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# CRVS best-practice and advocacy

Training and education on medical certification: Effective strategies and approaches

July 2018





## Resources available from the University of Melbourne, Bloomberg Philanthropies Data for Health Initiative

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### *CRVS tools*

Interactive and practical resources designed to influence and align CRVS processes with established international or best-practice standards. These resources, which are used extensively in the Initiative's training courses, aim to change practice and ensure countries benefit from such changes by developing critical CRVS capacity among technical officers and ministries.

Published by the University of Melbourne, Civil Registration and Vital Statistics Improvement, Bloomberg Philanthropies Data for Health Initiative.

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## Abbreviations

COD	cause of death
CPD	continuing professional development
CRVS	civil registration and vital statistics
SDGs	Sustainable Development Goals
WHO	World Health Organization

### Key terms

**Cause of death** refers to ‘all those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstance of the accident or violence which produced any such injuries’ (Twentieth World Health Assembly, 1967).

**Clinical record:** physician’s contribution to the medical record, focussed on clinical diagnoses, signs and symptoms

**Medical record:** contains all the information about a patient generated as part of a hospital admission and stay;

**Underlying cause of death** is ‘the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury’ (World Health Organization, 1994).

**Verbal autopsy** is a structured interview carried out with family members and/or caregivers of the deceased to elicit signs and symptoms and other important information which can be used to assign a probable underlying cause of death.



## Key points

- High-quality medical certification of death is critically important for good quality national mortality statistics.
- Quality mortality statistics are drawn from cause of death (COD) data and are key for governments and their partners to develop evidence-based health policy and planning to maximise a country's population health.
- Medically trained physicians, who are directed by domestic law and policy, are routinely employed by governments to ensure accurate recording of COD information.
- Physicians must be able to record the underlying COD on a certificate that is aligned with the International Form of Medical Certificate of Cause of Death, developed by the World Health Organization (WHO).
- Education and training to improve correct death certification practices among physicians will be fundamental for countries seeking high-quality mortality statistics – yet very few physicians from around the world have received training in medical certification.
- Content and method of instruction are important, but timing of medical certification educational interventions is crucial.
- Increasingly, evidence shows that physicians require education and training on medical certification at three career stages:
  - Stage 1 – medical students (pre-service)
  - Stage 2 – junior physicians and interns (in-service)
  - Stage 3 – experienced practising physicians.
- The content and focus of the medical certification education and training at each career stage will differ:
  - Stage 1 – will focus on the principles of medical certification in the context of vital statistics
  - Stage 2 – will focus on hands-on experience filling in death certificates
  - Stage 3 – will focus on refresher training on medical certification rules and significance.
- Ensuring that medical certification of cause of death is a priority area for practising physicians requires an element of advocacy to senior physicians, medical boards, primary healthcare accreditation bodies, private and public health agencies and institutes, as well as hospital administrators and managers. Tertiary institutions (medical schools) must advocate for the importance of medical certification with their students.
- Part of this advocacy strategy should involve convincing public and private hospitals and other healthcare facilities to consider implementing quality reviews and systems of monitoring and assessment for death certificate completion.



# Training and education on medical certification: Effective strategies and approaches

Reliable mortality data, which are drawn from quality cause of death information, are essential for countries and their partners to monitor the health of their populations, study disease distribution and emerging or neglected health problems, address health inequities, as well as develop evidence-based health policy initiatives and implement cost-effective public health programs. Ideally, cause of death information is provided by a well-functioning civil registration and vital statistics system, where every death is registered and given a medically certified cause by a medical physician.

However, this ideal is often unmet, with many physicians never receiving adequate training and education on how to correctly certify the cause of death, or the importance of doing so in generating reliable mortality statistics for the population. This *CRVS development series* paper serves to close an important gap by proposing a best-practice plan for both the timing and content of medical certification education and training for physicians at three career stages.

