

MEDICAL CERTIFICATION OF CAUSE-OF-DEATH: CLASS ASSIGNMENT

SAMRC BURDEN OF DISEASE RESEARCH UNIT | JULY 2020











- A 68-year-old male was admitted to the hospital with progressive right lower quadrant pain of several weeks' duration. The patient had lost approximately 40 pounds, with progressive weakness and malaise.
- On physical examination, the patient had an enlarged liver span that was four finger breadths below the right costal margin. Rectal examination was normal and stool was negative for occult blood.
- Routine laboratory studies were within normal limits. A chest x ray and barium enema were negative. His ECG showed a right bundle branch block. CT scan showed numerous masses within both lobes of the liver. A needle biopsy of the liver was diagnostic of moderately differentiated hepatocellular carcinoma, and the patient was started on chemotherapy.
- Three months after the diagnosis, the patient developed sharp diminution of liver function as well as a deep venous thrombosis of his left thigh, and he was admitted to the hospital. On his third day, the patient developed a pulmonary embolism and died 30 minutes later.







Cause of death		Approximate interval between
Disease or condition directly leading to death*	Pulmonary Embolism (a)	30 minutes
	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	Deep vein thrombosis in the left thigh (b)	3 days
giving rise to the above cause,	due to (or as a consequence of)	
stating the underlying condition last	Acute Hepatic Failure (c)	3 days
	due to (or as a consequence of)	
	Hepatocellular Carcinoma	More than 3 months
Other significant conditions contributing to the death, but	Right bundle branch block	
not related to the disease or condition causing it		
*This does not mean the mode of dying the means the disease, injury, or complete.	ng, e.g. heart failure, respiratory failure. lication that caused death.	

- A 75-year-old female had a 15-year history of noninsulin-dependent diabetes mellitus, a 13-year history of mild hypertension treated with thiazide diuretics, and an uncomplicated myocardial infarction 6 years prior to the present illness.
- She was found disoriented in her apartment and brought to the hospital. On admission she was noted to be unresponsive, without focal neurologic signs, and severely dehydrated with a blood pressure of 90/60. Initial laboratory tests disclosed severe hyperglycemia, hyperosmolarity, azotemia, and mild ketosis without acidosis. A diagnosis of hyperosmolar nonketotic coma was made.
- The patient was vigorously treated with fluids, electrolytes, insulin, and broad-spectrum antibiotics, although no source for infection was documented. Within 72 hours, the patient's hyperosmolar, hyperglycemic state was resolved. However, she remained anuric with progressive azotemia. Attempts at renal dialysis were unsuccessful, and the patient died on the 8th hospital day in severe renal failure.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a) Acute Renal failure	5 days
loading to double	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	(b) Hyperosmolar non ketotic coma	8 days
giving rise to the above cause, stating the underlying	due to (or as a consequence of)	
condition last	(c)Diabetes.Mellitus Non Insulin Dependant	15 years
	due to (or as a consequence of)	
	(d)	
Other significant conditions contributing to the death, but	Hypertension	13 years
not related to the disease or condition causing it	Past Myocardial infarction	6 years
*This does not mean the mode of dying It means the disease, injury, or compli	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- A 53-year-old male was admitted to the hospital following 2 days of intermittent mid epigastric and left-sided chest pain. The pain radiated to his left arm and was accompanied by nausea and vomiting.
- He gave a history that included 2 years of occasional chest discomfort, a near syncopal episode 6 months prior, hypertension, a 30-year history of one-pack-per-day cigarette smoking, congenital blindness, and insulindependent diabetes mellitus. He was noted to be markedly obese and to have severe hypercholesterolemia.
- At the time of admission, his enzyme studies were normal, but the ECG suggested myocardial ischemia. Two days later, he experienced an episode of severe chest pain that did not respond to nitroglycerin and was accompanied by ST-segment elevation. A cardiac catheterization demonstrated severe multi vessel coronary artery stenosis. He underwent quadruple coronary artery bypass surgery. Shortly, after being taken off the cardiopulmonary bypass machine, he went into cardiac arrest.
- Despite all attempts at resuscitation patient died.







