

Winter weather can affect health in multiple ways, such as frostbite or hypothermia. Frostbite and hypothermia can result from exposure to cold air temperature, or from submersion in cold water (falls through the ice).

One way we can monitor the health impacts of cold weather in Vermont is by using syndromic surveillance data. This data is collected at emergency departments and urgent care facilities around the state. Since hospitals report this data in near-real time, this data source can be very helpful during extreme weather events.

For the purposes of this report, the term cold-related illness refers to frostbite, hypothermia, or other effects of exposure to cold temperatures such as chilblains (itchy, swollen lumps that appear on your skin after exposure to cold temperatures).

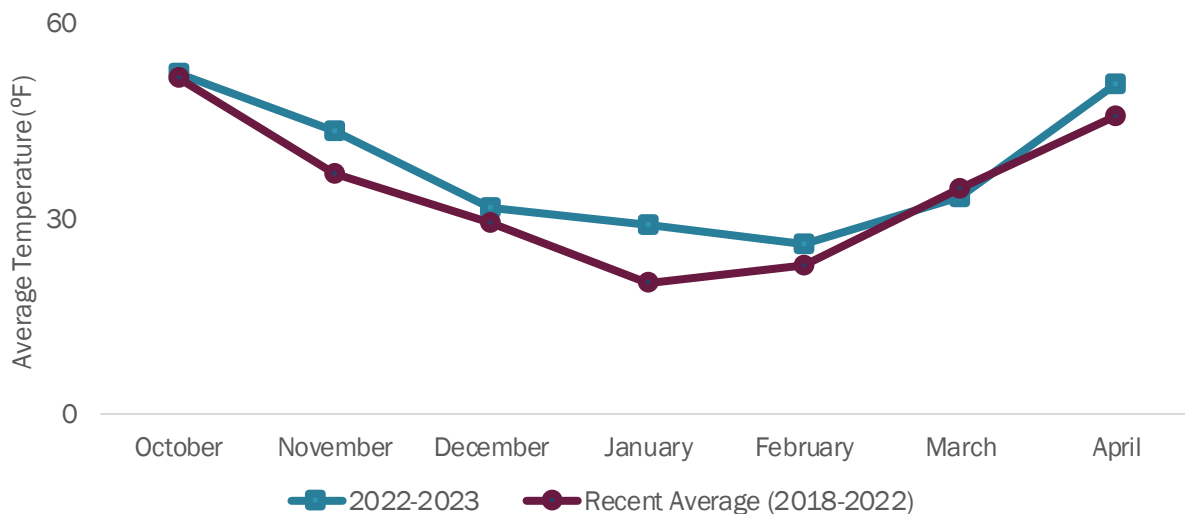
KEY POINTS

- Several weeks in the 2022-2023 cold season saw above average emergency department visits for cold-related illness.
- Engaging in outdoor recreational activity, using alcohol or other drugs, and being unhoused are risk factors for cold-related illness.

Seasonal Temperatures

The number of visits to the emergency room or urgent care for cold-related illness is closely related to how cold it is during a given cold weather season (October to April). In general, we would expect there to be more cold-related illness visits during winter months with either colder average temperatures or with one or more periods of extremely cold weather.

The 2022-2023 cold season was generally warmer than we would expect based on Vermont's recent average monthly cold season temperatures.

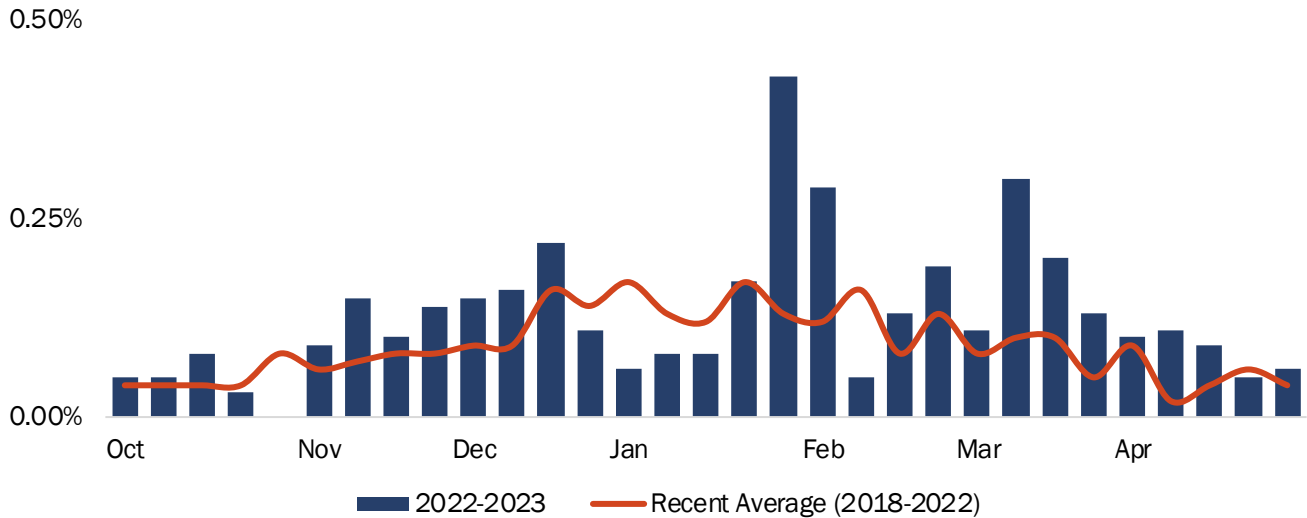


Data Source: National Weather Service, 2018-2023.