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## The importance of building capacity in medical certification

### Effective strategies and approaches

**Medical students: principles of certification**

**Junior physicians: experience with certificates**

**Experienced physicians: rules and significance of certification**

### The role of advocacy

### Summary

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## The importance of building capacity in medical certification of cause of death

To correctly complete a medical death certificate, the physician must trace the sequence of events back to the underlying cause.

Worldwide, death certification is routinely conducted by trained medical physicians, supported by national policy and legal frameworks. The physician is often thus tasked – in the ordinary course of performing their professional duties – with recording the underlying cause of death (COD) on a certificate that is aligned with the World Health Organization (WHO) International Form of Medical Certificate of Cause of Death (often referred to as the ‘medical death certificate’) (see **Annex 1**). To correctly fill in the medical death certificate, the physician must identify the condition directly causing the death, and then trace the sequence of events back to the underlying COD. The physician must also enter other diseases contributing to the death in the death certificate form.

However, very few physicians have received training in medical certification. This is the case in low, middle and high-income countries alike. Education and training to improve correct death certification practices among physicians will be fundamental for countries seeking high-quality mortality statistics.<sup>1</sup> These statistics will not only be crucial for countries monitoring progress of national health goals, but country achievement of goals and targets under the global Sustainable Development Goal (SDG) agenda.<sup>2</sup>

<sup>1</sup> Pillay-van Wyk V, et al. Improving the quality of medical certification of cause of death: The time is now! *South African Medical Journal* 2011; 101:626.

<sup>2</sup> Sankoh O, Byass P, on behalf of INDEPTH Network and Partners. New INDEPTH strategy for the SDGs using robust population data. *The Lancet Global Health* 2017; 5:e648.



## Effective strategies and approaches for education and training

Ensuring physicians have access to education and training on medical certification throughout their career is pivotal.

Studies show that interactive workshops are the most effective way to teach medical certification to physicians at any stage of their career.<sup>3,4</sup> For community or remote-area physicians in hard-to-reach areas, however, methods like interactive training websites, online study tools, videos and printed materials may be better options. Regardless of how the education and training is offered, ensuring that it is offered at key points in a physician's career is pivotal.

The recommended stages for medical certification training curriculum are:

- Stage 1 – Medical students
- Stage 2 – Junior physicians and interns
- Stage 3 – Practising physicians/clinicians.

Education on the principles of medical certification and its importance for public health, and later instruction on how to complete a medical death certificate alongside options for refresher training should be provided as distinct phases for medical students, interns and practising physicians.

Improvements in death certification will be underpinned by the medical community's understanding of the importance of this task and the obligation physicians have towards their patients for recording their deaths correctly. Throughout the medical certification capacity-building process, statements like *"We owe it to the dead to record their passing with accuracy"* should be used to remind physicians of their responsibility.

The three stages are summarised in a proposed plan for medical certification training curriculum as shown below (**Table 1**). These three stages have been consolidated and compiled by physicians and civil registration and vital statistics (CRVS) experts from the Bloomberg Philanthropies Data for Health (D4H) Initiative that are experienced in medical certification capacity building, complemented by a review of the scientific literature on education and training strategies and approaches.

3 Walker S, et al. An accessible method for teaching doctors about death certification. *Health Information Management Journal* 2012; 41:4-10.

4 Aung E, et al. Teaching cause-of-death certification: lessons from international experience. *Postgraduate Medical Journal* 2010; 86:143-152.



**Table 1. Medical certification curriculum across the three stages of education and training**

Topic area	Stage 1 Medical students	Stage 2 Junior physicians / interns	Stage 3 Practising physicians
Uses of underlying COD data for public health	+++	++	+
Principles of death certification	+++	++	+
Certification rules and guidelines	++	+++	+
Practical experience (completing certificates)	+	+++	++
Training strategies for physicians in hospitals	-	-	++
Quality assurance and monitoring	-	-	++

### Stage 1: Curriculum for medical students

Integrating medical certification into medical-school curriculum is an effective and sustainable option.

