

COLD ALERT FACTS – including Health Effects

Who calls the Cold Alert?

The Medical Officer of Health for the City of Hamilton

When is a Cold Alert Called?

Cold Alerts are called when the temperature drops, or is expected to drop below -15°C (4°F) or the temperature feels like -20°C with wind chill.

Why is Wind Chill a Concern?

- no matter what the thermometer says, the wind makes it feel colder.
- to lower the risk, stay out of the wind.
- the stronger the wind, the colder you will feel and the higher the risk of frostbite.

What to do during a Cold Alert?

If you must be outside during the Cold Alert:

- it is important to wear layers of warm, dry clothing
- don't forget to wear a hat, scarf and gloves
- alcohol and drugs can increase your risk of cold related serious illness or injury

Cold Related Illness (Health Effects)

- Frostbite
- Hypothermia

Frostbite.

Frostbite is the freezing of flesh (tissue), and results in tissue damage. The most likely locations for frostbite to occur are the extremities...fingers, toes, earlobes, nose, or face.

Signs of Frostbite/Frostnip

- skin is white and has a "wooden feeling"
- there will be numbness in the area.

If you see these signs, get inside to a warm place.

The risk of frostbite from temperatures and wind is well understood, and relates closely to temperature and wind (on exposed skin). Above (warmer than) -28°C, there is a low risk of frostbite for most people.

Environment Canada forecast the wind chill typically at or below -25°C, just prior to the threshold (-28°C) when there is increased risk of frostbite for most people.

The threshold for a Cold Alert in Hamilton is -20°C wind chill, or -15°C actual temperature. While there is an increasing risk of frostbite in most people at -28°C, the most vulnerable are also susceptible to hypothermia (loss of body core temperature) at higher temperatures.

Hypothermia

Hypothermia is the loss of body core temperature. Normal body core temperature should be around 37°C. It affects muscle functions and the ability to think clearly. Watch your friends for signs of stumbling, mumbling, fumbling, and grumbling.

Unlike frostbite, it is more difficult to assess how much cold is required to cause hypothermia. Cold is only one of several variables which directly contribute to hypothermia. Factors include:

- Cold temperatures
- Improper clothing
- Wetness
- Fatigue/exhaustion
- Poor food intake
- Alcohol intake
- Some medications

Hypothermia may occur with positive air temperatures, if an individual is exposed (lacks adequate clothing) and has inadequate energy (food). Hypothermia at higher temperatures typically occur in sporting activities and accidents (mountain climbing, boating and falling in water or capsizing, hiking and becoming lost...lacking food and overnight clothing)

Most people tolerate mild hypothermia (32 to 35°C body core temperature).

21% mortality for moderate hypothermia (29 to 32°C body core temperature).

Body core temperature $\leq 28^\circ\text{C}$ is severe hypothermia and an acute life threatening event (death within short period)

It is possible for a vulnerable individual to succumb to hypothermia at temperatures warmer than -15°C . In the southern US (Georgia) there are documented cases of hypothermia related deaths at -7.8°C and -9.4°C . In climates colder than Georgia (like Toronto and Hamilton), hypothermia is less likely as people are generally more suitably dressed for the cold. Likewise, communities in the far north are less likely to have hypothermic deaths not related to accidents and sports.

In Toronto, the death of 3 homeless individuals in the mid 1990's led to the institution of -15°C for calling cold alerts for that area.

Generally

Minus (-) 10°C to minus (-) 28°C , there is a low risk of frostbite but there is a risk of hypothermia if outside without proper clothing. Consumption of alcohol, some prescription drugs, and medical conditions (ie. Diabetes) may change susceptibility to cold related illness (frostbite or hypothermia)