

Alzheimer's Disease and Other Related Dementias: ACCURACY OF DEATH CERTIFICATION

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Why do we need this presentation?

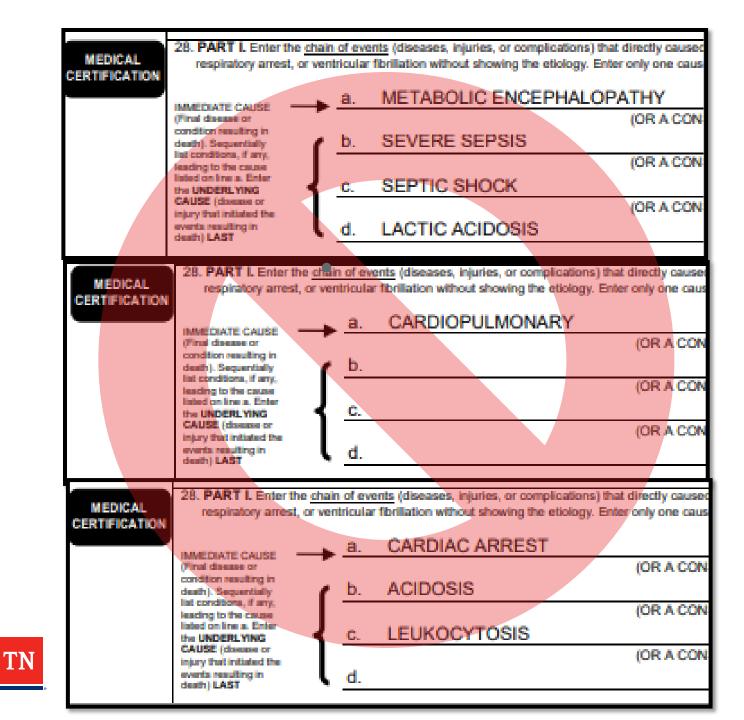
- Nationwide, around 50% of death certificates contain a major error affecting ICD-10 coding of diseases or disorders
 - Of these, around 60% have incorrect or missing information for the underlying cause of death
- Recent survey of Tennessee physicians:
 - Nearly half (46%) of respondents indicated they had never received formal training on death certification
 - Nearly 90% of respondents indicated a need for training in the death certification process in Tennessee



Accuracy and Timeliness in Death Certification

- The death certificate must be completed <u>before final</u> <u>disposition</u> of the body; delay in completing and signing may interfere with funeral arrangements and in settling estates
- Significant implications in <u>death benefits</u> paid to families (for example, workers' compensation claims; double indemnity payments in cases of accidental death; FEMA burial benefits)
- The death certificate is the source of information for regional, state, and national <u>mortality data</u>, which in turn is used for funding and directing research and public health efforts





Medical certification of death

Certificate registered with state by funeral home CDC assigns ICD-10 codes

(one underlying cause of death and up to 20 additional multiple causes of death)

Mortality data



Jurisdiction: Who Should Complete and Sign the Death Certificate?

- In most **natural** deaths, a treating physician is responsible for the medical certification of death, <u>including deaths which occur outside of</u> <u>health care facilities or in which the physician</u> <u>is not physically present</u>
- The medical examiner may assume jurisdiction only under certain circumstances



Jurisdiction: Who Should Complete and Sign the Death Certificate?

- Non-medical examiner cases will be signed by "the physician in charge of the patient's care for the illness or condition that resulted in death...In the absence of the physician, the certificate may be completed and signed by another physician designated by the physician" (TCA 68-3-502)
- Certifier is immune from civil suit if completed in good faith; failure to do so may result in discipline of medical license



The medical certification of death is to be completed within _____ of death

A.30 days B.5 days C.48 hours D.96 hours

C. 48 hours



Tennessee Medical Examiner System

State Chief Medical Examiner (education and training of county MEs and MDIs; record-keeping; mass fatalities/public health threats)

Regional Forensic Centers (five; staffed by board-certified forensic pathologists; perform autopsies)

County Medical Examiners and Investigators (county ME must be licensed MD or DO; MDI must be RN, PA, EMS, or ABMDI registry or diplomate) ALL AUTHORITY RESTS AT THE COUNTY LEVEL



Medical Examiner Certification of Death

- The county medical examiner for the county in which the death occurred should be notified in "any case involving a homicide, a suspected homicide, a suicide, or a violent, unnatural, or suspicious death" (TCA 38-7-106 and 38-7-108)
- Examples include:
 - Deaths due or related to acute overdose of legal or illegal drugs and/or alcohol
 - Deaths due to drowning
 - Deaths due to thermal or chemical burns, or smoke inhalation
 - Death by disease, injury, or toxicity resulting from employment
 - Deaths due to hypo- or hyperthermia
- In such cases, the county medical examiner "shall investigate and certify the death certificate" (TCA 68-3-502-d)
- Deaths of prisoners
- Sudden unexplained deaths in people with no known medical process(es) which could reasonably account for death



Medical Examiner Certification of Death: Delayed Non-natural Deaths

- If any external force or entity is related <u>in any way</u> to death, the manner of death <u>cannot</u> be considered natural
- <u>All non-natural deaths fall under medical examiner jurisdiction</u>
 - Jurisdiction is based on the county in which death was pronounced
- The interval of time elapsed between injury and death is irrelevant
- Examples of delayed deaths include:
 - An elderly person who dies months after becoming bedridden after a fall;
 - A person who dies of pneumonia due to paraplegia resulting from a car accident years before;
 - A person who dies a week after an anoxic brain injury caused by choking on food



Major Take-Home Points

- If any discrete, identifiable external force, object, or substance contributed *in any way* to death, the death cannot be considered natural and must be reported to the county medical examiner, regardless of the interval elapsed between the inciting event and death
- The BOTTOM LINE is THE BOTTOM LINE



Physician (Non-ME) Certifiers

- One of the responsibilities of a primary care physician is to provide death certification for his or her patients who die of natural, diagnosed causes, <u>even if the</u> <u>physician was not present at the time of death (TCA</u> <u>68-3-502 (c)(1)</u>
 - If the patient has not been seen by the physician in the four months leading up to death, the physician may still certify the death, or may refer case to the county medical examiner
- Other physicians knowledgeable with patient history may also certify deaths
 - Examples: cardiologist, oncologist, emergency room physician



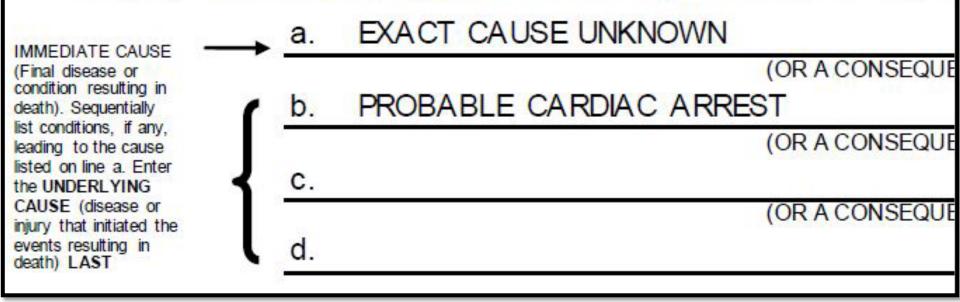
When and Where Death Occurs: Brain Death Equals Death

- T.C.A. 68-3-501 (Uniform Determination of Death Act): death occurs when either:
 - Irreversible cessation of cardiac and respiratory systems occurs; or
 - Irreversible cessation of function of entire brain occurs
- T.C.A. 68-3-502: when a body is discovered dead, the place, date, and time of death are when and where the body was found



Has Death Even Occurred?