Recent data: average monthly temperature from the 2018-2019, 2019-2020, 2020-2021, and 2021-2022 cold seasons.

Cold-Related Illness

However, the percentage of emergency department visits for cold-related illness during the 2022-2023 cold season was frequently greater than average.



Data Source: ESSENCE, 2018-2023.

While the large spike at the beginning of February can be explained by a polar vortex event, where temperatures plunged to -15°F , the observed increase in the percent of cold-related visits during the rest of the cold season may be related to risk factors other than colder than usual temperatures.

Other Risk Factors

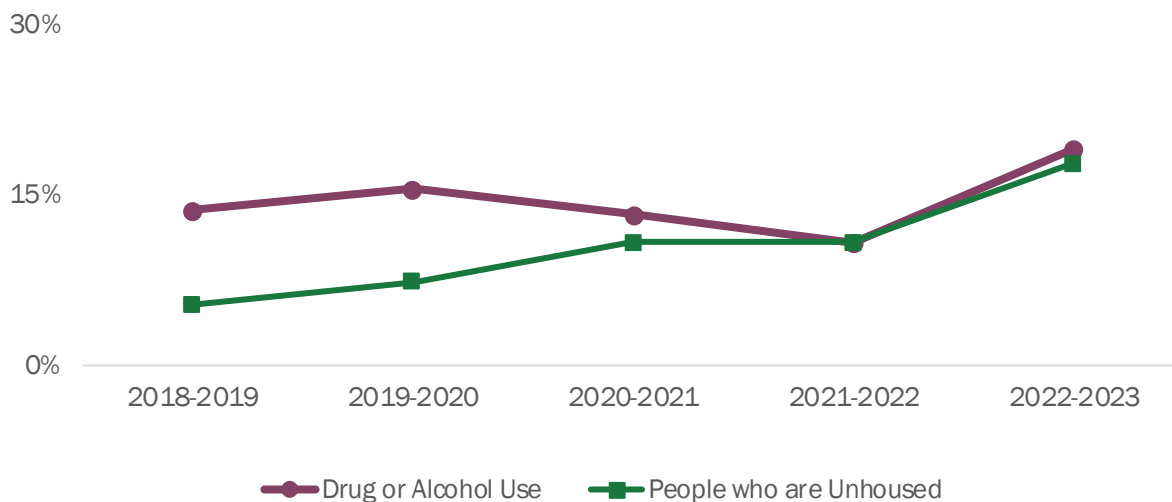
A review of the triage notes that accompany syndromic surveillance data revealed some common threads.

- Engaging in outdoor activities, like skiing or winter hiking, with exposed skin.
- Using alcohol or other drugs.
- Not having a place to go to stay warm.

The graph on the next page shows the trend in the percentage of cold-related illness visits that have involved either a person who is unhoused and/or a person who had used drugs or alcohol over the last five cold seasons.

Cold-Related Illness

The percentage of cold-related illness visits involving alcohol or other drugs has remained relatively stable. The percentage involving people who are unhoused has increased steadily.



Data Source: ESSENCE, 2018-2023.

The percentage of cold-related illness visits involving the use of alcohol or other drugs remained relatively steady from the 2018-2019 cold season to the 2021-2022 cold season, before increasing during the 2022-2023 cold season. The percentage of cold-related illness visits involving people who are unhoused has steadily increased from 5% in the 2018-2019 cold season to almost 20% in the 2022-2023 cold season, a statistically significant increase.

The observed increase in the percentage of cold-related illness visits involving people who are unhoused is likely the result of a few different factors. Awareness around the importance of capturing information, like housing status, during health care interactions has increased over time. Additionally, design changes to data collection systems have been made, which makes capturing information like housing status easier. However, we are likely still undercounting the number of unhoused people interacting with the health care system.

In addition to the data quality factors described above, the increase in the proportion of both cold-related and all-cause emergency department visits involving people who are unhoused is likely related to the increase in the total number of people who are unhoused in Vermont over the last few years. According to the U.S. Department of Housing and Urban Development's Annual Homelessness Assessment Report to Congress, Vermont had the largest percent increase in homelessness in the United States from 2020-2022¹. The Vermont yearly point-in-time count of people who are unhoused shows the number of unhoused people in Vermont tripled from 2020 to 2023².

Conclusions and Next Steps

A review of syndromic surveillance data shows that even during warmer-than-average winters, cold-related illness is still a concern for people living in Vermont – particularly for those who are unhoused, are using alcohol or other drugs, or enjoy outdoor recreation.

Potential strategies to mitigate this risk include:

- Increasing access to safe and affordable housing in Vermont.
- Increasing access to low-barrier shelters, so that even if someone has used alcohol or other drugs, they can still have a warm place to sleep.
- Educating folks who enjoy outdoor recreation in the winter about the dangers of exposure to cold temperatures, how to be safe on the ice, and how to dress to prevent frostbite.

Even during warmer than average winters, people living in Vermont are still at risk for cold-related illness.

References

1. [2022 Annual Homelessness Assessment Report to Congress.](#)
2. [Vermont's Annual Point-in-Time Count of Those Experiencing Homelessness.](#)

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