



## Preparing for Extreme Cold

Staying warm and safe during winter weather can be hard, especially during winter storms, extreme cold temperatures, high wind, snow, and ice. Cold temperatures are a health concern, especially for outdoor workers, children, and the elderly. This document provides information on cold weather safety, cold-related health problems and treatments, and populations at greater risk for cold-related injury or illness.



### STAY INFORMED OF WEATHER CONDITIONS

It is important to know when your area might be extremely cold by checking weather conditions and forecasts. Have more than one way to check the weather forecast and alerts. The following resources provide weather forecasts along with notifications, alerts, watches, and warnings in the event of severe weather:

- Local television and radio.
- National Weather Service (NWS) website ([weather.gov](https://www.weather.gov)) and/or other forecasting sites available through smartphone or web applications.
- National Oceanic and Atmospheric Administration (NOAA) weather radio.
- [Sign up for ReadyPA Alerts](#) and [download emergency preparedness guide](#).

Cold temperatures can be dangerous, and wind increases the health risks. This happens because wind causes the body to lose heat more quickly. The wind chill describes how cold it feels outside (i.e., “feels like” temperature). The National Weather Service wind chill chart is below:

Wind Speed (mph)	Air Temperature (°F)														
	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35
Calm	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35
5	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52
10	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59
15	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64
20	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68
25	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71
30	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73
35	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76
40	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78
45	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79
50	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81
55	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82
60	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84

Risk of Hypothermia or Frostbite	Risk Level			
	Low Risk	Moderate Risk <i>Exposed skin can freeze in 30 minutes.</i>	High Risk <i>Exposed skin can freeze in 10 minutes.</i>	Very High Risk <i>Exposed skin can freeze in 5 minutes or less</i>

**Table 1: This table shows how to calculate the wind chill using the air temperature and wind speed and determine the risk of hypothermia or frostbite.**



## BE PREPARED

**Stock up on emergency supplies:** An emergency supply kit is a vital part of emergency preparedness. Make sure your emergency kit is in an easy to move container – like a backpack. If you already have emergency supply kits, check them before the winter season for expiration dates and if update supplies if needed. A detailed list of emergency supplies can be found at [ready.pa.gov](https://www.ready.pa.gov). Some examples of critical supplies include:

- Prescription medicine
- Bottled water and non-perishable food
- Flashlight and batteries
- First aid kit
- Contact lenses or glasses
- Items for children (formula) / pets (leash)
- Portable battery to charge electronics (cell phone)

**Be careful about carbon monoxide:** Carbon monoxide (CO) is an odorless, colorless gas that can cause sudden illness and death if you breathe it in. CO is in combustion fumes, such as those made by small gasoline engines, stoves, and generators. People who are sleeping or who have been drinking alcohol can die from CO poisoning before feeling symptoms (such as headache and dizziness). Important steps to avoid CO poisoning during colder months include:

- Install a battery-operated CO detector. If the CO detector alarm sounds, leave your home immediately and call 9-1-1.
- If CO poisoning is suspected, call a health care professional right away.
- Never use a gas range or oven to heat a home.
- Only use a generator outside and far away from open windows or doors. Do not use a generator inside a basement or garage.
- Never use a charcoal grill, hibachi, lantern, or portable camping stove inside a home, garage, or camper.
- If conditions are too cold, seek shelter with friends or at a community shelter.

**Limit outdoor activities:** If possible, limit outdoor activities and stay in a warm indoor area. If you need to be outdoors, protect yourself from cold-related injury and illness by:

- Dressing in layers of light clothing with an outer layer of waterproof material.
- Keeping trips outside short.
- Avoiding exertion and working slowly.
- Working in shifts and taking breaks to drink water.

**Shovel snow safely:** Snow removal is a common outdoor chore during winter and requires physical exertion. Cold weather strains the heart more, which is risky if you have heart disease or high blood pressure. These precautions will help prevent shoveling injuries:

- Push snow instead of lifting when possible. If lifting is necessary, lift with your legs, not your back.
- Avoid twisting motions that may stress your back more.
- Watch for ice patches and wear appropriate footwear to reduce chances of slips and falls.
- Stretch before shoveling.