Cause of death		Approximate interval between
1	Acute myocardial infarction	onset and death
Disease or condition directly leading to death*	(a)	
	due to (or as a consequence of) Coronary Atherosclerosis	
Antecedent causes Morbid conditions, if any,	(b)	
giving rise to the above cause, stating the underlying	due to (or as a consequence of)	
condition last	(c)	
	due to (or as a consequence of)	
	(d)	
II	Hypertension,	
Other significant conditions	Cigarette·smoker·······	
contributing to the death, but not related to the disease or	Insulin-dependent diabetes mellitus	
condition causing it	Cardiac bypass surgery Obesity	
*This does not mean the mode of dying It means the disease, injury, or compli	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- A 1480 g infant was born at 32-weeks gestation to a 20-year-old primiparous woman.
- The infant developed respiratory distress syndrome and required mechanical ventilation for 7 days. Despite receiving adequate calories for growth, the infant gained weight poorly and had persistent diarrhea.
 Steatorrhea was confirmed upon microscopic examination.
- Results from a sweat chloride test given on the 21st day after birth were negative, but the patient had an elevated sweat chloride concentration of 85 millimoles per liter when the test was repeated at 35 days of age.
- On the 37th day after birth, the infant became lethargic and was noted to be edematous. Escherichia coli was cultured from the infant's cerebral spinal fluid, total serum proteins were reported to be low, and clotting studies were prolonged. The infant died at 45 days of age despite appropriate life-saving efforts.
- Gross autopsy confirmed the clinical impression of cystic fibrosis.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a) Escherichia Coli Meningitis	.7.days
	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	(b) Failure to thrive	
giving rise to the above cause,	due to (or as a consequence of)	
stating the underlying condition last	Cystic Fibrosis	45 days
	due to (or as a consequence of)	
	(d)	
	Prematurity, malabsorption,respiratory distress syndrome,	
not related to the disease or condition causing it		
*This does not mean the mode of dy It means the disease, injury, or com	ving, e.g. heart failure, respiratory failure. plication that caused death.	

- A 30-year-old, gravida-six, para-five, with a history of gestational hypertension, reported to the emergency room at 36 weeks gestation with complaints of abdominal cramping and light vaginal bleeding during the past 12 hours. At time of first assessment, fetal heart tones were detected.
- The uterus was tense, irritable, and tender. The mother was hypotensive with tachycardia. Apresumptive diagnosis of abruptio placenta was made, and an emergency cesarean section was performed under general anesthesia. The baby was stillborn.
- The mother continued to bleed from her uterus and phlebotomy sites and went into profound shock secondary to disseminated intravascular coagulation.
- Despite administration of blood and clotting factors, intravascular pressure could not be maintained, and the mother died on the operating table.
 Maternal autopsy confirmed the clinical diagnosis.







