# Cause of Death Certification: Case scenario workbook

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#### Cause of death certification: Case scenario workbook

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# **Section 1**

# **Case scenarios**

An eighty-year-old lady with a long history of coronary artery atherosclerosis, presented at the emergency unit with severe retrosternal chest pain. She had been treated for Parkinson's disease for a few months before this admission, but has no other diseases. The ECG changes were indicative of an acute myocardial infarction, and she was started on treatment immediately. Five days later she died suddenly after rupture of the infarcted myocardium.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line	Approximate interval between onset and death (Days, months, years)

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

A 70-year-old man with a 20-year history of hypertension, a 15-year history of type 2 diabetes mellitus, a myocardial infarction eight years ago and a five-year history of congestive heart failure was admitted to the hospital with worsening shortness of breath. Over the past five days he had noticed increased swelling in his legs and had developed a cough productive of clear sputum. He was admitted with a diagnosis of an exacerbation of congestive heart failure. Unfortunately, despite aggressive diuresis, he progressed to decompensated heart failure requiring inotropic support. He remained hemodynamically unstable and died six days after admission.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Part 1	Enter the disease, injuries or complicati mode of dying, such as cardiac or respin one cause on each line	Approximate interval between onset and death (Days, months, years)	
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

A male aged 60 years of age who had a history of hypertension for 20 years and symptoms of ischaemic heart disease for five years, dropped dead at home. A coronary thrombosis was suspected and this was confirmed at autopsy.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part

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mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only

pproximate interval etween onset and death Days, months, years)

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

Case scenario workbook

A pregnant woman, who previously had two spontaneous abortions at 12 and 18 weeks, was admitted with premature labour at 24 weeks. She spontaneously delivered a 700-gram infant upon admission. The infant was treated in a neonatal intensive care unit, but died during the first day of life. Chest X-ray had shown dense lung fields consistent with severe hyaline membrane disease.

Complete Section G.2 of the DHA-1663 form for this case.

Main disease or condition in foetus or infant	
Other diseases or conditions affecting foetus or infant	
Main maternal disease or conditions affecting foetus or infant	
Other maternal disease or conditions affecting foetus or infant	
Other relevant factors	

A known diabetic, who had been controlled with difficulty during her first pregnancy, developed megaloblastic anaemia at 32 weeks. Labour was induced at 38 weeks.

She delivered an infant weighing 3 200g. The baby developed hypoglycaemia, and had a loud heart murmur. A large heart was noted on chest X-ray and echocardiography showed the presence of a truncus arteriosus. The baby died on the second day of life.

Complete Section G.2 of the DHA-1663 form for this case.

Main disease or condition in foetus or infant	
Other diseases or conditions affecting foetus or infant	
Main maternal disease or conditions affecting foetus or infant	
Other maternal disease or conditions affecting foetus or infant	
Other relevant factors	

A 74-year-old woman with a 20-year history of type 2 diabetes mellitus complicated by diabetic retinopathy and blindness presented from home after a traumatic fall. She apparently tripped over a rug within her home and fell to the floor on her right side. Unfortunately, she was unable to manoeuvre herself and remained on the floor for three days until she was discovered by a neighbour. Hip imaging confirmed an intertrochanteric fracture of the right hip. She was evaluated by the Orthopaedic Surgery department who proceeded with surgical repair. Four days post-operatively, she developed sudden onset of dyspnoea and chest discomfort. An ECG at that time was significant for sinus tachycardia. An arterial blood gas suggested impending respiratory failure. A CT scan of the chest was demonstrative of a saddle pulmonary embolus. She went into cardiopulmonary arrest and was unable to be resuscitated.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	

C)

d)

Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)

Due to (or as a consequence of)

Due to (or as a consequence of)

Part 2 Other significant conditions contributing to death but not resulting in the cause given in Part 1