The simplest and most sustainable way to train young physicians is to add a learning module on the importance of medical certification in the medical curriculum. This knowledge can then be tested through examination questions. Students should understand that they are not only responsible for caring for living patients, but that they have both ethical *and* legal obligations to accurately record what their patients die from. While face-to-face teaching sessions are preferred, a research project involving a group of medical students from the Fiji School of Medicine observed that students who used a WHO web-based training tool could complete medical death certificates with improved accuracy.<sup>5</sup>

MCCOD principles must also be put into the context of vital statistics and population health information for policy and planning for governments. Indeed, while MCCOD is often taught under the category of forensic medicine, it is better framed as a public health or community medicine issue. MCCOD principles can also be framed in the context of the contribution of vital statistics data to a country’s achievement of the SDGs. This allows incorporation of vital statistics into global health and development policy and practice subjects already offered to medical students.

#### Component 1: Frame accurate cause of death reporting as an essential medical duty that contributes to an important overarching public health imperative

Accurate certification can be taught as an essential duty of a physician, that can also have an impact on national health policy.

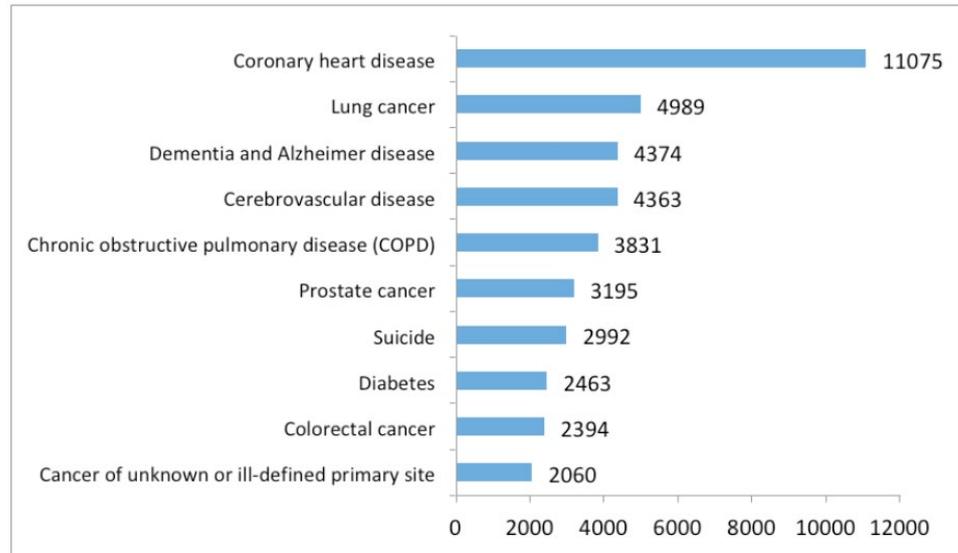
Accurate medical reporting is highlighted by educators as an essential duty that forms part of the future physician’s professional role. It is a part that will directly impact on and shape national health policy and contribute to the monitoring and evaluation of global health and development goal achievement.

<sup>5</sup> Walker S, et al. *Improving cause of death certification practices in the Pacific: findings from a pilot study of the World Health Organization web-based ICD training tool*. Brisbane, Australia: Health Information Systems Knowledge Hub, University of Queensland; 2011.



**Activity example:** Simple age and sex-specific mortality data by disease in a country are displayed to medical students (see **Figure 1**). Encourage these students to reflect upon where the data came from, what they show, their utility, and if the data are of a high scientific quality and can be trusted as accurate and reliable.

**Figure 1. Leading causes of death among males, Australia, 2015**



Source: Australian Institute of Health and Welfare. Analysis of AIHW National Mortality Data. 2017. Available at <https://www.aihw.gov.au/reports/web/199/male-health/contents/how-healthy>

**Component 2: Highlight how medical students (as future physicians) will be responsible for contributing to health information systems through accurate medical certification and reporting**

Educators need to emphasise that accurate death certificates ensure that a country’s vital statistics data on COD are reliable, and thus provide health policy-makers with population-level mortality data they can use. Medical students should know that they will be responsible, as future physicians, for contributing this most basic piece of public health data to information systems.