Cause of death		Approximate interval between
Disease or condition directly leading to death*	Hemorrhagic shock (a)	onset and death Minutes
Antecedent causes Morbid conditions, if any, giving rise to the above cause,	due to (or as a consequence of) Disseminated Intravascular (b) Coagulation	Probably a 'hour'
stating the underlying condition last	Placental Abruption (c) due to (or as a consequence of)	More than 13 hours
	(d)	
Other significant conditions contributing to the death, but	Pregnancy induced hypertension	
not related to the disease or condition causing it		
*This does not mean the mode of dying It means the disease, injury, or compli	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- A 92-year-old male was found dead in bed. He had no significant medical history.
- Autopsy disclosed minimal coronary disease and generalized atrophic changes commonly associated with aging.
- No specific cause of death was identified.
- Toxicology was negative.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a)ed natural cause	Unknown
loading to death	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	(b)	
giving rise to the above cause, stating the underlying	due to (or as a consequence of)	
condition last	(c)	
	due to (or as a consequence of)	
	(d)	
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 It means the disease, injury, or complete	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- A 68-year-old female was admitted to the ICU with dyspnea and moderate retro-sternal pain of 5-hours duration, and the pain did not respond to nitroglycerin.
- There was a past history of obesity, noninsulin-dependent diabetes mellitus, hypertension, and episodes of non exertional chest pain, diagnosed as angina pectoris, for 8 years.
- Over the first 72 hours, she developed a significant elevation of the MB isoenzyme of creatine phosphokinase, confirming an acute myocardial infarction. A Type II second-degree AV block developed, and a temporary pacemaker was put in place.
- She subsequently developed dyspnea with fluid retention and cardiomegaly on chest radiograph. She developed a cardiac arrest on the 4th day and she became unresponsive and resuscitation efforts were unsuccessful.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a) Acute myocardial infarction	4 days
	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	(b) Chronic Ischemic Heart Disease	8 years
giving rise to the above cause, stating the underlying	due to (or as a consequence of)	
condition last	(c)	
	due to (or as a consequence of)	
	(d)	***************************************
Other significant conditions Obesity, Noninsulin-dependent contributing to the death, but diabetes mellitus, Hypertension not related to the disease or		Unknown
condition causing it		
*This does not mean the mode of dying It means the disease, injury, or compli	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- A 78-year-old female with a temperature of 102.6°F was admitted to the hospital. She has had a cerebro-vascular accident, 2 years back which left her with a residual left hemiparesis. Over the next year, she became increasingly dependent on others to help with her activities of daily living, eventually requiring an in-dwelling bladder catheter 6 months before the current admission.
- For the 3 days prior to admission, she was noted to have lost her appetite and to have become increasingly withdrawn.
- On admission to the hospital her leukocyte count was 19,700, she had pyuria, and gram-negative rods were seen on a gram stain of urine. Ampicillin and gentamicin were administered intravenously.
- On the third hospital day, admission blood cultures turned positive for Pseudomonas aeruginosa, which was resistant to ampicillin and gentamicin. Antibiotic therapy was changed to ticarcillin clavulanate, to which the organism was sensitive.
- Despite the antibiotics and intravenous fluid support, the patient's fever persisted. On the fourth hospital day, she became hypotensive and died.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a) Sepsis due to Psuedomonas Aeruginosa	Days
	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	Urinary tract infection due to (b) . Psuedomonas Aeruginosa	Days
giving rise to the above cause,	due to (or as a consequence of)	
stating the underlying condition last	In-dwelling bladder catheter (c)	6 months
	due to (or as a consequence of)	
	Old Cerebro-vascular accident (d)	2 years
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 lt means the disease, injury, or complete.	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- A 34-year-old male was admitted to the hospital with severe shortness of breath. He had a 9-month history of unintentional weight loss, night sweats, and diarrhea. The patient had no history of any medical condition that would cause immunodeficiency.
- An Elisa test and confirmatory Western Blot test for human immunodeficiency virus (HIV) were positive. T-lymphocyte tests indicated a low T helper -suppressor ratio. A lung biopsy was positive for pneumocystis carinii pneumonia (PCP), indicating a diagnosis of acquired immunodeficiency syndrome (AIDS).
- The patient's pneumonia responded to pentamidine therapy, and the patient was discharged. The patient had two additional admissions for PCP. Seventeen months after the patient was first discovered to be HIV positive, he again developed PCP but did not respond to therapy. He died 2 weeks later.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a) Pneumocystis carinii pneumonia	2 weeks
	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	(b) Acquired immunodeficiency syndrome (A1DS)	17 months
giving rise to the above cause,	due to (or as a consequence of)	
stating the underlying condition last	Human immunodeficiency virus (c)	More than 17 months · · · · · ·
	due to (or as a consequence of)	
	(d)	
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 It means the disease, injury, or complic	g, e.g. heart failure, respiratory failure. cation that caused death.	

