

Strengthening Civil Registration and Vital Statistics (CRVS) Systems

GUIDE 2



Implementing **Medical Certification of Cause of Death** in the CRVS System



Preface

About the Strengthening CRVS Systems Guides

The Strengthening CRVS Systems Guides provide best-practice guidance for specific aspects of a civil registration and vital statistics (CRVS) system. Drawn from international standards and concepts, the guides provide users with practical and operational advice and strategic planning support for targeted CRVS system improvements.

Medical Certification of Cause of Death (MCCD)

CRVS systems are concerned with the legal registration of vital events, and the collection and statistical analysis of data related to these vital events in the population. A well-functioning CRVS system, among other tasks, registers all births and deaths, issues birth and death certificates, and compiles and disseminates birth and death statistics, including cause of death information, for policymaking.

To allow for accurate cause of death data collection, analysis, interpretation, and use for deaths occurring in the presence of a physician, cause of death data should be collected on the international standard medical certificate of cause of death. Data collection in accordance to this standard allows for mortality coding according to the International Classification of Diseases (ICD). This guide provides operational best-practices for the improvement and maintenance of MCCD practices within the CRVS system. The efforts described in this guide will help to strengthen the quality and completeness of cause of death data.

Structure of the Guides

This guide begins with an infographic that locates the specific topic of the guide within the context of the overall CRVS system with key principles highlighted. Following this, an implementation framework presents success factors. These factors are broken down into implementation tasks which are grouped into the following main intervention areas: A) Governance & Processes; B) System & Workforce Capabilities; C) Quality Assurance; and D) Data Analysis, Interpretation & Use. For each task the reader can find references to published key resources for further learning and application.



GUIDES

The Strengthening CRVS Systems Guides have been developed for the following topics:

- 1 Civil Registration of Births and Deaths
- 2 **Medical Certification of Cause of Death**
- 3 International Classification of Diseases Mortality Coding
- 4 Verbal Autopsy

Target Audience

The target audience of the guides includes, but is not limited to, decision-makers, planners, and other managers at the Civil Registration Office, the Ministry of Health, and the National Statistics Organization in countries aiming to improve their CRVS system and/or to maintain a high quality system. The guides further aim to support members of high-level interagency CRVS coordination committees or other decision-making bodies concerned with the governance of the CRVS system.

The guides assume the reader has a good understanding of CRVS systems. For readers who would like more introductory and background information about CRVS systems please see:

- Principles and Recommendations for a Vital Statistics System published by the UN Statistics Division (unstats.un.org/unsd/demographic/standmeth/principles/m19rev3en.pdf).
- WHO Resource Kit “Strengthening civil registration and vital statistics for births, deaths and causes of death” (apps.who.int/iris/handle/10665/78917).
- CRVS Knowledge Gateway of the Bloomberg Philanthropies Data for Health Initiative (crvsgateway.info/).
- Training Course on Civil Registration and Vital Statistics Systems of the National Center for Health Statistics of the US CDC (cdc.gov/nchs/isp/isp_fetp.htm).
- eLearning Course on Civil Registration and Vital Statistics (CRVS) Systems of the World Bank Group (olcstage.worldbank.org/content/civil-registration-and-vital-statistics-systems-advanced-level-facilitated-1).

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MEDICAL CERTIFICATION OF CAUSE OF DEATH IN THE

Civil Registration & Vital Statistics System

CRVS Systems must be:

- Continuous
- Compulsory
- Universal
- Permanent
- Confidential

Key functions of CRVS systems:

- Provide proof of legal identity
- Produce vital statistics

Types of Vital Events

Vital Events Proper

Live Births, Fetal Deaths, Deaths with Cause of Death

Dual Events

Annulments, Divorces, Marriages, Judicial Separations

Vertical Events

Adoption, Recognition, Legitimation

GUIDE 1



Civil Registration of Births & Deaths

Place of Occurrence of the Death

Death in Presence of Physician



Death in Absence of Physician



GUIDE 2

YOU ARE HERE



Medical Certification of Cause of Death (MCCD)

MCCD is the process by which physicians report disease, morbid conditions, or injuries which result in or contribute to death. The reporting should be done in a standardized and structured way using the standard international form of MCCD recommended by the WHO.