**Activity example:** Use case studies<sup>6</sup> to highlight the importance of correctly identifying and certifying the underlying COD on medical certificates and the implications this has for public health priorities.

<sup>6</sup> Many case studies are provided in the following resource: University of Melbourne. *Handbook for doctors on cause of death certification*. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne; 2017.

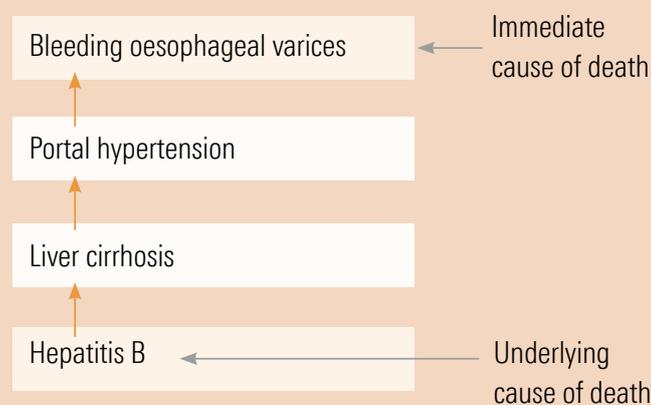


### Example case study

A 50-year-old woman was admitted to the hospital vomiting blood and was diagnosed as having bleeding oesophageal varices. Investigation revealed portal hypertension. The woman had a history of hepatitis B infection. Three days later, she died. **Figure 2** outlines the sequence of events that led to her death.

It is extremely important that the underlying cause of each death is correctly determined and accurately recorded. In this case, bleeding oesophageal varices was the immediate COD. **Hepatitis B was the underlying COD.** Knowing this, the public health response is to implement immunisation programs against the hepatitis B virus.

**Figure 2 Chain of events leading to death**



### Component 3: Identify and discuss other uses for medical certificates

Highlighting the value of the certificate in a broader social context may also encourage students.

Educators should encourage medical students to consider other important uses for medical death certificates, especially for surviving family members of the deceased, and for society more broadly.

**Activity example:** Identify with students how the content of medical certificates can support next-of-kin access to healthcare services, benefits and entitlements related to the social determinants of health (such as education and housing).

### Component 4: Examine a medical death certificate

The WHO certificate allows cause of death information to be standardised world-wide.

From this broad understanding of the utility of the medical death certificate, educators can then focus on the certificate itself (**Figure 3**). Educators can begin by discussing the International Form of Medical Certificate of Cause of Death in general terms (this certificate was developed by the WHO to facilitate the correct national and international reporting of International Classification of Diseases–coded COD data). Educators must explain the structure and logic of the two parts of the certificate. These require the certifier to first detail the chain of events leading to death, and then list the contributory causes.

**Activity example:** Several mock death scenarios can be provided to students, who are then tasked with completing the medical death certificate.

**Figure 3. International Form of Medical Certificate of Cause of Death, Frame A: Medical data**

Frame A: Medical data: Part 1 and 2				
<b>1</b> Report disease or condition directly leading to death on line a  Report chain of events in due to order (if applicable)  State the underlying cause on the lowest used line			Cause of death	Time interval from onset to death
		a		
		b	Due to:	
		c	Due to:	
		d	Due to:	
<b>2</b> Other significant conditions contributing to death (time intervals can be included in brackets after the condition)		-----		

Source: World Health Organization. International statistical classification of diseases and related health problems, 10th revision, vol. 2, 10th edition. Geneva: WHO; 2016.

