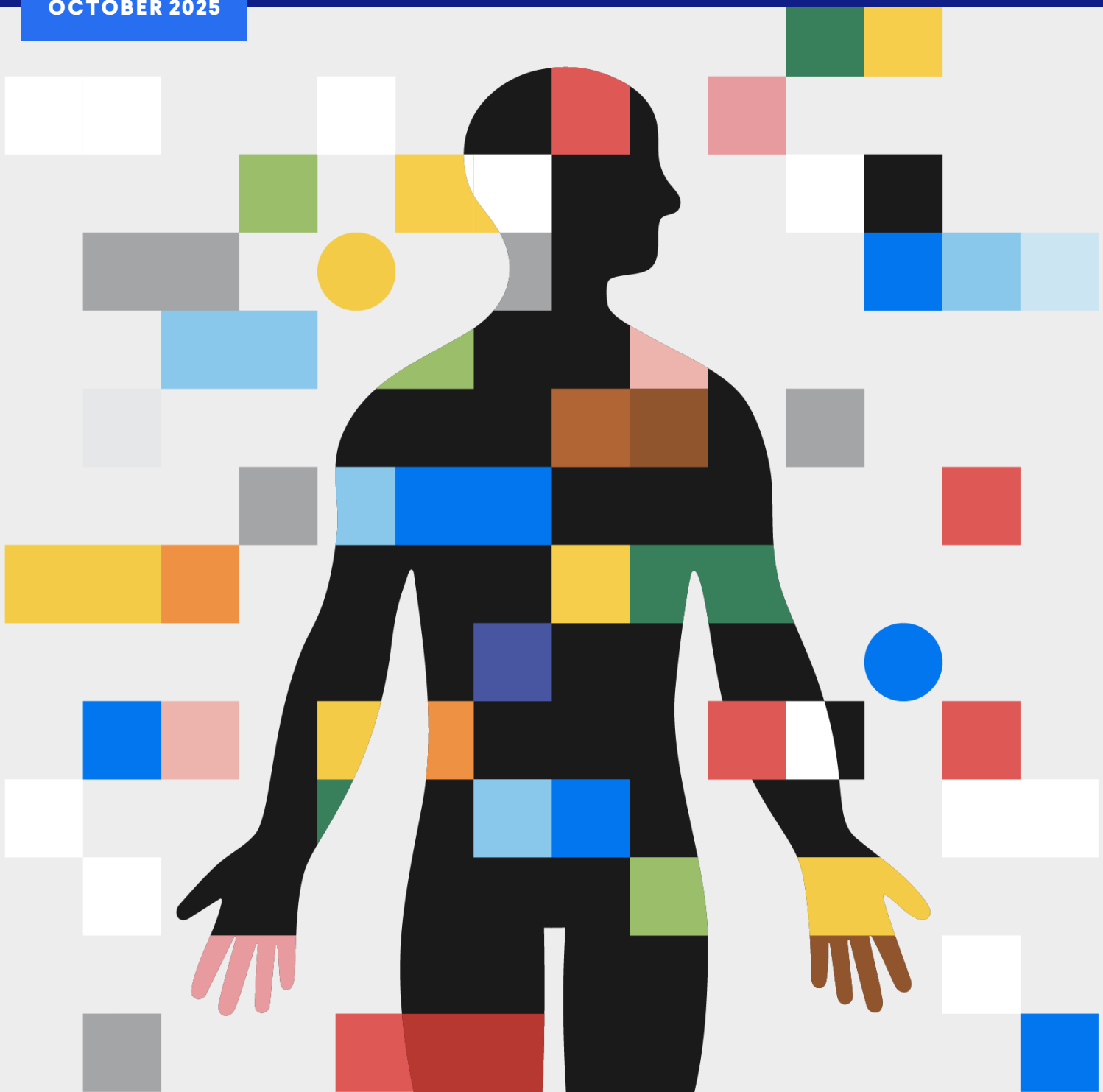


Table of Contents

Abbreviations and Acronyms

CRVS	Civil Registration and Vital Statistics
ICD	International Classification of Diseases
MCCD	Medical Certificate of Cause of Death
QA/I	Quality Assurance and Improvement

Background and Introduction

High-quality and timely mortality data is essential to reduce preventable deaths and monitor a population's health (e.g., to detect public health alerts). It is therefore paramount that every death be registered with the civil registration authority. Further, for all deaths or at least for all medically attended deaths, information about the cause of death should be collected using the WHO 2016 international standard medical certificate of cause of death (MCCD) form.[1] This form enables documentation of the sequence of medical conditions resulting in the death. For analysis and use, data captured on MCCD forms needs to be coded by mortality coders using the guidelines of the International Classification of Diseases (ICD). The processes of completing the MCCD form and ICD mortality coders both have a direct impact on the quality of mortality statistics and the decisions made based on these statistics. It is critical to establish a comprehensive system to collect, process and analyze cause-of-death data from medically attended deaths. This system should include continuous efforts to implement quality assurance and improvement (QA/I) measures. These efforts will help to increase accuracy, completeness, reliability and comparability of mortality statistics.

This framework outlines the recommended routine QA/I measures for each of the steps in the process from medical certification of cause of death, to ICD Mortality Coding and to data analysis. Specifically, QA/I measures are recommended for the following steps of the process: 1. completion of the MCCD form, 2. data entry of the information collected on the MCCD form, 3. data preparation and ICD Mortality Coding, and 4. analysis of ICD mortality coded cause-of-death data. Depending on the step, QA/I measures are recommended to be carried out at health facilities, the regional or central health authority, the national statistics offices, or other government agencies. As such, the framework is a conceptual outline of the recommended QA/I measures at each of the above steps, with the QA/I measures to be carried out at the different locations where individual steps of the process are implemented.

In terms of QA/I measures, the framework outlines the following specific measures: Governance Structures, Routine Quality Checks, Compliance Measures, Capacity Building, and Job Aids. Briefly, Governance Structures are working groups or committees that carry out and oversee operations of the stakeholders in the system handling cause-of-death data; Routine Quality Checks are procedures to assess the quality of cause-of-death information on a routine and ongoing basis; Compliance Measures are actions that are implemented to ensure adherence to policies and rules; Capacity Building equips individuals with the needed skills; and Job Aids are resources for stakeholders to enable them to carry out their work.

Figure 1 provides an overview of the range of recommended QA/I measures along the steps in the process to increase the availability of high-quality cause-of-death data for medically attended deaths. As illustrated in Figure 1, all the steps mentioned above, the stakeholders and organizations involved, and the QA/I measures, should form a holistic system to improve and maintain the quality of mortality data. Such a system requires infrastructure, human

1 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#data-source-the-international-form-of-medical-certificate-of-cause-of-death-mccd

resources and other capabilities to fully function. This framework outlines these requirements. Table 1 contains the enabling environment and required strategic decisions, including some of the key options for those decisions, for the establishment of the QA/I system for MCCD and ICD Mortality Coding. Table 2 shows the role of the various stakeholders in the same process. Box 1 is a checklist for the QA/I system for MCCD and ICD Mortality Coding, enabling stakeholders to check for the presence of all the major components recommended in this framework. Recommendations presented here will need to be implemented through standard operating procedures for MCCD certification and ICD Mortality Coding, paired with a monitoring and evaluation framework.

Exact needs for the QA/I system will differ depending on the structure of the civil registration and vital statistics (CRVS) system in a country. QA/I measures should be adapted to the local context accordingly.

It is envisioned that the establishment of the QA/I system and related processes will improve the quality of cause-of-death data from medically attended deaths. At the same time these systems-strengthening efforts will facilitate timely cause-of-death data flow and, as such, strengthen the near real-time availability of this important data for decision-making.

Scope of the Framework

This framework provides guidance for QA/I measures for the collection of cause-of-death data for deaths with a medically certified cause of death (also referred to here as medically attended deaths or physician-attended deaths). Additional measures and stakeholders may need to be considered for the collection of cause-of-death information in the medico-legal death investigation system (i.e., for death due to unnatural or external causes and unexplained deaths). Furthermore, different QA/I measures are required when verbal autopsy is used to ascertain the cause of death for deaths that were not medically attended (also referred to as community or home deaths).

Target Audience

The target audience of this framework includes, but is not limited to, decision-makers, planners and other managers at the ministry of health, the national statistics organization and the civil registration authority. The stakeholders involved in the QA/I system described here, including, for example, physicians tasked with medical certification of cause of death, ICD mortality coders and trainers of the different cadres, Data Entry clerks and statistical officers processing and disseminating COD data, will benefit from understanding the QA/I Framework and knowing about the implementation of QA/I measures.

Figure 1. QA/I Framework for MCCD and ICD Mortality Coding

QA/I Measures

- Governance Structures
- Routine Quality Checks
- Jobs Aids
- Capacity Building
- Compliance Measures

Steps from medical certification of cause of death to the analysis of ICD mortality coded data:

1. Completing the MCCD Form
2. Data Entry*^
3. Data Preparation and ICD Mortality Coding#
   (including 3a of converting text to ICD codes and 3b of identifying the underlying COD)
4. Data Analysis

Steps should be linked to the civil registration of death by the Civil Registration Authority.

