Medicolegal Death Investigator

Quick Guide for Investigation During Disasters and Severe Weather

With one page per type of incident, this guide provides a high-level summary of common causes of death, risk factors, an investigation checklist, and resources for five common types of disasters and severe weather:


Hurricanes


Extreme Heat


Thunderstorm


Tornados


Winter Weather

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Death Investigation During Hurricanes

What you should know as a death investigator

Common causes of death from hurricanes include the following:

- 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)

Deaths from hurricanes are more likely to occur among the following:

- Males (compared to females)
- Older adults, ages 70–89
  - More likely to have medical conditions that are exacerbated by the disaster
  - Less likely to evacuate
  - More affected by heat and interruptions to medical care and equipment (e.g., oxygen) during power outages

Resources to use when investigating deaths during hurricanes

OSHA Hurricane eMatrix for PPE

CDC's Death Scene Investigation Toolkit

FEMA's Disaster Declarations Search

What to consider including in your death investigation report

Hurricane and Emergency Information

- ☐ Hurricane strength (i.e., category 1–5)
- ☐ Additional weather conditions (e.g., wind speeds)
- ☐ Name of hurricane (e.g., Hurricane Ian)
- ☐ Whether location was under evacuation order
  - ☐ How (or whether) the decedent was informed of the order
- ☐ Whether location was under local state of emergency or federal declaration

Use local news, NWS storm reports, or FEMA Disaster Declarations Search

Scene Characteristics

- ☐ Whether the location experienced a power outage
- ☐ Whether a carbon monoxide source was present—if yes, record type (e.g., generator, grill, gas stove) and location.
- ☐ If motor vehicle crash, consider the following:
  - ☐ Whether road conditions were affected by the storm
  - ☐ Evidence vehicle entered areas beyond warning barrier
  - ☐ Evidence vehicle was struck by debris

Awareness and Actions of the Decedent

- ☐ Whether decedent was sheltering in place
- ☐ Whether decedent was attempting to move out of storm path
- ☐ Whether decedent was aware of the dangerous conditions
- ☐ Engagement in activities related to storm preparation
- ☐ Engagement in activities related to storm clean up

Death Investigation During Extreme Heat/Heat Waves

What you should know as a death investigator

Common causes of death from extreme heat include the following:

- Hyperthermia (e.g., from excessive environmental heat exposure)
- Dehydration (e.g., from inadequate fluid intake)

Deaths from extreme heat are more likely to occur among the following:

- Black or African American persons
- Males (compared to females)
- Adults ages 60 and older

Risk factors for death from extreme heat include the following:

- Alcohol or illicit drug use
- Certain medications (e.g., beta blockers)
- Chronic health conditions (e.g., cardiovascular or respiratory disease)
- Lack of adequate shelter
- Lack of air conditioning
- Living alone
- Neighborhood poverty
- Physical exertion during extreme heat
- Pre-existing mental health conditions

What to consider including in your death investigation report

Heat and Emergency Information

- ☐ Weather conditions (including temperatures) at time body is found and for previous 72 hours
- ☐ Whether location was under heat watch, warning, or alert within previous 72 hours
- ☐ Whether location was under local state of emergency or federal declaration

Use local news and NWS online weather data

Scene Characteristics

- ☐ Presence and use of equipment to mitigate weather conditions, such as an air conditioner or fan
- ☐ Whether there was a power outage
- ☐ Type of shelter and living conditions, including whether they were experiencing homelessness or lived alone

Awareness and Actions of the Decedent

- ☐ Previous history of heat illness
- ☐ History of chronic health conditions (e.g., cardiovascular or respiratory disease)
- ☐ Evidence of water consumption
- ☐ Engagement in activities outside in excessive heat
- ☐ Awareness of heat-related warnings

Resources to use when investigating deaths during extreme heat/heat waves

NWS Local Weather Data

CDC's Heat & Health Tracker

CDC's Death Scene Investigation Toolkit

Death Investigation During Thunderstorms

What you should know as a death investigator

This guide will focus on deaths from lightning and flash flooding, which are two main hazards during thunderstorms.

Common causes of death from these hazards include the following:

- Drowning in flood waters
- Lightning (e.g., direct hit, splash, or contact)

Deaths from thunderstorms are more likely to occur among the following:

Lightning

- Males
- Younger adults ages 20–29

Floods

- Males
- Adults ages 50–59 and 20–29

Risk factors for death from thunderstorms include the following:

Lightning

- Being outside in open or standing under trees
- Construction, material handling, farming, forestry, and fishing occupations
- Lack of adequate shelter

Floods

- Driving/being in a vehicle
- Rurality

What to consider including in your death investigation report.

Thunderstorm and Emergency Information

- ☐ Weather conditions
- ☐ Whether location was under thunderstorm watch or warning
- ☐ Name of storm, if applicable

Use local news and NWS online weather data

Scene Characteristics

- ☐ Type of shelter, if any
- ☐ Presence of water or trees
- ☐ If motor vehicle crash, whether the following occurred:
  - ☐ Road conditions were affected by the storm
  - ☐ Vehicle entered areas beyond a warning barrier
  - ☐ Vehicle ran into or was struck by debris
  - ☐ Vehicle was swept away by mud or water

Awareness and Actions of the Decedent

- ☐ Engagement in activities near water (e.g., fishing, swimming)
- ☐ Engagement in other outdoor activities
- ☐ Whether decedent took a position for safety
- ☐ Whether decedent was aware of thunderstorm watch or warning (if applicable) or the dangerous conditions
- ☐ Engagement in activities related to storm preparation or clean up