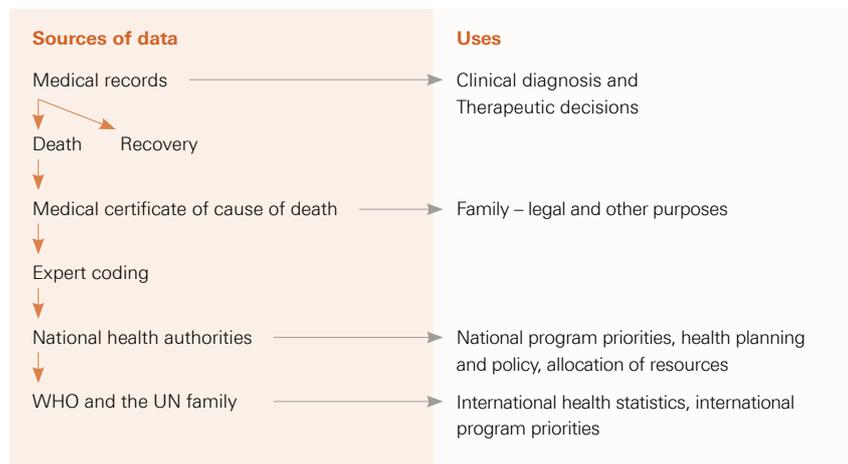
**Component 5: Conclude by reiterating that medical certification is both a statistical and diagnostic system**

Correctly completed death certificates inform health information systems and can be a tool for better patient care.

Educators can conclude by emphasising that medical certification is both a statistical and diagnostic tool. It acts as a cornerstone of the health information system and at the same time provides essential knowledge for clinical care and treatment of patients.

**Activity example:** Medical students should discuss **Figure 4**.

**Figure 4 Sources and uses of cause of death data**



UN = United Nations; WHO = World Health Organization

Source: University of Melbourne. Reducing barriers to the accurate medical certification of death. CRVS development series. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne; 2017.



## Stage 2: Curriculum for medical interns or junior physicians

Effective training of junior physicians on certification ideally begins early and focuses on practical aspects and experience.

It is ideal to begin Stage 2 medical certification education when medical interns first begin their residencies.<sup>7</sup> This is the time to translate the formative education into hands-on experience by learning the rules around certification, as well as how to fill in medical death certificates. This is assuming that interns focused more on medical certification theory (as opposed to practical experience) during medical schools.

Short, practical training on medical certification for interns is preferable. Effective, time-efficient methods of instruction must be carefully slotted into interns' schedules, particularly given the array of demands placed on them.

### Component 1: Reiterate to interns the concepts from Stage 1 education and training

Briefly summarise and reiterate the concepts from Stage 1 training:

Accurate cause of death reporting as an essential medical duty (ethically and legally) that contributes to an important overarching public health imperative.

### Component 2: Teach interns how to complete a medical death certificate, step-by-step

Educators can begin by discussing the International Form of Medical Certificate of Cause of Death in general terms. Educators must explain the structure and logic of the two parts of the certificate. These require the certifier to detail the sequence of events leading to death, and then list the contributory causes.

**Activity example:** Provide examples of incorrectly completed medical death certificates<sup>8</sup> to interns (see Figure 3 for examples), and task them with reviewing the certificates, correcting the errors and discussing potential implications of the errors. Interactive feedback and discussion with interns and junior physicians will be crucial.

7 Pandya H, et al. Educational intervention to improve death certification at a teaching hospital. *National Medical Journal of India* 2009; 22:317-319.

8 Examples of incorrectly completed medical death certificates are provided in the following resource: University of Melbourne. *Assessing the quality of death certification*. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne; 2017.

**Figure 5. Examples of incorrectly completed medical death certificates**

Two causes recorded in line 1a

Frame A: Medical data: Part 1 and 2				
<b>1</b> Report disease or condition directly leading to death on line a  Report chain of events in 'due to' order (if applicable)  State the underlying cause on the lowest used line			Cause of death	Time interval from onset to death
	↻	a	<i>Cardiovascular bleed and community acquired pneumonia</i>	<i>unknown</i>
	↻	b	Due to:	
	↻	c	Due to:	
		d	Due to:	
<b>2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)</b>				

As well as an improbable sequence, this certificate also has two causes recorded on line b

Frame A: Medical data: Part 1 and 2				
<b>1</b> Report disease or condition directly leading to death on line a  Report chain of events in 'due to' order (if applicable)  State the underlying cause on the lowest used line			Cause of death	Time interval from onset to death
	↻	a	<i>Polycystic kidney</i>	
	↻	b	Due to: <i>Renal failure and hypertension</i>	
	↻	c	Due to: <i>Ischaemic heart disease</i>	
		d	Due to:	
<b>2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)</b>				

Source: University of Melbourne. Assessing the quality of death certification. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne; 2017.