* Possible including step 3a
^ Preferably at the hospital
# Preferably at the central level

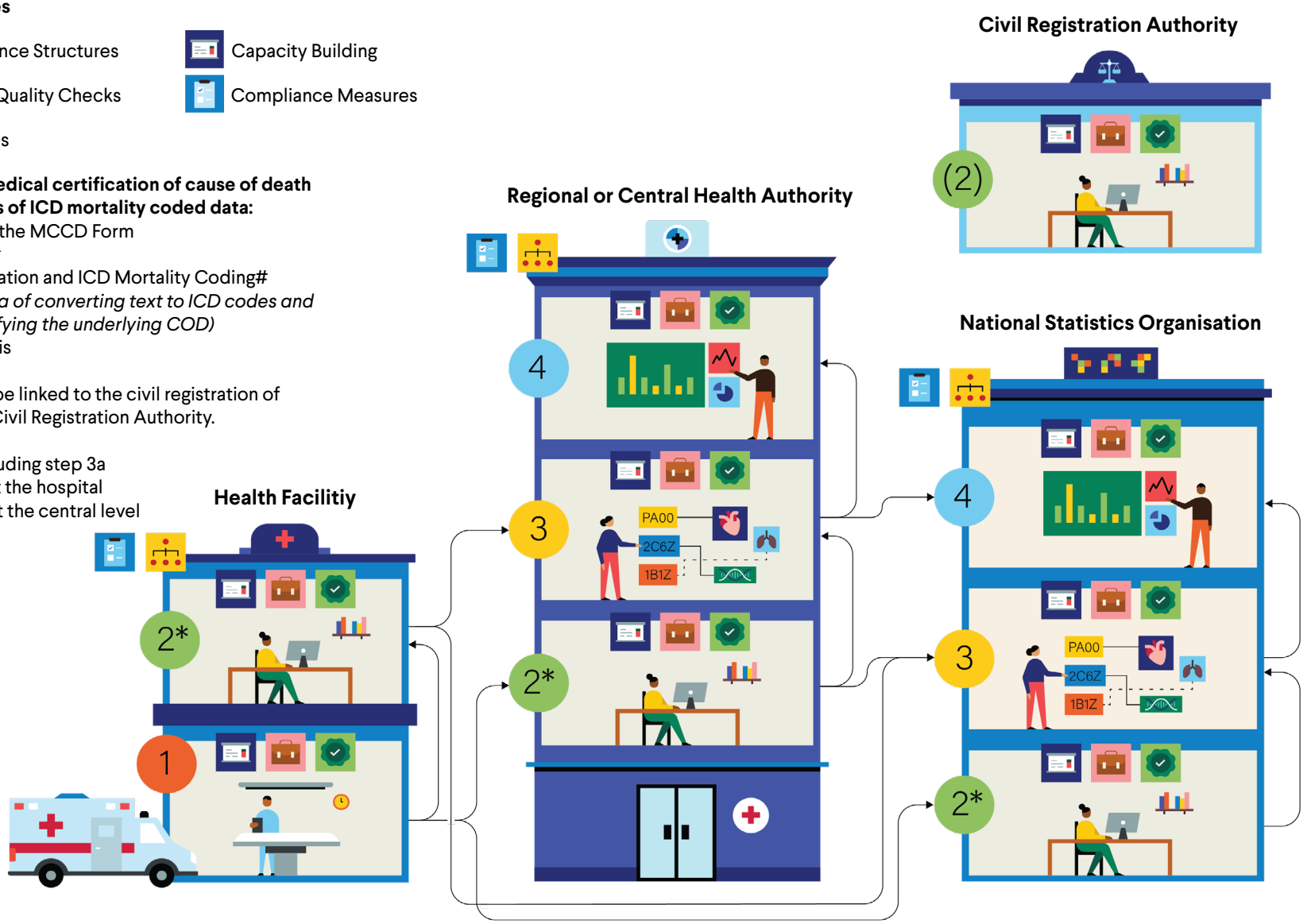


Figure 1. QA/I Framework for MCCD and ICD Mortality Coding

The process to generate high-quality cause-of-death data for medically attended deaths starts with accurate documentation of the clinical history, examination findings, and investigations. Following a death, this information is then used for completing the MCCD Form at a Health Facility (step 1 in the figure).[2] The medical practitioner responsible for medical certification of cause of death, usually a physician (in this framework we will use "physician" for all the practitioners responsible for medical certification of cause of death), should be provided Capacity Building support and have Job Aids available. At the Health Facility where the physician is working, Governance Structures should be in place to guide practice related to medical certification of cause of death, and Compliance Measures should help to ensure compliance with rules and regulations as physicians complete the MCCD forms.

Once the physician has completed the MCCD form, Data Entry (step 2 in the figure) needs to take place. This can occur at the Health Facility, at a Regional or Central Health Authority, or at the National Statistics Office. In some settings Data Entry may also be done at the Civil Registration Authority. The physician certifying cause of death may also be required to complete the MCCD form directly in an electronic system (eMCCD); this would combine the steps of Completing the MCCD Form and Data Entry. For Data Entry, staff will need Capacity Building, and Routine Quality Checks should be implemented at the point of Data Entry. Data Entry should be overseen by Governance Structures.

The Data Entry should be followed by Data Preparation and ICD Mortality Coding (i.e., first to convert text into ICD codes and second to select the underlying cause of death; step 3 in the figure). This step should be carried out by ICD mortality coders trained specifically for this task. The first step of ICD Mortality Coding may be combined with Data Entry at the Health Facility if Data Entry staff have sufficient training and the necessary medical knowledge to convert text into ICD codes. However, the second step of selecting the underlying COD should take place at the Regional or Central Health Authority, or the National Statistics Organization, with a preference for a more centralized location. At the step of Data Preparation and ICD Mortality Coding, Routine Quality Checks should be in place and Capacity Building should be provided to the ICD mortality coders. Also, Governance Structures should oversee the work related to Data Preparation and ICD Mortality Coding.

Data Preparation and ICD Mortality Coding should be followed by Data Analysis (step 4 in the figure), which should take place at the Regional or Central Health Authority, or the National Statistics Organization. Routine Quality Checks should be part of the Data Analysis, Capacity Building should be provided regularly to people carrying out the data analysis, and Governance Structures should be involved. Depending on the local settings and needs, it may also be applicable to carry out some of the analysis at the level of the health facility to promote the use of health data at the level of the health facilities.

The process outlined here, from completing the MCCD form to data analysis, should be linked to the process for the civil registration of the death at the civil registration authority. This ensures the civil registration of all deaths with an MCCD form[3]. Stakeholders should determine how the cause of death data should be managed in the CRVS system to make it available for use[4].

2 Including public and private hospitals, health centres, morgues, or other health institutions.

3 https://www.vitalstrategies.org/resources/the-health-sector-in-civil-registration-options-and-methods-to-increase-registration-of-live-births-stillbirths-and-deaths/

4 https://www.vitalstrategies.org/resources/guidance-for-collection-and-processing-of-cause-of-death-data-in-the-civil-registration-and-vital-statistics-

Table 1. Enabling Environment and Strategic Decision for the QA/I System for MCCD and ICD Mortality Coding

Enabling Environment:	
• Is the WHO 2016 certificate being used? • Is there high-level buy-in for MCCD and ICD Mortality Coding (including for the transition to ICD-11)? • Are the Governance Structures in place (e.g., including the national mortality technical working group)?	
Strategic Decisions:	**Options[#]:**
a. Where will data entry of the MCCD forms take place?	**a.** By the certifier directly into the electronic system. **b.** From the paper MCCD form at the Health Facility where the form was completed. **c.** From the paper MCCD form at a regional data entry location. **d.** From the paper MCCD form at a central data entry location.
b. Where will the text on the MCCD forms be converted into ICD code?	**a.** At the point of data entry (in addition to a separate data field capturing the text verbatim, as written on the MCCD form). **b.** At a more central location based on the text captured during data entry (i.e., the text verbatim, as was written on the MCCD form).
c. Where does the selection of the underlying COD occur?	**a.** At the point of data entry. **b.** At a more central location.
d. Are automated tools used to select the underlying COD?	**a.** Yes, automated tools[5] are used for the selection of the underlying COD. **b.** No, the selection of the underlying COD is done manually.

[#] A combination of options may need to be considered for a given country (e.g., different for rural or urban areas, or accommodations for hospitals that are offline versus online).

system/

5 https://icd.who.int/doris/en

Table 2. Roles of stakeholders in MCCD and ICD Mortality Coding QA/I*

	Physicians	Data Entry staff	Staff tasked with ICD Mortality Coding	Data analysts
Possible locations	Health Facility.	Hospital, regional or central health authority, national statistics authority, or civil registration offices.~	Regional or central health authority, or national statistics organization.	Regional or central health authority, or national statistics organization.
Roles in process	Examine the dead body, provide a diagnosis of the cause of death and complete the MCCD form (and Data Entry if electronic MCCD forms are used).	Enter data on the MCCD form into an electronic system and, as applicable, assign ICD codes to medical conditions mentioned on the MCCD forms.	Carry out data preparation tasks, such as to assign ICD codes to medical conditions mentioned on the MCCD forms (as applicable, i.e., if not done during Data Entry), and carry out manual or support automated selection of the underlying cause of death.	Carry out statistical analysis of cause-of-death data regarding aspects such as data quality and epidemiological findings.
Roles in QA/I measures	Ensure MCCD forms are completed to the highest possible standard. Participate in (re-) training efforts, use available Job Aids, participate in local Governance Structures.	Correctly capture the data included on the MCCD form, carry out applicable data quality checks, and, as applicable, correctly select the applicable ICD code for the reported causes. As applicable, query physicians in the presence of doubtful, unreadable diagnosis. Participate in (re-) training efforts and use Job Aids.	As applicable, correctly select the applicable ICD code for the reported causes, support the correct selection of the underlying cause of death, and support applicable data quality checks. Provide feedback to physicians and data entry staff on the outcomes or issues from data compilation and coding. Participate in (re-)training efforts and use Job Aids.	Carry out data analysis, including quality assessment, and promote the dissemination of that data for use. Participate in (re-) training efforts and use Job Aids.

* Standard operating procedures should be developed for all of the roles and responsibilities of the stakeholders described in this framework.

~ With a more central location preferred

Box 1: Checklist for the QA/I System for MCCD and ICD Mortality Coding

Standard

- ☐ Implement the WHO 2016 medical certificate of cause of death (MCCD) form.

System Design

- ☐ Maintain the function of a National Civil Registration and Vital Statistics (CRVS) Steering Committee.
- ☐ Maintain a National Mortality Technical Working Group (NMTWG) with sub-national groups as needed.
- ☐ Centralize ICD Mortality Coding with support from trained ICD mortality coders.
- ☐ Automate ICD Mortality Coding using the DORIS[6] or Iris[7] software.
- ☐ Create a system of routine data quality checks at multiple levels (Health Facility, regional, national) and use the results to provide feedback.
- ☐ Implement supervision and routine quality monitoring, provide additional trainings, and further strengthen the system of cause-of-death data collection.
- ☐ Include the MCCD form and certification procedure in national guidelines for health service delivery.
- ☐ Establish performance indicators and standards/targets for MCCD quality and institutionalize these in Health Facility performance monitoring systems.

Process

- ☐ Maintain Data Entry of the MCCD forms close to the source of the cause-of-death data (e.g., at the Health Facility level). This will allow for clarification and correction of errors such as illegible handwriting and missing data.
- ☐ Identify the relevant cadre to determine the manner of death and implement processes accordingly.
- ☐ Maintain a structured data flow of MCCD data from the physician filling out the MCCD form, to Data Entry, data preparation, International Classification of Diseases (ICD) Mortality Coding, and data analysis with routine data quality checks along this process.
- ☐ Implement a link between medical certification of cause of death and death registration at the civil registration authority, with harmonized and efficient data flow where data is captured once and used for multiple purposes.
- ☐ Maintain an up-to-date map of the business process and data flow from MCCD data collection to data analysis; including the link to death registration.[8]
- ☐ Ensure regular reporting of cause-of-death data quality at the national, sub-national and Health Facility level.
- ☐ Ensure the near real-time availability of analyzed and interpreted cause-of-death data for relevant policymakers to inform public health policymaking and action.

