## WINTER STORMS

A winter storm can range from a moderate snow over a few hours to blizzard conditions with blinding wind-driven snow that lasts for several days. Many winter storms are accompanied by low temperatures and heavy or blowing snow, which can severely reduce visibility.

Some winter storms may be large enough to affect several States, while others may affect only a single community.

Winter storms are defined differently in various parts of the country. Check with your local emergency management office, the National Weather Service (NWS) office, or local chapter of The American Red Cross for terms and definitions specific to your area.

Winter storms are considered deceptive killers because most deaths are indirectly related to the storm.

- Automobile or other transportation accidents: This is the leading cause of death during winter storms.

- Exhaustion and heart attacks: Caused by overexertion, these are the two most likely causes of winter storm-related deaths.

- Hypothermia and asphyxiation: Elderly people account for the largest percentage of hypothermia victims. Many older Americans literally freeze to death in their own homes after being exposed to dangerously cold indoor temperatures, or they are asphyxiated because of improper use of fuels such as charcoal briquettes, which produce carbon monoxide.

- House fires: These occur more frequently in the winter because of the lack of proper safety precautions when using alternate heating sources (unattended fires, disposal of ashes too soon, improperly placed space heaters, etc.) Fire during winter storms presents a great danger because water supplies may freeze, and it may be difficult for firefighting equipment to get to the fire.

## WINTER STORMS (CONTINUED)

The elements of winter storms include:

- Heavy snow.
- Ice.
- Winter flooding.
- Cold.

### HEAVY SNOW

Heavy snow can:

- Immobilize regions and paralyze cities.
- Strand commuters.
- Close airports.
- Disrupt emergency and medical services.

Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Homes and farms may be isolated for days, and unprotected livestock may be lost. The cost of removing snow and repairing damage, and the resulting loss of business can have severe economic impacts on cities and towns.

In the mountains, heavy snow can lead to masses of tumbling snow called avalanches. More than 80 percent of midwinter avalanches are triggered by a rapid accumulation of snow, and 90 percent of those occur within 24 hours of snowfall.

An avalanche may reach a mass of a million tons and travel at speeds of up to 200 miles per hour (mph).

## WINTER STORMS (CONTINUED)

The different kinds of snow fall include:

- Blizzards are accompanied by winds of 35 mph of more with snow and blowing snow, reducing visibility to less than one-quarter mile for at least 3 hours.

- Blowing snow is wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground that is picked up by the wind.

- Snow squalls are brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.

- Snow showers are snow falling at varying intensities for short duration with little or no accumulation.

### ICE

Heavy accumulations of ice can disrupt communications and power for days while utility companies repair extensive damage. Even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

The different kinds of ice include:

- Sleet: Raindrops that freeze into ice pellets before reaching the ground are called sleet. Sleet usually bounces when hitting a surface and does not stick to objects. Sleet, however, can accumulate like snow and cause a hazard to motorists.

- Freezing rain: Rain that falls onto surfaces with temperatures below freezing—causing it to freeze to those surfaces is called freezing rain. Even small accumulations of ice can cause a significant hazard.

- Ice storm: Ice storms occur when freezing rain falls and freezes immediately on impact. Communications and power can be disrupted for days.

## WINTER STORMS (CONTINUED)

### WINTER FLOODING

Winter storms can generate flooding, resulting in significant damage and loss of life.

Winter flooding includes:

- Coastal floods: Winds generated from intense winter storms can cause widespread tidal flooding and severe beach erosion along coastal areas.
- Ice jams: Long cold spells can cause rivers and lakes to freeze. A rise in the water level or a thaw breaks the ice into large chunks that become jammed at manmade and natural obstructions. An ice jam can act as a dam, resulting in severe flooding.
- Snowmelt: A sudden thaw of a heavy snow pack that often leads to flooding.

### COLD

Exposure to cold can cause frostbite or hypothermia and become life threatening. Infants and the elderly are the most susceptible.

What constitutes extreme cold varies in different parts of the country:

- In the south, near-freezing temperatures are considered extreme cold. Vegetation may be damaged and pipes may freeze and burst.
- In the north, extreme temperatures are well below zero.

