

Public Health Recommendations to  
Reduce the Impacts of Exposure to  
Winter Weather on People  
Experiencing Homelessness in  
British Columbia

## Acknowledgements

We respectfully acknowledge that this work took place in person on the traditional territories of the W̱SÁNEĆ and Lekwungen peoples, and the Songhees and Esquimalt Nations, as well as online with participants joining from across these lands also known as British Columbia.

We gratefully acknowledge the participation of the multiple experts involved in the development of this guide. Thank you all for your commitment to this endeavour and for sharing your knowledge and time.

## Contact

If you would like planning support regarding the recommended actions below, please contact [Heat.Response@gov.bc.ca](mailto:Heat.Response@gov.bc.ca) to be connected with the most relevant public health authority.

## Versions and Revisions

Every effort has been made to provide proper acknowledgement of original sources. If you identify cases where this has not been done, please notify us at so we can take appropriate corrective action.

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## Purpose of this Document

**The public health recommendations in this document have been developed by the BC Health Effects of Anomalous Temperatures Coordinating Committee (BC HEAT Committee). Early in winter 2024, this initial document that contains general recommendations, will be expanded to provide targeted recommendations for BC ministries, Indigenous Governing Bodies, local authorities (this includes municipalities, regional districts, the Nisga'a Nation, and a treaty first nation), non-governmental organisations, partners, and service providers.**

This document does not include an overview of the existing government or community services available to people experiencing homelessness (PEH) in relation to mitigating exposure to cold winter weather. This document is focused on providing public health guidance to help prevent the disproportionate impacts that winter weather exposure and resulting cold related injuries have on PEH. This is also intended to provide guidance and serve as a reference for organisations and various bodies that support [populations at risk](#) of severe outcomes, and particularly those that support PEH, when developing activation criteria for their winter weather plans and/or when responding to winter weather events. Preventing cold-related injuries and deaths is possible, but it requires coordinated and timely interventions to reduce exposure and risk. Not all recommendations provided here will be relevant to every interested party and should be adapted according to service role, capacity, available resources, and the local context.

In addition to this guidance document, public health authorities, including the regional health authorities and First Nations Health Authority, are available to support planning related to the recommendations that follow.

## Background on the BC Health Effects of Anomalous Temperatures Coordinating Committee (BC HEAT Committee)

The BC HEAT Committee was established in January 2022, and intentionally named to support planning and response efforts related to the public health impacts of anomalous temperature events. The BC HEAT Committee is led by members of the BC Centre for Disease Control and the Ministry of Health. The BC HEAT Committee includes representation from each regional health authority, First Nations Health Authority, BC Emergency Health Services, BC Housing, Environment and Climate Change Canada (ECCC), Health Emergency Management BC, the Office of the Provincial Health Officer, the Ministry of Emergency Management and Climate Readiness (EMCR), and WorkSafe BC.

### Context

Cold weather events can challenge anyone to stay safe and warm. People experiencing homelessness (PEH), and particularly people living in places not intended for permanent human habitation<sup>1</sup>, often experience prolonged exposures that can lead to injury and death, even in relatively mild conditions. At a population scale, periods of cold weather result in increased mortality, and PEH are more likely to experience significant effects due to underlying health conditions, challenges accessing services, and inability to take protective measures<sup>2</sup>. The use of health services among PEH is higher than in the general population when the weather is cold<sup>3</sup>. Amplifying this is the concurrent toxic drug and housing crises, and a rapid increase in the overall number of PEH in BC, particularly over the last two years<sup>4</sup>.

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<sup>1</sup> Gaetz, S. et al. (2012). Canadian Definition of Homelessness (Definition for Unsheltered Homeless). Canadian Observatory on Homelessness Press. <http://www.homelesshub.ca/homelessdefinition>

<sup>2</sup> Gronlund, C.J. et al. (2018). Climate change and temperature extremes: A review of heat- and cold-related morbidity and mortality concerns of municipalities. *Maturitas*. (114):54–59.

<sup>3</sup> Zhang, P. et al. (2019). Cold weather conditions and risk of hypothermia among people experiencing homelessness: Implications for prevention strategies. *International Journal of Environmental Research and Public Health*.16 (18):3259.

