

Correct completion of a medical death certificate and the selection of the underlying cause of death

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Outline of Presentation



Guidelines for completion of
a medical certificate of
death



Coding of COVID-19 Death
Certificates



Cause of death reporting
reminders

Guidelines for completion of a medical certificate of death

Physicians' Role in Death Certification

*To provide a medical opinion on cause of death. That is, an etiological description of the **order, type and association of events** resulting in death.*

Physician's Responsibility

- Indicate course of events
- Decide which condition is directly responsible for death
- Determine what antecedent conditions (if any) gave rise to the immediate cause

Cause of Death Sections

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)			

Part I

- An entry must be placed on Line (a)
 - This is the immediate (final) cause
- Line (b), (c), (d) are due to (or consequence of)
 - Report what gave rise to the line above by asking “*What caused this condition?*”
- The **underlying** cause is placed on last line and should initiate all above it

Part 1 and 2		Cause of death	Time interval from onset to death
	a		
↻	b	Due to:	
↻	c	Due to:	
↻	d	Due to:	
Contributing to death (time after the condition)			

Part I

Mode of dying uninformative e.g. natural causes, old age, senility, cardiac arrest and respiratory failure

Report as accurately and precisely as possible. E.g. Indicate if COVID-19 laboratory confirmed

Note that the Underlying Cause of Death can terminate at the Immediate Cause of Death

Part 1 and 2

	Cause of death	Time interval from onset to death
a	Acute respiratory distress syndrome	2 days
b	Due to: Pneumonia	10 days
c	Due to: COVID-19 (test positive)	14 days
d	Due to:	

Contributing to death (time after the condition)

Underlying cause of death

Time Interval between Onset and Death



**PROVIDES A USEFUL
CHECK ON SEQUENCE OF
CAUSES**



**PROVIDES INFO ON
DURATION OF ILLNESS IN
CERTAIN DISEASES**



**ALLOWS FOR CORRECT
ASSIGNMENT OF ICD
CODES**



**COMPLETE WHERE
KNOWN – EVEN
APPROXIMATELY**

Example

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	Acute respiratory distress syndrome	2 days
		b	Due to: Pneumonia	10 days
		c	Due to: COVID-19 (test positive)	14 days
		d	Due to:	
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)		<div style="border: 1px solid black; padding: 5px; display: inline-block;">Underlying cause of death</div>		

Part II



All other important diseases or conditions that may have contributed to the death but did not lead to the underlying cause of death in Part I




Enter in order of significance - should represent a direct sequence and be logical



Condition doesn't fit sequence – consider for Part II

Only if they influenced the course of morbid events and contributed to the fatal outcome

Example with Co-morbidities


Frame A: Medical data: Part 1 and 2			
1		Cause of death	Time interval from onset to death
Report disease or condition directly leading to death on line a		a Acute respiratory distress syndrome	2 days
Report chain of events in due to order (if applicable)		b Due to: Pneumonia	10 days
State the underlying cause on the lowest used line		c Due to: Suspected COVID-19	12 days
		Due to:	
		<div style="border: 1px solid black; padding: 5px; display: inline-block;">Underlying cause of death</div>	
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)		<div style="border: 2px solid red; border-radius: 50%; padding: 10px;"> Coronary artery disease [5 years], Type 2 diabetes [14 Years], Chronic obstructive pulmonary disease [8 years] </div>	

Other concerns

Persons with COVID-19 may die of other diseases or accidents, such cases are not deaths due to COVID-19

In case you think that COVID-19 aggravated the consequences of the accident, you may report COVID-19 in Part 2.

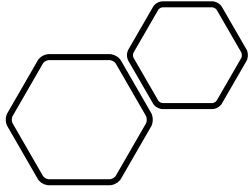
Please remember to indicate the manner of death and record in part 1 the exact kind of an incident or other external cause.