GUIDE 4



Verbal Autopsy (VA)

GUIDE 3



International Classification of Diseases (ICD) Mortality Coding

Medical Certification of Cause of Death (MCCD)

A system of MCCD for all physician-attended deaths will produce high-quality cause of death information that should be coded using ICD mortality rules and principles and used to inform evidence-based decisions on population health policies.

KEY PRINCIPLES

Make death registration universal

All deaths should be registered with the civil registry. Facility based or other health care workers can help to identify deaths and act as informants to the civil registrar. Through close collaboration between the health sector and civil registration system, the burden on families to register deaths can be reduced.

Use a holistic approach to determine cause of death

MCCD should be used to obtain cause of death for death in the presence of a physician, within the context of broader efforts to improve death registration, and strengthen the CRVS system overall.

Implement the WHO standard MCCD form

The standard international MCCD form should be adopted and used uniformly and consistently for all deaths attended by a physician in order to maintain structured reporting of causes of death.

Ensure confidentiality

The process of MCCD and ICD mortality coding should ensure confidentiality of medical information.

Establish governance structures in the CRVS system

Necessary governance structures should be fully operational and ensure coordination in the CRVS system; these structures should also oversee activities related to cause of death information.


Provide routine training on MCCD

Clinical education curricula of medical schools and resident training of physicians should include MCCD training and development of corresponding competencies. The skills of in-service physician on MCCD should be strengthened through institutionalized training and continuous medical education programs.

Establish a system for quality assurance


A quality assurance and improvement system should continuously monitor the quality of the MCCD forms and data, provide feedback for improvement to certifiers and other stakeholders to update training programs and undertake other improvement efforts.

Implementation Framework for MCCD in the CRVS System

Intervention Area A 


Governance & Processes **7**

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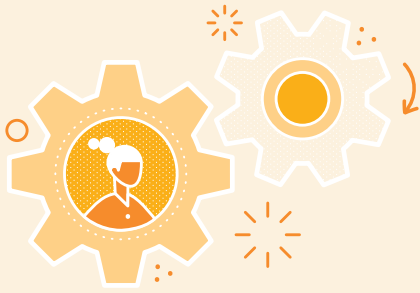
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Intervention Area A:

Governance & Processes

Governance structures coordinate stakeholders to support MCCD for deaths attended by a physician. Relevant processes are optimized and integrated into the CRVS system to produce high-quality cause of death data for decision-making.



SUCCESS FACTOR A1

Appropriate Governance Structures

PURPOSE

To ensure functional structures, system coordination, and management of mortality and cause of death processes and data in the CRVS system.

OUTPUT

Terms of reference for applicable governance committees specifying roles and responsibilities, constituents, and frequency of meetings, among other points.

Governance committees meet and function as intended.

REFERENCES

- 1 Vital Strategies (2020). Guidance for Civil Registration and Vital Statistics (CRVS) Governance Mechanisms. <https://www.vitalstrategies.org/resources/guidance-for-civil-registration-and-vital-statistics-governance-mechanisms/>
- 2 University of Melbourne (2018). CRVS coordinating committee. CRVS Gateway. https://crvsgateway.info/CRVS-coordinating-committee~330_
- 3 Vital Strategies – Bloomberg Philanthropies Data for Health Initiative. 2021. Strengthening CRVS Systems Guide for International Classification of Diseases Mortality Coding.
- 4 Vital Strategies – Bloomberg Philanthropies Data for Health Initiative. 2021. Strengthening CRVS Systems Guide for Verbal Autopsy.

IMPLEMENTATION TASKS



Ensure functioning of a High-Level Interagency CRVS Coordination Committee with responsibility for high-quality cause of death data

- In line with its core functions, responsibilities, reporting, and composition (1,2), this committee should provide policy oversight, approval and evaluation of activities related to the collection of high-quality cause of death data in the CRVS system. This should include considerations for MCCD, ICD mortality coding (3), and, as applicable, the use of verbal autopsy (4).
- As applicable, the committee should endorse and support proposed system improvements.