<sup>4</sup>BC Housing. Homeless Counts 2023 versus 2020-21 <https://www.bchousing.org/research-centre/housing-data/homeless-counts>

There are PEH living in unsafe conditions in encampments and other temporary arrangements throughout multiple communities in BC. In the 2020/21 Report on Homeless Counts<sup>5</sup>, 38% of respondents were unsheltered and, of these, 50% reported they were sleeping outdoors (including in tents, etc.). People living and sleeping outdoors in cold temperatures are at higher risk of cold-related injuries, such as hypothermia and frostbite. There is also increased risk of burn injuries<sup>6</sup>, carbon monoxide poisoning, smoke inhalation, property damage, and death due to use of small camp stoves or burning different fuels to keep warm inside an encampment or temporary structure. All these risks may be compounded for those who use substances, which can affect thermoregulation (e.g., alcohol and opioids) and the ability to perceive and respond to environmental threats.

In addition to being insecurely housed, there are many contextual risk factors that contribute to individual susceptibility when exposed to cold temperatures. These are described in the [Populations at Risk](#) section.

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<sup>5</sup> BC Housing. (2021). 2020-21 Report on Homeless Counts in B.C. <https://www.bchousing.org/publications/2020-21-BC-Homeless-Counts.pdf>

<sup>6</sup> Vrouwe, S.Q. et al. (2020). The homelessness crisis and burn injuries: A cohort study. *Journal of Burn Care & Research*. July 3;41(4):820-827.

## Public Health Recommendation on Temperature Thresholds

The number of cases of [hypothermia and frostbite](#) among PEH has been increasing in all regional health authorities over the past decade, and especially the past two years. When the temperature falls below 10°C and a person is not able to be sufficiently protected from exposure to the cold air for prolonged periods, an individual's body temperature can drop and cause hypothermia. In some instances hypothermia can even occur at temperatures warmer than 10°C when combined with prolonged exposure to wet and windy weather.

Data from emergency departments showed that within Interior Health Authority and Northern Health Authority most cases of hypothermia occurred at temperatures of 0°C or colder. Within Fraser Health Authority, Island Health Authority, and Vancouver Coastal Health Authority most cases of hypothermia occurred at temperatures of 10°C or colder.

Based on provincial evidence, the BC HEAT Committee recommends that cold winter weather response plans for PEH should be enacted when the daily low temperature is forecast to be 0°C or colder. The Committee also recommends that plans should be enacted at higher temperatures when the cold weather forecast includes wet, snowy, and/or windy conditions.

These are public health recommendations based on the available evidence. However, each community is responsible for determining thresholds for its local cold winter weather response plan as circumstances, practicality and resources permit. Public health authorities, including the regional health authorities and First Nations Health Authority are available to support planning regarding the recommendations in this document.

## Populations at Risk

- Anyone exposed to cold weather conditions can experience cold-related injuries, but some people are at higher risk for frostbite, hypothermia and other impacts, including:
  - people experiencing homelessness (those who are unsheltered, unhoused or living in places not intended for permanent human habitation)
  - people who use substances, including alcohol, that modify their ability to feel the effects of cold exposure or to respond and modify their exposure to cold conditions<sup>7</sup>
  - people who spend long periods of time outdoors for work or recreation
  - people living in housing without adequate insulation or without the ability to generate enough heat (also known as fuel poverty)
  - people with disabilities, limited mobility, certain medical conditions such as diabetes, peripheral neuropathy (muscle weakness, tingling, numbness), and diseases affecting the blood vessels
  - people taking certain medications including beta-blockers
  - older people (over 60 years of age), infants and young children

PEH are often coping with more than one of these risk factors, further compounded by prevalent issues such as malnourishment and inadequate winter clothing, and as a result PEH are often most at-risk of death or injury during cold weather.

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<sup>7</sup> Petrone, P. et al. (2014). Management of accidental hypothermia and cold injury. *Current Problems in Surgery*. (51):417–431.



