



Photo by Diane Poole and Amanda Vanderveer

Photo by Bryan Kercher

Photo by Dale Lewis

Photo by Roger Weidner

Eye on Safety

Inside this issue:

- Dangers of working in cold weather..... 1
- Safety focus: Holiday health and safety tips 3
- Where is my money going? 4

Dangers of working in cold weather

Work doesn't stop when it gets cold outside. Winter weather can affect any workplace. Storms bring snow, ice, and wind that make for hazardous travel conditions, cause utility outages and structural damage, and impact emergency response activities. On a personal level, exposure to cold temperatures can cause serious health problems. Everyone can address these hazards by taking precautions appropriate for the situation.

weather. Even if there isn't a raging storm, a vehicle that breaks down during extremely cold temperatures can leave a motorist stranded in a life-threatening situation.

Plan ahead and gather supplies before a winter storm hits. Have flashlights, a radio, extra batteries, first aid supplies, food and water, warm clothes or blankets, and fire extinguishers available.

**National Institutes of Health
Office of Research Services
Division of Occupational
Health and Safety**

Providing a safe and healthy environment for employees, patients and visitors.

“Safe science and good science go hand-in-hand.”

The articles in this Newsletter are intended to provide general summary information to the National Institutes of Health (NIH) community. They are not intended to take the place of either the written law or regulations. It is not NIH's intention to provide specific advice to readers of this Newsletter, but rather general information to help better understand how to prevent or reduce workplace injuries and illnesses. Reference in this Newsletter to any specific commercial products, process, service, manufacturer, or company does not constitute its endorsement or recommendation by the U.S. Government or NIH. This is not an NIH publication.

There are plenty of industries where employees have routine exposure to cold weather. Consider workers in construction, agriculture, commercial fishing, transportation, and logging. Other workers who are exposed to the cold include drivers, maintenance staff, emergency responders, utility employees, etc. In addition, everyone can be exposed to the cold weather during the daily commute.



Winterize your vehicle – check the battery, oil, antifreeze, wind-shield washer fluid, tires, etc. Keep your gas tank near full to avoid frozen fuel lines. Tell someone your travel plans. Carry emergency supplies. If you're caught in a storm, stay in your vehicle. Run the motor about ten minutes each

hour for heat, but open the window a little for fresh air to avoid carbon monoxide poisoning, and keep the exhaust pipe clear of snow and ice. Set up a signal for rescuers.

Winter storm conditions

The National Weather Service issues advisories, watches, and warnings to keep the public informed about hazardous weather conditions. Pay attention to watches and warnings!

The National Weather Service's wind chill index provides a useful formula for communicating the potential danger from the combination of wind and cold temperatures. As wind increases, heat is carried away from the body at a faster rate. The wind chill chart gives indications of how many minutes it may take for skin to develop frostbite.

Travel is especially dangerous during a winter storm. Highway crashes, often resulting in serious injuries and deaths, occur more often than they do in nice

(continued on page 2)

Dangers of working in cold weather *(continued from page 1)*

Health hazards

Harmful effects from exposure to cold conditions can include:

- Frostbite,
- Trench foot, and
- Hypothermia.

Many winter deaths are related to ice and snow or exposure to cold.

During cold weather, about 60 percent of a person's body fuel is used to heat the body. People gain body heat from food and movement. Body heat is lost through convection (wind), conduction (contact with cold surfaces), radiation, and evaporation. When body temperature drops even a few degrees below its normal temperature of 98.6°F, the blood vessels constrict to reduce blood flow to the body's surface. This helps to reduce heat loss and keeps the body's core warmer. Shivering generates heat by increasing the body's metabolic rate.

Wearing inadequate or wet clothing puts a person at increased risk. Alcohol, nicotine, caffeine, and certain medications can lessen the body's ability to regulate its temperature or can impair a person's judgment. Diabetes or heart, vascular, and thyroid problems (or even having a cold) may make a person more susceptible to the effects of cold weather. The elderly are more vulnerable to winter weather's effects. And, exhaustion or having to stay still speeds up the effects of the cold.

Frostbite

Frostbite means that skin tissue freezes. Frostbite starts with uncomfortable feelings of coldness; tingling, stinging, or aching sensations in the affected area; and numbness. Ears, fingers, toes, cheeks, and noses are especially at risk. Frostbitten areas appear white or pale.

Get medical attention immediately if you think you have frostbite. Cover the affected area with dry, sterile gauze or soft, clean cloth bandages. Don't rub the skin because this can cause greater injury. Don't try to rewarm the area unless you've been trained in the proper procedures, and then only if medical treatment will be delayed. A case of frostbite can require hospitalization or surgery.

