

Death Certification During Disasters and Severe Weather

Fact Sheets

With one page per type of incident, this series of fact sheets provides action steps, example death certificates, and information on the common causes, circumstances, and risk factors for death for six common types of disasters and severe weather:



Hurricanes



Extreme heat



Thunderstorm



Tornadoes



Winter weather



Wildfires



Hurricane-Related Death Certification

See the Vital Statistics Reporting Guidance for more information on certifying deaths during hurricanes.



Background Information

Common causes and circumstances of death

-  Blunt trauma (e.g., from impact with flying debris or falls)
-  Drowning (e.g., in flood waters)
-  Carbon monoxide poisoning (e.g., from improper residential use of generators or other equipment)
-  Exacerbation of medical conditions (e.g., from power outages and inability to evacuate)
-  Falls or blunt trauma (e.g., during preparation and cleanup)
-  Motor vehicle crashes (e.g., during the hurricane or while evacuating)

Risk factors for death

-  Having underlying medical conditions
-  Having a higher sensitivity to heat that may occur during power outages
-  Staying in home (instead of evacuating)

Action Steps

1 Apply evidence to determine whether the decedent experienced a hurricane

Use the death scene investigation report and data sources such as the National Weather Service, local news, or official alerts.

2 Consider whether the death was directly or indirectly related to the hurricane

- a** A directly-related death is one caused by the environmental forces of the hurricane (e.g., wind, flood) or the direct consequences of these forces (e.g., flying debris).
 - Apply evidence from the reported circumstances around the death from the scene investigation, physical exam, or autopsy findings.

- b** An indirectly-related death is caused by the unsafe or unhealthy conditions created by the hurricane (e.g., power outage) or their consequences (e.g., evacuation).
 - Consider the “but for” principle: *But for the hurricane, would the person have died when they did?*

3 Include the hurricane on the death certificate

If the death was directly or indirectly related to the hurricane, record “Hurricane [NAME]” on the death certificate. This can be done in any one of these boxes: Part I, Part II, or How Injury Occurred. See the examples below.

Capturing disaster related information on the death certificate is critical for public health to 1) accurately count deaths from a disaster to inform response efforts, 2) identify common causes of death to develop prevention strategies, and 3) identify risk factors to allocate resources.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)	a. Cerebral Contusion
Sequentially list conditions, if any, leading to immediate cause.	b. Due to (or as a consequence of) Cranial fractures c. Due to (or as a consequence of) Blunt force injury of the head
Enter Underlying Cause	d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:
Walking outdoors during Superstorm Sandy. Tree limb broke, striking decedent on head.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)	a. End stage renal disease
Sequentially list conditions, if any, leading to immediate cause.	b. Due to (or as a consequence of) Diabetes mellitus type II c. Due to (or as a consequence of)
Enter Underlying Cause	d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Unable to receive dialysis due to flooded roads following Hurricane Ian.

Describe How Injury Occurred:



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Extreme Heat-Related Death Certification

See the Vital Statistics Reporting Guidance for more information on certifying deaths during extreme heat/heat waves.



Background Information

Common causes and circumstances of death

Hyperthermia (e.g., from excessive environmental heat exposure)

Dehydration (e.g., from inadequate fluid intake)

Risk factors for death

Drinking alcohol or using illicit drugs

Engaging in physical exertion during extreme heat

Having a mental health disorder

Lacking air conditioning

Lacking adequate shelter or being unhoused

Living alone or social isolation

Residing in a neighborhood with high concentrations of poverty

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)

a. **Acute renal failure**

Sequentially list conditions, if any, leading to immediate cause.

b. Due to (or as a consequence of) **Rhabdomyolysis**

c. Due to (or as a consequence of) **Hyperthermia**

Enter Underlying Cause

d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:

College football player collapsed at practice in extreme heat during July 2022 Midwest heat wave.

Action Steps

1 Apply evidence to determine whether the decedent experienced an extreme heat/heat wave event

Use the death scene investigation report and data sources such as the National Weather Service, local news, or official alerts.

2 Consider whether the death was directly or indirectly related to the extreme heat/heat wave event

a A directly-related death is one caused by the environmental forces of the extreme heat (e.g., exposure to extremely high temperatures).

- Apply evidence from the reported circumstances around the death from the death scene investigation, physical exam, and autopsy findings.

b An indirectly-related death is caused by the unsafe or unhealthy conditions created by the extreme heat/heat wave event or its consequences (e.g., evacuation).

- Consider the “but for” principle: *But for the heat, would the person have died when they did?*

3 Include the extreme heat/heat wave event on the death certificate

If the death was directly or indirectly related to exposure to extreme heat/heat wave event, record “[Date] Heat Wave” on the death certificate. This can be done in any one of these boxes: Part I, Part II, or How Injury Occurred. See the examples below.