## Key Information About Cold-Related Injuries

A normal body temperature is approximately 37°C (98.6°F). When core body temperature drops by 1 or 2°C (1.8 or 3.6°F) or the body is exposed to severe cold, there is increased risk of cold-related injury. The most common cold-related injuries are hypothermia and frostbite, as described below.

- **Hypothermia**
  - Warning signs and symptoms:
    - shivering, exhaustion
    - confusion, fumbling hands
    - clumsiness or lack of coordination
    - memory loss, slurred speech or mumbling
    - drowsiness or very low energy
    - slow, shallow breathing
    - weak pulse
    - loss of consciousness
    - cold skin
  - Note that many of the hypothermia warning signs in adults also can occur due to substance use and overdose. Some individuals may be experiencing symptoms from both cold exposure and substance use at the same time. **If hypothermia warning signs are present following exposure to the cold, always assume the individual is hypothermic until core temperature is confirmed** and seek treatment for potential hypothermia, regardless of known substance use.
  - Warning signs of hypothermia in infants may be less obvious than in adults, especially as young infants may not shiver.
  - **If you think someone may be hypothermic:**
    - Someone who is cold, shivering, alert, and complaining—call 811 for advice.
    - Take the person’s temperature, if possible. If it is below 35°C (95°F), the situation is an emergency. Get medical attention immediately—call 911.
    - Call 911 if in doubt about whether a person has hypothermia.
    - A person with severe hypothermia may be unconscious and may not seem to have a pulse or to be breathing. In this case, handle the person gently, call 911 and get emergency assistance immediately.
    - If medical care is not available, begin warming the person, as follows:
      - Get the person into a warm room or shelter.

- If the person has on any wet clothing, remove it.
  - Warm the center of the body first—chest, neck, head, and groin—using an electric blanket (if available), warm water bottles, heating packs, and reflective blankets. Or in situations where external sources of heat are unavailable use body heat under loose, dry layers of blankets, clothing, towels, or sheets.
  - Warm beverages can help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.
  - After body temperature has increased, keep the person dry and wrapped in a warm blanket, including the head and neck.
  - Get medical attention for the person as soon as possible.
- **Frostbite:**
  - Warning signs:
    - At the first signs of redness or pain in any skin area, get out of the cold or protect any exposed skin—frostbite may be beginning. Where possible get to a warm location and keep the impacted skin warm.
  - Symptoms:
    - a white or grayish-yellow skin area
    - skin that feels unusually firm or waxy
    - numbness (a person is often unaware of frostbite until someone else points it out because the frozen tissues are numb)
  - **If you think someone may have frostbite:**
    - Frostbite should be evaluated by a health care provider.
    - Do not begin warming frostbite if there is a risk of the area re-freezing in the near term.
    - Start warming the frostbite impacted area of skin when you know the person will be able to stay warm for a significant period of time to avoid greater damage.
- **Other cold injuries:**
  - [Trench foot](#) or [chilblains](#) can also develop gradually in moderate temperatures, especially when the skin is wet.
  - There is a higher risk of injury among PEH during cold weather due to accidents, falls, windfall, carbon monoxide poisoning, burns and fires.

**To learn more about recognizing when someone is suffering from a cold-related emergency and how best to respond please see [Cold-Related Emergencies: Staying Warm and Safe in Canadian Winters](#) by the Canadian Red Cross Society.**

## Recommended Actions: All Partners

*The recommendations below are meant to support planning from a public health perspective as capacity and funding permits. Public health authorities, including the regional health authorities and First Nations Health Authority, are available to support planning regarding the recommendations in this document.*

