

# Preventing Cold-Related Illness

## ACTSAFE SAFETY BULLETIN #34

Working in cold, wet, or windy conditions can be hazardous for performers and crew members, potentially leading to cold-related illness that can result in permanent tissue damage or even death. Risks may increase with film-related practices such as working near manufactured wind or rain towers, wearing costumes that are inappropriate for the conditions, or dealing with emergency situations such as falling into water.

Employers are responsible for having an overall health and safety program in place that's specific to the workplace. There are also numerous actions that employers, workers, and supervisors can take to prevent cold-related illness.

## WHAT IS COLD-RELATED ILLNESS?

Our bodies naturally maintain a temperature of about 37°C. Cold-related illness, sometimes referred to as cold stress, occurs when skin temperature, and eventually internal body temperature, drops and the body is unable to warm itself. Cold-related illness can happen at any time of year, especially if there's prolonged exposure.

Cold-related illness	Signs and symptoms
<p><b>Chilblains</b> A painful, non-freezing injury of the skin, usually on the hands or feet. Can lead to infection and severe damage if left untreated.</p>	<ul style="list-style-type: none"> <li>• Small, red, swollen areas of skin</li> <li>• Tingling, burning, or itching</li> <li>• Tender blue bumps that develop after rewarming</li> </ul>
<p><b>Trench foot (immersion foot)</b> A painful, non-freezing injury of the feet caused by prolonged exposure to wet and cold conditions.</p>	<ul style="list-style-type: none"> <li>• Tingling, burning, or itching, then numbness</li> <li>• Feet feeling heavy or wooden, difficulty walking</li> <li>• Red, swollen skin that turns pale and clammy</li> </ul>
<p><b>Frostbite</b> A serious medical condition in which the skin and tissues freeze, usually extremities such as the nose, ears, fingertips or toes. Frostbite can lead to permanent damage, gangrene, and amputation.</p>	<ul style="list-style-type: none"> <li>• Pins and needles, throbbing or aching</li> <li>• Reddish skin that turns paler and may appear blue</li> <li>• Skin may feel hard and frozen to the touch</li> <li>• Clumsiness from joint and muscle stiffness</li> <li>• Painful blisters or scabs when rewarming</li> </ul>
<p><b>Hypothermia</b> A medical emergency when the body loses heat faster than it can produce it, resulting in a dangerously low body temperature that can lead to death. Hypothermia occurs when body temperature falls below 35°C. Can occur at warmer temperatures if a person is chilled from precipitation, sweat, or cold-water submersion.  Contact first aid immediately and call 911.</p>	<ul style="list-style-type: none"> <li>• Shivering early on that stops once the hypothermia is moderate to severe</li> <li>• Clumsiness or lack of coordination</li> <li>• Drowsiness or very low energy</li> <li>• Slurred speech or mumbling</li> <li>• Confusion or memory loss</li> <li>• Slow, shallow breathing</li> <li>• Weak pulse</li> <li>• Loss of consciousness</li> </ul>



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## HAZARDS

In British Columbia, your employer is required to identify hazards and assess the risks associated with them. There are three main causes of cold-related illness.

### Environment

- Air temperatures and wind speeds, especially with equivalent wind chill temperatures below freezing
- Wet conditions, including from rain towers or snowmaking machines
- Working on, in, or near a body of water (e.g., diving, performing in water, working on barges)

### The work

- Strenuous work that can lead to sweating (e.g., fight scenes, material or equipment handling)
- Standing or sitting for long durations (e.g., stand-ins, script supervisors, PAs, security)
- Working with bare hands, especially with cold surfaces or materials such as weapons or lighting stands (e.g., camera operators, stunt riggers, grips, weapons handlers, costumers, script supervisors)
- Working with evaporative liquids, such as gasoline or cleaning products (e.g., drivers and special FX workers handling fuel, grips spraying dolly tracks, paint departments)

- Workers at off-set locations (e.g., greens, prep and wrap crews, animal handlers/wranglers, security)
- Transportation or travel in the open (e.g., snowmobiles, walking)
- Jobs, tasks, or locations where workers or departments have expressed concerns about the cold (e.g., BG, PAs, security, external BG holding areas)

### The worker

- Individual risk factors such as underlying health conditions, physical conditioning, previous cold injuries, fatigue, medications, or age (children or older adults)
- Performers wearing costumes or footwear that aren't adequate for the conditions (includes BG)
- Lack of access to water, or costumes that make it difficult to drink (dehydration can make people more susceptible to cold-related illness)



### Reporting hazards

Report any hazards or other safety issues to your supervisor or employer immediately. For non-urgent concerns, talk to your worker rep or someone on the joint health and safety committee.