6 https://icd.who.int/doris/en
7 https://www.bfarm.de/EN/Code-systems/Collaboration-and-projects/Iris-Institute/Iris-software/_node.html
8 https://www.vitalstrategies.org/resources/crvs-systems-improvement-framework/

Definitions

Underlying cause of death is defined as "the disease or injury that initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury".[9]

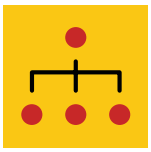
International Statistical Classification of Diseases and Related Health Problems[10] **(ICD)** is a global standard of alphanumerical codes for all diseases, injuries and other related conditions. The ICD standard can be used to code Health Facility discharge (morbidity) or medical certificate of cause-of-death (mortality) data, and it enables comparability between individual health facilities, between sub-regions such as provinces or states, or internationally, as well as at different points in time. ICD is the foundation for the identification of health trends and statistics globally, and the international standard for reporting diseases and health conditions. The ICD standard is maintained under the responsibility and coordination of the World Health Organization (WHO). In May 2019 the WHO member states approved the 11th Revision of ICD (ICD-11) at the World Health Assembly and WHO has released ICD-11.[11]

ICD Mortality Coding[12] is the correct assignment of ICD alphanumerical codes to the conditions reported on the MCCD form, followed by the correct application of Mortality Coding instructions to select the underlying cause of death according to established criteria. ICD Mortality Coding generates data relevant for public health action.

9 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#what-is-tabulated-underlying-cause-of-death
10 ICD-11 Reference Guide (https://icdcdn.who.int/icd11referenceguide/en/html/index.html) and ICD-10 2016 Volume 2 (https://iris.who.int/bitstream/handle/10665/42980/9241546530_eng.pdf)
11 https://icd.who.int/en
12 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#coding-instructions-for-mortality

QA/I Measures

Governance Structures



The purpose of Governance Structures is to support quality assurance and improvement by providing oversight and coordination among stakeholders involved in generating high-quality cause-of-death data for medically attended deaths. In addition to the ministry of health, the Governance Structures should include other actors of the CRVS system, such as the civil registration authority and the national statistics organization.

If not operational, the following Governance Structures should be established and, if established, they should be operationalized.[13] All structures should have defined terms of reference, nominated organizational membership with designated individual members, and a defined meeting schedule.

Health Facility/Sub-National Mortality Technical Working Groups

The Health Facility/sub-national level technical working groups should provide oversight and facilitate cause-of-death data collection and processing at the Health Facility or sub-national level. The technical working groups should be available to review medical records and individual MCCD forms, as needed, and to process reports from the quality assessment/improvement measures. These groups also provide an opportunity for specific cases to be discussed as part of the peer-to-peer learning process. Further, these groups should analyze mortality patterns for their hospital/sub-national region, and use the mortality data for informed decision-making. If possible, it may also be useful to involve master trainers and/or ICD mortality coders and/or mortality coder supervisors in these groups.

To govern MCCD certification quality control, these groups can be established at each Health Facility. Small health facilities (for example, facilities with fewer than 30 beds) may consider a sub-national (i.e., at district or regional level) technical working group, as opposed to one based in each Health Facility. These technical working groups should meet monthly or quarterly, depending on the number of deaths occurring at the facility. Even if there is no group at the facility level, each Health Facility should still have one physician responsible for local training and quality assurance, including the processing of feedback received from the various quality control checks.

Roles and responsibilities of the technical working groups may be implemented as dedicated groups or as part of other groups that may be able to absorb the tasks (e.g., local death audit committees).

13 https://www.vitalstrategies.org/resources/guidance-for-civil-registration-and-vital-statistics-governance-mechanisms/

National Mortality Technical Working Group

The national mortality technical working group should provide ultimate oversight and coordination of the cause-of-death data collection system (including from out-of-facility deaths and medico-legal death investigations). As such, the group should provide a supportive environment and manage quality assurance and improvement system and measures. The group should also oversee data analysis and support interpretation and use of cause-of-death data. The group should further provide the link to the national CRVS steering committee (see also below).

The national mortality technical working group, should maintain up to date business process maps for the process from MCCD data collection to data analysis and with the link to death registration. By visualizing and documenting each step, healthcare administrators and decision-makers can identify bottlenecks, inefficiencies, and potential areas for improvement in the MCCD and ICD mortality coding process. Implementers may refer to the CRVS Systems Improvement Framework for technical guidance on developing process maps for MCCD and ICD mortality coding.[14]

If no Health Facility/sub-national mortality technical working group(s) are established, the national mortality technical working group should absorb the functions of those groups.

The long-term aim of the group may be to establish a reference center for disease classification or a collaborating center of the WHO Family of International Classifications (WHO-FIC) Network.

Other agencies involved in the CRVS system, in addition to the ministry of health, should be involved in the national mortality technical working group (e.g., the national statistics organization, the civil registration authority, the ministry of local government if, for example, they manage certain hospitals). Further, other stakeholders should be considered (e.g., medical associations).

National CRVS Steering Committee

At the national level, the national CRVS steering committee should oversee and coordinate activities of all stakeholders in the CRVS system. This committee will likely need to involve multiple ministries and government agencies. The committee should provide high-level support for quality assurance and improvement of cause-of-death information, and support the analysis and use of such data and information.

14 https://www.vitalstrategies.org/resources/crvs-systems-improvement-framework/

Routine Quality Checks

The purpose of routine data quality checks is to establish and maintain a sustained and institutionalized system that continuously conducts Routine Quality Checks at every step of the process to generate high-quality cause-of-death data for medically attended deaths. The findings from these routine checks serve as a valuable source of feedback for physicians, ICD mortality coders, and other stakeholders to promote good practices and identify training and other needs. The findings from the checks will also enable correct interpretation (e.g., regarding epidemiological findings) and use the cause-of-death data derived from the medical certificate of cause of death and ICD Mortality Coding.

The recommended Routine Quality Checks below are ordered according to each step in the data flow—from the completion of the MCCD form, to Data Entry, data preparation and ICD Mortality Coding, and data analysis.

Each MCCD form going through the process described here, should be identifiable with a unique number for the particular death and/or the deceased. Further, in the course of all of the steps of the process, if any amendments are made to a particular death record, they should be logged in the system and metadata collected to ensure that such amendments can be traced in an audit trail.

For each of the data quality checks described here, standard operating procedures with clear roles and responsibilities for the stakeholders involved should be developed. Further, for each data quality check implemented, stakeholders should define threshold above which corrective actions need to be taken, and targets in terms of the acceptable levels of errors to ensure the usability of the cause of death data. Assessing error rates towards the targets will also provide an opportunity to monitor progress in terms of obtaining high quality cause of death data for facility deaths.

Beyond the data quality indicators described below, system performance indicators should be collected. The system for the collection of these indicators depends on the stage of MCCD and ICD mortality coding implementation in the country.

Specifically, for countries that are beginning to set up MCCD and ICD mortality coding processes that did not previously exist, collecting and analyzing data on physicians trained, hospitals implementing the WHO standard MCCD form and practicing medical certificate of cause of death using that form, ICD mortality coder performance and other relevant implementation-focused indicators should be collected frequently, ideally monthly, quarterly, or as decided upon by the country's National Mortality Technical Working Group. This is because metrics in the initial stages of implementation should be changing at a steady state, and it is necessary to ensure that feedback through rapid data collection and analysis informs the ongoing scale-up of the MCCD and ICD mortality coding programs. This will also help to track that, as applicable, any newly introduced WHO standard MCCD form is being used in practice, and that physicians who have been trained on medical certification of cause of death are putting that training into practice. Routine monitoring for the initial phases will also enable decision-makers, as applicable, to rapidly conduct re-fresher training on specific quality issues as needed.

For countries that have already been implementing MCCD and ICD mortality coding for a few years but have incomplete national coverage, or have reached national coverage but continue to face issues with physician or ICD mortality coder knowledge or capacity, or are adopting new processes to streamline MCCD and ICD mortality coding, such as moving from a decentralized system to a centralized coding system, there is a certain level of routineness to the MCCD and ICD mortality coding processes that already exist. However, given gaps in implementation or evolving models of implementation, there is a need to continue monitoring and evaluating the process of MCCD and ICD mortality coding closely with some level of frequency. In such cases, it is recommended that implementation-focused indicators continue to be measured and evaluated on a quarterly or annual basis until implementation or data quality indicators can be embedded into a system that can automatically flag them as they occur, with quarterly or annual reviews of overall system performance.

For countries with complete national coverage of all facility deaths being medically certified with a final underlying cause of death as part of an established MCCD and ICD mortality coding program without any recent or planned system changes, application of the implementation indicators to routinely monitor implementation, should ideally be embedded into an health information system that can automatically flag issues with the MCCD ICD mortality coding implementation and data quality as they occur so that they can be corrected immediately, with quarterly or annual feedback reports of overall system performance to senior leadership such as the National Mortality Technical Working Group.

Possible system performance indicators that can be used to monitor the MCCD and ICD mortality coding system can be found in Annex 1.

Routine Quality Checks at: Completing the MCCD Form

Following a physician-attended death, an MCCD form must be completed. For this purpose, the international standard WHO 2016 MCCD form[15] should be implemented nationwide and used for all deaths, as stipulated in the local legal and regulatory framework (i.e., all deaths or at minimum all physician-attended deaths). Institutionalized pre- and in-service trainings on MCCD should be available to the relevant cadre (see also Capacity Building, below). Instructions on completing the MCCD form should be available to the physician (see also Job Aids, below).

A physician or other designated medical practitioner (as stipulated by the legal and regulatory framework) should complete the MCCD form.[16] If possible, physicians should be asked to fill the MCCD form directly into an electronic system (i.e., using an eMCCD form[17]), combining completion of the MCCD form with Data Entry (see also below). A task-sharing approach may be considered, and non-physicians may be assigned to complete certain portions of the MCCD form. This should not apply to Frame A and B of the MCCD form which should be completed by a physician.

Purpose of Checks

Routine quality control checks at the step of completing the MCCD form can serve two purposes.

First, such checks at the step of completing the MCCD form can provide at-the-source insights about the quality of a sample of MCCD forms being completed. Such locally performed checks need to be done manually (meaning non-automated) and should be applied to a sample of MCCD forms depending on the number of forms completed at the particular hospital.