### Recommended Pre-season Actions

- Create and/or review your winter weather response plans as applicable to the setting.
- Connect with system partners as needed.
- Identify and allocate necessary staff and physical resources.
- Collaborate with Indigenous Governing Bodies and local authorities to identify and engage with key partners and strategic community groups that interface with PEH to raise awareness about the risks of exposure to cold temperatures.
- Create and pre-approve communications materials or templates providing cold exposure related health information and guidance.
- At the start of the cold season, consider a mass email to partners (service providers and NGO's etc.) sharing applicable [resources](#) and supporting information about the upcoming winter season. [Some sources of information on winter weather preparedness and staying healthy during the colder months include: Health Canada [Extreme Cold](#), HealthlinkBC [Cold Temperature Exposure](#) and [Your Health This Winter](#), National Collaborating Centre for Environmental Health [Extreme cold](#), Prepared BC [Severe Winter Weather Preparedness Guide](#), Fraser Health Authority [Your healthy winter guide 2022/23](#), Vancouver Coastal Health Authority [Health Effects of Cold Weather](#).] [Some sources of shelter information and cold response locations include: [street messenger](#) (primarily Lower Mainland), [BC211 Shelter and Street Help Line](#) shelter list, [BC Housing Shelters](#) map, emergency warming centres and public warming spaces can be found via the [EMCR Community Response Locations Portal](#).]

## Recommended Actions When Enacting a Winter Weather Response Plan for People Experiencing Homelessness

- Sign up for ECCC Weather Alerts and monitor local weather conditions, via the Environment and Climate Change Canada [ECCC website](#) and [WeatherCAN](#) app.
- Where possible and applicable, sign up to receive notifications when an extreme weather alert has been issued in your community or monitor whether your community has activated to open extreme weather response shelters. [See description of an extreme weather alert and extreme weather response shelters in the [BC Housing Extreme Weather Response Program Framework](#)]
- Monitor [EmergencyInfoBC](#) web and social media platforms for verified information about provincial emergency events.
- As appropriate, participate in regional EMCR coordination calls with Indigenous Governing Bodies and local authorities.
- Consider creating a press release or statement for the first cold weather event of the season. As feasible, utilize all media platforms and other modes of communication most likely to reach populations at high risk of severe outcomes and those that support them.
- As appropriate, advise local partners on recommended response actions.
- Participate in partner emergency response calls, as needed.
- Draft internal bulletins necessary to ensure that all are aware and prompted to enact cold winter weather response plans where they exist.
- For extended or extreme cold events, or when combined with other weather events or emergencies (e.g., prolonged power outages or significant transport disruption), impacted regions to consider elevation to Emergency Operations Center (EOC's) with public health participation in EOCs to provide internal advice/support.
- Consider the implementation of check-ins with populations at high risk of severe outcomes.
- Undertake ongoing communication with local authorities, service providers and NGOs throughout the event.

## Additional Resources

Resource	Description
<p>Brown, D. and BC Accidental Hypothermia Working Group (December 2016) <a href="#">Accidental Hypothermia Clinical Practice Guideline for British Columbia</a> (Version 1.03)</p>	<p>As described on the first page of this document: The objective of this guideline is to improve the efficiency and effectiveness of the management of accidental hypothermia in British Columbia. The use of simplified clinical staging, suggested treatment guidelines as well as triage and transportation algorithms has the potential to decrease morbidity and mortality of patients with accidental hypothermia in British Columbia</p> <p>See <a href="#">Appendix A: Management of Accidental Hypothermia</a> for algorithm for consideration of when to transport to hospital</p>
<p>Canadian Red Cross <a href="#">Cold-Related Emergencies: Staying Warm and Safe in Canadian Winters - Canadian Red Cross</a></p>	<p>Provides information for the public on prevention and recognizing when someone is suffering from a cold-related emergency</p> <p>Includes an easy to read <a href="#">image</a> providing a breakdown of the signs of cold stress, as well as mild, moderate, and severe hypothermia and how to respond.</p>
<p>Canham, S. L., et al. (2019). <a href="#">Supporting Partnerships between Health and Homelessness</a>. Vancouver, BC: Simon Fraser University, Gerontology Research Centre.</p>	<p>Report compiled with the goal of enhancing knowledge about the best ways to support people who are experiencing homelessness in their transition from hospital to shelter/housing.</p>
<p>First Nation Health Authority <a href="#">Staying Warm and Safe this Winter</a></p>	<p>Includes information for individuals as well as information for communities on opening reception and warming centres.</p>
<p>Fraser Health Authority <a href="#">Your healthy winter guide 2022/23</a></p>	<p>Provides tips to keep you healthy and safe during the winter months and on how to prepare yourself and your home for the cold, wind, rain, snow and darkening days.</p>