A 60-year-old woman was found unconscious in her home by her daughter. She was successfully resuscitated and immediately transferred to hospital, where she was admitted to the intensive care unit. A history obtained from her daughter revealed that the patient had a 20-year history of excessive alcohol consumption, a 15-year history of poorly controlled type 2 diabetes mellitus and a 10-year history of dyslipidaemia. Findings of a CT scan of the head were consistent with an acute ischemic cerebrovascular accident. Chest imaging demonstrated aspiration pneumonia with consolidation in the right middle lobe. Subsequent sputum cultures revealed Klebsiella Pneumoniae. Despite antibiotics and supportive care, she died shortly thereafter.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting		

in the cause given in Part 1

A 35-year-old woman was admitted with a history of chest pain and severe respiratory distress for one week. She had a previous history of poor medication compliance for type 1 diabetes mellitus and developed diabetic retinopathy. She reported an eight-month history of fevers, weight loss and night sweats. On physical examination, she was hypotensive, tachycardic and tachypneic. She also had jugular venous distension and pulsus paradoxus. Chest examination revealed clear breath sounds and a very prominent pericardial friction rub. Cardiac biomarkers were unremarkable. ECG revealed low-voltage electrical alternans. Chest X-ray displayed cardiomegaly with a classic 'water bottle' shaped heart. An emergency echocardiogram was obtained which revealed a large circumferential pericardial effusion with early diastolic collapse of the ventricles. Unfortunately, her hypotension worsened while in transit to theatre for an emergency pericardial window placement. She deteriorated rapidly and died. Screening for CMV, Coxsackie, EBV, VZV, HIV and Echovirus was negative. Tuberculosis was confirmed by positive sputum smear and pericardial fluid cultures.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the	Арр
	mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only	betv (Day
	one cause on each line	

pproximate interval etween onset and death Days, months, years)

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
rt 2	Other significant conditions		

Part 2 Other significant conditions contributing to death but not resulting in the cause given in Part 1

A 30-year old woman with a healthy four-year-old boy had a normal second pregnancy apart from polyhydramnios. Ultrasound examination of the foetus at 36 weeks noted the presence of anencephaly. Labour was induced. A stillborn anencephalic foetus weighing 1 500g was delivered.

Complete Section G.2 of the DHA-1663 form for this case.

Main disease or condition in foetus or infant	
Other diseases or conditions affecting foetus or infant	
Main maternal disease or conditions affecting foetus or infant	
Other maternal disease or conditions affecting foetus or infant	
Other relevant factors	

A 45-year-old chronic alcoholic male, known to have gallstones, developed acute pancreatitis several days after admission to hospital. A day later his condition worsened. Septicaemia was suspected but before blood cultures could be taken, he died.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line	Approximate interval between onset and death (Days, months, years)
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IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
	d) Due to (or as a consequence of)	
Other significant conditions contributing		

in the cause given in Part 1

Part 2

Case scenario workbook

A 35-year-old male presented to the emergency unit of his local hospital with a 3-day history of confusion, headache and neck stiffness. The collateral had reported new onset focal seizures, involving his left face and arm since the day before. On examination the patient was cachectic and had oral candidiasis. He also had generalised lymphadenopathy. Neurological examination revealed GCS 10/15, pupils sluggishly reactive to light and papilledema on fundoscopy. The patient also had profound meningism with mild left-sided weakness.

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A CT brain scan revealed ring-enhancing lesions in the right basal ganglia, brain swelling and basal meningeal enhancement. Chest X-ray revealed a miliary infiltrate as well as a right-sided pleural effusion, in keeping with active miliary tuberculosis. An HIV test was positive. The patient was started on empirical TB treatment, as well as intravenous dexamathasone and Bactrim but demised shortly after admission.

Complete Section G.1 of the DHA-1663 form for this case.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line Approximate interval between onset and death (Days, months, years)

IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	- <u></u>
	d) Due to (or as a consequence of)	
Other significant conditions		

Part 2 Other significant conditions contributing to death but not resulting in the cause given in Part 1

A 34-year-old female was admitted with suspected sepsis. A diagnosis of primary progressive multiple sclerosis had been made 2 years ago. The patient had developed a neurogenic bladder for which a chronic indwelling catheter was inserted. She had been experiencing urinary symptoms for the past 4 days and reported that the urine was green in colour. The urine culture cultured gram negative Pseudomonas. The patient's condition deteriorated rapidly, despite adequate antibiotic therapy and she demised 2 days after admission.