Ensure functioning of a CRVS Technical Coordination Committee

- In line with its core functions and responsibilities (1), the technical coordination committee should include in its mandate, the provision of strategic guidance and oversight for the implementation of interventions that maintain, improve and promote the production and use of high-quality mortality data for public health decision-making.
- The technical coordination committee should be the primary sponsor of MCCD improvement activities and should commission work as needed. The input of a mortality and cause of death technical working group should be sought, and the technical coordination committee should receive regular updates on progress and results of MCCD quality assurance and improvement efforts.



SUCCESS FACTOR A1 (CONT'D)



Ensure functioning of Subject Specific Technical Working Group, where needed

- The working group should be responsible for developing detailed work plans, including ensuring adequate capacity for MCCD and developing quality assurance mechanisms. The work plans should include targeted activities, responsibilities and timelines.
- The working group should coordinate with other subject matter experts such as Collaborating Center of the WHO Family of International Classification (WHO-FIC) which is responsible for the maintenance of the ICD.
- The technical working group should closely monitor MCCD and ICD mortality coding quality, and develop, as well as monitor, the implementation of corrective measures.
- In addition to a national level group, hospital-based groups or subnational groups may be needed (or the corresponding responsibilities should be included into the terms of reference of any such groups currently existing).



SUCCESS FACTOR A2

Strong CRVS Legal and Regulatory Framework

PURPOSE

To ensure that the CRVS legal framework mandates a system and processes for MCCD for deaths attended by a physician.

OUTPUT

Best practice CRVS legal framework that mandates MCCD for all physician-attended deaths.

REFERENCES

- 5 Department of Economic and Social Affairs of the United Nations, Statistics Division (2014). Principles and recommendations for a vital statistics system, revision 3. https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Principles_and_Recommendations/CRVS/M19Rev3-E.pdf.
- 6 Vital Strategies – Bloomberg Philanthropies Data for Health Initiative. 2021. Strengthening CRVS Systems Guide for Birth and Death Registration
- 7 Schwid, A., Frederes, A., Bronson, G., Abouzahr, C., de Savigny, D., Schwartz, S., Chanley, J., Bratschi, M., Setel, P. (2017). Civil registration and vital statistics (CRVS) legal and regulatory review tools and methodology. Bloomberg Philanthropies Data for Health Initiative, Vital Strategies, GHAI, Centre of Excellence. <https://advocacyincubator.org/ghai-advocacy-tools/legal-and-regulatory-review-toolkit-for-crvsid/>.
- 8 United Nations Statistics Division (2019). Guidelines on the legislative framework for civil registration, vital statistics and identity management [draft]. United Nations Statistics Division (UNSD) and Vital Strategies. https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Handbooks/crvs/CRVS_GOLF_Final_Draft-E.pdf.

IMPLEMENTATION TASKS



Review and revise the CRVS legal and regulatory framework and ensure it mandates MCCD

- The legal and regulatory framework should ensure the civil registration of all deaths independent of the availability of cause of death data, i.e. a cause of death should not be required to register a death with the civil registry (5, 6).
- The legal and regulatory framework should mandate MCCD and ICD mortality coding for all deaths that are attended by a physician or other authorized medical provider (i.e. certifier of cause of death) (5).
- Rules and regulations related to MCCD should be aligned with international best practices (7, 8).
- The legal and regulatory framework should indicate which medical providers are authorized to medically certify the cause of death for deaths occurring in the presence of medical care. Physicians should be responsible for MCCD.
- The MCCD form should be used for all applicable deaths (7, 8).
- The legal framework should define when to refer a death to the medicolegal system or when to request a post-mortem/autopsy (e.g. dead on arrival) (7, 8).
- The CRVS legal framework should indicate when a VA may be conducted (4, 7, 8). For example, VA may be conducted if no physician or other certifier of cause of death has examined the deceased, except in the case of an unnatural or suspicious death. All unnatural or suspicious deaths should be referred to the medicolegal authorities (i.e. medical examiner, coroner, etc.) for medicolegal death investigation.
- The CRVS legal framework should clearly address ethical issues related to who has access to data on the MCCD form and the underlying cause of death.
- Where no legal and regulatory framework exists, the technical working group should propose and define approaches to mandate MCCD for all physician-attended deaths. This should be done in concert with legal experts, CRVS governance structures, and other stakeholders. CRVS governance bodies should also work towards the development of a CRVS legal and regulatory framework.