28. PART I. Enter the <u>chain of events</u> (diseases, injuries, or complications) that directly caused the de respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a li

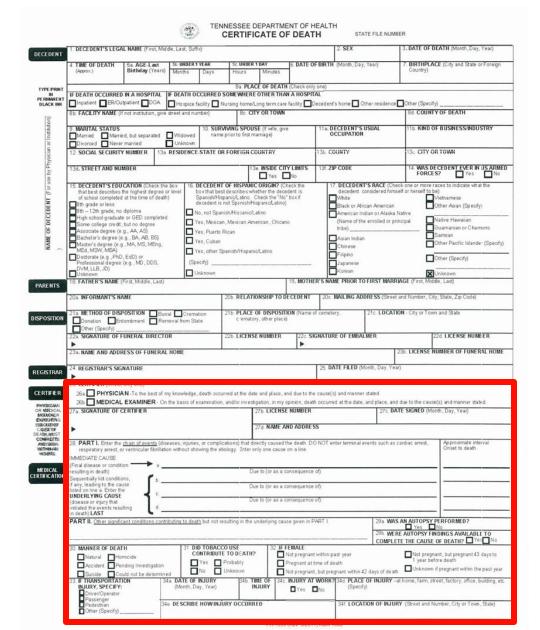




Spelling Counts

 PART I. Enter the <u>chain of even</u> respiratory arrest, or ventricular 	nts such as cardiac arrest, Approximate interva Onset to death	l:	
IMMEDIATE CAUSE (Final disease or condition resulting in death) Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST	a. ACUTE ON CHRONIC RESPIRATORY FAILURE Due to (or as a consequence of) Due to (or as a consequence of) Due to (or as a consequence of) Due to (or as a consequence of): d.		
	s <u>contributing to death</u> but not resulting in the underlying cause given in PART I. ES MELLITUS TYPE TWO	29a· WAS AN AUTOPSY PERFORMED? ☐ Yes ☐ No 29b. WERE AUTOPSY FINDINGS AVAILABLE: T COMPLETE THE CAUSE OF DEATH? ☐ Yes ☐	





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	26. CERTIFIER (Check only one):		· · · · · ·				
CERTIFIER	26a. PHYSICIAN - To the best of	f my knowledge, death occurred at the o	date and place, and due to the cause(s)	and manner stated.			
PHYSICIAN				at the date, and place, and due to the cause(s) and manner stated.		
MEDICAL	27a. SIGNATURE OF CERTIFIER		27b. LICENSE NUMBER	27c. DATE SIGNED (Mon	27c. DATE SIGNED (Month, Day, Year)		
EXAMINER EXECUTING							
CAUSE OF DEATH MUST	▶		27d. NAME AND ADDRESS				
COMPLETE AND SIGN WITHIN 48 HOURS.		liseases, injuries, or complications) that ation without showing the etiology. Ente		er terminal events such as cardiac arrest,	Approximate interval: Onset to death		
	IMMEDIATE CAUSE						
MEDICAL	(Final disease or condition a. resulting in death)		Due to (or as a consequence of)				
CERTIFICATION	Sequentially list conditions,						
	if any, leading to the cause listed on line a. Enter the						
	UNDERLYING CAUSE		Due to (or as a consequence of):				
	(disease or injury that initiated the events resulting d.						
	in death) LAST						
	PART II. Other significant conditions cor	ntributing to death but not resulting in th	ne underlying cause given in PART I.	29a WAS AN AUTOPSY P	ERFORMED?		
				29b. WERE AUTOPSY FINI			
	30. MANNER OF DEATH	31. DID TOBACCO USE	32. IF FEMALE:	COMPLETE THE CAUSE O			
	Natural Homicide	CONTRIBUTE TO DEAT		st year Not pregna	nt, but pregnant 43 days to		
		Yes Probably	Pregnant at time of dea	th 1 year befor	re death		
	Suicide Could not be determi		Not pregnant, but pregn	nant within 42 days of death Unknown if	pregnant within the past year		
	33. IF TRANSPORTATION INJURY, SPECIFY:	34a. DATE OF INJURY 34b.	TIME OF 34c.INJURY AT WORK?	34d. PLACE OF INJURY -at home, farm, str	eet, factory, office, building, etc.		
	Driver/Operator	(Month, Day, Year)		(Specify)			
	Passenger	34e. DESCRIBE HOW INJURY OCCU		34f. LOCATION OF INJURY (Street and Nu	mber City or Town State)		
	Pedestilan	34C. DESCRIDE HOW INJURY OCCU			inder, eny or rown, outer		
	Other (Specify)						

VRISM



MAILING . A D D R E S S Tennessee Office of Vital Records Andrew Johnson Tower, 1st Floor 710 James Robertson Parkway Nashville, TN 37243

PHONE 1-(855) -VRISMTN



TENNESSEE VRISM

The purpose of the Tennessee VRISM system is to support the registration of Tennessee vital events for the Tennessee Department of Health and other users such as funeral directors, attending physicians, medical examiners and birthing facilities. This system may be used only for the purpose for which it is provided. Any attempt to file fraudulent certificates of live birth, death or reports of fetal death is punishable in accordance with Tennessee statutes.

By accessing this system, I agree to use this system only for the purpose of registering a Certificate of Live Birth, Certificate of Death or Report of Fetal Death for events occurring in the State of Tennessee.

I understand that failure to adhere to the above agreement will result in loss of access to the VRISM system. Any unauthorized access, misuse and/or disclosure of information may result in disciplinary action including, but not limited to, suspension or loss of individual or facility access privileges, an action for civil damages, or criminal charges.