Complete Section G.1 of the DHA-1663 form for the deceased.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Enter the disease injuries or complications that sourced the death. Do not enter the

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	

Enter UNDERLYING CAUSE last c) (disease or injury that initiated events Due to (or as a consequence of) leading to death) d)

Due to (or as a consequence of)

Part 2 Other significant conditions contributing to death but not resulting in the cause given in Part 1

A 55-year-old man is admitted for management of an upper gastrointestinal haemorrhage. He has a 5-year history of myelofibrosis causing severe thrombocytopenia, which has been refractory to treatment. He has received multiple transfusions of platelets, but the bleeding continues. Endoscopy reveals gastric erosions. The patient decides against further interventions, and he dies the next day.

Complete Section G.1 of the DHA-1663 form for the deceased.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	,	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	- /	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

A 65-year-old obese male patient, known with angina (5 years) and osteoarthritis visited his general practitioner. His blood pressure was  $^{180}/_{120}$ . Antihypertensive medications were prescribed and the patient was sent home to rest. He died suddenly that evening. His wife reported that the right side of his body became completely flaccid just before he died.

Complete Section G.1 of the DHA-1663 form for the deceased.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Part 1		the disease, injuries or complications that caused the death. Do not enter the of dying, such as cardiac or respiratory arrest, shock or heart failure. List only cause on each line	
	IMMEDIATE CAUSE (final disease or condition resulting in death)	,	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	/	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

A 28-year-old female died on 19 November. She suffered from arterial hypertension and chronic rheumatic cardiac disease, which was diagnosed at the age of 23. That condition was probably caused by an acute rheumatic fever during her childhood. She was admitted to hospital on the day of death with a uterine haemorrhage due to a spontaneous miscarriage two days before. She died from hypovolemic shock.

Complete Section G.1 of the DHA-1663 form for the deceased.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line	Approximate interval between onset and death (Days, months, years)

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

A 24-year-old female, currently pregnant for 4 months, was admitted to hospital with a sudden onset hemiplegia on the right. Her history revealed that she had suffered from rheumatic fever at 10 years of age. A diagnosis of mitral stenosis with endocardial vegetations was made. On her second day in hospital the patient died.

#### Complete Section G.1 of the DHA-1663 form for the deceased

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line Approximate interval between onset and death (Days, months, years)

IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
	d) Due to (or as a consequence of)	

Part 2 Other significant conditions contributing to death but not resulting in the cause given in Part 1

A 65-year-old woman with a 15-year history of type 2 diabetes mellitus, a 10-year history of hypertension and a 35year history of systemic lupus erythematosus presented to the emergency department with decreased responsiveness over the past week per her husband. On admission, she was stuporous without focal neurologic signs, severely dehydrated, hypotensive and tachycardic. Initial laboratory studies revealed marked hyperglycaemia, mild ketonuria and a hyperosmolar state. She was admitted to the medical intensive care unit with a diagnosis of hyperosmolar non-ketotic coma. She was managed with aggressive fluid resuscitation and insulin. Despite close attention to electrolyte management, she remained hypokalemic. She unfortunately went into cardiac arrest on hospital day-7 and resuscitative efforts were unsuccessful.

Complete Section G.1 of the DHA-1663 form for the deceased.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line Approximate interval between onset and death (Days, months, years)

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

A primigravida aged 26 years with a history of regular menstrual cycles, received routine antenatal care starting at the 10th week of pregnancy. At 27 weeks, foetal growth retardation was noted clinically, and confirmed at 30 weeks. There was no evident cause apart from symptomless bacteriuria. A caesarean section was performed and a live born boy weighing 800g was delivered. The placenta weighed 300g and was described as infarcted. Respiratory distress syndrome developed which was responding to treatment. The baby deteriorated suddenly on the third day, becoming pale and lethargic. A cranial ultrasound revealed extensive Grade IV intraventricular haemorrhage. The child died that same day.

Complete Section G.2 of the DHA-1663 form for the deceased.