SUCCESS FACTOR A3

Strategy for MCCD

PURPOSE

To implement a locally appropriate MCCD strategy.

OUTPUT

Locally appropriate MCCD strategy implemented.

REFERENCES

- 9 World Health Organization (2016). International statistical classification of diseases and related health problems 10th revision Volume 2 Instruction manual Fifth edition. Annex 7.1 International form of medical certificate cause of death (page 203). https://icd.who.int/browse10/Content/statchtml/ICD10Volume2_en_2016.pdf?ua=1&ua=1.
- 10 University of Melbourne. (2018). The International Form of Medical Certificate of Cause of Death. <https://crvsgateway.info/The-International-Form-of-Medical-Certificate-of-Cause-of-Death-356>.
- 11 World Health Organization. (2019). ICD-11. <https://icd.who.int/en>.

IMPLEMENTATION TASKS



Implement international standard MCCD form

- The WHO standard international MCCD form (9) should be systematically used for all deaths attended by a physician (5).
- The WHO standard international form should also be used for stillbirths and for deaths handled by the medicolegal death investigation system (i.e. medical examiner, coroner, etc.).
- The standard international MCCD form is designed to facilitate structured reporting of the sequence of diseases or conditions leading to death, which designated and trained ICD mortality coders can use to determine the underlying cause of death (9, 10). The use of this form allows for comparability of data between parts of a country, over time, and internationally.
- Countries may adapt the administrative section of the MCCD form and translate the form as needed for local use. Frames A and B should not be modified as they contain the information for ICD mortality coding. The process of local adaptation and approval of the standard international MCCD form, should include the relevant authority responsible for the MCCD form.
- If the local form is not compliant with international standards recommended by the WHO, the responsible subject specific technical working group should work with relevant stakeholders to adopt and institutionalize the WHO form.
- An implementation strategy should be developed to ensure that the implementation of the MCCD form is accompanied by training of relevant staff to ensure correct and timely completion.
- Countries need to decide which version of ICD mortality coding (ICD-10, ICD-11, or ICD-10-SMoL) they are equipped to implement (3). Preferably countries should use the most recent version of ICD, i.e. ICD-11 (11). For all of these ICD mortality coding strategies, the WHO international standard MCCD form should be used as ICD coding presupposes its use.



Protect Privacy of Cause of Death Information

- Sharing the cause of death with the family or authorized individuals on the civil registrar issued death certificate may not be necessary and may lead to privacy issues when the family uses the death certificate for certain proceedings (e.g. to close a bank account). Unless there are other considerations (i.e. the family absolutely needs access to the cause of death because it is required for social welfare and insurance claims), it is preferable to omit the cause of death on the death certificate issued by the civil registration authority. As required a long form of the death certificate may be made available with more details included.



SUCCESS FACTOR A4

Integrated Cause of Death Data Management and Processes

PURPOSE

To ensure efficient MCCD practices are in place, and that data are processed, analyzed, interpreted, and used.

OUTPUT

System in place for MCCD data collection linked to death registration within the CRVS system.

REFERENCES

- 12 University of Melbourne (2018). Reducing barriers to the accurate medical certification of cause of death. <https://crvsgateway.info/file/16949/43>.

IMPLEMENTATION TASKS



Establish efficient processes for MCCD

- The MCCD process should have clearly defined goals, objectives and standard operating procedures and it should be fully institutionalized.
- The MCCD process should clearly outline roles and responsibilities of the relevant stakeholders on how to obtain and process the necessary information on the standard MCCD form. Activities involved in obtaining the information to complete the MCCD must include the examination of the dead body and the review of medical records, if available.
- Current processes for MCCD should be assessed and re-designed by the subject-specific working group as needed.
- The standard operating procedure and business process for the handling of MCCD data should also describe how the filled MCCD form is to be transmitted for ICD mortality coding.
- If physicians are asked to share the MCCD form with the family of the deceased, they may be pressured to leave out certain causes on the MCCD form. Physician should certify deaths according to correct ICD practices, but, if needed, someone other than the certifying physician should communicate the cause of death to the family (12).