Second, checks at this stage can provide an in-depth assessment of the quality of medical certification of cause of death, and check for inadequate or incorrect collection of information from documentation about the deceased.

15 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#data-source-the-international-form-of-medical-certificate-of-cause-of-death-mccd
16 See paragraph 491 and following of https://unstats.un.org/unsd/demographic/standmeth/principles/m19rev3en.pdf
17 https://icd.who.int/docs/doris/en/json-format/

Issues To Check For

The manual checks for at-the-source insights, which are to be applied to a sample of MCCD forms depending on the number of MCCD forms completed at a particular hospital, are listed in Annex 2.

In contrast, the checks for the in-depth assessment should include a detailed assessments of the accuracy of the information recorded on the MCCD form compared to the information available about the deceased. Such assessment would require a medical record review.

Tools To Implement Checks

To carry out these quality control checks, two approaches will be needed depending on the above-mentioned purpose.

First, for at-the-source insights, manual screening of a random sample of 100 MCCD forms at a minimum can be implemented by applying a standardized assessment tool.[18] A larger sample (e.g., more than 500) of MCCD forms can deliver more robust results. Such screening should be done before transferring the MCCD forms to the point of Data Entry. The screening could be done as part of the activities of the Health Facility/sub-national mortality technical working group. Overall, the screening at the source should help to assess completeness and identify obviously unusable causes of death (see details of the checks in Annex 2). Any errors identified should be tracked and relevant feedback provided. Given that this screening, needs to be done manually and requires a skilled medical professional, wide-scale application may be challenging, and screening of only a sample of MCCD forms is recommended. It should be noted that similar routine quality control checks as the ones suggested here for the at-the-source screening can be implemented in an automated and routine manner following Data Entry (see below).[19]

Second, for the in-depth assessment at the step of completing the MCCD form, the method is a medical record review study.[20] Such studies may require involvement of an academic partner and need considerable human resources and other investments (see the recommended low frequency of such assessments, below).

18 For an example of such an assessment tool, see: https://data4healthlibrary.org/sites/default/files/resources/334_UMelbourne_RFQ02986-MSPGH-D4H-MCCOD%20Rapid%20Assessment%20Tool_v4.pdf with technical guide at: https://data4healthlibrary.org/sites/default/files/resources/298_UMelbourne_47-Assessing%20the%20quality%20of%20death%20certificates-Guidance%20for%20the%20rapid%20tool.pdf

19 As an example of at-the-source screening see: "Framework for audit of medical certification of cause of death at Health Facility" (https://www.who.int/publications/i/item/9789290229469)

20 See the following examples of medical record review studies: Agarwal R, et al. Overreporting of Deaths from Coronary Heart Disease in New York City Hospitals, 2003. Preventing Chronic Disease. 7(3); 1-5. May 2010. Lucero M, et al. Assessing the quality of medical death certification: a case study of concordance between national statistics and results from a medical record review in a regional hospital in the Philippines. Population Health Metrics. 16(1); 1-9. Dec 2018. Rampatige R, et al. Assessing the reliability of causes of death reported by the Vital Registration System in Sri Lanka: medical records review in Colombo. Health Information Management. 42(3):20-8. Oct 2013.

Frequency of Checks

It is advised to continuously carry out manual at-the-source screening of a sample of MCCD forms for common errors by using a standard assessment tool. Such checks are recommended for a random sample of 100 to 500 (as opposed to all) MCCD forms, depending on the availability of resources.

Conducting a costly and complicated in-depth assessment in the form of a medical record review study is recommended at a multi-year interval.

Use of Results and Feedback From Checks

As logistically feasible, findings from the at-the-source manual MCCD form screening can potentially be used to amend specific MCCD forms by returning the forms to the certifying physician with an indication of the identified error(s). Depending on factors such as the time interval between the death and the assessment of a particular MCCD form, such correction of individual forms may not be possible, and the feasibility needs to be assessed based on the local circumstances. Even if forms can be corrected following the at-the-source screening, the identified errors should still be tracked and used for the purposes outlined in the following paragraph.

Anonymized findings from the at-the-source manual MCCD form screening and findings from medical record review studies should be disseminated to all relevant stakeholders, including physicians at hospitals, relevant sub-national authorities, central level (at the ministry of health or the national statistics organization), and the Mortality Technical Working Groups. Specifically, from the at-the-source, structured and manual MCCD certification screening, a report of common errors should be developed, and the identification of such common errors should be used to improve trainings. Findings can also be used to adjust supervisory measures and the number of at-the-source screenings conducted. Further, findings can be used to develop score cards to assess current performance and encourage measures for improvements as needed (see also Compliance Measures below).

Routine Quality Checks at: Data Entry

Following the completion of the MCCD form, data needs to be captured electronically in the step of Data Entry. Data Entry should be established as close as possible to the source of the completed MCCD form (e.g., at the Health Facility). Also, Data Entry should be timely to enable the availability of the data for use and to detect quality issues in near real-time. WHO has published guidance on how the data from the MCCD form should be captured electronically.[21]

Data Entry staff should have procedures in place and the necessary authority to follow up with the certifying physician for clarification, as needed. To enable such follow-up, the contact information of the certifying physician should be included on the MCCD form.

The electronic system used to capture the data from the MCCD form should allow for free text transcription of the cause(s) of death written on the MCCD form[22] without drop-down menus and/or short lists of causes of death. Such a free text filed can later be used for quality assurance purposes. To facilitate their work and answer any questions, Data Entry staff should ideally be able to contact a professional ICD mortality coder, if needed.

Preferably, physicians completing the MCCD form should be equipped to directly enter the MCCD form into an electronic system. This will enable better quality by ensuring data entry of exactly the medical terms intended by the certifying physician. In such a system, Data Entry staff can enter the administrative data, and the physician can complete the medical section of the MCCD form. Both cadres should have authorization only for Data Entry and not be given access to the full database of all the MCCD forms captured.

Based on their knowledge of medical terminology, whether they are trained in ICD chapter-specific coding, and other factors (e.g., the ability to be online during Data Entry to access the Application Programming Interface (API)[23] of the ICD-11 Index), it may be appropriate to ask Data Entry staff to transcribe the causes as written by the physician on the MCCD form as free text and in a second data element also identify the corresponding terms from the ICD-11 Index, thereby converting text to ICD code. Having the two data elements—free text written by the physician in the MCCD form and a second data element for the selected cause of death from the ICD index—entered separately is essential. This dual-entry system aids in conducting audits and quality assessments, ensuring the accuracy of proper ICD code selection at the Data Entry level. If the two tasks are assigned to the Data Entry staff, both the free text (as transcribed from the MCCD form) and, separately, the selected ICD code should be captured in the electronic system to ensure quality control as indicated above. If both of these tasks are given to Data Entry staff, their training must go beyond Data Entry and they need to be trained on the use of the ICD coding tool and on medical terminology. Alternatively, Data Entry staff may just transcribe the causes of death from the

21 https://icd.who.int/docs/doris/en/json-format/
22 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#electronic-recording-and-reporting
23 https://icd.who.int/icdapi

MCCD form as free text, and the assignment of the ICD code for the causes can be done in the following step of data preparation at a more centralized location (see below). The quality of the assignment of ICD codes to free text will affect the overall quality of cause of death data and the assignment of this task therefore needs to be considered carefully.

The Routine Quality Checks performed at the point of Data Entry need to be adjusted based on the location of Data Entry (for example, considering factors such as the possibility of Data Entry staff discussing an MCCD form with the physician who filled the MCCD form) and the capabilities of Data Entry staff (for example, with regards to understanding of medical terminology). The checks to perform also depend on whether the Data Entry staff have the responsibility of converting text into ICD codes (see below and the section on data preparation for the applicable data quality checks).

In addition to the Routine Quality Checks described below, periodically (e.g., quarterly or even monthly), it is advised to check Data Entry to ensure that Data Entry staff are transcribing the handwritten MCCD forms exactly as presented to them and, as applicable, that Data Entry staff are correctly identifying the ICD codes for the causes transcribed from the MCCD forms. This could be achieved by double entry and comparison of selected MCCD forms and, as applicable, coding/re-coding analysis. Supervisors of Data Entry staff must, as standard practice, randomly but routinely spot-check the quality of the Data Entry and, as applicable, the identification of ICD codes.

Purpose of Checks

The purpose of the Routine Quality Checks during Data Entry is to ensure that the data recorded on the MCCD forms is accurately captured in an electronic system and, as applicable, the correct ICD code(s) are identified for the transcribed cause(s) of death.

Issues to Check For

A list of routine data quality checks to be carried out at the step of Data Entry is provided in Annex 3.

Some of these checks may need to be moved to the next step of the process depending on the Data Entry location; hence, some checks are also listed in Annex 4.

Quality control checks of the Data Entry process need to be considered for assessment at a regular interval. At this regular interval, the correct transcription of the causes of death as written on the MCCD form needs to be checked and, as applicable, the correct identification of the ICD codes for the transcribed causes of death needs to be checked.

Tools to Implement Checks

The proposed checks should be implemented through a combination of human intervention and functionalities of the electronic system used to capture the MCCD form. Specifically, standard operating procedures for Data Entry staff can specify how to perform the manual and automated checks, and how to deal with MCCD forms that do not pass the checks (e.g., revert to certifying physician for clarification).

The electronic system used to capture the information on the MCCD form should have dedicated fields for the collection of data about the manually conducted quality checks. Data Entry constraints (e.g., selection of administrative data from a defined set of options) and required Data Entry fields (e.g., date of death) in the system used for the electronic capture of the data can support the implementation of the checks. Data quality checks can further be supported by scanning and archiving the original paper MCCD forms; this could be done for a sample of the paper MCCD forms, and it will also help to provide a check for correct Data Entry (see also below).

Checks for the correct transcription of forms in the electronic system and, as applicable, the correct identification of the ICD codes for the transcribed causes of death will require double entry of selected forms or otherwise checking the paper form against the data in the electronic system.

Frequency of Checks

Quality control checks should be applied to all MCCD forms upon Data Entry.

Checks for the correct transcription of the forms and, as applicable, the correct identification of the ICD codes for the transcribed causes of death should be carried out at a regular interval for a sample of MCCD forms.

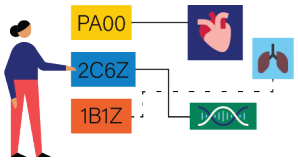
Use of Results and Feedback from Checks

Feedback from the quality control checks at Data Entry should be shared as far down the reporting hierarchy as possible. Specifically, the feedback should ideally reach the certifier of cause of death or their supervisor to, if operationally possible, correct any errors and to re-submit the MCCD form. However, correcting individual MCCD forms prior to Data Entry may not be possible depending on the Data Entry location, or the delay between completion of the form and Data Entry. In any case, errors should be logged for the purposes described below.