When talking about cold, you should consider:

- Wind chill: Wind chill is not the actual temperature, but rather how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at a faster rate, driving down the body's temperature.
- Frostbite: Frostbite is damage to body tissue caused by extreme cold and resulting in a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes, or the tip of the nose. Frostbite victims require immediate medical treatment. If you must wait for help, slowly rewarm the affected areas. If signs of hypothermia appear, however, warm the body core before the extremities.

## WINTER STORMS (CONTINUED)

- Hypothermia: Hypothermia occurs when the body temperature drops below 95 degrees Fahrenheit. Hypothermia can kill. For those who survive, there are likely to be lasting kidney, liver, and pancreas problems. If you suspect hypothermia, take the victim's temperature. If it is below 95 degrees Fahrenheit, seek medical care immediately! If medical care is not available, warm the person slowly, starting with the body core. Warming the arms and legs first drives cold blood toward the heart and can lead to heart failure. Dress the person in dry clothing and wrap him or her in a warm blanket, covering the head and neck. Do not provide alcohol, drugs, coffee, or any hot beverage or food. Warm broth is the first food to offer.

  Warning signs of hypothermia include:

  - Uncontrollable shivering.
  - Memory loss.
  - Disorientation.
  - Incoherence.
  - Slurred speech.
  - Drowsiness.
  - Apparent exhaustion.

The National Weather Service (NWS) Storm Prediction Center issues watches and warnings of hazardous weather, including winter storms.

The key steps in winter storm preparedness are:

- Understanding the risk. Take time to learn about the winter storm risk in your area.

- Preparing your home with insulation, caulking, and weatherstripping. Learn how to keep pipes from freezing and how to thaw frozen pipes. Store sufficient fuel (or emergency heating equipment). Install and test smoke alarms on all levels of your home.

- Servicing snow removal equipment before the winter storm season. Maintain the equipment in good working order, and ensure that you have an adequate supply of gas.

- Keeping your car's gas tank full for emergency use and to keep the fuel line from freezing.

- Paying attention to warnings. Use a NOAA weather radio with a tone-alert feature or listen to local radio or television for EAS broadcasts.

- Staying indoors and dress warmly. Wear layers of loose-fitting, lightweight, warm clothing. When necessary, remove layers to avoid perspiration and subsequent chill.

## WINTER STORMS (CONTINUED)

- Eating and drinking regularly. Food provides the body with energy for producing its own heat. Drink liquids such as warm broth or juices to prevent dehydration. Avoid caffeine and alcohol. Caffeine, a stimulant, accelerates the symptoms of hypothermia. Alcohol is a depressant and hastens the effects of cold on the body. Alcohol also slows circulation and can make you less aware of the effects of cold. Both caffeine and alcohol can cause dehydration.

- Conserving fuel. Great demand may be placed on electric, gas, and other fuel distribution systems (fuel oil, propane, etc.). Suppliers may not be able to replenish depleted supplies during severe weather. Lower the thermostat to 65 degrees Fahrenheit during the day and 55 degrees at night. Close off unused rooms, stuff towels or rags in cracks under doors, and cover windows at night.

- If outside, protect yourself from hazards. Dress warmly, keep dry, and watch for signs of hypothermia and frostbite. Avoid overexertion. Walk carefully on snowy, icy sidewalks, and use public transportation, if possible.

Take measures to protect yourself if you must drive during a winter storm:

- Winterize your car before the winter storm season. Have a mechanic check your car's systems and install good winter tires with adequate tread. Keep snow and ice removal equipment in the car.

- Keep a cellphone or two-way radio with you when traveling in winter weather. Make sure that the batteries are charged.

- Keep a disaster supplies kit in the trunk of each car used by household members.

- Plan long trips carefully and notify someone of your destination, route, and expected time of arrival.

- If you get stuck, stay with the vehicle, display a trouble sign, and occasionally run the engine to keep warm, keeping the exhaust pipe clear of snow and a downwind window open slightly for ventilation. Use available material, such as newspapers, maps, and removable car mats for added insulation. Avoid overexertion, drink fluids, and watch for signs of frostbite and hypothermia.

Check the forecast when venturing outside. Major winter storms are often followed by even colder temperatures.