LOGIN





<u>Health.VRISM@tn.gov</u> (855) 874-7686 (855) VRISMTN



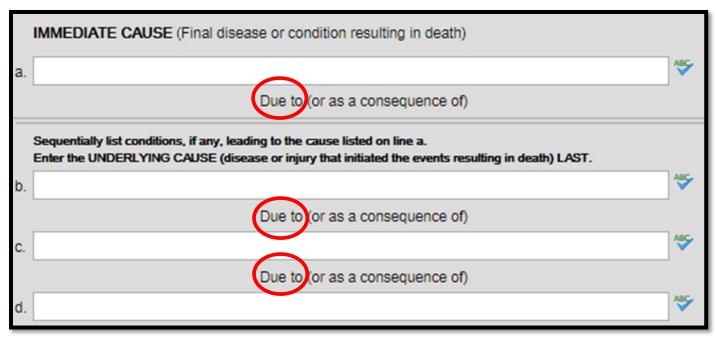
VRISM: Fields for Medical Certifier

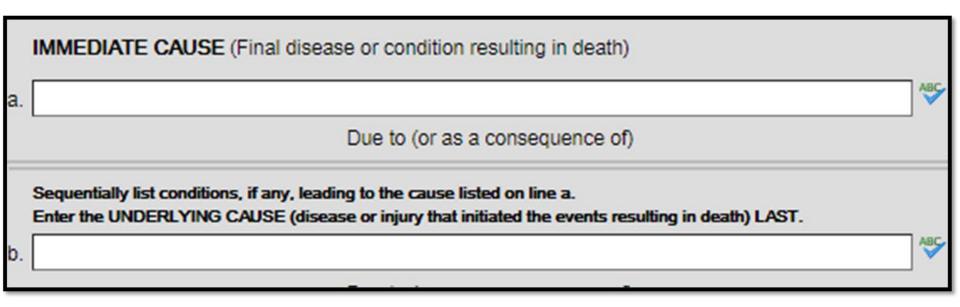
	26. CERTIFIER (Check only one):		-				
CERTIFIER	26a. PHYSICIAN -To the best of m	v knowledge, death occurred at	the date and place	and due to the cause(a)	and manner stated		
	26b. MEDICAL EXAMINER - On					lue to the cause(a) and manner stated
PHYSICIAN OR	27a. SIGNATURE OF CERTIFIER	ute basis of examination, and/or		ISE NUMBER		E SIGNED (Mont	
MEDICAL	27a. SIGNATORE OF CERTIFIER			NSE NUMBER	270. DAT	E SIGNED (MOI	in, Day, Tear)
EXAMINER EXECUTING		10 **Certifie	er**				
CAUSE OF DEATH MUST	▶		- NAME	AND ADDRESS			
COMPLETE AND SIGN	28. PART I. Enter the chain of events (dise	assa injurias or complications)) that directly cause	d the death DO NOT ent	ar terminal events such as or	rdiac arrest	Approximate interval:
WITHIN 48	respiratory arrest, or ventricular fibrillatio				er terminar events such as ce	indiac arrest,	Onset to death
HOURS.	IMMEDIATE CAUSE						
	(Final disease or condition a.						
MEDICAL CERTIFICATION	resulting in death)			a consequence of)			
	Sequentially list conditions, b b	8 **Cause of I	Death**				
	listed on line a. Enter the			a consequence of):			
	UNDERLYING CAUSE C (disease or injury that		Due to (or as	a consequence of):		-	·
	initiated the events resulting d.					7 **Ti	me/Autopsy**
	in death) LAST						f
	PART II. Other significant conditions contri	buting to death but not resulting	in the underlying o	ause given in PART I.	29a- WAS	AN AUTOPSY PI	
					29b. WERE		DINGS AVAILABLE TO
					COMPLET	E THE CAUSE O	F DEATH?
	30. MANNER OF DEATH	31. DID TOBACCO USE	32.1	F FEMALE:		_	
	Natural Homicide	a dada a dan		t within pas	•	Not pregnar 1 year befor	nt, but pregnant 43 days to
	Accident Pending Investigation	9 **Manner/D	etails/Inj	UPY ** * time of dea	th		pregnant within the past year
	Suicide Could not be determine			it, but pregr	nant within 42 days of death		pregnant within the past year
	33. IF TRANSPORTATION 34 INJURY, SPECIFY:			34c.INJURY AT WORK?		it home, farm, str	eet, factory, office, building, etc.
	Driver/Operator	(Month, Day, Year)	INJURY	Yes No	(Specify)		
	Passenger						
	Pedestrian 34	e. DESCRIBE HOW INJURY O	CCURRED		34f. LOCATION OF INJUR	r (Street and Nu	mber, City or Town, State)
	Other (Specify)						



Part I: Cause of Death Statement

- Read from <u>top to bottom</u>: Cause A is due to Cause B is due to Cause C is due to Cause D
- Can use only one line, or two, or three, or all four
- Last diagnosis listed will be coded as <u>underlying cause of death</u>, therefore:
- THE BOTTOM LINE IS THE BOTTOM LINE







Cause of Death Statement

- Cause of death is defined as "the <u>anatomic</u> disease or injury that <u>initiated</u> the train of morbid events leading directly to death"
- The cause of death statement on the death certificate represents the *medical opinion* of the certifier
- More likely than not



I should be _____% certain that my diagnosis in the cause of death statement is correct

A.75%
B.99%
C.100%
D.51%
E.33%

D. 51%More likely than not



"To the best of my knowledge..."

PHYSICIAN-To the best of my knowledge, death occurred at the date, time, and place, and due to the cause(s) and manner stated.

MEDICAL EXAMINER-On the basis of examination, and/or investigation, in my opinion, death occurred at the date, time, and place, and due to the cause(s) and manner stated.

- Tennessee code grants civil immunity to certifying physicians acting in good faith (TCA 68-3-513)
- HOWEVER: physicians who refuse to or consistently fail to comply with rules and laws regarding death certification are subject to disciplinary action on their medical licenses for "unprofessional, dishonorable, or unethical conduct" Rule 0880-02-.14(13); TCA 68-3-502 and 63-9-108



• 56 year old with hypertension suffers a hemorrhagic stroke

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death
a.	HEMORRHAGIC CEREBROVASCULAR ACCIDENT	ABC	
	Due to (or as a consequence of)	_	
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.		
b.	ESSENTIAL HYPERTENSION	ABC	
	Due to (or as a consequence of)		
C.		ABC	
	Due to (or as a consequence of)		
d.		ABC	



• 43 year old receives a bone marrow transplant and develops *C. difficile* colitis

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death
a.	CLOSTRIDIUM DIFFICILE COLITIS	ABC	
	Due to (or as a consequence of)		
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.		
b.	IMMUNOSUPPRESSION	ABC	
	Due to (or as a consequence of)		
C.	BONE MARROW TRANSPLANT	ABC	
	Due to (or as a consequence of)		
d.	ACUTE MYELOGENOUS LEUKEMIA	ABC	



- It may not be possible to identify the precise physiologic sequence (mechanism) leading up to death
- In such cases, the known diagnosis which could reasonably account for death should be listed as the cause
- Example: patient in hospice with metastatic lung cancer

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death	
a.	ADENOCARCINOMA OF LUNG WITH METASTASES TO BRAIN	ABC		
	Due to (or as a consequence of)			
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.			
b.		ABC		
	Due to (or as a consequence of)			
C.		ABC		
	Due to (or as a consequence of)			
d.		ABC		

- It is acceptable to use the terms "probable", "possible", or "suspected"
- Example: 86 year-old with 7 cm abdominal aortic aneurysm found dead at home with distended abdomen

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death
a.	PROBABLE RUPTURED AORTIC ANEURYSM	ABC	
	Due to (or as a consequence of)		
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.		
b.	ATHEROSCLEROTIC CARDIOVASCULAR DISEASE	ABC	
	Due to (or as a consequence of)		
с.		ABC	
	Due to (or as a consequence of)		
d.		ABC	

Cancer-Related Deaths: Do This

- Include:
 - Primary site
 - Cell type, if known
 - Site(s) of metastases, if applicable

	IMMEDIATE CAUSE (Final disease or condition resulting in death)	_	APPROXIMATE INTERVAL: Onset to death
a	. OSTEOSARCOMA OF LEFT FEMUR, METASTATIC TO LUNGS	ABC	
	Due to (or as a consequence of)		
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.		
b		ABC	
	Due to (or as a consequence of)		
C.		ABC	
	Due to (or as a consequence of)		
d		ABC	



28. PART I. Enter the <u>chain of events</u> (diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a line

IMMEDIATE CAUSE	-	a.	ENCEPHALOPATHY
(Final disease or			(OR A CONSEQUENCE OF)
condition resulting in death). Sequentially	(b.	BRAIN RESECTION
list conditions, if any, leading to the cause			(OR A CONSEQUENCE OF)
listed on line a. Enter the UNDERLYING	- -	C.	
CAUSE (disease or injury that initiated the			(OR A CONSEQUENCE OF)
events resulting in death) LAST	ι	d.	



"Complications of..."

IMMEDIATE CAUSE (Final disease or condition resulting in death)

a. COMPLICATIONS OF LEWY BODY DEMENTIA

Due to (or as a consequence of)

Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.