In addition to possibly using the feedback from the checks at Data Entry to correct individual MCCD forms, the feedback should be aggregated. Such aggregated data from errors detected at Data Entry should be shared with decision-makers and Governance Structures at the Health Facility, regional and central level for the purpose of targeted (re-)trainings, increased supervision, and other measures to improve the overall quality of medical certification of cause of death.

Findings from the checks regarding the correct transcription of the forms and, as applicable, the correct identification of the ICD codes for the transcribed causes of death should be used to adjust the supervisory strategy, and for the (re-) training of Data Entry staff (including, for example, on medical terminology).

Routine Quality Checks at:
Data preparation and ICD Mortality Coding



Data Preparation:

Following Data Entry and before ICD Mortality Coding, there is a need to prepare the data for ICD Mortality Coding; this is the data preparation step. This step involves quality control checks that assess the full MCCD form.

As applicable (i.e., if this is not done as part of the Data Entry), this step may also involve the assignment of ICD codes for each of the causes listed on the MCCD form. As also described above, checks for this task will need to ensure the application of correct and relevant ICD code(s) to the cause(s) of death listed by the physicians on the MCCD form. As further mentioned above, for this step of assigning ICD codes to the text written by the physician, it would be preferable for the relevant staff to be able to contact the physician if necessary. However, this may not always be logistically feasible if there is too much physical distance or time between the completion of the MCCD form and the data preparation. Under such circumstances, the individuals doing the data preparation will need to proceed with the information available and take note of any errors detected. The step of assigning ICD codes to the causes of death listed on the MCCD form will require training specific for that task.

ICD Mortality Coding:

ICD Mortality Coding consists of three steps: First, causes of death listed in Part 1 and 2 on the MCCD form are assigned an ICD alphanumerical code (see also Data Entry and data preparation above). Second, the ICD Mortality Coding rules are applied to determine the tentative (or final, if no modification rules are applicable) underlying cause of death. Third, special coding instructions (i.e., modification rules) may be applied, depending on the specific causes listed on the MCCD form, to arrive at the final underlying cause of death.

To enable quality and consistency, ICD Mortality Coding should be centralized and automated as much as possible and be timely to promote the availability of the data. In any case, the arrangements for coders should enable interaction among them to, for example, discuss complex cases.

Following the step of ICD Mortality Coding and, as possible, without waiting for in-depth analysis, specific categories of deaths can be flagged for follow-up. This may, for example, include presumed maternal death, which would need to be investigated (e.g., by the Maternal and Perinatal Death Surveillance and Response (MPDSR) system), or death that may indicate a public health alert (e.g., death from notifiable diseases). By including such analysis in the routine data flow, the death of particular concern can be flagged in a near real-time manner.

Purpose of Checks: Data Preparation

The purpose of the Routine Quality Checks at the step of data preparation is to ensure, at the level of individual MCCD forms and each of the data elements collected on the form, that the information required for ICD Mortality Coding has been collected and that valid cause(s) of death are included on the MCCD form. These checks will help to assess the quality of medical certification of cause of death. Independent of whether ICD codes are assigned to the causes listed on the MCCD form at the step of Data Entry or data preparation, checks at this step should assess the correct assignment of ICD codes to the text written by the physician.

Purpose of Checks: ICD Mortality Coding

Routine Quality Checks at the stage of ICD Mortality Coding should be implemented to assess the quality of Mortality Coding with regards to conformity with ICD Mortality Coding rules and instructions for the selection of the correct underlying cause of death. Specifically, the checks at this step ensure that the cause-of-death information in the MCCD form has been coded according to ICD coding guidelines and the underlying cause of death has been determined according to the instructions[24] for ICD Mortality Coding.

24 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#coding-instructions-for-mortality

Issues to Check For: Data Preparation

The recommended list of routine data quality checks at the step of data preparation is provided in Annex 4.[25]

The correct identification of the ICD codes for the transcribed causes of death also needs to be checked at this step. If such identification of ICD codes is done without a tool (e.g., ICD-11 Coding Tool), this check also needs to ensure that no non-existent ICD codes are used.

Issues to Check For: ICD Mortality Coding

Routine data quality checks at the step of ICD Mortality Coding should check for the correct application of the Mortality Coding rules.[26]

Tools to Implement Checks

The checks for data preparation to be performed at this step can be implemented with tools such as CoDEdit.[27] For the verification of the correct ICD codes assigned to the text written by the physician on the MCCD form, a coding/re-coding analysis (see also below) can be applied. Alternatively, the DORIS tool is also being built to assign ICD-11 codes to text and thereby help to check if such assignment was done correctly.

For checks at the step of ICD Mortality Coding, automated ICD Mortality Coding tools may be used.[28] Alternatively, the ICD Mortality Coding can be re-checked using a coding/re-coding analysis to assess if the correct code has been selected as the underlying cause of death based on what is reported on the MCCD form. If discordances are identified between what the initial coder found and what was found by the re-coder, there would need to be a discussion between the coders or the MCCD form would need to be assessed by a coding supervisor. Any discrepancies should be re-checked by correct application of Mortality Coding rules using the ICD Mortality Coding reference guide, which establish acceptable causal relationships and any possible modifications of the tentative underlying cause of death.

25 Depending on the checks that are implemented as part of the Data Entry process, some of the items in Annex 4 may have already been checked and corrected previously. As applicable, the list of checks to perform should be adjusted. It should be noted that even if some of these checks are to be performed as part of the above-mentioned manual at-the-source screening or during Data Entry, it may be appropriate to re-do the checks and centralize the collection of data on the frequency of specific errors.

26 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#coding-instructions-for-mortality

27 https://www.who.int/standards/classifications/services/codedit-tool

28 DORIS (https://icd.who.int/doris/) or Iris (https://www.bfarm.de/EN/Code-systems/Collaboration-and-projects/Iris-Institute/Iris-software/_node.html;jsessionid=AB4F6749654641FE65F82B895570B1B6.intranet232)

Frequency of Checks

The proposed checks during data preparation should be applied as part of routine and, as possible, automated checks of all MCCD forms.

For the checks regarding the correct assignment of ICD codes and the correct selection of the underlying cause of death, a coding/re-coding activity can be carried out annually or as needed on a sample of MCCD forms to assess the quality of converting causes into ICD codes and, as applicable, the manual application of the ICD Mortality Coding rules. If the selection of the underlying cause of death is done using an automated system, quality checks for this step are not required (unless if needed for the evaluation of the performance of the automated coding system).

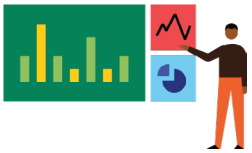
Use of Results and Feedback from Checks

Errors identified during the proposed checks for data preparation need to be investigated to determine whether they are mistakes by the certifier of cause of death (i.e., errors on the original MCCD form), errors in Data Entry, or errors in the selection of the ICD code for the causes listed on the MCCD form, and feedback should be provided accordingly.

As applicable, and if possible, feedback should be provided directly to the cause-of-death certifier or their supervisors to get the errors corrected. If errors cannot be corrected, stakeholders may consider investigation of particular deaths through review of medical records and/or using verbal autopsies to improve the quality of the cause-of-death information. If the error originates from the Data Entry step or the step of converting text to ICD codes, feedback should be provided to the relevant staff and their supervisor.

At the aggregate level, reports from the checks at the data preparation step should be developed on a regular basis (e.g., quarterly or half-yearly), and they should be submitted to and discussed by the Health Facility/sub-national mortality technical working group and the national mortality technical working group. These groups should take appropriate actions based on the errors observed (e.g., increased supervision of Data Entry, more frequent and targeted (e.g., to specific hospitals) re-coding analysis to detect errors in the conversion of text to code, targeted re-training of physicians in particular hospitals, or changes to the training curriculum to prevent certain common errors).

Routine Quality Checks at: Data Analysis



Following data preparation and ICD Mortality Coding, and to ultimately be able to disseminate and use the collected cause-of-death data, the cause-of-death data must be analyzed to find meaning and draw helpful conclusions. Such analysis serves to both assess data completeness and quality, and to carry out epidemiological analyses that produce data relevant for public health decision-making and the production of vital statistics reports. Specifically, Routine Quality Checks should be implemented as part of the regular analysis to provide critical input for the appropriate interpretation and use of the cause-of-death data. WHO provides guidance for the aggregation of cause of death which may be useful for such analysis.[29]

Depending on the priority setting in a country, checks may focus on specific issues important for public health, such as maternal and infant mortality or external causes of death. Such focused analysis should look at the relevant causes of death as well as aspects of quality related to the specific topics.

In addition to the analysis of aggregated data, and if not done as part of the previous step, the analysis step should also aim to detect deaths that need specific follow-up. This could, for example, include presumed maternal deaths that need to be investigated (e.g., by the MPDSR system) or deaths that may indicate a public health alert (e.g., deaths from notifiable diseases). By including such analysis in the routine data flow, such deaths of particular concern can be flagged in near real-time.

In addition to carrying out this analysis at the level of the Regional or Central Health Authority or the National Statistics Organisation, it may also be applicable to carry out some of the analysis at the level of the health facility to promote the use of health data at the level of the health facilities.

Purpose of Checks

Suggested routine quality control checks as part of the data analysis will help to assess the quality of the ICD coded cause-of-death data, and identify issues such as high proportions of ill-defined causes of death or other quality concerns. Specifically, routine quality control checks at this step should check for the need for improvements to the overall MCCD certification and ICD Mortality Coding system, change to the supervisory system, and amendments to the training of the various cadres involved in the process.

Issues to Check For

At this step the overall quality should be assessed using the checks of the previous steps with a focus on analyzing underlying causes of death (as opposed to the causal sequence or other information reported on the MCCD form). These checks may be carried out on aggregated (as opposed to individual) cause-of-death data (notwithstanding the point made above about near real-time analysis). This should further include assessments of completeness (with

29 See https://icd.who.int/browse/2024-01/mms/en and click on “Info” and then “Mortality List”.

disaggregation, for example, by sex) of the MCCD certification data, including checks for consistency with other data sources (e.g., systems reporting counts of hospital deaths that should all have an MCCD form) and evaluations to ensure that all MCCD forms that have been completed reach the analysis stage. This should also include the computation of indicators such as the crude death rate and life expectancy.