Capturing disaster related information on the death certificate is critical for public health to 1) accurately count deaths from a disaster to inform response efforts, 2) identify common causes of death to develop prevention strategies, and 3) identify risk factors to allocate resources.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)

a. **Exposure to excessive environmental heat**

Sequentially list conditions, if any, leading to immediate cause.

b. Due to (or as a consequence of)

c. Due to (or as a consequence of)

Enter Underlying Cause

d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Atherosclerosis, chronic obstructive pulmonary disease

Describe How Injury Occurred:

Lived alone in apartment without air-conditioning during the August 2022 Northeastern heat wave.



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Thunderstorm-Related Death Certification

See the Vital Statistics Reporting Guidance for more information on certifying deaths during thunderstorms.



Background Information

Two main hazards during thunderstorms are lightning and flooding.

Common causes and circumstances of death

Drowning in flood waters

Lightning (e.g., direct hit, splash, or contact)

Risk factors for death

FLOODS

Driving/being in a vehicle

Residing in a rural area

LIGHTNING

Being outside in the open or under trees

Lacking adequate shelter

Working in construction, farming, forestry, and fishing occupations

Action Steps

1 Apply evidence to determine whether the decedent experienced a thunderstorm

Use the death scene investigation report and data sources such as the National Weather Service, local news, or official alerts.

2 Consider whether the death was directly or indirectly related to the thunderstorm

a A directly-related death is one caused by the environmental forces of the storm (e.g., lightning strike, flood) or the direct consequences of these forces (e.g., flying debris).

- Apply evidence from the reported circumstances around the death from the scene investigation, physical exam, and autopsy findings.

b An indirectly-related death is caused by unsafe or unhealthy conditions created by the storm (e.g., power outage) or their consequences (e.g., evacuation)

- Consider the "but for" principle: *But for the storm, would the person have died when they did?*

3 Include the thunderstorm on the death certificate

If the death was directly or indirectly related to the thunderstorm, record "[Date] Thunderstorm" on the death certificate. This can be done in any one of these boxes: Part I, Part II, or How Injury Occurred. See the examples below.

Capturing disaster related information on the death certificate is critical for public health to 1) accurately count deaths from a disaster to inform response efforts, 2) identify common causes of death to develop prevention strategies, and 3) identify risk factors to allocate resources.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)

a. **Electrocution**

Sequentially list conditions, if any, leading to immediate cause.

b. Due to (or as a consequence of)

c. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:

Struck by lightning during August 2021 thunderstorm.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)

a. **Sharp force injuries of the neck**

Sequentially list conditions, if any, leading to immediate cause.

b. Due to (or as a consequence of)

c. Due to (or as a consequence of)

Enter Underlying Cause

d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:

Chainsaw injuries while trimming downed tree following high winds of August 2021 thunderstorm.



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Tornado-Related Death Certification

See the Vital Statistics Reporting Guidance for more information on certifying deaths during tornados.



Background Information

Common causes and circumstances of death

Blunt trauma (e.g., from impact with flying debris or falls)

Carbon monoxide poisoning (e.g., from improper residential use of generators or other equipment)

Motor vehicle crashes (e.g., during the tornado)

Falls or other blunt trauma (e.g., during cleanup)

Risk factor for death

Taking shelter in a mobile home (especially if manufactured before 1994)

Characteristics of the tornado that increase risk of death

High intensity (i.e., F4 or F5)

Occurring between midnight and sunrise compared to daytime hours

Action Steps

1 Apply evidence to determine whether the decedent experienced a tornado

Use the death scene investigation report and data sources such as the National Weather Service, local news, or official alerts.

2 Consider whether the death was directly or indirectly related to the tornado

a A directly-related death is one caused by the environmental forces of the tornado (e.g., high winds) or the direct consequences of these forces (e.g., structural collapse).

- Apply evidence from the death scene investigation, autopsy, and laboratory findings.

b An indirectly-related death is caused by the unsafe or unhealthy conditions created by the tornado (e.g., power outage) or their consequences (e.g., evacuation)

- Consider the “but for” principle: *But for the tornado, would the person have died when they did?*

3 Include the tornado on the death certificate

If the death was directly or indirectly related to the tornado, record “[Date, Location] Tornado” on the death certificate. This can be done in any one of these boxes: Part I, Part II, or How Injury Occurred. See the examples below.

Capturing disaster related information on the death certificate is critical for public health to 1) accurately count deaths from a disaster to inform response efforts, 2) identify common causes of death to develop prevention strategies, and 3) identify risk factors to allocate resources.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)	a. Mechanical asphyxia
Sequentially list conditions, if any, leading to immediate cause.	b. Due to (or as a consequence of)
Enter Underlying Cause	c. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:

Crushed by collapsed house during Dexter Tornado.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)	a. Epidural hematoma
Sequentially list conditions, if any, leading to immediate cause.	b. Due to (or as a consequence of) Skull fracture
Enter Underlying Cause	c. Due to (or as a consequence of) Blunt force injury of head

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:

Fell down stairs while attempting to take cover during Dexter Tornado.