Due to (or as a consequence of)

Due to (or as a consequence of)

d. _____



b.

C.

ABC

ABC

ABC

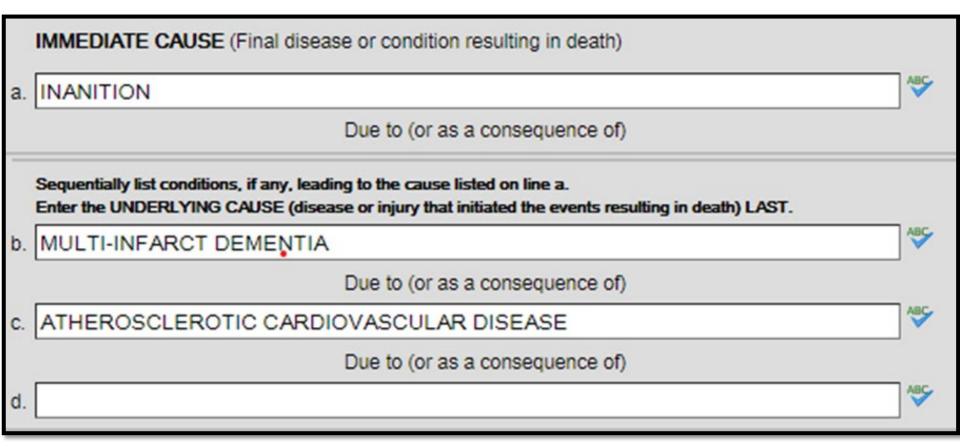
ABC

Aspiration Pneumonia

- Most cases of aspiration pneumonia occur in neurologically compromised patients
- The disease process causing the impairment should be listed as the underlying cause of death

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death
a.	ASPIRATION PNEUMONIA	ABC	
	Due to (or as a consequence of)	_	
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.		
b.	DEMENTIA, NOT OTHERWISE SPECIFIED	ABC	
	Due to (or as a consequence of)		
c.		ABC	
	Due to (or as a consequence of)		
d.		ABC	
_			

Deaths in the Elderly





Deaths due to "Old age"

- It is of little statistical value to list "senescence" or "old age" in the cause of death statement; the demographic information is captured in another part of the death certificate
- If an elderly person is found dead and they truly have no known medical diagnosis to account for death, the death may be certified as shown below (please use sparingly)

	IMMEDIATE CAUSE (Final disease or condition resulting in death)	
a.	UNSPECIFIED NATURAL CAUSES	ABC
	Due to (or as a consequence of)	_
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.	
b.		ABC
	Due to (or as a consequence of)	-
C.		ABC
	Due to (or as a consequence of)	
d.		ABC



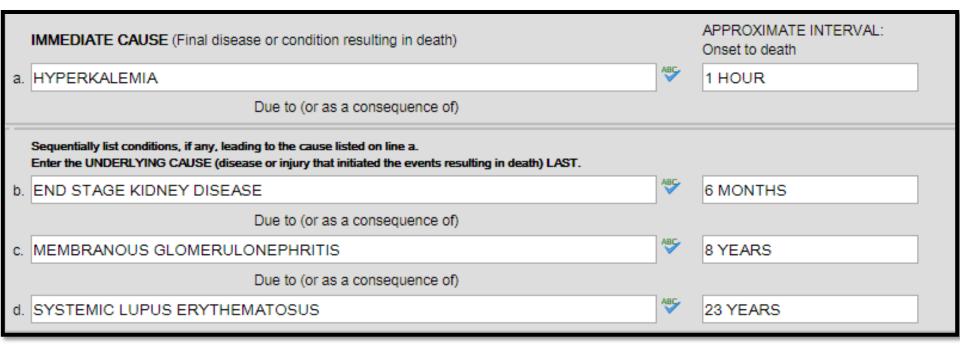
	liseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events suc ation without showing the etiology. Enter only one cause on a line.	h as cardiac arrest, Approximate interval: Onset to death
IMMEDIATE CAUSE (Final disease or condition a.	AUTOPSY	
resulting in death) Sequentially list conditions,	Due to (or as a consequence of)	
if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE	Due to (or as a consequence of):	
(disease or injury that initiated the events resulting in death) LAST	Due to (or as a consequence of):	
	ntributing to death but not resulting in the underlying cause given in PART I. 29a-	
	CON	
30. MANNER OF DEATH	31. DID TOBACCO USE CONTRIBUTE TO DEATH? 32. IF FEMALE: Not pregnant within past year	Not pregnant, but pregnant 43 days to 1 year before death
Accident Pending Investigation		Linkson if an an ant within the post way
TN		37

Interval: Onset to Death

- Underlying cause of death is listed last
- Shortest interval at top, longest at bottom, in sequential order

a.	IMMEDIATE CAUSE (Final disease or condition resulting in death)	1 <u>5</u>	APPROXIMATE INTERVAL: Onset to death	
	Due to (or as a consequence of)			
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.			
b.	4	5		
	Due to (or as a consequence of)			
C.		5		
	Due to (or as a consequence of)			
d.	^ ^	10		
_		-		-

Interval: Onset to Death: Examples





Interval: Onset to Death: Examples

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death
a.	VENTRICULAR FIBRILLATION	ABC	SECONDS
	Due to (or as a consequence of)		
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.	_	
b.	MYOCARDIAL INFARCTION	ABC	HOURS
	Due to (or as a consequence of)		
C.	CORONARY ARTERY THROMBOSIS	ABC	HOURS
	Due to (or as a consequence of)		
d.	ATHEROSCLEROTIC CARDIOVASCULAR DISEASE	ABC	YEARS



Major Take-Home Points

- If any discrete, identifiable external force, object, or substance contributed *in any way* to death, the death cannot be considered natural and must be reported to the county medical examiner, regardless of the interval elapsed between the inciting event and death
- The BOTTOM LINE is THE BOTTOM LINE



Part II: Contributory Causes of Death

28. PART II.

Enter other significant conditions contributing to death but not resulting in the underlying cause given in PART I.

Other Significant Conditions contributing to death



Part II: Contributory Causes of Death

- Conditions which *contributed to* but did *not directly lead to* death
- May list more than one contributory cause of death
- 75 year-old with hypertension, diabetes, and chronic obstructive pulmonary disease found dead at home without antecedent complaints

	IMMEDIATE CAUSE (Final disease or condition resulting in death)	_	APPROXIMATE INTERVAL: Onset to death	
a.	HYPERTENSIVE CARDIOVASCULAR DISEASE	ABC		
	Due to (or as a consequence of)			
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.			
b.		ABC		
	Due to (or as a consequence of)			
c.		ABC		
	Due to (or as a consequence of)			
d.		ABC		
28	. PART II.			
Е	nter other significant conditions contributing to death but not resulting in the underlying cause gi	iven in	PART I.	
0	ther Significant Conditions contributing to death			
C	CHRONIC OBSTRUCTIVE PULMONARY DISEASE; DIABETES MELLITUS			ABC

Cause versus Mechanism of Death

28. PART I. Enter the <u>chain of events</u> (diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a line.

- Recall that the *cause* of death is the *anatomic* disease or injury that initiated the train of events leading to death
- *Mechanisms* of death are non-specific *physiologic* processes



Cause versus Mechanism of Death

- Mechanisms of death should <u>not</u> be listed as the sole or underlying cause of death
- Examples: exsanguination, respiratory arrest, arrhythmia, asphyxia, anoxic brain injury, metabolic acidosis, acute respiratory distress syndrome



Non-specific Mechanisms of Death: Examples: More Information is Required

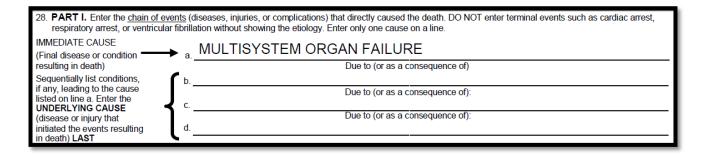
Unlikely Underlying Cause

The condition you reported on the lowest box in Part I HYPERKALEMIA usually develops as a complication of another more specific condition.