### Stage 3: Curriculum for experienced practising physicians

Senior clinicians can help ensure accurate certification by junior physicians by providing incentive and expertise.

All clinical interns practice under a senior clinician who is responsible for signing off on the interns' training. This means that interns and junior physicians have an incentive to follow their senior clinicians' instructions. Thus, if senior physicians understand what medical certification is and why it is important that deaths are correctly certified, they will in turn likely urge their juniors to complete medical death certificates correctly. Of course, improving the quality of death certification requires experienced physicians to have the necessary skills and expertise and fully understand the importance of correct certification for public health purposes.<sup>9</sup>

#### Component 1: Provide a refresher course for experienced physicians on accurate MCCOD

A short course on medical certification would preferably be integrated into the continuing professional development (CPD)-accredited training, which physicians obtain through continuing medical education, to retain their medical licence.

**Activity example:** Several mock death scenarios can be provided to experienced physicians, who are then tasked with completing the death certificate. Interactive feedback and discussion with the physicians will be crucial.

### Moving forward: The role of advocacy

Advocacy for system-wide awareness of the importance of certification can help promote certification education at all stages of physician training.

Ensuring that medical certification is a priority area for practising physicians requires an element of advocacy to senior physicians, medical boards, primary healthcare accreditation bodies, private and public health agencies and institutes, as well as hospital administrators or managers, among others. Advocacy must also extend to key leaders in medical departments and institutes in university environments worldwide. Face-to-face meetings to advocate for medical certification are always preferable in the first instance.

Advocacy must not only be directed to facilitate individual medical student and physician capacity building and up-skilling, but also directed at the system-wide level. This helps to promote policy and planning changes to improve inclusion of medical certification education and training into the three stages in a physician's professional journey, as identified in this *CRVS development series* paper.

Part of this advocacy strategy should involve convincing public and private hospitals and other healthcare facilities to consider implementing quality reviews and systems of monitoring and assessment of medical death certificates.<sup>10</sup> One method for quality review may be via clinical audit committees, which would oversee the quality of clinical records and certification practices. Such a committee would be responsible for setting training requirements in medical certification, auditing clinical records and death certificates (and ensuring that these are in accord with international best practice), and reporting and disseminating results from the audit process. The committee may also be able to suggest and develop training plans for physicians concerning observed problem areas as part of physicians' continuing medical education.<sup>11</sup>

9 Burger H, et al. Medical certification of death in South Africa – moving forward. *South African Medical Journal* 2015; 105:27-30.

10 Weeramanthri T, et al. An evaluation of an educational intervention to improve death certification practice. *Australian Clinical Review* 1993; 43:185-190.

11 University of Melbourne. *Strategies for improving the quality of cause of death data in hospitals*. CRVS development series. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne; 2018.



## Summary

The availability of complete and accurate data on causes of death in the population is a valuable asset that can inform public health policy at the national and international level. As medical physicians conduct certification on the causes of death, their training and education in this area is critical to ensure the generation of high-quality mortality statistics. An integrated education program on medical certification of death targeting all three levels of physician; medical students, junior physicians and senior clinicians, may be the best way to achieve this.

At the student level, incorporating the training into the medical school curriculum may be effective and sustainable and should be focused on highlighting the importance of accurate death certification both socially and for health information systems. Training for junior physicians can focus on more practical aspects like correct completion of the death certificate by tracing the sequence of events back to the underlying cause. Senior clinicians should receive refresher training on the concepts and on correct ways of completing the certificate, as well as highlighting their role in encouraging junior physicians to do so.

Finally, for success in achieving high coverage and accuracy of medical death certification, system-wide advocacy may be needed to ensure that it remains a high priority for physicians at all levels of training as well as management at the hospital and academic settings.