Trench foot

Trench foot is caused by long, continuous exposure to a wet, cold environment or actual immersion in water. For example, commercial fishermen are at risk. Symptoms include a tingling or itching sensation, burning, pain, and swelling.

If you think you might have trench foot, get medical assistance as soon as possible. Move the victim to a warm,

dry place. Carefully wash, dry, rewarm, and slightly elevate the affected area.

Hypothermia

Hypothermia is a condition where the person has a low body temperature. This condition can occur in any climate.

Hypothermia's first symptoms (shivering, an inability to do complex movements, lethargy, and mild confusion) occur as the core body temperature decreases to around 95°F. As the body temperature continues to fall, the victim becomes increasingly dazed and unable to do even simple movements. Hypothermia is most severe when the body temperature falls below 90°F. At this point, the victim's heart rate, blood flow, and breathing have been slowed. If the person is unresponsive and not shivering, assume he or she is suffering from severe hypothermia. Unconsciousness and heart failure can result from severe hypothermia.

Get medical attention when moderate or severe hypothermia is suspected. Get the victim to a shelter, remove wet clothing, and add layers of dry clothing, blankets, or a pre-warmed sleeping bag. In mild cases, or when medical treatment will be delayed, use rewarming techniques such as providing body-to-body contact in a pre-warmed sleeping bag and applying heat packs to the victim's armpits, neck, chest, and groin. A person suffering from mild hypothermia may be given warm fluids to drink.

Protection in cold weather

Wear insulating layers of clothing to get the best protection. Remove layers as needed to avoid wetness from perspiration and the resulting chill. Wear at least three layers of clothing. Start with an inner layer that will wick perspiration away from the skin and allow ventilation (there are many effective synthetic fabrics available). Wear a middle layer that will retain its insulation value when it's wet or damp with perspiration (use wool or specialized synthetic fabrics). Down provides good insulation when it's dry. Then, wear an outer layer that will break the wind, repel water, and allow some ventilation (use Gore-Tex® or nylon).

Pay special attention to protecting your feet, hands, face, and head. Up to 40 percent of body heat can be lost when the head is exposed. Footwear should be insulated.

In addition, work areas can be shielded from the wind. Portable heaters can be provided at the jobsite. A heated shelter should be available when the wind chill is 20°F or less. Don't get burned from touching heaters, and watch for fire hazards.

Try to reduce outdoor activities in cold weather, and try to limit activities to the warmest hours of the day. Work schedules should allow some time for workers to adjust to the cold over a few days. In cold conditions, workers should be able to set their own pace and take breaks when needed.

Safety focus: Holiday health and safety tips

Traditions, entertaining, and decorating are all part of the holiday season. Give the gift of health and safety to yourself and others by following these tips:

- 1. Wash your hands often.** Keeping hands clean is one of the most important steps you can take to avoid getting sick and spreading germs to others. Wash your hands with soap and warm water for at least 20 seconds.
- 2. Stay warm.** Cold temperatures can cause serious health problems, especially in infants and older adults. Stay dry, and dress warmly in several layers of loose-fitting, tightly woven clothing.
- 3. Manage stress.** The holidays don't need to take a toll on your health and pocketbook. Keep a check on overcommitment and overspending. Balance work, home, and play. Get support from family and friends. Keep a relaxed and positive outlook. Make sure to get the proper amount of sleep.
- 4. Handle and prepare food safely.** As you prepare holiday meals, and any meals, keep yourself and your family safe from food-related illness. Wash hands and surfaces often. Avoid cross-contamination by keeping raw meat, poultry, seafood, and eggs (including their juices) away from ready-to-eat foods and eating surfaces. Cook foods to the proper temperature. Refrigerate promptly. Do not leave perishable foods out for more than two hours.
- 5. Travel safely.** Whether you're traveling across town or around the world, help ensure your trip is safe. Don't drink and drive, and don't let someone else drink and drive. Wear a seatbelt every time you drive or ride in a motor vehicle.
- 6. Stay active.** Be active for at least 2½ hours a week. Help kids and teens be active for at least 1 hour a day.



Selecting a Tree for the Holidays

Christmas trees account for hundreds of fires annually. Typically, shorts in electrical lights or open flames from candles, lighters, or matches start tree fires. If you put up a natural tree, be sure to select a fresh one. Needles should be green and hard to pull back from the branches, and the needles should not break if the tree has been freshly

cut. The trunk should be sticky to the touch. Old trees can be identified by bouncing the tree trunk on the ground. If many needles fall off, the tree has been cut too long and, has probably dried out.