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death
a.	LETHAL DYSRHYTHMIA	ABC	
	Due to (or as a consequence of)		
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.		
b.	VENTRICULAR FIBRILLATION	ABC	
	Due to (or as a consequence of)		
C.	HYPERKALEMIA	ABC	
	Due to (or as a consequence of)		
d.		ABC	



Non-specific Mechanisms of Death: **Examples: More Information is Required**



PART I. Enter the chain of events (diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac arrest. respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a line.

MMEDIATE CAUSE Final disease or condition resulting in death)

Due to (or as a consequence of)

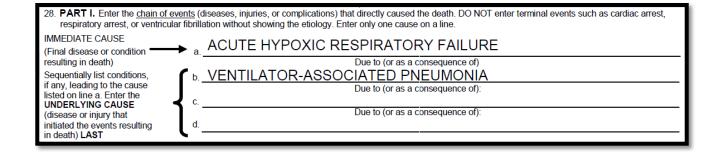
Sequentially list conditions, f any, leading to the cause isted on line a. Enter the UNDERLYING CAUSE disease or injury that nitiated the events resulting n death) LAST

WITHDRAWAL OF CARE (PER PATIENT WISHES)

b. CPR IN PROGRESS

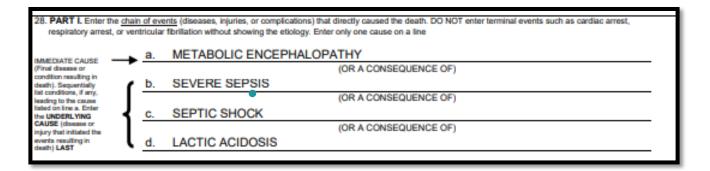
Due to (or as a consequence of):

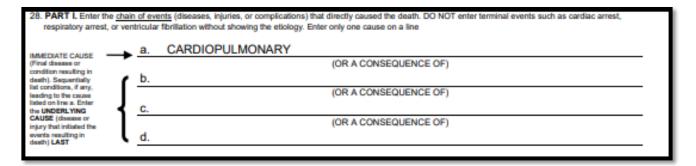
Due to (or as a consequence of)





Non-specific Mechanisms of Death: Examples: More Information is Required





28. PART I. Enter the <u>chain of events</u> (diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a line					
_	a.	CARDIAC ARREST			
-		(OR A CONSEQUENCE OF)			
•	b.	ACIDOSIS			
		(OR A CONSEQUENCE OF)			
	C.	LEUKOCYTOSIS			
		(OR A CONSEQUENCE OF)			
ι	d.				
		t, or ventricular			

TN

48

CDC: Additional Information Required

Abscess

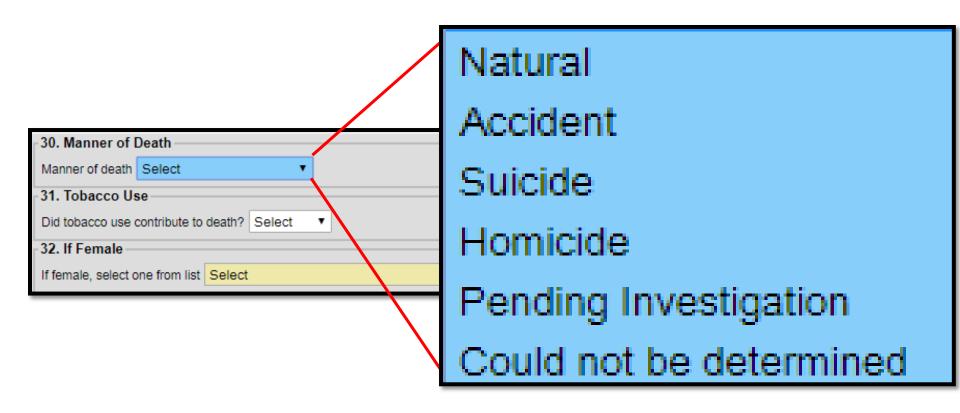
Abdominal hemorrhage Adhesions Adult respiratory distress syndrome Acute myocardial infarction Altered mental status Anemia Anoxia/anoxic encephalopathy Arrhythmia Ascites Aspiration Atrial fibrillation Bacteremia Bedridden **Biliarv** obstruction Bowel obstruction Brain injury Brain stem herniation Carcinogenesis Carcinomatosis Cardiac arrest Cardiac dysrhythmia Cardiomyopathy Cardiopulmonary arrest Cellulitis Cerebral edema

Cerebrovascular accident Cerebellar tonsillar herniation Chronic bedridden state Cirrhosis Coagulopathy Compression fracture Congestive heart failure Convulsions Decubiti Dehydration Dementia (when not otherwise specified) Diarrhea Disseminated intravascular coagulopathy Dysrhythmia End stage liver disease End stage renal disease Epidural hematoma Exsanguination Failure to thrive Fracture Gangrene Gastrointestinal hemorrhage Heart failure Hemothorax

Hepatic failure Hepatitis Hepatorenal syndrome Hyperglycemia Hyperkalemia Hypovolemic shock Hyponatremia Hypotension Immunosuppression Increase intracranial pressure Intracranial hemorrhage Malnutrition Metabolic encephalopathy Multiorgan failure Multisystem organ failure Myocardial infarction Necrotizing soft tissue infection Old age Open (or closed) head injury Pancytopenia Paralysis Perforated gallbladder Peritonitis Pleural effusions Pneumonia Pulmonary arrest

Pulmonary edema Pulmonary embolism Pulmonary insufficiency Renal failure **Respiratory arrest** Seizures Septic shock Shock Starvation Subdural hematoma Subarachnoid hemorrhage Sudden death Thrombocytopenia Uncal herniation Urinary tract infection Ventricular fibrillation Ventricular tachycardia Volume depletion

Manner of Death





Manners of Death: Natural

- If a discrete injury or poisoning event contributed <u>in</u> <u>any way</u> to death, regardless of time elapsed between the event and death, the manner of death cannot be considered to be natural
- All non-natural deaths are to be reported to the medical examiner of the county in which death occurred
- Only one manner of death may be selected
- The non-medical examiner certifier of death is limited to "Natural" and "Pending" as choices for manner of death



Manners of Death: Pending

- "Pending" is reserved for those cases in which the cause and/or manner of death cannot be determined within the 48 hours after death, but further information or investigation is expected (e.g., autopsy results)
- The record must be amended in VRISM with the definitive cause and manner of death completed and certified within six months of the death





Manners of Death: Non-Natural; Reserved for County Medical Examiner

- Accident: death due to injury or poisoning without intent to cause harm
- **Homicide:** death resulting from a volitional act by another person intended to cause fear, harm, or death
- **Suicide:** death resulting from injury or poisoning as a result of an intentional self-inflicted act committed to cause self-harm
- **Could not be determined:** either too much or too little information to determine manner of death to a reasonable degree of medical certainty; should not be used in the absence of an autopsy
- <u>The period of time elapsed between the injury and the</u> <u>death does not alter the manner of death</u>