SUCCESS FACTOR A4 (CONT'D)

Implement electronic data capture and transmission for ICD mortality coding

- Electronic data captured close to the source of the filled MCCD form (e.g. at the hospital) can facilitate data entry, quality assurance and alleviate the burden on more central data entry staff while eliminating the need for the timely transport of paper forms. Such a set-up will also allow data entry staff to request clarifications from the certifier of cause of death, if required, which allows for critical quality assurance procedures.
- Electronic data capture systems must allow for the collection of free text so that the information captured on the paper MCCD form can be entered into the electronic system exactly as it was written by the physician.

Link MCCD and ICD mortality coding processes with civil registration processes

- The health facility, coroner's or medical examiner's office that issues the MCCD form should be able to submit a declaration of the death to the civil registration authority as an informant in line with the local CRVS legal and regulatory framework, to ensure the death is registered. This will reduce the burden of death registration on the family (5, 13).
- The MCCD data collection process should ensure that the MCCD form is transmitted for ICD mortality coding and the data used in vital statistics.
- The MCCD form can be embedded within or connected to a death notification form of the civil registrar, resulting in one form that collects two critical and related streams of information. This would allow the collection of cause of death information and registration of the death with the civil registrar.
- The civil registrar does not need to see the cause of death reported on the MCCD form but must ensure collection of cause of death information and transmit the information to the national statistics office (before or after ICD mortality coding depending on the local system). Information may for example be passed to the national statistics organization encrypted or through another sealed way that limits access and protects confidentiality of the cause of death information (5).
- Rules and regulations regarding the exchange of data between the health sector and the civil registrar should take into account factors such as encryption and data safety and be outlined in the CRVS legal and regulatory framework (7, 8).

REFERENCES

- 13 World Health Organization & United Nations Children's Fund. (2021). Health sector contributions towards improving the civil registration of births and deaths in low-income countries: guidance for health sector managers, civil registrars and development partners. <https://apps.who.int/iris/handle/10665/341911>.



Intervention Area B:

System & Workforce Capabilities

Human resources , information technology (IT) and other capabilities are in place to produce high-quality MCCD data for deaths that are attended by a physician.



SUCCESS FACTOR B1

Adequately Funded MCCD System

PURPOSE

To plan for and ensure availability of all necessary financial resources to implement the MCCD data collection system.

OUTPUT

All necessary financial resources are available to maintain the MCCD data collection system.

IMPLEMENTATION TASKS



Develop budget and secure financial resources needed to maintain the MCCD system

- Plan and budget necessary financial resources to establish and maintain the MCCD system. This should consider aspects such as human resources, information technology systems and training needs.

SUCCESS FACTOR B2

MCCD Data Collection Standard Operating Procedures and Manuals

PURPOSE

To ensure that MCCD data collection, supervision, processing, management, and analysis are carried out in a standardized fashion.

OUTPUT

Standard operating procedures and manuals for all relevant staff available and in use.

IMPLEMENTATION TASKS



Develop standard operating procedures for the steps from MCCD data collection to analysis

- Standard operating procedures and manuals should be developed for all cadres of staff involved in MCCD data collection, transmission, analysis, management, quality assurance, supervision and dissemination.
- Manuals, guides and supporting materials should be developed based on the context of local country.
- Manuals should include training materials and guides for certifiers of cause of death, master trainers and supervisors, as well as job aids to facilitate application of MCCD best practice.
- Standard operating procedures and manuals should be made readily available to the relevant staff for use and reference.



SUCCESS FACTOR B3

Human Resources for MCCD

PURPOSE

To ensure cause of death certifiers are trained to ensure MCCD practices

OUTPUT

Trained human resources for MCCD

REFERENCES

- 14 Centers for Disease Control (2007). Core curriculum for certifiers of underlying cause of death. <https://www.cdc.gov/nchs/data/icd/curriculumcertification03-08-078.pdf>
- 15 University of Melbourne (2018). Training and education on medical certification: Effective strategies and approaches. <https://crvsgateway.info/file/16969/49>.
- 16 University of Melbourne (2018). Action guide on training and education on medical certification of cause of death. <https://crvsgateway.info/file/17051/1854>.