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Winter Weather-Related Death Certification

See the Vital Statistics Reporting Guidance for more information on certifying deaths during winter weather.



Background Information

Common causes and circumstances of death

Carbon monoxide poisoning (e.g., from improper residential use of generators or other equipment)

Hypothermia (e.g., excessive environmental cold exposure)

Atherosclerotic heart disease (e.g., during storm-related exertion)

Risk factors for death

Being exposed to cold temperatures for a prolonged period

Lacking adequate shelter or being unhoused

Lacking adequate clothing and heating

Using a generator, propane heater, or charcoal grill inside

Action Steps

1 Apply evidence to determine whether the decedent experienced severe winter weather

Use the death scene investigation report and data sources such as the National Weather Service, local news, or official alerts.

2 Consider whether the death was directly or indirectly related to the winter weather

a A directly-related death is one caused by the environmental forces of the winter weather (e.g., ice, cold temperatures) or the direct consequences of these forces (e.g., structural collapse).

- Apply evidence from the reported circumstances around the death from the scene investigation, physical exam, and autopsy findings.

b An indirect death is caused by the unsafe or unhealthy conditions created by the winter weather (e.g., power outage) or their consequences (e.g., evacuation).

- Consider the “but for” principle: *But for the winter weather, would the person have died when they did?*

3 Include the winter weather incident on the death certificate

If the death was directly or indirectly related to the winter weather, record “[Date, Location, Winter Weather]” on the death certificate. This can be done in any one of these boxes: Part I, Part II, or How Injury Occurred. See the examples below.

Capturing disaster related information on the death certificate is critical for public health to 1) accurately count deaths from a disaster to inform response efforts, 2) identify common causes of death to develop prevention strategies, and 3) identify risk factors to allocate resources.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)

a. **Blunt force injuries of the head and neck**

Sequentially list conditions, if any, leading to immediate cause.

b. Due to (or as a consequence of)

Enter Underlying Cause

c. Due to (or as a consequence of)

d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:

Unrestrained driver of sedan that left roadway and rolled during February 2023 ice storm.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)

a. **Acute myocardial infarct**

Sequentially list conditions, if any, leading to immediate cause.

b. Due to (or as a consequence of)

Atherosclerotic heart disease

Enter Underlying Cause

c. Due to (or as a consequence of)

d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Exertion shoveling snow during Feb 12, 2023 snowstorm.

Describe How Injury Occurred:



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Wildfire-Related Death Certification

See the Vital Statistics Reporting Guidance for more information on certifying deaths during wildfires.



Background Information

Common causes and circumstances of death

Burns/thermal injuries (e.g., from being trapped outdoors in fast moving forest fire)

Smoke inhalation (e.g., from being trapped in burning house)

Risk factors for death

Pre-existing health conditions

Inability to operate a vehicle

Mobility limitations

Exposure to high levels of smoke from wildfires

Lacking access to health care (to address symptoms of exposure to unhealthy air quality)

Lack of devices (e.g., central forced air) that filter air inside buildings

Action Steps

1 Apply evidence to determine whether the decedent experienced a wildfire

Use the death scene investigation report and data sources such as the National Weather Service, local news, or official alerts.

2 Consider whether the death was directly or indirectly related to the wildfire

a A directly-related death is one caused by the environmental forces of the wildfire (e.g., smoke, fire) or its direct consequences (e.g., structural collapse).

- Apply evidence from the reported circumstances around the death from the scene investigation, physical exam, and autopsy findings.

b An indirect death is caused by the unsafe or unhealthy conditions created by the wildfire (e.g., power outage) or their consequences (e.g., evacuation).

- Consider the “but for” principle: *But for the wildfire, would the person have died when they did?*

3 Include the wildfire on the death certificate

If the death was directly or indirectly related to the wildfire, record “[Date, Location] wildfire” on the death certificate.

This can be done in any one of these boxes: Part I, Part II, or How Injury Occurred. See the examples below.

Capturing disaster related information on the death certificate is critical for public health to 1) accurately count deaths from a disaster to inform response efforts, 2) identify common causes of death to develop prevention strategies, and 3) identify risk factors to allocate resources.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)	a. Drowning
Sequentially list conditions, if any, leading to immediate cause.	b. Due to (or as a consequence of)
	c. Due to (or as a consequence of)

Enter Underlying Cause d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Chronic obstructive pulmonary disease, atherosclerotic heart disease

Describe How Injury Occurred:

Fled 2023 Lahaina, Hawaii wildfire into ocean and drowned.

Part I. Enter the disease, injuries, or complications that caused the death. List only one cause on each line.

Immediate Cause (final disease or condition resulting in death)	a. Inhalation of products of combustion including carbon monoxide
Sequentially list conditions, if any, leading to immediate cause.	b. Due to (or as a consequence of)
	c. Due to (or as a consequence of)

Enter Underlying Cause d. Due to (or as a consequence of)

Part II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

Describe How Injury Occurred:

2023 Lahaina, Hawaii wildfire



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