Routine data quality checks at this step are listed in Annex 5.[30]

The checks at this step may also focus on specific areas of public health relevance. Specifically, checks could look for quality issues related to death from external causes[31] or causes that may indicate maternal deaths.

Tools to Implement Checks

Proposed checks can be implemented using the WHO ANACoD3[32] tool. This tool analyzes the quality of cause-of-death data at an aggregated level and supports the analysis and interpretation of cause-specific mortality fractions (i.e., the distribution of death across a list of causes with different levels of resolution). A similar tool called ANACONDA[33], developed by a group of researchers, performs academic quality analysis, whereas the ANACoD3 tool implements analyses relevant for public health decision-making. ANACONDA is available for ICD-10 and ANACoD3 is available for ICD-10 and ICD-11.

Frequency of Checks

Checks should be carried out on a routine basis with the systematic development of regular (e.g., quarterly) reports. Analysis should also include sub-national disaggregation.

30 Some of the checks recommended here overlap with the checks recommended above. These repeated checks are recommended, since here the checks apply to the underlying cause of death.
31 https://icd.who.int/browse11/lm/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f435227771
32 https://www.who.int/standards/classifications/classification-of-diseases/services/analysing-mortality-levels-and-causes-of-death
33 https://data4healthlibrary.org/resources/anaconda-new-tool-improve-mortality-and-cause-death-data

Use of Results and Feedback From Checks

Findings from the routine quality control checks at the step of data analysis should result in reports to the Health Facility/sub-national mortality technical working group, the national mortality technical working group and other decision-makers (e.g., national CRVS steering committee). These Governance Structures can use the findings from the Routine Quality Checks, among other things, as considerations when interpreting and using the mortality data for epidemiological and public health purposes, and for improvements to the overall MCCD certification and ICD Mortality Coding system. Specifically, the routine quality control checks can provide important guidance for the use of mortality data (e.g., conducting a sub-analysis that excludes deaths at age 65+ from cause-of-death analysis, if most causes for people age 65 and over are ill-defined).

Compliance Measures

The purpose of Compliance Measures for MCCD and ICD Mortality Coding are established to ensure that rules, regulations and corrective actions are in place, enforceable and actively enforced to enable completeness and quality of MCCD and ICD Mortality Coding.

The list below provides examples of Compliance Measures to be implemented at the various stages of the MCCD and ICD Mortality Coding process.

Possible Compliance Measures:

- Guidance to ensure that Governance Structures (at the national, sub-national and facility level) hold regular meetings.
- Legal and regulatory frameworks (including code of medical ethics) in place to regulate MCCD and ICD Mortality Coding.[34]
- Regulations that mandate certifiers of cause of death to issue MCCD forms for specified deaths such as, for example, deaths that occur under their care.
- Medical councils that regulate practice with regard to MCCD (including, for example, standard operating procedures and trainings).[35]
- Regulations that mandate health facilities to track quality of MCCD (i.e., inclusion of MCCD quality indicators like the percent of unusable cause of deaths into audit standards/regulatory incentives). This can include the use of scorecards/dashboards showing performance of health facilities (possibly even departments within health facilities) or sub-national areas in terms of quality and completeness of MCCD, with the option of ranking.[36]
- Trainings of all certifiers of cause of death, including in-person or online training in MCCD, as a mandatory part of the pre-service curriculum (e.g., during medical school) and the continuing medical education program. These trainings should be part of licensing and re-licensing requirements. See the following Capacity Building section for more information.

34 https://advocacyincubator.org/ghai-advocacy-tools/legal-and-regulatory-review-toolkit-for-crvsid/

35 See the Association of Medical Councils of Africa (AMCOA) Protocol Framework for Medical Certification of Cause of Death (https://amcoa.org/resources/AMCOA-2022-Conference-Report.pdf; final publication forthcoming)

36 See for example the dashboard of the Directorate General of Health Services of Bangladesh (https://dashboard.dghs.gov.bd/pages/dashboard_mccod_test.php); this dashboard has a dual purpose: performance monitoring and epidemiological and public health insights

Capacity Building

The purpose of Capacity Building for completing the MCCD form, Data Entry, data preparation and ICD Mortality Coding, and data analysis is to ensure that all relevant staff receive the training and re-training required to carry out their responsibilities. Capacity Building activities should take into consideration feedback from the quality control checks to prevent common errors. Activities can further include cross-learning opportunities between different areas of a country and provide a forum for exchange among stakeholders carrying out the same activities. Training should be followed up by supportive supervision. This can, for example, include a discussion forum for physicians to discuss the medical certification of cause of death for a particular patient or for ICD mortality coders to discuss the ICD Mortality Coding of a particular MCCD form. For training on medical certification of cause of death, the training should provide the certifiers with an understanding of their impact on cause of death data.

It should be noted that the recommended Capacity Building activities are for educated adults and the corresponding activities should be implemented accordingly, i.e., activities should be interactive, case-based (e.g., using real life examples of MCCD forms) and allow for the exchange between trainers and trainees, and among the trainees, to debate and discuss specific cases.

The following are a list of recommended trainings.

Training program on medical certification of cause of death and completion of the international standard MCCD form[37]

- Trainings on MCCD should target physicians, master trainers and supervisors.
- Pre-service training (in-person or e-learning) should be required of all future certifiers of cause of death. The most effective approach for such a training program involves integrating a dedicated module into the medical curriculum, emphasizing the importance of MCCD and evaluating knowledge through exams. Such a module should be developed with the involvement of a committee of relevant experts ensuring clear definitions of learning areas and competencies that underscore the significance of accurate COD reporting in shaping public health policies and contributing to global health goals.
- If there is a training program for interns and/or residents, this should also include training in the accurate completion of MCCD forms. This will emphasize the importance of high-quality MCCD data early in the career of certifiers. This will further help to reinforce concepts learned during undergraduate education. This training should be practical and highlight potential errors and their implications.

37 Examples of trainings on MCCD and training curriculum are available at: https://icdcdn.who.int/icd11training/index.html, https://sdd.spc.int/news/2021/05/18/MCCD-PICTs-report, https://getinthepicture.org/sites/default/files/resources/Core%20Curriculum%20for%20certifiers%20of%20underlying%20Cause%20of%20Death_0.pdf, https://learning.vitalstrategies.org/catalogexternal/indexexternal.php?mid=70

- Regular in-service training and re-training (in-person or eLearning) on MCCD should include all certifiers of COD. If possible, such training should be part of the continuing medical education program. The training should consist of short courses and incorporate mock patient death scenarios based on realistic cases.
- If there is no continuous medical education program, as part of an institutionalized training program, master trainers should be deployed for hospital-level trainings to effectively update senior physicians and consultants on accurate MCCD procedures.
- Re-training should be scheduled based on frequency of recorded error rates and turnover of staff.

Data Entry Training Program

- Training for Data Entry staff and supervisors.
- Training in how to enter data with emphasis on entering data exactly as reported on the MCCD form.
- Training in data quality checking at the point of Data Entry.
- As applicable, training in the correct selection of ICD codes for the causes listed on the MCCD form; including training in relevant tools for the step.
- As further applicable, training in medical terminology, anatomy, and physiology.

Training Program on ICD Mortality Coding[38]

- Training in ICD Mortality Coding for ICD mortality coders, master trainers (as applicable), and supervisors of ICD Mortality Coding.
- Training in relevant quality control checks.
- As applicable, training should include Capacity Building on the automated ICD Mortality Coding system being used.
- Re-training scheduled on the basis of the recorded error rate and the turnover of staff.
- As coders don't necessarily need medical education, they should receive basic training in medical terminology, anatomy, and physiology.

Data analysis Training Program[39]

- Training in data analysis, interpretation, dissemination and use.
- Training in data quality checking.
- Training in effective reporting of key data analysis issues.

38 Examples of trainings on ICD Mortality Coding and training curriculum are available at: https://icdcdn.who.int/icd11training/index.html, https://purl.org/spc/digilib/doc/qbrzh

39 https://www.d4hdataimpact.org/crvs-data-use

Job Aids

The purpose of Job Aids is to ensure that all relevant cadres are provided with easily accessible tools and resources to support them in performing their tasks.

The list below provides examples of Job Aids that various stakeholders should have at their disposal to support their day-to-day activities.

Possible Job Aids:

- Handbook on MCCD.[40]
- Quick guide for the completion of the MCCD form.[41]
- Standard operating procedures and instructions for the completion of the MCCD form[42] as well as any other steps in the process.
- App for mobile devices to learn about MCCD and get support for completing the form.[43]
- Local list of commonly used ill-defined causes of death to sensitize physicians to not use these causes of death.

40 E.g.,https://doh.gov.ph/sites/default/files/publications/Medical%20Certification%20of%20Death_Handbook%20for%20Filipino%20Physicians_2nd%20ed.pdf, https://data4healthlibrary.org/sites/default/files/resources/271_UMelbourne_Handbook%20for%20doctors%20on%20cause%20of%20death%20certification.pdf

41 E.g., https://cdn.who.int/media/docs/default-source/classification/icd/cause-of-death/causeofdeathflyer_2015.pdf?sfvrsn=9ec05f86_1#/upload, https://getinthepicture.org/sites/default/files/resources/CoD_ReferenceGuide_20170402_1.pdf, https://data4healthlibrary.org/sites/default/files/resources/275_UMelbourne_D4H-MCCOD%20quick%20reference%20guide_FINAL_WEB.pdf, https://icdcdn.who.int/icd11referenceguide/en/html/index.html#quick-reference-guide-for-the-international-form-of-medical-certificate-of-cause-of-death-mccd-flyer

42 E.g., https://www.cdc.gov/nchs/data/dvs/death11-03final-acc.pdf

43 E.g., https://www.cns-inc.com/innovation-at-work/new-hampshire-electronic-cause-of-death-necod-mobile-application/, https://play.google.com/store/apps/details?id=com.mohsl.cod&hl=en_US, https://play.google.com/store/apps/details?id=br.gov.datasus.msatestado&hl=pt&gl=US&pli=1

Conclusion

High-quality mortality data, including cause-of-death data, is essential to reduce preventable deaths and monitor a population's health. It is therefore paramount that every death be registered with the civil registration authority and that cause-of-death data is available.

This framework presents measures to assure and improve the quality of cause-of-death data for physician-attended deaths. Specifically, the framework outlines the following recommended quality assurance and improvement measures: Governance Structures, Routine Quality Checks, Compliance Measures, Capacity Building and Job Aids. The proposed measures are applicable to all steps in the process to generate high-quality cause-of-death data: from the physician completing the MCCD form, to Data Entry of the information collected on the MCCD form, to data preparation and ICD Mortality Coding, and to the analysis of ICD mortality coded cause-of-death data. The various proposed measures are to be carried out at health facilities, at the regional or central health authority, at the national statistics offices, or at other government agencies.