Keep the tree watered. Dry and neglected trees can be a fire hazard. Do not place your tree close to a heat source, including a fireplace or heat vent. The heat will dry out the tree, causing it to be more easily ignited by heat, flames, or sparks. Do not put your live tree up too early or leave it up for longer than two or three weeks.

Dispose of your tree properly. Take it to a recycling center or have it hauled away by a community pick-up service.

Holiday Lights and Decorations

Inspect holiday lights each year for frayed wires, bare spots, gaps in the insulation, broken or cracked sockets, and excessive kinking or wear before putting them up. Use only lighting approved by a testing laboratory.

Do not link more than three light strands, unless the directions indicate it is safe. Connect strings of lights to an extension cord before plugging the cord into the outlet. Make sure to periodically check the wires – they should not be warm to the touch. Do not leave holiday lights on while you are gone.

Consider switching to LED lights to save energy and money. In addition, LED lights are much cooler than incandescent bulbs, reducing the risk of fires.



Fires

Never leave a burning candle unattended or place lit candles on a tree. Consider using battery-operated flameless candles, which can look and smell real.

If you do light candles, make sure they are in stable holders and place them where they cannot be easily knocked down. Keep candles at least 12 inches from anything that can burn. Avoid using candles in bedrooms and sleeping areas.

Wrapping paper should not be burned in the fireplace. This could result in a very large fire, giving off dangerous sparks and embers that may result in a chimney fire.



NIH, OD, ORS, DOHS
Bldg 13, Room 3K04
13 South Drive, MSC 5760
Bethesda, MD 20892-5760
Phone: (301) 496-2960
Fax: (301) 402-0313

The purpose of this newsletter is to provide a forum for the dissemination of health and safety information. It is intended to enhance communication to National Institutes of Health (NIH) employees, raise awareness of current safety policies and procedures, and provide guidance on relevant issues. It is provided as a service by the NIH, Office of Research Services, Division of Occupational Health and Safety. This is not an NIH publication.

For more health, safety and services information, visit the NIH, Office of Research Services, Division of Occupational Health and Safety's website at: <http://www.ors.od.nih.gov/sr/dohs> or call us at: (301) 496-2960.

If you would like to receive on-going health and safety information, please join our "AHEALTHSAFENIH" LISTSERV at <https://list.nih.gov/cgi-bin/wa.exe?A0=ahealthsafenih>.

"This custom newsletter is not for sale or redistribution outside of the NIH; it is for NIH employees only and not authorized to be placed on the Internet or in any other forum accessible by the public; the NIH may place the custom safety newsletter on a network server, intranet, or in a learning management system accessible only to the NIH employees; the NIH may also e-mail and make printed copies of the custom safety newsletter provided that the newsletter is distributed only to NIH employees."

Where is my money going?

"There is no comparison between that which is lost by not succeeding and that which is lost by not trying."

~ Francis Bacon

To see where your hard-earned cash is going, spend a week or month tracking spending. Capture every expense, from coffee to gas to groceries.

Use a spreadsheet to place these expenditures into categories, such as groceries, eating out, housing, insurance, and entertainment. This lets you see how much is spent on necessities – such as rent and utilities – and what you're paying for extras, like a concert, fast food lunches, or new shoes you really didn't need.

Once you've tracked your spending, create a spending plan and set savings goals. You'll know how much you need to set aside for necessities, and where you should cut back.

One way to begin breaking down how your money should be spent is to use the 50/30/20 rule. This method breaks down your after-tax income this way:



50 percent for needs (such as housing, utilities, groceries, insurance, transportation, minimum credit card payment)



30 percent for wants (such as eating out, travel, cable, cell phone plans, gym membership, nonessential clothing)



20 percent for savings and debt repayment (emergency fund, retirement, high-interest debt)

Use these percentages to break your income down into the three general categories, and then decide how much to spend on the areas within each category.

If your budget adds up to more than you're bringing in, look for ways to cut back. You may need to find an apartment with lower rent, eat out less, or save money on gas by using public transportation.

It's important to have a spending plan or budget to make sure your money is being spent on things that matter most to you. Cutting back on some expenses now can help you build an emergency fund and meet a longer term goal, such as buying a house or a new car.

By the numbers

4 in 10 adults could not cover a \$400 emergency expense without borrowing money or selling something.

25 percent of adults have no retirement savings or pension.

Less than 40 percent of adults think their retirement savings are on track.

Source: Report on the Economic Well-Being of U.S. Households in 2017-May 2018 from the Federal Reserve Board



Tracking expenditures can help you manage your budget.