Resources to use when investigating deaths during thunderstorms

NWS Local Weather Data

CDC's Death Scene Investigation Toolkit

Death Investigation During Tornados

What you should know as a death investigator

Common causes of death from tornados include the following:

- 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)

Deaths from tornados are more likely to occur among the following:

- Females (compared to males)
- Individuals 35–64 years of age
- People residing in mobile homes (especially if manufactured before 1994)

Deaths from tornados are more likely to occur in the following situations:

- Between midnight and sunrise compared to daytime hours
- Within the home compared to outside
- With tornados of intensity (i.e., F4 or F5)

Resources to use when investigating deaths during tornados

NWS Local Storm Report/Warnings App

CDC's Death Scene Investigation Toolkit

FEMA's Disaster Declarations Search

What to consider including in your death investigation report

Tornado and Emergency Information

- ☐ Tornado strength (e.g., F4, F5) and time it occurred
- ☐ Additional weather conditions (e.g., flash flooding)
- ☐ Name of tornado, if applicable (e.g., Joplin tornado)
- ☐ Whether location was under tornado watch or warning
  - ☐ Presence of tornado siren in area
  - ☐ Decedent awareness of watch/ warning
- ☐ Whether location was under local state of emergency or federal declaration

Use local news, NWS storm reports, or FEMA Disaster Declarations Search

Scene Characteristics

- ☐ Characteristics of the location of the body (e.g., outdoors/indoors, house, mobile home, vehicle)
- ☐ Characteristics of the scene that could protect against storm (e.g., presence of a basement, storm shelter, specially built tornado “safe room” or community shelter)
- ☐ If motor vehicle crash
  - ☐ Evidence the decedent exited vehicle intentionally
  - ☐ Evidence the decedent was ejected from vehicle
  - ☐ Evidence the vehicle was struck by the tornado, projectiles, or debris

Awareness and Actions of the Decedent

- ☐ Engagement in activities related to storm clean up
- ☐ Whether decedent moved to position of safety (e.g., basement, tornado shelter)
- ☐ Whether decedent was attempting to seek shelter or flee storm

Death Investigation During Winter Weather

What you should know as a death investigator

Common causes of death from winter weather include the following:

- 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)

Deaths from winter weather are more likely to occur among the following:

- Adults in their 50s and 60s
- Males (compared to females)

Risk factors for death from winter weather include the following:

- Lack of adequate clothing and heating
- Lack of adequate shelter
- Prolonged exposure to cold temperatures
- Use of generator, propane heater, and grills inside

Resources to use when investigating deaths during winter weather

NWS Local Weather Data

CDC's Death Scene Investigation Toolkit

What to consider including in your death investigation report

Weather and Emergency Information

- ☐ Weather conditions over previous 24 hours including temperature, windchill, wind strength, and precipitation (e.g., snow, ice)
- ☐ Name of storm, if applicable
- ☐ Whether location was under local state of emergency or federal declaration

Use local news and NWS online weather data

Scene Characteristics

- ☐ Presence and use of equipment to mitigate weather conditions, such as a heater
- ☐ Whether there were power outages at or nearby the location
- ☐ Type of shelter and living conditions, including whether the decedent was experiencing homelessness
- ☐ Use of a generator or other potential sources of carbon monoxide
- ☐ If motor vehicle crash, whether road conditions were affected by the weather

Awareness and Actions of the Decedent

- ☐ Engagement in activities related to storm clean up or snow removal
- ☐ Engagement in activities outside in weather conditions
- ☐ Whether decedent was part of response or recovery efforts
- ☐ Appropriateness of clothing for the conditions

Federal Resources to Use When Investigating Deaths During Disasters or Severe Weather

Centers for Disease Control and Prevention (CDC) **Death Scene Investigation After Natural Disaster or Other Weather-Related Events Toolkit** provides guidance for investigating disaster or weather-related deaths using event-specific supplemental forms and checklists and should be reviewed, in addition to this quick guide, for more complete guidance. https://www.cdc.gov/disaster-epidemiology-and-response/media/pdfs/DisasterDeathSceneToolkit508.pdf

National Weather Service (NWS) **Local Climate Data** website provides weather information, including temperature and precipitation, for specific locations and dates. https://www.weather.gov/wrh/climate?wfo=lot

The Federal Emergency Management Agency's **Declared Disasters** webpage includes incident periods, declaration date, and recovery resources for disasters, allowing users to filter on year, state, type of declaration, and/or type of disaster. https://www.fema.gov/disaster/declarations

National Oceanic and Atmospheric Association **Storm Events Database** documents the occurrence of storms and other weather with sufficient intensity to cause injury, loss of life, or significant property damage. https://www.ncdc.noaa.gov/stormevents/

NWS's **Local Storm Reports Display** allows for quick viewing of Local Storm Reports and storm-based warnings for specific time periods and locations. https://www.spc.noaa.gov/exper/reports/

CDC's **Collaborating Office for Medical Examiners and Coroners** works to bring together resources to support the work of medical examiners and coroners. This website includes a variety of resources updated regularly. https://www.cdc.gov/nchs/comec/index.htm

CDC's **Reference Guide for Certification of Deaths in the Event of a Natural, Human-induced, or Chemical/Radiological Disaster** provides guidance for determining disaster relatedness of deaths and completing death certificates. The guide includes scenarios and examples of completed death certificates for common disaster types. https://www.cdc.gov/nchs/data/nvss/vsrg/vsrg01.pdf