Manners of Death: Examples

- 83 year old falls at home; admitted to hospital for ORIF of left femur; hospital course complicated by pneumonia, MI, ARF; dies two months later with mucus plug of trach
 - Manner of death: accident; cause of death: complications of left femur fracture
 - Apply the "but-for" principle: "but-for" the fall, the above-listed complications would not have occurred; or
 - Ask, "Did the patient return to their pre-injury level of function?"
 - <u>Time elapsed between injury and death is irrelevant to</u> <u>manner of death</u>



Manners of Death: Examples

- 53 year-old paraplegic dies of urosepsis
 - Paraplegia is due to ruptured spinal AVM: manner of death is <u>natural</u>
 - Paraplegia is due to injuries sustained in MVA ten years prior to death: manner of death is <u>accident</u>
 - Paraplegia is due to self-inflicted gunshot wound to chest three years prior to death: manner of death is <u>suicide</u>
 - Paraplegia is due to gunshot wound to spine after decedent discovered *in flagrante delicto* with a spouse not his own thirty years ago: manner of death is <u>homicide</u>



What's Wrong with this Picture?

 PART I. Enter the <u>chain of events</u> (diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a line. 	c arrest, Approximate interval: Onset to death
IMMEDIATE CAUSE (Final disease or condition aFAILURE TO THRIVE-ADULT,	
resulting in death) Due to (or as a consequence of) Sequentially list conditions, PT WILLED HERSELF TO DIE WANTING	
if any, leading to the cause Due to (or as a consequence of): UNDERLYING CAUSE C. TO GO TO HEAVEN. FAILED ANTIDEPRESSANTS	
(disease or injury that initiated the events resulting in death) LAST	
PART II. Other significant conditions contributing to death but not resulting in the underlying cause given in PART I. 29a WAS AN A	
COMPLETE TH	
Accident Pending Investigation Yes Probably Pregnant at time of death	Not pregnant, but pregnant 43 days to 1 year before death Unknown if pregnant within the past year



Manners of Death: Therapy-Related Deaths

- Deaths occurring as the result of a foreseeable complication of accepted therapy for natural disease are classified as **natural**
 - Examples: Stevens-Johnson syndrome after sulfonamide therapy; coronary artery dissection during catheterization
- Deaths occurring as the result of improper use of medical equipment or of equipment malfunction are classified as **accident**
 - Example: inadvertent intravenous administration of enteral feedings



Other Required Fields: ME Notification and Autopsy Information

ME Contacted		
Was medical examiner contacted? Select V		
29 Autopsy		
Was an autopsy performed?	Select •	
Were autopsy findings available to complete the cause of death?	Select •	



Other Required Fields: Pregnancy

30. Manner of Death	
Manner of death Select	
- 31. Tobacco Use	
Did tobacco use contribute to death? Select •	
32. If Female	
If female, select one from list Select	
Not pregnant within past year	-
Progrant at time of death	

Not progrant, but progrant within 42 days

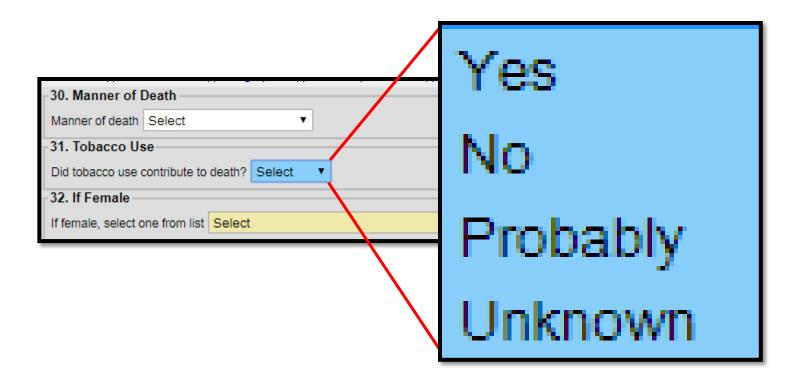
Not pregnant, but pregnant within 42 days of death

Not pregnant, but pregnant 43 days to 1 year before death

Unknown if pregnant within last year



Other Required Fields: Tobacco

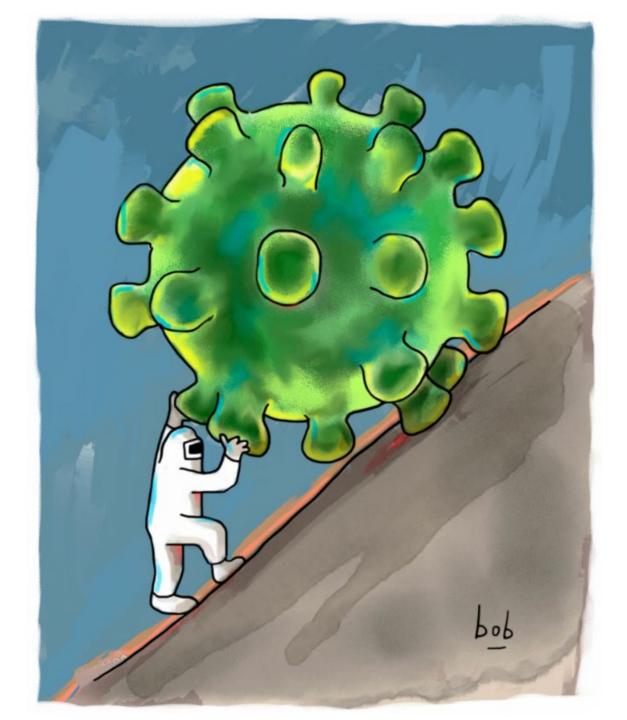




Be Consistent

	(diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac arres lation without showing the etiology. Enter only one cause on a line.	st, Approximate interval: Onset to death		
IMMEDIATE CAUSE (Final disease or condition — a. resulting in death)	LUNG CANCER Due to (or as a consequence of)	2 YEARS		
Sequentially list conditions, if any, leading to the cause listed on line a. Enter the	Due to (or as a consequence of):	<u>10 YEARS</u> 10 YEARS		
Inisted on line a. Enter the UNDERLYING CAUSE (disease or injury that the OMOKING) Due to (or as a consequence of):				
initiated the events resulting d.	SMOKING			
PART II. Other significant conditions contributing to death but not resulting in the underlying cause given in PART I. 29a. WAS AN AUTOPSY PERFO Yes XNo 29b. WERE AUTOPSY FINDINGS COMPLETE THE CAUSE OF DEA				
30. MANNER OF DEATH Natural Homicide Accident Suicide Could not be determ	31. DID TOBACCO USE CONTRIBUTE TO DEATH? 32. IF FEMALE: Image: Second state of the sec	oregnant, but pregnant 43 days to ar before death lown if pregnant within the past year		







Vital Statistics Reporting Guidance

Report No. 3 - April 2020



Guidance for Certifying Deaths Due to Coronavirus Disease 2019 (COVID–19)



Deaths Caused by or Related to COVID-19

- "<u>COVID-19", "SARS-CoV-2", or "novel coronavirus 19"</u> should be included in <u>Part I</u> of the death certificate if death was felt to be due to novel coronavirus infection
- If a person with chronic severe medical conditions dies with novel coronavirus-19 infection and it is felt that the infection hastened their demise, the death should be attributed to COVID-19
 - Any pre-existing conditions which may have made the decedent more susceptible to death due to novel coronavirus-19 infection should be listed in <u>Part II</u>



Deaths Caused by or Related to COVID-19: Why Should the Infection Be Listed as the Underlying Cause of Death?