Main disease or condition in foetus or infant	
Other diseases or conditions affecting foetus or infant	
Main maternal disease or conditions affecting foetus or infant	
Other maternal disease or conditions affecting foetus or infant	
Other relevant factors	

A 49-year-old male was brought to the emergency department with an infected wound of the right foot. Because of repeated convulsions, he was admitted to the hospital. The examining doctor made a diagnosis of tetanus. The patient's wife reported that while working in the fields two weeks previously, he had stepped on a nail. He treated the laceration himself. The patient died of asphyxia during convulsions the day after admission.

Complete Section G.1 of the DHA-1663 form for the deceased.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line	Approximate interval between onset and death (Days, months, years)

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) Due to (or as a consequence of)	
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

A 75-year-old male smoker with a 5-year history of emphysema had been admitted to hospital with exacerbation of his lung disease caused by *Haemophilus influenzae* pneumonia. His only other medical problem was coronary artery disease of 10 years' duration. His condition deteriorated, but he had decided against further life prolonging measures. One week after admission he was found in his bed with vital signs absent. You were called to pronounce and certify his death.

Complete Section G.1 of the DHA-1663 form for the deceased.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

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Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line Approximate interval between onset and death (Days, months, years)

IMMEDIATE CAUSE (final disease or	a)	
condition resulting in death)	Due to (or as a consequence of)	
Sequentially list conditions, if any,	b)	
leading to immediate cause	Due to (or as a consequence of)	
Enter UNDERLYING CAUSE last	c)	
(disease or injury that initiated events leading to death)	Due to (or as a consequence of)	
	d)	
	Due to (or as a consequence of)	
Other significant conditions contributing to death but not resulting in the cause given in Part 1		
	condition resulting in death) Sequentially list conditions, if any, leading to immediate cause Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death) Other significant conditions	condition resulting in death)       Due to (or as a consequence of)         Sequentially list conditions, if any, leading to immediate cause       b)         Due to (or as a consequence of)         Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)       c)         Due to (or as a consequence of)         d)       Due to (or as a consequence of)         Other significant conditions contributing to death but not resulting

# **Section 2**

# Answers

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode Approximate interval between onset and of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause death (Days, months, on each line years) **IMMEDIATE CAUSE (final** a) Acute Myocardial Infarction 5 days disease or condition resulting in Due to (or as a consequence of) death) Sequentially list conditions, if b) Atherosclerotic heart disease **Years** any, leading to immediate cause Due to (or as a consequence of) Enter UNDERLYING CAUSE last C) (disease or injury that initiated Due to (or as a consequence of) events leading to death) d) Due to (or as a consequence of) Part 2 Other significant conditions Parkinson's Disease Months contributing to death but not resulting in the cause given in Part 1

#### Notes on medical certification of cause of death:

- Acute myocardial infarction, listed in Part 1 line (a) as the immediate cause of death, is a direct consequence of atherosclerotic heart disease; the underlying cause listed in Part 1 line (b).
- It would be acceptable to include heart rupture on line (a).

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Congestive cardiac failure</u> Due to (or as a consequence of)	<u>5 years</u>
	Sequentially list conditions, if any, leading to immediate cause.	b) <u>Ischaemic heart disease</u> Due to (or as a consequence of)	<u>&gt;8 years</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1	_ <u>Hypertension</u>	<u>20 years</u>
		Diabetes Mellitus	<u>15 years</u>

#### Notes on medical certification of death:

- Currently, there is much discussion in the international literature about the correct completion of cause of death certificates involving diabetes. We recommend that in instances with co-existing diabetes and cardiovascular conditions, doctors should evaluate whether the diabetes caused the cardiovascular condition or was merely a contributing factor. If diabetes is considered to be the underlying cause of death, it should be listed in Part 1.
- In this case, hypertensive heart disease could also have been the underlying cause of the heart failure.
   Then hypertension should be written in Part 1, line b, and Ischemic heart disease should go to part 2.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Approximate interval between onset and death Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only (Days, months, years) one cause on each line **IMMEDIATE CAUSE (final disease or** a) Myocardial infarction **Minutes** condition resulting in death) Due to (or as a consequence of) Sequentially list conditions, if any, b) Coronary Atherosclerosis 5 years leading to immediate cause Due to (or as a consequence of) Enter UNDERLYING CAUSE last C) Due to (or as a consequence of) (disease or injury that initiated events leading to death) d) Due to (or as a consequence of) Part 2 Other significant conditions **Hypertension** 20 years contributing to death but not resulting in the cause given in Part 1

#### Notes on medical certification of death:

- In this case, the patient was likely to have had atherosclerosis which was probably generalised at the time
  of death.
- The site of the arteriosclerosis or atherosclerosis which led to the immediate cause of death needs to be specified, hence the entry for coronary atherosclerosis in the sequence.