- A 75-year-old male had a 10-year history of chronic bronchitis associated with smoking two packs of cigarettes a day for more than 40 years. When seen by his physician approximately 2 years prior to his terminal episode, he had moderately reduced FEV¹ and FVC with no response to bronchodilators.
- During his last year, he required corticosteroids to prevent wheezing and coughing at night; however, he was unable to reduce his smoking to less than one pack of cigarettes per day.
- When seen 3 months prior to his terminal episode, he had significantly reduced FEV¹ and FVC with no response to bronchodilators. He awoke one evening complaining to his wife about coughing and worsening shortness of breath. He was taken to the emergency room where he was found to have an acute exacerbation of obstructive airway disease. He was admitted to the hospital. At the patient's request, no mechanical ventilation was employed, and he died 12 hours later in respiratory arrest.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	Acute exacerbation of chronic (a) obstructive airway disease	12 hours
iodag to dod	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	(b) Chronic Bronchitis	10 years
giving rise to the above cause, stating the underlying	due to (or as a consequence of)	
condition last	(c)	
	due to (or as a consequence of)	
	(d)	
Other significant conditions contributing to the death, but	Cigarette smoking	More than 40 years
not related to the disease or condition causing it		
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- On 03.01.2007 a 60 year old female was admitted with a "Strangulated Femoral Hernia" which had started 4 day earlier.
- She came complaining of abdominal pain and fecal vomits. Clinical diagnosis of perforated intestine was made by the surgeon.
- On 4th January, she underwent a release of hernia and the resection of the intestines, with an end to end "Anastomosis".
- On 5th January, she started developing signs of "peritonitis", and following that died on 14.01.2007







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a) Peritonitis, acute	9.days
	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any,	(b)intestines	12 days
giving rise to the above cause,	due to (or as a consequence of)	
stating the underlying condition last	(c) Strangulated Femoral Hernia	. 14 days
	due to (or as a consequence of)	
	(d)	
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 the means the disease, injury, or complete.	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- On 14.01.2006 an 84 year old man slipped on same level and fell down, resulting in fractures. After being admitted for care, fractures of the left Ischium and Ilium were reduced.
- Due to prolonged inactivity he developed "Bronchopneumonia" on 15th February and died 6 days later.
- Autopsy revealed also fractured hip and pelvis, cardiac hypertophy, chronic fibrous myocarditis and coronary sclerosis.







Cause of death		Approximate interval between onset and death
1	Bronchopneumonia	6 days
Disease or condition directly leading to death*	(a)	
	due to (or as a consequence of)	
Antecedent causes	Fracture of left Ischium & Ilium (b)	7 days
Morbid conditions, if any, giving rise to the above cause,	due to (or as a consequence of)	
stating the underlying	Accidental Fall	7
condition last	(c)	days
	due to (or as a consequence of)	
	(d)	
11	Chronic fibrous	
Other significant conditions	myocarditis	Ųnknown
contributing to the death, but not related to the disease or	and coronary sclerosis.	
condition causing it		
*This does not mean the mode of dying the means the disease, injury, or complete.	ng, e.g. heart failure, respiratory failure. ication that caused death.	

- On February 1st 2004, a 58 year old man presented at a clinic complaining of long duration "haemoptysis" and loss of weight. On examination he was found actually anaemic and therefore admitted in hospital.
- The diagnosis was advanced pulmonary TB, reactivation type with cavitation, perhaps of 8 year duration. The patient also suffered from generalised arteriosclerosis, probably of long duration. He also had moderate varicose veins of the lower extremity.
- On admission, the patient developed an acute and massive pulmonary haemorrhage and he died that evening.







Cause of death		Approximate interval between onset and death
Disease or condition directly leading to death*	(a) Pulmonary haemorrhage	10.hours
	due to (or as a consequence of)	
Antecedent causes Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last	(b) Advanced pulmonary	8 years
	due to (or as a consequence of)	
	(c)	
	due to (or as a consequence of)	
	(d)	
Other significant conditions contributing to the death, but Generalized arteriosclerosis and varicose veins of lower extremity.		Unknown
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.		