<p>Greater Vancouver Shelter Strategy (2014) <a href="#">Serving Homeless Seniors: Tools and Checklists</a></p>	<p><a href="#">Hypothermia Checklist for Seniors</a></p>
<p>Health Canada Extreme Cold (October 2021 modified) <a href="#">Website</a> and (January 2018) <a href="#">PDF</a></p>	<p>Provides information on extreme cold in Canada and covers topics including:</p> <ul style="list-style-type: none"> <li>• About extreme cold</li> <li>• Who is at risk?</li> <li>• Health risks of extreme cold</li> <li>• Treatments for extreme cold conditions</li> <li>• Reduce your risk</li> </ul>
<p>HealthLinkBC <a href="#">Carbon Monoxide Poisoning   HealthLink BC</a></p>	<p>Provides information on carbon monoxide condition basics, symptoms, and how to prevent it.</p>
<p>HealthLinkBC <a href="#">Cold Temperature Exposure   HealthLink BC</a> Symptom Checker</p>	<p>Symptom checker to help assess next steps after prolonged exposure to cold temperatures. Series of questions to check you symptoms and assess the health risk</p>
<p>HealthLinkBC (November 2022) <a href="#">Your Health This Winter</a></p>	<p>Provides tips about staying healthy and safe during cooler temperatures and with the potential hazards of snow and ice.</p>
<p>National Collaborating Centre for Environmental Health (NCCEH) (February 2022) <a href="#">Extreme Cold</a></p>	<p>Introduces the topic of defining extreme cold in Canada and includes information on cold related health impacts. Includes links to selected resources on health and safety precautions for extreme cold and considerations for issuing extreme cold alerts.</p>
<p>National Collaborating Centre for Environmental Health (NCCEH) (March 2022) <a href="#">Mobilizing extreme cold response plans for people experiencing homelessness</a></p>	<p>This blog explores factors that exacerbate the health risks of extreme cold events for PEH such as <a href="#">frostbite</a> and <a href="#">hypothermia</a>, discusses the evidence on mobilizing extreme cold response plans to reduce such risks, and examines additional environmental health risks that may arise during an extreme cold event.</p>

<p>PreparedBC Severe Winter Weather Preparedness Guide and supplementary materials (October 2023)</p>	<ul style="list-style-type: none"> <li>• <a href="#">Severe Winter Weather and Storm Preparedness Guide</a></li> <li>• <a href="#">Severe Winter Weather and Storms social media toolkit</a> (with pre-written content and graphics that you can share. We are having some trouble with the graphics loading but it should be working later today)</li> <li>• <a href="#">Severe Winter Weather webpage</a> (PreparedBC.ca/WinterWeather)</li> <li>• <a href="#">Power Outages webpage</a> (PreparedBC.ca/PowerOutages)</li> </ul>
<p>Shelter information and cold response locations</p>	<p>Some sources of shelter information and cold response locations include: <a href="#">street messenger</a> (primarily Lower Mainland), <a href="#">BC211 Shelter and Street Help Line</a> shelter list, <a href="#">BC Housing Shelters</a> map, emergency warming centres and public warming spaces can be found via the <a href="#">EMCR Community Response Locations Portal</a>: <a href="#">street messenger</a> (primarily Lower Mainland), <a href="#">BC211 Shelter and Street Help Line</a> shelter list, <a href="#">BC Housing Shelters</a> map, emergency warming centres and public warming spaces can be found via the <a href="#">EMCR Community Response Locations Portal</a></p>
<p>Vancouver Coastal Health Authority <a href="#">Health Effects of Cold Weather</a></p>	<p>As noted on the Vancouver Coastal Health Authority website: During cold weather events, there are increased risks of hypothermia, frostbite and potentially death, particularly for people who are unhoused or insecurely housed.</p> <p>The site provides information on <a href="#">hypothermia</a> and <a href="#">frostbite</a> and links to cold weather information specific to local governments in the region.</p>

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