**Watch for falling trees and downed power lines:** The weight of snow, strong winds, or ice can impact conditions in your area.



## KNOW ABOUT COLD-RELATED HEALTH PROBLEMS AND TREATMENT

Recognizing cold stress quickly is essential to prevent serious or permanent disorders or conditions, such as hypothermia and frostbite.

### Hypothermia

Hypothermia occurs when the core body temperature drops below 95°F. As the core body temperature drops, you may become listless and confused and may make little or no attempt to keep warm. If not treated, extreme cases may cause a significant drop in blood pressure, pulse rate, and breathing, collapse, and death.

#### Initial Symptoms:

Uncontrollable shivering	Slow and slurred speech
Sensation of cold/cool skin	Memory lapse
Irregular heartbeat	Slow/irregular breathing
Weak pulse	Fatigue
Change in blood pressure	Pain in the extremities

#### Treatment:

- ✓ Move to a warm dry area.
- ✓ Remove any wet clothes and replace with dry clothes, cover with blankets.
- ✓ Contact medical professional.
- ✓ If conscious, drink something warm, sweet, and hot (non-alcoholic).
- ✓ Place heat warmers under armpits, sides of chest, and groin.

### Frostbite

Frostbite can occur without hypothermia when the hands, feet, and other body parts do not receive enough heat from the center of the body. This can occur because of inadequate circulation and/or insulation. If not treated, extreme cases may result in tissue loss (especially around areas of the nose, cheeks, ears, fingers, and toes), permanent loss of movement, and amputation.

#### Initial Symptoms:

Cold/pale skin	Blistering of affected area
Feeling of pins and needles or burning	Muscle/joint stiffness
Skin discoloration	Feeling of hard skin
Numbness of affected area	





#### Treatment:

- ✓ Move to a warm place.
- ✓ Loosely cover and protect the affected area from contact.
- ✓ Don't attempt to rewarm frostbitten area as this can result in additional damage to affected tissues, contact and wait for medical professionals.

## CONSIDERATIONS FOR SENSITIVE POPULATIONS

Some groups face more risk of cold stress including children, outdoor workers, the elderly, and those with pre-existing health conditions. Alcohol consumption and drug use may also increase cold-related injury risk. The following table provides additional information to protect these populations from cold temperatures.



Population At Risk		Protective Measures
	Newborns / young children	<ul style="list-style-type: none"><li>• Infants less than 1 year old should never sleep in a cold room. The best temperature for an infant's bedroom is between 68 and 72° F.</li><li>• Give warm clothing and try to maintain a warm indoor temperature.</li><li>• If an infant has hypothermia, they may show symptoms of bright, red, and cold skin and excess tiredness.</li></ul>
	Workers	<ul style="list-style-type: none"><li>• Workers are often required to be outside in cold temperatures for long periods of time, which causes risk for cold related injury/illness if extra precautions are not taken.</li><li>• Extra precautions may include using personal protective equipment (PPE), wind breaks and heat tents.</li></ul>
	Elderly people	<ul style="list-style-type: none"><li>• Older adults make less body heat. If you are over 65 years of age, check the temperature in your home often during severe cold weather.</li></ul>
	People with additional pre-existing health conditions	<ul style="list-style-type: none"><li>• People with high blood pressure and heart disease have greater risk for cold-related injury and illness.</li><li>• Overexertion when performing outdoor activities in the cold (such as shoveling snow) may increase this risk.</li></ul>

## ADDITIONAL RESOURCES

- Read winter weather safety information from the [Centers for Disease Control and Prevention \(CDC\)](#).
- Read winter weather safety information from the [National Weather Service \(NWS\)](#).
- Get winter safety information for workers from the [Occupational Safety and Health Administration \(OSHA\)](#).
- Read winter weather safety information from [Ready.gov](#).
- Find out how to stay safe during winter storms on [Ready PA](#).
- Look at this infographic from the Kansas Department of Health on [treating frostbite and hypothermia](#).