IMPLEMENTATION TASKS



Incorporate MCCD training into the relevant pre-service curricula

- Review and revise the existing medical school curricula or related training programs (e.g. intern training programs) to include MCCD training and competencies for cadres of health care workers mandated to perform MCCD in accordance with the local legal framework.
- Engagement with relevant authorities responsible for the pre-service curriculum (e.g. ministry of education, deans of medical schools, councils of medical professions) is important. The curriculum drafting committee may include medical education specialists, forensic pathologists, public health specialists, medical councils/associations, and academics.
- The curriculum will need to be developed in accordance with local rules and guidelines for training curricula.
- The pre-service curriculum should be comprehensive and cover both clinical (e.g. understanding plausible sequences of events leading to death; understanding underlying vs. immediate cause of death) and public health (e.g. importance of MCCD data for public health decision making) aspects of MCCD (14, 15, 16).
- MCCD competencies should be defined and incorporated into clinical training competencies across various specialties (for example, surgery, medicine, pediatrics, neonatology, oncology, forensics, obstetrics, and primary care).
- The mode of teaching for the pre-service curriculum should be considered carefully and allow for interactive sessions and opportunities for the trainees to discuss and deliberate on example cases.
- The pre-service training should be included in the appropriate didactic training stage when trainees can be expected to understand complex pathophysiology and can be exposed to real cases that enforce the training.



SUCCESS FACTOR B3 (CONT'D)



Include MCCD certification training in continuous medical education programs

- Review and revise the existing continuous medical education curriculum or local equivalent, to include training on MCCD, preferably as a required course for licensure renewal.
- Engagement of authorities responsible for continuous medical education and accreditation from the beginning will be required.
- Local processes to change the continuous medical education curriculum will need to be adhered to.
- Processes for the accreditation of training modules with credit points in continuous medical education programs should be followed.
- The curriculum drafting committee may include, medical licensure councils, medical education specialists, forensic pathologists, public health specialists, academics and medical councils/associations.
- The introduction of MCCD into the continuous medical education curriculum should take place within existing continuous medical education institutions and infrastructure.
- Ensure the training program covers both clinical (e.g. understanding plausible sequences of events leading to death and the concept of the underlying, as opposed to the immediate cause of death) and public health (e.g. importance of MCCD data for public health decision making) aspects of MCCD.
- Different modes of teaching should be considered, including online modalities (e.g. e-learning modules, apps with interactive cases) to allow for scaling up and sustainability of the training efforts (17, 18).
- Teaching style should allow for interactive sessions and opportunities for the trainees to discuss and deliberate example and real cases.
- The automated ICD mortality coding software Iris, can be considered as an interactive training tool for online training programs.
- Re-training is recommended regularly, ideally annually or biannually.
- If face-to-face training is to be used for continuous medical education, a model of training using master trainers, may be most appropriate.

REFERENCES

- 17 Pan American Health Association, World Health Organization (n.d.) Virtual course on properly completing death certificates. <http://www.paho.org/relacsis/index.php/es/at4-certificado-defuncion/virtual-course-on-properly-completing-death-certificates>.
- 18 Vital Strategies. (2018) <https://learning.vitalstrategies.org/catalog/>.

**SUCCESS FACTOR B3 (CONT'D)****Establish a core team of master trainers to provide face-to-face training on MCCD**

- If continuous medical education on MCCD is to be provided by face-to-face training, a team of master trainers and trainers will need to be established at the appropriate level (e.g. at national, subnational, or hospital level) to cover all certifying physicians.
- Master trainers should be experienced as teachers or trainers, and should be very well informed about new guidelines relevant to MCCD.
- The cadre of master trainers should be well versed to teach on the various specialties (e.g. medicine, respiratory, oncology, surgery, obstetrics, neonatology, pediatrics, and deaths referred to the medicolegal death investigation system).
- A schedule for the cascading of face-to-face trainings by the master trainers should be established.
- It is important to note that extensive face-to-face training will require considerable funding, supervision, and follow-up to establish and maintain. Other training modalities, such as e-learning, may be more efficient.
- If trainings are carried out by staff who are not full-time trainers (e.g. senior physician at hospital training local certifiers of cause of death), the training should be made part of their official professional mandate, with time dedicated to their training obligations, and a schedule for their own re-training as trainers. Steps should also be taken to provide the master trainers with the authority to act as trainers of other certifiers of cause of death at the respective facility.



