



SOUTH AFRICAN NATIONAL CAUSE-OF-DEATH VALIDATION PROJECT

MEDICAL CERTIFICATION OF CAUSE-OF-DEATH: HOME ASSIGNMENT

SAMRC BURDEN OF DISEASE RESEARCH UNIT | JULY 2020



HA: CASE SCENARIO 1

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.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Acute myocardial infarction	5 days
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Coronary atherosclerosis	years
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Parkinsons disease	Months
<i>*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.</i>		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 2

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 an intensive care nursery but died during the first day of life. Chest X-ray had shown dense lung fields consistent with severe hyaline membrane disease.



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



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Hyaline membrane disease	1 day
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b)	
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Extreme immaturity	
<i>*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.</i>		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn	Spontaneous premature labour	700 g



HA: CASE SCENARIO 3

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.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Myocardial infarction	Immediate
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Ischaemic heart disease	5 yrs
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Hypertension	20 yrs
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 4

A man died of cerebral haemorrhage because of secondary hypertension from chronic pyelonephritis. The chronic pyelonephritis was a result of outflow obstruction, which was because of benign prostatic hyperplasia. He also had a history of diabetes mellitus, which had been diagnosed five years before his death



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Cerebral Haemorrhage	
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Secondary hypertension	
	<i>due to</i>	
	c) Chronic pyelonephritis	
	<i>due to</i>	
	(d) Benign prostatic hyperplasia	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Diabetes mellitus	5 yrs
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 5

A 56-year old man dies from abscess of the lung after five days, which resulted from lobar pneumonia of the left lung (two weeks).



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Lung abscess	5 days
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Left lobar pneumonia	2 weeks
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it		
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 6

A 23-year-old man dies from traumatic shock one hour after after sustaining multiple fractures when he was hit by a truck while walking along the road.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH

	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Traumatic shock	
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Multiple fractures	1 hr
	<i>due to</i>	
	c) Pedestrian accidentally hit by a truck	1 hr
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it		
<i>*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.</i>		
FOR WOMEN		
If a female , was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown ___	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown ___	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 7

A 36-year-old man with chronic alcoholism for 10 years and a previous history of duodenal ulcers (for three years) was admitted to the hospital with acute abdominal pain and high fever. Initial chest x-rays showed free air under both domes of his diaphragm. He was diagnosed with peritonitis from peptic ulcer perforation. Emergency exploratory laparotomy on his first day of admission showed a 2cm duodenal ulcer size on the anterior wall of the first part of the duodenum. Five days later, the patient had high fever with chills, and his abdominal ultrasound revealed sub-phrenic abscess under the right diaphragm. A revision exploratory laparotomy was planned. However the patient suddenly showed signs of septic shock that night, had a sudden cardiac arrest, and died within two hours of septic shock.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Septic shock	2 hrs
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Sub-phrenic abscess	1 day
	<i>due to</i>	
	c) Peritonitis	6 days
	<i>due to</i>	
	(d) Duodenal ulcer perforation	6 days
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Chronic alcoholism	10 yrs
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 8

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 spontaneously 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.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Truncus arteriosus	2 days
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b)	
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Hypoglycaemia	
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS	Diabetes mellitus	Birthweight (g)
State conditions of the mother that affected the fetus and newborn	Megaloblastic anaemia	3200

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



HA: CASE SCENARIO 9

A 58-year-old man presented at a clinic with a long history of haemoptysis and weight loss. The diagnosis was advanced pulmonary tuberculosis, reactivation type with cavitations, perhaps of eight years duration. The patient also suffered from generalised arteriosclerosis, probably of long duration. Directly after the admission, the patient had an acute and massive pulmonary haemorrhage and died about 10 hours later.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH

	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Pulmonary haemorrhage	10 hrs
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Pulmonary tuberculosis	8 yr
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Arteriosclerosis	
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female , was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown ___	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown ___	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 10

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.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH

	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Septicaemia	1 day
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Acute pancreatitis	2 days
	<i>due to</i>	
	c) Gallstones	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Chronic alcoholism	
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female , was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 11

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.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH

	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Congestive cardiac failure	5 yrs
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Ischaemic heart disease	8 yrs
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Hypertension	20 yrs
	Diabetes mellitus	15 yrs
<i>*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.</i>		
FOR WOMEN		
If a female , was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 12

A 60-year-old hypertensive patient was admitted to the surgical casualty ward with severe abdominal pain and vomiting, which had lasted for one week. She was diagnosed as having strangulated femoral hernia with a bowel perforation. She underwent surgery to release the hernia and resect the intestine, with an end-to-end anastomosis. Two days after the surgery she developed signs of peritonitis and she died two days later.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Peritonitis	2 days
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Bowel perforation	4 days
	<i>due to</i>	
	c) Strangulated femoral hernia	11 days
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Hypertension	years
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 13

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.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Pulmonary embolus	1 day
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Intertrochanteric fracture R hip	8 days
	<i>due to</i>	
	c) Accidental fall tripped over a rug	8 days
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Type 2 Diabetes mellitus with retinopathy	
		20 yrs
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown ___	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown ___	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		



HA: CASE SCENARIO 14

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 a cause of death certificate for the fetus.



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

INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) Anencephaly	
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b)	
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it		
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female , was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		1500

HA: CASE SCENARIO 15

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 alterans. 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.



INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE OF CAUSE OF DEATH		
	Cause of death	Approximate interval between onset and death
Part I		
Disease or condition directly leading to death*	a) TB Pericarditis	1week
	<i>due to</i>	
Antecedent causes		
Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	b) Pulmonary TB	8 months
	<i>due to</i>	
	c)	
	<i>due to</i>	
	(d)	
Part II		
Other significant conditions contributing to the death, but not related to the disease or condition causing it	Type 1 Diabetes mellitus with retinopathy	
*This does not mean the mode of dying e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.		
FOR WOMEN		
If a female, was she pregnant at the time of death or up to 42 days prior to death?	Yes ___ No ___ Unknown _____	
Did pregnancy contribute to the death	Yes ___ No ___ Unknown _____	
FOR PERINATAL DEATHS		Birthweight (g)
State conditions of the mother that affected the fetus and newborn		