## CONTROL MEASURES

Your employer may be required to develop an exposure control plan (ECP) and control measures to help protect against cold-related illness.

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### Productions and supervisors

Productions and supervisors share responsibility for ensuring that control measures such as the following are implemented and that workers follow them:

- Workers are educated and trained in the risks and how to manage their cold exposure within permissible limits.
- Workers are trained to inform their supervisor or employer if they feel too cold or ill.
- Cold-related illness warning signs are posted and easily accessible by workers.
- Warming areas such as shelters or enclosed vehicles are available.
- Barricades or other structures such as snow blinds are available to protect workers against cold air.
- Hot beverages are provided for workers and adequate washroom facilities are readily available so workers will continue to hydrate during the shift.
- Heated metal tools and handles are available, or there are thermal insulating materials, heated blankets, or warming lights.
- Continually assess the various worksites.
- Inform workers about expected conditions and ask them to prepare by bringing appropriate clothing. Include this information on call sheets, in casting breakdowns for background performers, and during worker orientations. Workers are responsible for providing their own basic cold-weather clothing.

### Workers

Here are some basic guidelines that workers can use to prevent cold-related illness:

- Bring your own basic cold-weather clothing, which you are responsible for.
- Stay hydrated by consuming warm fluids such as soups and, ideally, non-caffeinated beverages. Drinks with electrolytes are encouraged.
- Use your prescribed rest breaks to warm up.
- If wet conditions are expected, bring a change of clothes, especially a second set of socks and shoes.

- Use heating devices such as hot water bottles, battery-heated clothing, or heat packs in gloves, shoes, or pockets.
- Monitor yourself and others around you for any signs or symptoms of cold-related illness.
- Remove wet shoes and socks and dry them off. Avoid working with wet feet.
- Make sure your vehicle is equipped with supplies for cold-weather conditions.

### Clothing

Outer clothing made with tightly woven and water-repellent materials is best for wind protection. Wool, silk, or polypropylene inner layers hold body heat better than cotton and denim. Wicking materials can help with sweat when workers are doing strenuous work.

A warm hat and scarf will help prevent body heat from escaping from the head, face and neck. Mittens are better than gloves for keeping hands warm.



### Measurement

On-site measurements are an essential part of a cold stress assessment when the equivalent wind chill temperature is  $-7^{\circ}\text{C}$  or lower. There is specialized measurement equipment available, or you can use a weather app.

Even at higher air temperatures, there can be a risk if the wind speed is high. See the [Wind Chill Temperature Index](#) which describes acceptable working conditions when proper clothing and precautions are used.

### First aid

If you notice any signs or symptoms of cold-related illness in yourself or others, immediately remove yourself or that person from further exposure and summon first aid. The first aid attendant will recommend what to do next, based on your production's first aid procedures. Workers experiencing signs or symptoms should always check in with first aid before driving home or to hospital.



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## EDUCATION AND TRAINING

Workers should be provided with education and training on the risks and controls for cold-related illness. This should also include the signs and symptoms of cold-related illness, how and where to access first aid, and when to seek medical assistance. Before each shift, supervisors should ensure that workers have been adequately educated and trained on these topics.

## REGULATORY REFERENCES

For more information on requirements, see the following sections of the Occupational Health and Safety Regulation and its associated guidelines:

- [Section 7.33–7.38, Cold exposure](#)
- [G7.33-1 to 7.37-2, Cold exposure](#)
- [G7.35-4, Survival kit items](#)

You can find searchable versions of the Regulation and the guidelines at [www.worksafebc.com](http://www.worksafebc.com)

## RELATED RESOURCES

### Actsafe

- Toolbox Talk: [Working in Wet or Cold Weather](#)
- Fact Sheet: [Propane Guidelines](#)
- Toolbox Talk: [Radiant Propane Heater Use](#)

### WorkSafeBC

[Cold Stress](#)

### Road Safety at Work

[Winter Driving Survival Checklist](#)

### Canadian Center for Occupational Health & Safety (CCOHS)

[Cold Environments](#)

### Actsafe Safety Association

Actsafe ([www.actsafe.ca](http://www.actsafe.ca)) is a not-for-profit health and safety association supporting British Columbia's arts and entertainment industries. Actsafe provides resources and training to employers, workers, and supervisors. We are always here to provide information relevant to best practices around health and safety in the arts and entertainment industries in B.C.

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