SUCCESS FACTOR B3 (CONT'D)



Provide job aids on MCCD

- Job aids should outline the principles of MCCD and provide relevant staff with details regarding the local rules and regulations on correct MCCD.
- Job aids may include handbooks, quick reference guides, and apps for mobile devices (19–25).
- Quick reference guides and handbooks on MCCD should be made available in every health facility/ward/unit to reference while filling the MCCD form.
- The Iris automated coding software can be used as a job aid for MCCD allowing certifiers of cause of death to enter real cases into the system and receive feedback regarding the information they have submitted (e.g. in terms of the plausibility of the sequence of events the certifier has specified). Integration with Iris may also be considered with mobile apps on MCCD.

REFERENCES

- 19 Knowledge Management and Information Technology Service, Department of Health (2016). Medical certification of death handbook for Filipino physicians, guidelines and procedures, second edition. https://www.doh.gov.ph/sites/default/files/publications/Medical%20Certification%20of%20Death_Handbook%20for%20Filipino%20Physicians_2nd%20ed.pdf.
- 20 Rampatige, R., Riley, I., Gamage, S., Paoin, W., Wijesekera, N., Richards, N. (2016). Improving cause of death information, handbook for doctors on cause of death certification. University of Melbourne, Bloomberg Philanthropies Data for Health Initiative.
- (2017). Handbook for doctors on cause of death certification. <https://crvsgateway.info/file/14730/57>.
- 21 University of Melbourne, Bloomberg Data for Health Initiative (2017). Medical certification of cause of death quick reference guide. <https://crvsgateway.info/file/12233/58>.
- 22 Ministry of Health Sri Lanka (n.d.) CoD Guide. https://play.google.com/store/apps/details?id=com.mohsl.cod&hl=en_US.
- 23 Ministry of Health Brazil, Department of Health Analysis and Surveillance of Noncommunicable Diseases (n.d.). Exercise on the completion of the certificate of causes of death. <http://svs.aids.gov.br/dantps/cgiae/preenchimento-do/atestado-interativo/>.
- 24 Ministry of Health Brazil, Department of Health Analysis and Surveillance of Noncommunicable Diseases (n.d.). AtestaDO. <http://svs.aids.gov.br/dantps/centrais-de-conteudos/aplicativos/atestado/>.
- 25 World Health Organization (2010). Cause of Death on the Death Certificate in line with ICD-10; Quick reference guide. http://apps.who.int/classifications/apps/icd/icd10training/ICD-10%20Death%20Certificate/html/ICD-10_Resources/causeofdeathflyer.pdf.

**SUCCESS FACTOR B4**

Infrastructure and Other System Resources for MCCD

PURPOSE

To ensure that the necessary infrastructure for the implementation of MCCD is available.

OUTPUT

Infrastructure and other system resources are in place to collect and manage MCCD data.

IMPLEMENTATION TASKS**Maintain necessary IT infrastructure for MCCD**

- MCCD forms may be filled on paper followed by data entry into an electronic system or they may be entered directly into an electronic system by the certifier of cause of death. In either case the necessary IT system must be available and maintained to capture the information on the MCCD form in preparation for ICD morality coding.



Intervention Area C:

Quality Assurance

A structured and routine quality assurance system ensures the highest possible quality of MCCD data for all physician-attended deaths.



SUCCESS FACTOR C1

Supportive Supervision System for MCCD Data Collection

PURPOSE

To ensure that the MCCD data collection processes are followed and the quality of the MCCD data is monitored and continuously improved.

OUTPUT

Supportive supervision system in place for MCCD data collection processes.