# Annex 1 International Form of Medical Certificate of Cause of Death

Administrative Data (can be further specified by country)																	
Sex	<input type="checkbox"/> Female			<input type="checkbox"/> Male			<input type="checkbox"/> Unknown										
Date of birth	D	D	M	M	Y	Y	Y	Y	Date of death	D	D	M	M	Y	Y	Y	Y
Frame A: Medical data: Part 1 and 2																	
1 Report disease or condition directly leading to death on line a  Report chain of events in due to order (if applicable)  State the underlying cause on the lowest used line			Cause of death										Time interval from onset to death				
	a																
	b	Due to:															
	c	Due to:															
d	Due to:																
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)																	

Frame B: Other medical data													
Was surgery performed within the last 4 weeks?				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> Unknown					
If yes please specify date of surgery						D	D	M	M	Y	Y	Y	Y
If yes please specify reason for surgery (disease or condition)													
Was an autopsy requested?				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> Unknown					
If yes were the findings used in the certification?				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> Unknown					
Manner of death:													
<input type="checkbox"/> Disease			<input type="checkbox"/> Assault			<input type="checkbox"/> Could not be determined							
<input type="checkbox"/> Accident			<input type="checkbox"/> Legal intervention			<input type="checkbox"/> Pending investigation							
<input type="checkbox"/> Intentional self harm			<input type="checkbox"/> War			<input type="checkbox"/> Unknown							
If external cause or poisoning:				Date of injury		D	D	M	M	Y	Y	Y	Y
Please describe how external cause occurred (If poisoning please specify poisoning agent)													
Place of occurrence of the external cause:													
<input type="checkbox"/> At home		<input type="checkbox"/> Residential institution		<input type="checkbox"/> School, other institution, public administrative area				<input type="checkbox"/> Sports and athletics area					
<input type="checkbox"/> Street and highway		<input type="checkbox"/> Trade and service area		<input type="checkbox"/> Industrial and construction area				<input type="checkbox"/> Farm					
<input type="checkbox"/> Other place (please specify):						<input type="checkbox"/> Unknown							
Fetal or infant Death													
Multiple pregnancy				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> Unknown					
Stillborn?				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> Unknown					
If death within 24h specify number of hours survived				Birth weight (in grams)									
Number of completed weeks of pregnancy				Age of mother (years)									
If death was perinatal, please state conditions of mother that affected the fetus and newborn													
<b>For women, was the deceased pregnant?</b>				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> Unknown					
At time of death				<input type="checkbox"/> Within 42 days before the death									
Between 43 days up to 1 year before death				<input type="checkbox"/> Unknown									
Did the pregnancy contribute to the death?				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> Unknown					

## Related resources and products

### University of Melbourne, D4H Initiative, CRVS Knowledge Gateway: Library

<https://crvsgateway.info/library>

*Assessing the quality of death certification: Guidance for the rapid tool.* CRVS resources and tools.

*Handbook for physicians on cause of death certification.* CRVS resources and tools.

*Intervention: Medical certification of cause of death.* CRVS summaries.

*Medical certification of cause of death: Quick reference guide.* CRVS summaries.

*Reducing barriers to the accurate medical certification of cause of death.* CRVS development series.

*Strategies for improving the quality of cause of death data in hospitals.* CRVS development series.

### University of Melbourne, D4H Initiative, CRVS Knowledge Gateway: Learning Centre

<https://crvsgateway.info/learningcentre>

Topic 4: Cause of death in CRVS systems.

### University of Melbourne, D4H Initiative, CRVS Knowledge Gateway: Courses

<https://crvsgateway.info/courses>

Medical certification of cause of death.

## Further reading

Ajami S, Ketabi S, Sadeghian A, Saghaeinejad-Isfahani S. Improving the medical records department processes by lean management. *Journal of Education and Health Promotion* 2015; 4:48.

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The program partners on this initiative include: The University of Melbourne, Australia; CDC Foundation, USA; Vital Strategies, USA; Johns Hopkins Bloomberg School of Public Health, USA; World Health Organization, Switzerland.

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