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	Heart failure	1 day
		b	Due to: Myocardial infarction	5 days
		c	Due to:	
		d	Due to:	
		Underlying cause of death		
2	Other significant conditions contributing to death (time intervals can be included in brackets after the condition)		COVID-19	

The clinical illness and sequence of events leading to death may indicate that even in the presence of COVID-19 a person dies due to other conditions, as in the example above



Coding of COVID-19 Death Certificates



Selecting the Underlying Cause of Death

Underlying Cause of Death (UC):

The disease or injury that started the train of morbid events leading directly to death
or

- The circumstances of the accident or violence that produced the (fatal) injury

NOTE: UC is the primary target for disease prevention and control

The Coder's Responsibility

- To assign the correct ICD-10 codes to all causes of death listing on the Medical Certificate of Death
- Use rules and guidelines to correctly select the Underlying Cause of Death
- **NOTE:** The coded conditions are only as accurate as what has been written on the certificate

Additional categories to document or flag conditions in COVID-19 patients.

- **U08.9** Personal history of COVID-19, unspecified
- **U09.9** Post COVID-19 condition, unspecified
- **U10.9** Multisystem inflammatory syndrome associated with COVID-19, unspecified

ICD-10 Codes for COVID-19

- U07.1 COVID-19, virus identified
- U07.2 COVID-19, virus not identified
 - Clinically-epidemiologically diagnosed COVID-19
 - Probable COVID-19
 - Suspected COVID-19

N.B.: Not U07

COVID-19 Coding Specific Note

COVID-19 is not considered as due to, or as an obvious consequence of, anything else (in analogy to the coding rules applied for INFLUENZA and emerging diseases reportable to WHO).



Further, there is no provision in the classification to link COVID-19 to other causes or modify its coding in any way.

Case 1

77-Year-Old Male with Hypertension and COPD

- Presented to ED:
 - 4 days of fever, cough, and increasing shortness of breath
 - Recent exposure to neighbor with flu-like symptoms
 - Wheezing, not improving with usual bronchodilator therapy
- Upon examination:
 - Febrile, hypoxic, and moderate respiratory distress
 - Chest x-ray indicated hyperinflation
 - ABG consistent with severe respiratory acidosis
 - Testing of respiratory specimens indicated **COVID-19**
- Admitted to ICU:
 - Despite aggressive treatment, worsening **respiratory acidosis**
 - Cardiac arrest on day 3 of admission

Cause of Death Section:

CAUSE OF DEATH (See instructions and examples)		Approximate interval: Onset to death
<p>32. PART I. Enter the <u>chain of events</u>--diseases, injuries, or complications--that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines if necessary.</p>		
<p>IMMEDIATE CAUSE (Final disease or condition resulting in death) -----></p>	<p>a. <u>Acute respiratory acidosis</u> Due to (or as a consequence of): _____</p>	<p><u>3 days</u></p>
<p>Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST</p>	<p>b. <u>COVID-19</u> Due to (or as a consequence of): _____</p>	<p><u>1 week</u></p>
	<p>c. _____ Due to (or as a consequence of): _____</p>	<p>_____</p>
	<p>d. _____</p>	<p>_____</p>
<p>PART II. Enter other <u>significant conditions contributing to death</u> but not resulting in the underlying cause given in PART I.</p> <p style="font-size: 1.2em;">Chronic obstructive pulmonary disease, hypertension</p>		<p>33. WAS AN AUTOPSY PERFORMED? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
		<p>34. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>

Case 2

34-Year-Old Female with No Significant Medical History

- Presented to primary care physician:
 - 6 days of fever, cough, and myalgias
- Upon examination:
 - Febrile, hypotensive, and hypoxic
- Admitted to hospital:
 - CT scan of chest, diffuse ground-glass opacification indicative of viral **pneumonia**
 - Respiratory specimens tested, rRT-PCR confirmed **COVID-19**
 - Condition deteriorated over next 2 days, developed **ARDS**
 - Transferred to ICU, started on positive pressure ventilation
 - Despite aggressive resuscitation, expired on hospital day 4

Cause of Death Section:

CAUSE OF DEATH (See instructions and examples)		Approximate interval: Onset to death
<p>32. PART I. Enter the <u>chain of events</u>--diseases, injuries, or complications--that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines if necessary.</p>		
<p>IMMEDIATE CAUSE (Final disease or condition -----> resulting in death)</p>	<p>a. <u>Acute respiratory distress syndrome</u> Due to (or as a consequence of):</p>	<p><u>2 days</u></p>
<p>Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST</p>	<p>b. <u>Pneumonia</u> Due to (or as a consequence of):</p>	<p><u>10 days</u></p>
	<p>c. <u>COVID-19</u> Due to (or as a consequence of):</p>	<p><u>10 days</u></p>
	<p>d. _____</p>	<p>_____</p>
<p>PART II. Enter other <u>significant conditions contributing to death</u> but not resulting in the underlying cause given in PART I.</p>		<p>33. WAS AN AUTOPSY PERFORMED? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
		<p>34. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>

Case 3:

F 92yrs

Cause of Death

Part I. Disease or condition directly leading to death

Duration

- | | | | |
|----|---|------------------|--------------|
| a. | Type 1 Respiratory Failure <i>due to (or as a consequence of)</i> | 15 days | J960 |
| b. | Brochopneumonia..... <i>due to (or as a consequence of)</i> | 18 days | J180 |
| c. | COVID-19 confirmed <i>due to (or as a consequence of)</i> | approx.3-4 Weeks | U07.1 |

Part II. Other significant conditions contributing to death

.....

GPa: sequence terminating in the first mentioned condition

UC : U07.1

Case 4:

F 65yrs

Cause of Death

Part I. Disease or condition directly leading to death

Duration

- | | | | |
|----|---|--------|-----------|
| a. | Acute Respiratory Distress Syndrome..... <i>due to (or as a consequence of)</i> | | J80 |
| b. | COVID-19, Pneumonia <i>due to (or as a consequence of)</i> | 7 days | U07, J189 |
| c. | Hypertension <i>due to (or as a consequence of)</i> | | I10 |

Part II. Other significant conditions contributing to death

.....

Case 4 cont'd: Queries

F 65yrs	Cause of Death	Duration
Part I. Disease or condition directly leading to death		
a.	Acute Respiratory Distress Syndrome..... <i>due to (or as a consequence of)</i>	J80
b.	COVID-19, Pneumonia <i>due to (or as a consequence of)</i>	7 days U07, J189
c.	Hypertension <i>due to (or as a consequence of)</i>	I10
Part II. Other significant conditions contributing to death		
.....		

GP≠A, GP≠B, R1

UC : U07

Case 4 cont'd : Corrected

F 65yrs

Cause of Death

Part I. Disease or condition directly leading to death

Duration

- | | | | |
|-----------|---|--------|--------------|
| a. | Acute Respiratory Distress Syndrome..... <i>due to (or as a consequence of)</i> | ? | J80 |
| b. | Pneumonia <i>due to (or as a consequence of)</i> | 7 days | J189 |
| c. | COVID-19 confirmed <i>due to (or as a consequence of)</i> | ? | U07.1 |

Part II. Other significant conditions contributing to death


..... **Hypertension** I10.

UC : U07.1

Case 5:


<i>Frame A: Medical data: Part 1 and 2</i>				
1 Report disease or condition directly leading to death on line a Report chain of events in due to order (if applicable) Underlying cause of death			Cause of death	Time interval from onset to death
		a	Acute respiratory distress syndrome J80	3 days
		b	Due to: COVID-19 U07.1	One week
		c	Due to: HIV disease B24	5 years
		d	Due to:	
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)				

Case 6:

Frame A: Medical data: Part 1 and 2			
1		Cause of death	Time interval from onset to death
Report disease or condition directly leading to death on line a		Severe Respiratory distress syndrome	1 day
Report chain of events in due to order (if applicable)		^D Pneumonia	5 days
		^E COVID – 19 virus identified	8 days
State the underlying cause on the lowest used line		Due to:	
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)	Hypertension (10 years) Diabetes mellitus type 2 (15 years)		110 --- E149

Underlying Cause of Death – COVID-19 (U071)

Case 7:

Frame A: Medical data: Part 1 and 2			
1		Cause of death	Time interval from onset to death
Report disease or condition directly leading to death on line a		Cardiac arrest	30 minutes
Report chain of events in due to order (if applicable)		Non ST elevated myocardial infarction	2 days
State the underlying cause on the lowest used line		Coronary arteriosclerosis	2 Years
		Due to:	
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)	COVID - 19 laboratory confirmed (17 days), Diabetes mellitus type 2 (10 years), Smoking (30 years), Hypertension (10years), Obesity, Hypercholesterolaemia		

I469

I214

I251

U071, E119, I110, F171, E780

Underlying Cause of Death – Coronary arteriosclerosis (I251)

Case 8:



Frame A: Medical data: Part 1 and 2			
1		Cause of death	Time interval from onset to death
Report disease or condition directly leading to death on line a		Respiratory failure	3 days
Report chain of events in due to order (if applicable)		^{Du} Pneumonia	7 days
		^{Du} Pregnancy complicated by COVID -19, 32 weeks pregnant	14 days
State the underlying cause on the lowest used line		d	Due to:
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)			

0995 (pregnancy), J960


0995, J18

0995, U071

**Underlying Cause of Death –
Other viral diseases complicating pregnancy, childbirth and the puerperium (0985) – additional-U071)**

Case 9:

Not all deceased positive for COVID-19 are COVID-19 deaths


Frame A: Medical data: Part 1 and 2					
1			Cause of death	Time interval from onset to death	
Report disease or condition directly leading to death on line a		a	Heart failure I50.9	1 day	
Report chain of events in due to order (if applicable)		b	Due to: Myocardial infarction I21.9	5 days	
State the underlying cause on the lowest used line		c	Due to:	<div style="border: 1px solid black; padding: 5px; display: inline-block;">Underlying cause of death</div>	
		d	Due to:		
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)			COVID-19	U07.1	

GPa: sequence terminating in the first mentioned condition

UC : I21.9 (Not COVID-19 death)

Case 10:

Not all deceased positive for COVID-19 are COVID-19 deaths

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	Hypovolaemic shock	1 day
		b	Due to: Aortic dissection	1 day
		c	Due to: Motor vehicle accident	2 days
d		Due to:		
2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)		COVID-19	<div style="border: 1px solid black; padding: 5px; display: inline-block;">Underlying cause of death</div>	

Please remember to indicate the manner of death and record in part 1 the exact kind of an incident or other external cause.

Cause of death reporting reminders

Avoid abbreviations

Incorrect	Correct
ARDS	Acute respiratory distress syndrome
COPD	Chronic obstructive pulmonary disease
SARS	Severe Acute Respiratory illness
CRF	CRF could be Cardio respiratory failure or Chronic Renal failure
MI	Myocardial Infarction / Mitral Incompetence
AD	Acute Diarrhoea / Alzheimer`s Dementia
MS	Mitral Stenosis / Multiple Sclerosis
RTI	Respiratory Tract Infection / Reproductive Tract Infection

N.B.
COVID-19 is an abbreviation that has been specified by the WHO and is an acceptable term to be used UC

Avoid short forms

Incorrect	Correct
Ca Br	Cancer Breast / Cancer Brain
Ac. Infarct	Acute Myocardial Infarction / Acute Cerebral Infarction
Sev Mal	Severe Malaria / Severe Malnutrition

Avoid....

Avoid terms such as senescence, old age, senility, infirmity, and advanced age

- Cannot be the immediate cause of death.
There may be 1 or 2 conditions that have been due to old age and thus the etiological sequence should be specified. If old age was a contributory factor, it should be entered in Part II.

Example:

Part I	Incorrect	Correct
la	Bed ridden	Aspiration Pneumonia
lb	Old Age	Stroke
lc	Hypertension	
Part II		
I		Old Age
		Hypertension

Reminders

- Use legible writing
- Avoid the use of abbreviations
- Enter details on duration
- Record diagnosis as precisely as possible
- Utilize additional reports: autopsy reports; lab reports
- Give information on disease and the details or circumstance of injury.

- Always have an entry on the first line in Part I
- Use logical sequences in Part I
- Do not place the underlying cause in Part II
- DO NOT report mechanistic terminal events such as cardiac arrest, asystole, cardiopulmonary arrest, respiratory arrest, ventricular fibrillation
- DO NOT report symptoms or signs.

Thank you!

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