Overall, the framework provides a comprehensive overview and details of the proposed combination of quality assurance and improvement measures. Through the implementation of a combination of these measures, country stakeholders will be able to improve and maintain higher quality cause-of-death data from physician-attended deaths.

Acknowledgment

This report was made possible with support from the Bloomberg Philanthropies (www.Bloomberg.org) Data for Health Initiative. The views expressed are not necessarily those of Bloomberg Philanthropies.

This guide was written by Martin W. Bratschi, Fatima Marinho, Genevieve Bergeron, Philip Setel and Adam Karpati from Vital Strategies, and Nandalal Wijesekera (National Institute of Health Sciences, Sri Lanka) and Yusuf Hemed (independent consultant), with additional technical input from James Mwanza (Vital Strategies), Rangana Wadugedara (Ministry of Health, Sri Lanka), Maletela Tuoane (World Bank), Chrystie Swiney (Global Health Advocacy Incubator), Doris Ma Fat (WHO), Benson Droti (WHO), Tanja B. Sejersen (UN Economic and Social Commission for Asia and the Pacific), Raj G. Mitra (independent consultant), Azza Badr (WHO), Sam Notzon (U.S. CDC), Beatriz Plaza (Vital Strategies), Saman Gamage (CDC Foundation), Olga Joos (CDC Foundation), Erin K. Nichols (U.S. CDC), Benson Droti (WHO), Emily Atuheire (Africa CDC), Moses Bamutura (Africa CDC), Mean Reatanak Sambath (Vital Strategies), Rodela Khan (Vital Strategies), Carah Figueroa (University of New South Wales), Jeff Montgomery (Pacific Community), Patrick Delcroix (Swiss TPH) as well as other colleagues at Vital Strategies. Language editing and graphic design was carried out by the Vital Strategies Policy Advocacy and Communication team.

Annexes

Annex 1: Possible MCCD and ICD mortality coding system indicators

No	Key Performance Indicator	Type of Indicator	Rational for Indicator
1	Country produces mortality statistics on causes of death based on data from MCCD?	Yes or No (if yes, specify who produces and who publishes the statistics and whether or not the analysis of data from MCCD is integrated with the analysis of registered death for the production of vital statistics)	Checks if the country is producing statistics on causes of death using the data from the MCCD system
2	Policy decision on adoption of the WHO international form of medical certificate of cause of death?	Yes or No	Indicates whether a country has officially declared and implemented a policy endorsing the adoption of the WHO international form of medical certificate of cause of death.
3	Percentage of all hospitals (public and private) using the WHO international form of medical certificate of cause of death?	Numerator: Number of hospitals using WHO international form of medical certificate of cause of death. Denominator: Total number of hospitals in the country.	Measures the extent to which hospitals have adopted the WHO international form of medical certificate of cause of death, reflecting the standardization of reporting. Countries may choose to further split this indicator to measure this indicator for public and private hospitals separately.
4	Percentage of deaths occurring in hospitals which are using the WHO international form of medical certificate of cause of death?	Numerator: Number of deaths occurring in hospitals using the WHO international form of medical certificate of cause of death. Denominator: Total number of deaths occurring in hospitals.	Assesses the extent to which deaths occurring in hospitals are medically certified using the WHO international form of medical certificate of cause of death, ensuring accurate and standardized documentation. Countries may choose to further split this indicator for public and private hospitals separately.

No	Key Performance Indicator	Type of Indicator	Rational for Indicator
5	Is MCCD form initially recorded on paper or directly captured digitally?	Use of paper or Direct digital data capture (if digital, specify which system). If countries use a combination of digital or paper recording, include a percentage of deaths with paper based MCCD and percentage deaths with digital MCCD	Assesses whether countries have implemented digital methods for MCCD recording or are primarily reliant on paper-based systems.
6	Estimated average time taken from the confirmation of death to completion of MCCD?	Numerator: The total time (in hours or minutes if data is captured digitally, in days if data is collected on paper) it takes from the confirmation of death to completion of MCCD. Denominator: The number of death confirmations with completed MCCD during a specified time period (e.g., month, quarter, or year).	Measures the efficiency of the process in confirming a death and completing the MCCD. It assesses how long it takes from the time of death confirmation to the finalization of the MCCD.
7	Estimated average time from death to completion of ICD mortality coding?	Numerator: The total time it takes for ICD mortality coding since the time of death (in days). Denominator: The total number of deaths for which ICD mortality coding is performed.	Measures the efficiency of the mortality coding process, indicating how quickly causes of death are encoded according to the ICD. This complete process includes coding of causes of death and identification of underlying causes of death.
8	Percentage of medical schools / faculties with MCCD in their curriculum?	Numerator: Number of medical schools/ faculties offering MCCD in their curriculum. Denominator: Total number of medical schools/ faculties.	Tracks the adoption of the MCCD curriculum across different medical faculties.
9	Average number of hours allocated for MCCD in the medical curriculum.	Numerator: Total number of hours allocated for MCCD in all medical education faculties Denominator: Total number of medical curricula assessed.	Measures the average time allocation of medical curriculum to MCCD. An ideal allocation of 8-10 hours is suggested to comprehensively cover this full subject area. However, the actual duration may vary based on the overall length of the medical curriculum and the availability of time.

No	Key Performance Indicator	Type of Indicator	Rational for Indicator
10	Percentage of interns who received MCCD in-service training during their internship in given intern intake.	Numerator: Number of interns who received MCCD in-service training during their internship. Denominator: Total number of interns in the given intern intake.	Measures the extent to which interns are participating in MCCD training, indicating the program's reach among interns
11	Mean error count of MCCD filled by interns before training (pre-test) in a sample of randomly selected death certificates.	Numerator: Total error count on MCCD filled by interns before training (pre-test) in the sample. Denominator: Total number of MCCD included in the sample.	Measures the baseline error rate in MCCD filled out by interns before they undergo training. Conducting both pre- and post-quality assessments of cause of death through a standardized MCCD quality assessment tool is recommended to gauge the effectiveness of the training.
12	Mean error count of MCCD filled by interns after training (post-test) in a sample of randomly selected MCCD.	Numerator: Total error count on death certificates filled by interns after training (post-test) in the sample. Denominator: Total number of MCCD included in the sample.	Assesses the impact of the MCCD training by measuring the error rate in MCCD filled out by interns after they have received training. A lower post-training error count is a positive outcome.
13	Existence of master trainer program in MCCD through training-of-trainers (TOT).	Yes or No answer on availability of the MCCD TOT programme.	Determines whether the country has a structured program specifically designed to produce master trainers in MCCD through a ToT initiative.
14	MCCD master trainer ratio to all doctors.	Numerator: Number of MCCD master trainers. Denominator: Total count of doctors in the country (or within a specified region).	Reflects the proportion or ratio of MCCD master trainers available in relation to the total number of doctors, indicating the capacity for MCCD training and education among the medical professional community.

No	Key Performance Indicator	Type of Indicator	Rational for Indicator
15	Percentage of consultants / medical officers/ physicians trained on MCCD.	Numerator: Number of consultants / medical officers / physicians trained on MCCD. Denominator: Total number of consultants, medical officers, and physicians in the organization or region.	Measures the extent to which relevant individuals have received training on MCCD, ensuring that experienced medical professionals are well-equipped in this area. Countries may choose to further split this indicator to measure this indicator for physicians in public and private hospitals separately.
16	Count of MCCD training courses organized in a particular hospital / healthcare institution	Number of MCCD training courses conducted for staff within a particular hospital or healthcare institution within a year.	Measures how many MCCD training sessions are arranged specifically for the staff of a particular hospital or healthcare institution, indicating the level of efforts to provide training and updates on MCCD.
17	Availability of continuing professional development (CPD) or continuing medical education (CME) programs for medical professionals.	Yes or No answer based on the availability of CPD/CME programme.	Evaluates the presence and accessibility of CPD/CME programs designed for ongoing skill enhancement and learning opportunities among medical professionals in the country.
18	MCCD is integrated into CPD/CME programme as a subject.	Yes or No answer. If CPD/ CME programme exist, assess whether the MCCD subject is a part of that programme.	Measures the incorporation of MCCD training within the available CPD/CME programs (if available). It reflects the emphasis placed on educating medical professionals about MCCD within CPD/CME to ensure quality cause-of-death documentation through ongoing professional development initiatives.
19	CPD/CME certificates issued by the authorized body for MCCD training.	Yes or No answer.	Ensures that CPD/CME certificates are provided by the authorized body for MCCD training, demonstrating the formal recognition and completion of training.
20	Number of CPD/ CME points allocated for MCCD training.	Number of CPD points allocated for MCCD training by the CPD system.	Quantifies the number of CPD points assigned to MCCD training, indicating the relative importance and depth of training in this area.

No	Key Performance Indicator	Type of Indicator	Rational for Indicator
21	Utilization of government funds for MCCD training	Yes or No answer if training budget is funded by the government.	Determines whether government funds are allocated and utilized specifically for conducting MCCD training programs or courses. This metric helps gauge the financial support and commitment of the government toward MCCD training initiatives.
22	Average cost to produce master trainer in MCCD.	Numerator: Total expenses incurred in conducting the training of master trainers in MCCD. Denominator: Number of participants who successfully become master trainers.	Evaluates the average financial investment required per participant to qualify as a master trainer in MCCD. This metric helps assess the cost-effectiveness of the training initiative in creating certified master trainers.
23	Average cost to train a doctor in MCCD.	Numerator: Total expenses involved in MCCD training. Denominator: Number of doctors trained.	Evaluates the average financial investment required to train a single doctor in MCCD.
24	ICD mortality coding system exists.	Yes or No answer (if yes, provide details such as centralized or decentralized coding, automated or manual coding, and which version of ICD is used).	Assesses whether an ICD Mortality Coding System is in place.
25	Number of trained ICD coders working in the country.	Number of ICD coders working in the country.	Measures the availability of trained ICD coders within a country.
26	Permanent cadre for ICD mortality coding exists	Yes or No answer (if yes, provide details about the cadre).	Evaluates the presence of a permanent cadre specifically designated for ICD mortality coding.
27	Average number of MCCD allocated to one ICD mortality coder per day / week / month?	Numerator: Number MCCD that were ICD mortality coded during the time period (day, week, month). Denominator: Number of coders that ICD mortality coded the MCCD forms.	Helps to assess the adequacy of ICD coders in covering the entire spectrum of deaths in the country. Experience shows that a coder can process approximately 6 MCCD per hour.
28	Quality assessment system for ICD coding exist	Yes or No answer (if yes, provide details)	Evaluates the presence of a quality assessment system for ICD coding within a specific region or healthcare facility.