Main disease or condition in foetus or infant	Hyaline membrane disease (Respiratory Distress Syndrome)
Other diseases or conditions affecting foetus or infant	Extreme immaturity
Main maternal disease or conditions affecting foetus or infant	Spontaneous premature labour
Other maternal disease or conditions affecting foetus or infant	
Other relevant factors	Previous spontaneous abortions

# Case scenario 5

Main disease or condition in foetus or infant	Truncus Arteriosus
Other diseases or conditions affecting foetus or infant	Hypoglycaemia
Main maternal disease or conditions affecting foetus or infant	Insulin dependent Diabetes Mellitus
Other maternal disease or conditions affecting foetus or infant	Megaloblastic anaemia
Other relevant factors	

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 2

 Part 1
 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line
 Approximate interval between onset and death (Days, months, years)

 IMMEDIATE CAUSE (final disease or condition resulting in death)
 a) <u>Pulmonary Embolism</u>
 Minutes

 Sequentially list conditions, if any,
 b) Deep vein thrombosis
 Days

leading to	immediate cause	Due to (or as a consequence of)	Dayo
	DERLYING CAUSE last or injury that initiated events o death)	c) <u>Fractured hip</u> Due to (or as a consequence of)	<u>7 days</u>
		d) <u>Alleged fall after tripping over</u> <u>carpet at home</u> Due to (or as a consequence of)	<u>7 days</u>
contribut	nificant conditions ing to death but not resulting ise given in Part 1	<u>Diabetes Mellitus with</u> <u>retinopathy</u>	<u>Years</u>

#### Notes on medical certification of cause of death:

- THIS CASE SHOULD BE REFERRED TO FORENSIC PATHOLOGY SERVICES, BECAUSE IT IS AN UNNATURAL DEATH.
- Where the underlying cause of death is due to external causes, information regarding the circumstances is required.
- Details of PLACE OF OCCURRENCE (e.g. 'at home', 'in a hospital', etc.) and the ACTIVITY (e.g. 'while washing car', 'while walking to the bathroom', etc.) at the time of injury should be stated.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Approximate interval Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the between onset and death (Days, months, years) mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line **IMMEDIATE CAUSE (final disease or** a) Klebsiella Pneumoniae **Days** condition resulting in death) aspiration pneumonia Due to (or as a consequence of) Sequentially list conditions, if any, **b** Acute cerebrovascular **Days** leading to immediate cause accident Due to (or as a consequence of)

	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) <u>Possible cerebral</u> <u>atherosclerosis</u> Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1	Diabetes Mellitus	<u>15 years</u>
		<u>Dyslipidaemia</u>	<u>10 years</u>
		Alcoholism	20 years

#### Notes on medical certification of cause of death:

In view of the history of dyslipidaemia "Possible cerebral atherosclerosis" was included as the cause of the ischemic stroke even though this was not mentioned in the case scenario.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Pericardial tuberculosis</u> Due to (or as a consequence of)	<u>Months</u>
	Sequentially list conditions, if any, leading to immediate cause	b) Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1	<u>Type 1 Diabetes Mellitus</u>	<u>Years</u>

#### Notes on medical certification of cause of death:

 In this case, Type 1 Diabetes Mellitus was not considered to be the direct cause of the tuberculosis, but could have contributed to the patient's poor immune response to the disease.