- Apply the "but-for" principle: But for the infection, death would not have occurred when it did
- Analogous to a person in hospice care with metastatic carcinoma of the lung who develops a perforated duodenal ulcer
 - Although they were expected to die of lung cancer, the perforated duodenal ulcer intervened and is therefore the underlying cause of death
 - But for the duodenal ulcer, death would not have occurred when it did

28. PART I. Enter the <u>chain of events</u> (diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. Enter only one cause on a line.			Approximate interval: Onset to death		
IMMEDIATE CAUSE (Final disease or condition resulting in death)					
Sequentially list conditions, if any, leading to the cause listed on line a. Enter the	Due to (or as a consequence of) Due to (or as a consequence of):				
UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST	UNDERLYING CAUSE C. (disease or injury that Due to (or as a consequence of): initiated the events resulting d.				
PART II. Other significant conditions c	ontributing to death but not resulting in the underlying cause given in PART I.	29a WAS AN AUTOPSY PE			
ADENOCARCINOMA OF LEFT LUNG, METASTATIC TO BRAIN 29b. WERE AUTOPSY FINDI COMPLETE THE CAUSE OF					



Deaths Caused by or Related to COVID-19

- "Presumed", "likely", "probable" or "suspected" may be used in cases in which testing was not performed or was negative, but there is a strong clinical suspicion that death was due to novel coronavirus infection
- There are many *Coronaviridae* species; the death certificate must indicate that death was due to infection with <u>SARS-CoV-2</u> or novel coronavirus-19 or to the disease <u>COVID-19</u> for the correct ICD code to be assigned
 - Please don't just write "coronavirus" on the death certificate



COVID-19 Language Goes Here

	26. CERTIFIER (Check only one):	· · · ·					
CERTIFIER	26a. PHYSICIAN -To the best of my knowledge, death occurred at the date and place, and due to the cause(s) and manner stated. 26b. MEDICAL EXAMINER - On the basis of examination, and/or investigation, in my opinion, death occurred at the date, and place, and due to the cause(s) and manner stated.						
PHYSICIAN							
OR	27a. SIGNATURE OF CERTIFIER	27b. LICENSE NUMBER	27c. DATE SIGNED (Mor	nth, Day, Year)			
MEDICAL EXAMINER							
EXECUTING CAUSE OF	•	27d. NAME AND ADDRESS					
COMPLETE							
AND SIGN WITHIN 48	 PART I. Enter the <u>chain of events</u> (diseases, injuries, or complications) that respiratory arrest, or ventricular fibrillation without showing the etiology. Enter 		er terminal events such as cardiac arrest,	Approximate interval: Onset to death			
HOURS.	IMMEDIATE CAUSE	i only one cause on a line.					
	(Final disease or condition \longrightarrow a.						
MEDICAL	5	Due to (or as a consequence of)					
CERTIFICATIO	Sequentially list conditions, if any, leading to the cause			.			
	listed on line a. Enter the						
	UNDERLYING CAUSE (disease or injury that Due to (or as a consequence of):						
	initiated the events resulting d.						
	PART II. Other significant conditions contributing to death but not resulting in the	e underlying cause given in PART I.	29a WAS AN AUTOPSY	PERFORMED?			
		, , , , , , , , , , , , , , , , , , , ,	Yes	No			
			29b. WERE AUTOPSY FIN				
	30. MANNER OF DEATH 31. DID TOBACCO USE	32. IF FEMALE:	COMPLETE THE CAUSE				
	Natural Homicide CONTRIBUTE TO DEAT	- Not pregnant within pas	1 year bof	ant, but pregnant 43 days to			
	Accident Pending Investigation						
	Suicide Could not be determined						
	33. IF TRANSPORTATION INJURY, SPECIFY: 34a. DATE OF INJURY (Month, Day, Year) 34b. TIME OF INJURY 34b. TIME OF INJURY AT WORK? 34d. PLACE OF INJURY –at home, farm, street, factory, office, building (Specify)						
	Driver/Operator	Yes No	(Speary)				
	Passenger 34e. DESCRIBE HOW INJURY OCCU		34f. LOCATION OF INJURY (Street and N	umber City or Town State)			
	Pedestrian						
	Other (Specify)						

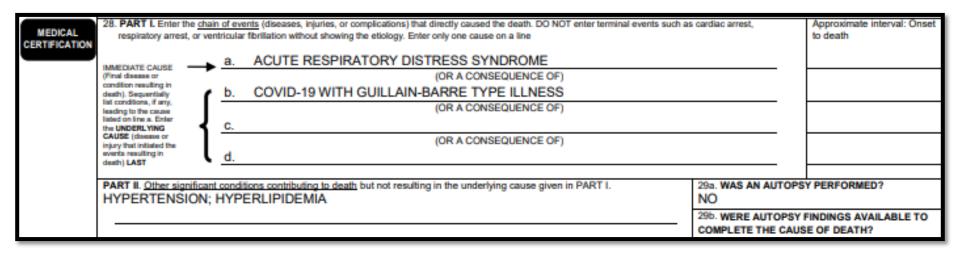


Other Illnesses/Underlying Processes Exacerbating SARS-CoV-2 Infection Go Here

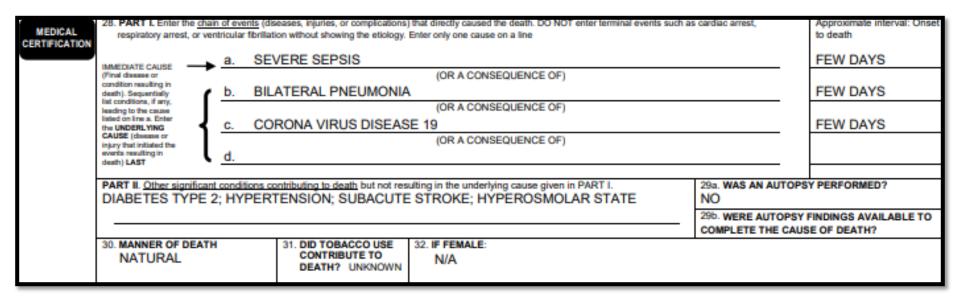
	26. CERTIFIER (Check only one):								
CERTIFIER									
PHYSICIAN	26b. MEDICAL EXAMINER - On the basis of examination, and/or investigation, in my opinion, death occurred at the date, and place, and due to the cause(s) and manner stated.								
OR	27a. SIGNATURE OF CERTIFIER	·	27b. LICENSE NUMBER	27c. DATE SIGNED (Mon	SIGNED (Month, Day, Year)				
EXAMINER									
CAUSE OF DEATH MUST	▶		27d. NAME AND ADDRESS						
COMPLETE AND SIGN	28. PART I. Enter the chain of events (diseas	ses injuries or complications) th	hat directly caused the death. DO NOT en	ter terminal events such as cardiac arrest	Approximate interval:				
WITHIN 48 HOURS.	respiratory arrest, or ventricular fibrillation				Onset to death				
HOURS.	IMMEDIATE CAUSE								
MEDICAL	(Final disease or condition a resulting in death)								
CERTIFICATION	Sequentially list conditions,		Due to (or as a consequence of)						
	if any, leading to the cause		Due to (or as a consequence of):						
	UNDERLYING CAUSE C		Due to (or as a consequence of):						
	initiated the events resulting d.		,						
	PART II. Other significant conditions contribu	29a. WAS AN AUTOPSY P	EBEORMED2						
	PART II. Other significant conditions contribu	tung to death but not resulting in	The underlying cause given in PART I.	Yes 1	No				
				29b. WERE AUTOPSY FIN COMPLETE THE CAUSE O					
	30. MANNER OF DEATH	31. DID TOBACCO USE	32. IF FEMALE:		E OF DEATH?				
	30. MANNER OF DEATH 31. DID TOBLOGO USE Natural Homicide Accident Pending Investigation Ves Probably Pregnant at time of death Unknown if pregnant within								
Suicide Could not be determined									
	33. IF TRANSPORTATION 34a. INJURY, SPECIFY:	Month, Day, Year) 34		34d. PLACE OF INJURY –at home, farm, str (Specify)	reet, factory, office, building, etc.				
	Driver/Operator	(Yes No	()/					
	Passenger Pedestrian 34e.	DESCRIBE HOW INJURY OC	CURRED	34f. LOCATION OF INJURY (Street and Nu	umber, City or Town, State)				
	Other (Specify)								
				1					