Annex 2: List of quality checks for at-the-source insights (to be applied to a sample of MCCD forms)

A2.1. Duplications of records of the same death

A2.2. Illegible entries or improper alteration/ erasure of an incorrect entry

A2.3. Spelling mistakes

A2.4. Missing or invalid demographic information, for example, a date of death in the future, or city or other geographic information (place of occurrence and place of residence) not specified, or missing sex, or missing date of birth or estimated age if date of birth is not available

A2.5. Missing identification of the deceased or description of the deceased if it is an unidentified body

A2.6. Blank Frame A, blank lines within the sequence provided in Frame A, or other absence of cause-of-death information

A2.7. Cause of death specified as unknown without any indication as to why it would be unknown

A2.8. Use of non-standard abbreviations[44] as cause(s) of death

A2.9. Missing time interval between onset of a cause(s) of death and death

A2.10. Multiple unrelated cause(s) of death written on the same line of Frame A

A2.11. Only signs, symptoms, or immediate cause(s) of death entered as cause(s) of death[45]

A2.12. Conditions unlikely to cause death (trivial conditions) entered as cause(s) of death [46]

A2.13. Modes of dying, ill-defined condition(s)[47] (including "factors influencing health status or contact with health services"[48]) entered as cause(s) of death

A2.14. Only unspecified causes within a larger cause-of-death category (e.g., motor vehicle accident) entered as cause(s) of death

A2.15. Inconsistency between age type of death (e.g., accident), or sex and cause(s) of death listed

A2.16. Incorrect or clinically improbable sequence of events or causal relationships among the cause(s) of death listed

44 Only standard abbreviations defined by a relevant authority should be acceptable (e.g., HIV, COVID-19). Country-specific abbreviations are acceptable, as long as they are part of the list of "approved abbreviations" developed with the guidance of the relevant authority.
45 https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1843895818
46 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#list-of-conditions-unlikely-to-cause-death
47 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#list-of-illdefined-conditions
48 https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1249056269

A2.17. Circumstances of death due to external cause not documented

A2.18. Missing manner of death in settings where the certifiers of cause of death have the responsibility to report the manner of death[49]

A2.19. Blank pregnancy check box for deaths of females of child-bearing age (e.g., 10–49-year-old) or potentially incorrect entries to the pregnancy check box (e.g., ticked for males)

A2.20. Incomplete information about pregnancy, if the deceased was pregnant

A2.21. Cause(s) of death listed not consistent with pregnancy or puerperium period

A2.22. Lack of concordance between indicated maternal cause-of-death and information about pregnancy or other issues related to maternal death (including relevant details not being provided)[50]

A2.23. Blank mother's age and birth weight for infant deaths

A2.24. Missing details for death of children younger than 1 year old (e.g., missing birth weight, gestational age, mother's age)

A2.25. Non-applicable date of birth or estimated age if a fetal cause of death was used

A2.26. Missing signature of the certifier or other required signatures

49 If not available at the time of MCCD certification, this should be indicated and a reason given. For manner of death classification see: https://name.memberclicks.net/assets/docs/4bd6187f-d329-4948-84dd-3d6fe6b48f4d.pdf

50 Such deaths should be investigated with a specific focus.

Annex 3: List of Routine Quality Checks at Data Entry

A3.1. Duplications of records of the same death

A3.2. Illegible entries or improper alteration/ erasure of an incorrect entry

A3.3. Missing or invalid demographic information, for example, a date of death in the future, or city or other geographic information (place of occurrence and place of residence) not specified, or missing sex, or missing date of birth or estimated age if date of birth is not available

A3.4. Missing identification of the deceased or description of the deceased if it is an unidentified body

A3.5. Blank Frame A, blank lines within the sequence provided in Frame A, or other absence of cause-of-death information

A3.6. Cause of death specified as unknown without any indication as to why it would be unknown

A3.7. Use of non-standard abbreviations[51] as cause(s) of death

A3.8. Missing time interval between onset of a condition and death

A3.9. Circumstances of death due to external cause not documented

A3.10. Missing manner of death in settings where the certifiers of cause of death have the responsibility to report the manner of death[52]

A3.11. Blank pregnancy check box for deaths of females of child-bearing age (e.g., 10-49-year-old) or potentially incorrect entries to the pregnancy check box (e.g., ticked for males)

A3.12. Incomplete information about pregnancy if the deceased was pregnant

A3.13. Blank mother's age and birth weight for infant deaths

A3.14. Missing details for death of children younger than 1 year old (e.g., missing birth weight, gestational age, mother's age)

A3.15. Missing signature of the certifier or other required signatures

51 Only standard abbreviations defined by a relevant authority should be acceptable (e.g., HIV, COVID-19). Country-specific abbreviations are acceptable, as long as they are part of the list of "approved abbreviations" developed with the guidance of the relevant authority.

52 If not available at the time of MCCD certification, this should be indicated and a reason given. For manner of death classification see: https://name.memberclicks.net/assets/docs/4bd6187f-d329-4948-84dd-3d6fe6b48f4d.pdf

Annex 4: List of Routine Quality Checks at data preparation and ICD Mortality Coding

A4.1. Duplications of records of the same death

A4.2. Spelling mistakes

A4.3. Missing or invalid demographic information, for example, a date of death in the future, or city or other geographic information (place of occurrence and place of residence) not specified, or missing sex, or missing date of birth or estimated age if date of birth is not available

A4.4. Missing identification of the deceased or description of the deceased if it is an unidentified body

A4.5. Blank Frame A, blank lines within the sequence provided in Frame A, or other absence of cause-of-death information

A4.6. Cause of death specified as unknown without any indication as to why it would be unknown

A4.7. Use of non-standard abbreviations[53] as cause(s) of death

A4.8. Missing time interval between onset of a condition and death

A4.9. Multiple unrelated conditions written on the same line of Frame A

A4.10. Only signs, symptoms, or immediate cause(s) of death entered as cause(s) of death[54]

A4.11. Conditions unlikely to cause death (trivial conditions) entered as cause(s) of death [55]

A4.12. Modes of dying, ill-defined condition(s)[56] (including "factors influencing health status or contact with health services"[57]) entered as cause(s) of death

A4.13. Only unspecified causes within a larger cause-of-death category (e.g., motor vehicle accident) entered as cause(s) of death

A4.14. Inconsistency between age, or type of death (e.g., accident), or sex and cause(s) of death listed

A4.15. Incorrect or clinically improbable sequence of events or causal relationships among the cause(s) of death listed

A4.16. Circumstances of death due to external cause not documented

53 Only standard abbreviations defined by a relevant authority should be acceptable (e.g., HIV, COVID-19). Country-specific abbreviations are acceptable, if they are part of the list of "approved abbreviations" developed with guidance of the relevant authority.
54 https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1843895818
55 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#list-of-conditions-unlikely-to-cause-death
56 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#list-of-illdefined-conditions
57 https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1249056269

A4.17. Missing manner of death in settings where the certifiers of cause of death have the responsibility to report the manner of death[58]

A4.18. Blank pregnancy check box for deaths of females of child-bearing age (e.g., 10–49-year-old) or potentially incorrect entries to the pregnancy check box (e.g., ticked for males)

A4.19. Incomplete information about pregnancy, if the deceased was pregnant

A4.20. Cause(s) of death listed not consistent with pregnancy or puerperium period

A4.21. Lack of concordance between indicated maternal cause-of-death and information about pregnancy or other issues related to maternal death (including relevant details not being provided)[59]

A4.22. Blank mother's age and birth weight for infant deaths

A4.23. Missing details for death of children younger than 1 year old (e.g., missing birth weight, gestational age, mother's age)

A4.24. Non-applicable date of birth or estimated age if a fetal cause of death was used

58 If not available at the time of MCCD certification, this should be indicated and a reason given. For manner of death classification see: https://name.memberclicks.net/assets/docs/4bd6187f-d329-4948-84dd-3d6fe6b48f4d.pdf

59 Such deaths should be investigated with a specific focus.

Annex 5: List of Routine Quality Checks at data analysis

A5.1. Missing or invalid demographic information, for example, missing sex or age

A5.2. MCCD forms with no cause(s) of death specified

A5.3. Only signs, symptoms, or immediate cause(s) of death entered as cause(s) of death[60]

A5.4. Conditions unlikely to cause death (trivial conditions) entered as cause(s) of death [61]

A5.5. Modes of dying, ill-defined condition(s)[62] (including "factors influencing health status or contact with health services"[63]) entered as cause(s) of death

A5.6. Only unspecified causes within a larger cause-of-death category (e.g., motor vehicle accident) entered as cause(s) of death

A5.7. Inconsistency between age, or type of death (e.g., accident), or sex and cause(s) of death listed

A5.8. Circumstances of death due to external cause not documented

A5.9. Missing manner of death in settings where the certifiers of cause of death have the responsibility to report the manner of death[64]

A5.10. Blank pregnancy check box for deaths of females of child-bearing age (e.g., 10–49-year-old) or potentially incorrect entries to the pregnancy check box (e.g., ticked for males)

A5.11. Incomplete information about pregnancy, if the deceased was pregnant

A5.12. Cause(s) of death listed not consistent with pregnancy or puerperium period

A5.13. Lack of concordance between indicated maternal cause-of-death and information about pregnancy or other issues related to maternal death (including relevant details not being provided)[65]

A5.14. Blank mother's age and birth weight for infant deaths

A5.15. Missing details for death of children younger than 1 year old (e.g., missing birth weight, gestational age, mother's age)

A5.16. Non-applicable date of birth or estimated age if a fetal cause of death was used

60 https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1843895818
61 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#list-of-conditions-unlikely-to-cause-death
62 https://icdcdn.who.int/icd11referenceguide/en/html/index.html#list-of-illdefined-conditions
63 https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1249056269
64 If not available at the time of MCCD certification, this should be indicated and a reason given. For manner of death classification see: https://name.memberclicks.net/assets/docs/4bd6187f-d329-4948-84dd-3d6fe6b48f4d.pdf
65 Such deaths should be investigated with a specific focus.

About Vital Strategies

Vital Strategies believes every person should be protected by an equitable and effective public health system. We partner with governments, communities and organizations around the world to reimagine public health so that health is supported in all the places we live, work and play. The result is millions of people living longer, healthier lives.

Vital Strategies

vitalstrategies.org