Main disease or condition in foetus or infant	Anencephaly
Other diseases or conditions affecting foetus or infant	
Main maternal disease or conditions affecting foetus or infant	No identified maternal conditions
Other maternal disease or conditions affecting foetus or infant	
Other relevant factors	Polyhydramnios

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Septicaemia</u> Due to (or as a consequence of)	<u>1 day</u>
	Sequentially list conditions, if any, leading to immediate cause	b) <u>Acute pancreatitis</u> Due to (or as a consequence of)	<u>Days</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) <u>Cholecystitis</u> Due to (or as a consequence of)	<u>Days</u>
		d) <u>Gallstones</u> Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1	Chronic Alcoholism	Years

#### Notes on medical certification of cause of death:

 In this case, the gallstones caused the cholecystitis and subsequent obstructive acute pancreatitis which led to the final septicaemia. It would be acceptable to leave out the septicaemia on line a) as it is a mechanism. In this case it was included for clarity.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line Approximate interval between onset and death (Days, months, years)

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Tuberculous meningitis</u> Due to (or as a consequence of)	<u>Months</u>
	Sequentially list conditions, if any, leading to immediate cause	b) <u>Miliary tuberculosis</u> Due to (or as a consequence of)	<u>Months</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) <u>Acquired Immunodeficiency</u> <u>Syndrome</u> Due to (or as a consequence of)	<u>Months</u>
		d) <u>Human Immunodeficiency</u> <u>Virus</u> Due to (or as a consequence of)	<u>Months</u>
2	Other significant conditions		

Part 2 Other significant conditions contributing to death but not resulting in the cause given in Part 1

#### Notes on medical certification of cause of death:

• One could use HIV/AIDS for line c).

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Pseudomonas cystitis</u> Due to (or as a consequence of)	<u>2 days</u>
	Sequentially list conditions, if any, leading to immediate cause	b) <u>Indwelling catheter for</u> <u>neurogenic bladder</u> Due to (or as a consequence of)	
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) <u>Multiple sclerosis</u> Due to (or as a consequence of)	<u>2 Years</u>
		d)Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

#### Notes on medical certification of cause of death:

Although "Indwelling catheter for neurogenic bladder" is not a disease as such, it clarifies the course of events in this case. It would also be acceptable to simply say "neurogenic bladder", and leave "indwelling catheter" out.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Approximate interval Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the between onset and death (Days, months, years) mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line IMMEDIATE CAUSE (final disease or a) Haemorrhage from gastric 1 day condition resulting in death) erosions Due to (or as a consequence of)

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	Sequentially list conditions, if any, leading to immediate cause.	b) <u>Thrombocytopenia</u> Due to (or as a consequence of)	<u>5 years</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) <u>Myelofibrosis</u> Due to (or as a consequence of)	<u>5 years</u>
		d) Due to (or as a consequence of)	
2	Other significant conditions		

Part 2 contributing to death but not resulting in the cause given in Part 1

#### Notes on medical certification cause of death:

- A mechanism may be written on the very first line, IF it is followed by a proper disease as underlying cause of death.
- In this case, haemorrhage from gastric erosions is the mechanism of death with thrombocytopenia the intermediate condition causing the bleeding and myelofibrosis the underlying disease.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Intracerebral haemorrhage</u> Due to (or as a consequence of)	<u>Minutes</u>
	Sequentially list conditions, if any, leading to immediate cause	b) <u>Uncontrolled hypertension</u> Due to (or as a consequence of)	<u>Days</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	Due to (or as a consequence of)	
		Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the course given in Bort 4	Angina	<u>5 years</u>
	in the cause given in Part 1	<u>Osteoarthritis</u>	<u>Years</u>

Notes on medical certification on cause of death:

• Hypertensive stroke *due to* uncontrolled hypertension would also be correct.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Uterine haemorrhage</u> Due to (or as a consequence of)	<u>Hours</u>
	Sequentially list conditions, if any, leading to immediate cause	b) <u>Incomplete spontaneous</u> <u>abortion</u> Due to (or as a consequence of)	<u>2 days</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1	Chronic rheumatic heart disease	<u>Years</u>
		<u>Hypertension</u>	Years

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 2

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line Approximate interval between onset and death (Days, months, years)

IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Acute cerebrovascular</u> <u>accident</u> Due to (or as a consequence of)	<u>2 days</u>
Sequentially list conditions, if any, leading to immediate cause	b) <u>Endocardial vegetations</u> (Due to (or as a consequence of)	<u>Unknown</u>
Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) <u>Mitral stenosis</u> Due to (or as a consequence of)	<u>Years</u>
	d) <u>Rheumatic Heart Disease</u> <u>(inactive)</u>	<u>14 years</u>
	Due to (or as a consequence of)	
Other significant conditions contributing to death but not resulting in the cause given in Part 1	<u>Pregnant</u>	<u>4 months</u>

#### Notes on certification of cause of death

- One assumes that an embolus from the endocardial vegetations on the mitral valve caused the cerebrovascular accident
- The pregnancy contributed to the death, but is not related to the pre-existing condition. It should be reported in Part 2.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Approximate interval Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the between onset and death (Days, months, years) mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line **IMMEDIATE CAUSE (final disease or** a) Hyperosmolar non-ketotic 7 days condition resulting in death) coma Due to (or as a consequence of) Sequentially list conditions, if any, b) Diabetes Mellitus 15 years leading to immediate cause Due to (or as a consequence of) Enter UNDERLYING CAUSE last c) (disease or injury that initiated events Due to (or as a consequence of) leading to death) d) Due to (or as a consequence of) Part 2 Other significant conditions **Hypertension** 10 years contributing to death but not resulting in the cause given in Part 1 Systemic Lupus Erythematosus 35 years

#### Notes on medical certification of cause of death

- In this case, Hypertension and Systemic Lupus Erythematosus would both be considered factors that contributed to the death. However, they would not be the direct causal sequence of Part 1, so they would be placed in Part 2.
- Diabetes Mellitus contributed directly to the terminal cause of death and therefore forms part of the causal sequence in Part 1.

Main disease or condition in foetus or infant	Intraventricular Haemorrhage
Other diseases or conditions affecting foetus or infant	Respiratory distress syndrome Retarded foetal growth
Main maternal disease or conditions affecting foetus or infant	Placental Insufficiency
Other maternal disease or conditions affecting foetus or	Caesarean Section
infant	Bacteriuria in pregnancy
Other relevant factors	

### Notes on medical certification of cause of death

• The placental insufficiency was the main maternal condition that affected the foetus, however the intraventricular haemorrhage superseded the effects of the growth retardation in causing death.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		Approximate interval between onset and death (Days, months, years)
	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Tetanus infection</u> Due to (or as a consequence of)	<u>2 weeks</u>
	Sequentially list conditions, if any, leading to immediate cause	b) <u>Infected puncture wound right</u> <u>foot</u> Due to (or as a consequence of)	<u>2 weeks</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) <u>Stepped on nail whilst working</u> <u>in fields</u> Due to (or as a consequence of)	<u>2 weeks</u>
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1		

#### Notes on medical certification of cause of death

- THIS CASE SHOULD BE REFERRED TO FORENSIC PATHOLOGY SERVICES, BECAUSE IT IS AN UNNATURAL DEATH.
- Where the underlying cause of death is due to external causes, information regarding the circumstances is required.
- Details of PLACE OF OCCURRENCE (e.g. 'at home', 'in a hospital', etc.) and the ACTIVITY (e.g. 'while washing car', 'while walking to the bathroom', etc.) at the time of injury should be stated.
- In this case the decedent contracted tetanus during his work activity. This must be reported in the appropriate sequence in Part 1.

#### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

Part 1 Enter the disease, injuries or complications that caused the death. Do not enter the between onset and death mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line

	IMMEDIATE CAUSE (final disease or condition resulting in death)	a) <u>Haemophilus influenzae</u> pneumonia Due to (or as a consequence of)	<u>7 days</u>
	Sequentially list conditions, if any, leading to immediate cause	b) <u>Emphysema</u> Due to (or as a consequence of)	<u>5 years</u>
	Enter UNDERLYING CAUSE last (disease or injury that initiated events leading to death)	c) Due to (or as a consequence of)	
		d) Due to (or as a consequence of)	
Part 2	Other significant conditions contributing to death but not resulting in the cause given in Part 1	_ <u>Smoking</u>	<u>Years</u>
		Coronary Artery Disease	<u>10 years</u>