MEDICAL	resphalory arrest, or venericular infinition worlduct showing the elology. Enter only one cause on a line						
		a. CO	VID-19				
	(Final disease or			(OR A CONSEQUENCE OF)			
	condition resulting in death). Sequentially list conditions, if any, leading to the cause	b.					
			(OR A CONSEQUENCE OF)				
	lated on line a. Enter the UNDERLYING	C.					
	CAUSE (disease or injury that initiated the		(OR A CONSEQUENCE OF)				
	eventa resulting in d. d.						
	PART II. Other significant HYPERTENSION;	29a. WAS AN AUTOPS' NO	Y PERFORMED?				
			29b. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH?				
	30. MANNER OF DEATH NATURAL	I	31. DID TOBACCO USE CONTRIBUTE TO DEATH? NO	32. IF FEMALE: NOT PREGNANT WITHIN PAST YEAR			











28.	Part L ENTER THE CHAIN	OF	EVENTS (DISEASES, INJURIES, OR COMPLICATIONS) THAT DIRECTLY CAUSED THE DEATH. DO NOT ENTER TERMINAL EVENTS					
	SUCH AS CARDIAC ARREST, RESPIRATORY ARREST, OR VENTRICULAR FIBRILLATION WITHOUT SHOWING THE ETIOLOGY. ENTER ONLY ONE CAUSE ON A LINE.							
	INMEDIATE CAUSE (Final disease or		POST CARDIAC ARREST SYNDROME					
	condition resulting in death). Sequentially list conditions, if any,	ь.	ACUTE HYPOXEMIC RESPIRATORY FAILURE					
	leading to the cause listed on line a. Enter the UNDERLYING CAUSE	c.	COVID PNEUMONITIS					
	(disease or injury that initiated the events resulting in death) LAST	d.						



When COVID-19 is NOT the Underlying Cause of Death

MEDICAL							s cardiac arrest,	Approximate interval: Onset to death
	INMEDIATE CAUSE A. ACUTE SUBDURAL HEMATOMA							
	(Final disease or		(OR A CONSEQUENCE OF)					
	condition resulting in death). Sequentially	b.	FALL					
	lat conditions, if any, leading to the cause			(OR A CON				
	lated on line a. Enter the UNDERLYING	C.						
	CAUSE (disease or injury that initiated the			(OR A CON	DNSEQUENCE OF)			
	events resulting in death) LAST	d.						
	DADT II Other similarit		in a state for the death but an	the second s		- 01071		V DEDEODUEDO
	PART IL Other significant conditions contributing to death but not resulting in the underlying cause given in PART I. 29a. WAS AN AUTOPSY RECENT HISTORY OF COVID-19 INFECTION, HYPERTENSIVE AND ATHEROSCLEROTIC NO							ST PERFORMED?
	CARDIOVASCULAR DISEASE, HISTORY OF PULMONARY EMBOLISM WITH CURRENT 29b. WERE AUTOPSY							
	COMPLETE THE CAU						COMPLETE THE CAU	SE OF DEATH?
	30. MANNER OF DEATH ACCIDENT		31. DID TOBACCO USI CONTRIBUTE TO DEATH? NO	32. IF FEMALE: N/A				
	33. IF TRANSPORTATIO	N	34a. DATE OF INJURY	34b. TIME OF INJU		34c. INJURY AT WORK?	34d. PLACE O	
	INJURY, SPECIFY:		FOUND 04/12/2020	UNKNOW	N	NO	NURSI	NG HOME/LONG
	34e. DESCRIBE HOW INJURY OCCURRED							
			FALL					





SCENARIOS

An 80 year-old man was seen by a nurse practitioner two months ago for routine follow-up of his hypertension, diabetes mellitus, and chronic obstructive pulmonary disease. He was found dead at home without any signs of trauma, foul play, or drug overdose. Who should sign the death certificate?

A. The nurse practitioner.

- B. The county medical examiner, as the death was unwitnessed.
- C. The county medical examiner, because the cause of death cannot be determined to a reasonable degree of medical certainty.

D. The physician supervising the nurse practitioner.



Answer: D.

The physician supervising any health care extender providing the patient's care for the illness which results in death should sign the death certificate.

In this case, the cause of death in Part I could be listed as "hypertensive cardiovascular disease", with diabetes mellitus and chronic obstructive pulmonary disease listed in Part II as other significant conditions.

	IMMEDIATE CAUSE (Final disease or condition resulting in death)		APPROXIMATE INTERVAL: Onset to death				
a.	HYPERTENSIVE CARDIOVASCULAR DISEASE	ABC					
	Due to (or as a consequence of)						
	Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.						
b.		ABC]			
	Due to (or as a consequence of)						
C.		ABC					
	Due to (or as a consequence of)						
d.		ABC]			
28	28. PART II.						
Е	Enter other significant conditions contributing to death but not resulting in the underlying cause given in PART I.						
0	Other Significant Conditions contributing to death						
C	ABETES MELLITUS; CHRONIC OBSTRUCTIVE PULMONARY DISEASE			ABC			

An elderly person complained of left-sided chest pain and tightness shortly before collapsing. She was transported to the emergency department, where she was pronounced dead. Her family relates a history of multiple myocardial infarctions and high cholesterol. Who should sign the death certificate?

A. The patient's primary care doctor.B. The emergency room physician.C. The patient's cardiologist.D. Any of the above.



Answer: D.

The emergency room doctor, the patient's regular physician, or another physician who has treated the patient for the illness causing death (for example, a cardiologist) may sign the death certificate.

If none of these does so, the chief medical officer of the institution in which death is pronounced is to sign the death certificate (TCA 68-3-502).



I am a primary care physician in a small rural community. One of my long-time patients, an elderly man with multiple medical problems, has been found dead at home. I have not seen the patient in eight months. Who will sign the death certificate?

- A. The primary care doctor, even though it has been more than four months since the patient was last seen.
- B. The county medical examiner, as the patient had not been seen by the primary care doctor within four months.
- C. Either A or B may sign.



Answer: C.

The primary care physician, as the person most familiar with the decedent's medical history, is the most appropriate person to complete the death certificate. A physician treating a patient for the disease process accounting for death is obligated by statute to complete and sign the death certificate if the patient has been seen within the four months prior to death.

However, if the treating physician has not seen the patient in the four months before death, and the death occurs outside of a health care facility, the case may be referred to the county medical examiner in the county in which death occurred. The county medical examiner may then review medical records and issue the death certificate.





ADELE LEWIS, MD OFFICE OF THE STATE CHIEF MEDICAL EXAMINER (844) 860-4511