IMPLEMENTATION TASKS



Provide supportive supervision on MCCD to certifiers of cause of death

- In addition to initial training and re-training, master trainers and clinical supervisors should provide support to certifiers of cause of death regarding MCCD, for them to be able to carry out their work.
- Supervisory support should include assistance with MCCD for challenging cases and the opportunity for exchange among certifiers of cause of death to share experiences and discuss cases. This exchange will also provide an opportunity for capacity building.



SUCCESS FACTOR C2

Routine Quality Assurance System for MCCD

PURPOSE

To ensure that the quality of completed MCCD forms is assured on a regular basis.

OUTPUT

Quality assurance system for the assessment of collected MCCD data.

IMPLEMENTATION TASKS



Conduct routine quality assessment of MCCD forms and the collected data

- Quality assessments should be conducted on an ongoing and routine basis.
- The routine quality assurance system should be established as close as possible to the certifier. In other words, the first quality assurance step should be carried out at the hospital (e.g. during data entry) where the MCCD form was filled so that immediate feedback and questions can be provided to the certifier.
- The first quality assurance steps should assess the quality and completeness of the handwritten MCCD form. Specifically, this assessment should check for issues such as missing demographic data, use of non-standard abbreviations, illegible handwriting, missing time intervals, or skipped lines on the form. These checks can be carried out at the point of data entry. If certifiers fill the form directly into an electronic data capture system, these checks can be enforced using data entry constraints and required fields. MCCD forms that do not pass these checks should be sent back to the certifiers of cause of death using appropriate channels.
- Following data entry and before ICD mortality coding, further quality assurance checks should be carried out on the collected and electronically captured data. These checks should assess the plausibility of the indicated causes of death on the MCCD form versus the age and sex specified. Deaths with MCCD forms that do not pass these checks should be further investigated to address the implausibility and as needed and if possible, sent back to the certifiers of cause of death.
- Systems will need to be established to allow for feedback at the level of individual certificates to the certifiers of cause of death to elicit corrections of the MCCD form. For example, the supervisor of the data entry staff, or another senior hospital official may need to approach the individual certifier of cause of death to correct a specific MCCD form.
- The quality control system must include relevant feedback mechanisms to identify trends in quality and understand the frequency of errors made. Hospital mortality committees, hospital leadership and potentially individual certifiers of cause of death can all be considered when developing these feedback channels. This feedback will raise awareness and help to prevent common errors and should also be used to improve trainings. If feedback mechanisms cannot be set up at the level of health facilities, they may be established at higher administrative levels.



Intervention Area D:

Data Analysis, Interpretation & Use

A system is in place for the collected MCCD data to be analyzed, interpreted, and processed for ICD mortality coding.



SUCCESS FACTOR D1

Analysis, Interpretation, Dissemination and Use of MCCD Quality Control Data

PURPOSE

To analyze interpret, disseminate and use results of routine quality checks on MCCD data and ensures the use of cause of death data following ICD mortality coding.

OUTPUT

Data on results of routine quality checks on MCCD data available to policy-makers.

IMPLEMENTATION TASKS



Conduct and use results from the analysis of the quality of MCCD data

- MCCDs must be coded using ICD mortality rules and principles before any tabulation or analysis of the cause of death data can be done. However, data quality analysis should be done to assure the quality of the data that will be coded to track errors in data quality and to take corrective measures in the production of mortality data as needed (3).
- Findings from the raw data quality analysis can be presented to the CRVS technical coordination committee or the subject-specific technical working group for improvements to the MCCD training.

Bloomberg Philanthropies
Data for Health Initiative

The Data for Health Initiative, supported by Bloomberg Philanthropies and the Government of Australia, is providing technical assistance to over 25 low- and middle-income countries worldwide to improve public health data systems. The CRVS Program, focusing on improving civil registration and vital statistics, is one of four Initiative components; the other three components focus on data use, developing new tools for noncommunicable disease risk factor surveillance, and strengthening cancer registries. Collaborating institutions in the Initiative are: Vital Strategies, U.S. Centers for Disease Control and Prevention, the Johns Hopkins Bloomberg School of Public Health, the World Health Organization, and the Global Health Advocacy Incubator.

Draft for Consultation: for feedback please email crvsinfo@vitalstrategies.org.
Thank you very much for your support.