

# PUBLIC HEALTH ADVISORY: COLD WAVE/ FROST

## WHAT IS A COLD WAVE?

A cold wave is a weather-related event characterized by sharp drop of air temperature near the surface, leading to

- extremely low values of temperatures
- steep rise of air pressure
- strengthening of windspeed or
- associated with hazardous weather like frost and icing

## WHEN AND WHERE DO COLD WAVES OCCUR COMMONLY?

- **Cold wave Season:** during winter (November to March), more frequent in December-January.
- **Cold wave prone regions:** 17 States/UTs from north, northwest, east, and central India are in 'Core Cold Wave Zone' and experience the highest number of cold waves/severe cold waves. They are:

**Punjab, Himachal Pradesh, Uttarakhand, Jammu & Kashmir, Ladakh, Delhi, Haryana, Rajasthan, Uttar Pradesh, Gujarat, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, West Bengal, Odisha, and Telangana.**

The maximum numbers of cold waves occur in **Jammu and Kashmir** followed by **Himachal Pradesh, Punjab, Bihar, Haryana, and Uttar Pradesh.**

## HOW TO BE AWARE OF COLD WAVES/FROST?

Be aware of weather updates

- Weather Warnings (regional/district-wise) updated every 4hrs on: <https://mausam.imd.gov.in/>
- Real-time map of temperature including cold wave: <https://bit.ly/IMDcoldwave>

## WHO ARE VULNERABLE?

Homeless, elderly, economically disadvantaged, disabled, pregnant or lactating mothers, women, children, outdoor workers, managers of night shelters, farmers

## HOW IS THE COLDWAVE DEFINED?

As per the India Meteorological Department's criteria, **Cold Wave and Cold Day** conditions are defined as:

**A. Conditions for Cold Wave:** When minimum temperature of a station is 10°C or less for plains and 0°C or less for Hilly regions and fulfils any of the following criteria:

I) Based on Departure of Minimum Temperatures from Normal

Cold Wave: When the Departure is -4.5°C to -6.4°C

Severe Cold Wave: When the Departure is > -6.4°C

II) Based on Actual Minimum Temperature  
(For plain stations only)

Cold Wave: When minimum temperature is  $\leq 4^{\circ}\text{C}$

Severe Cold Wave: When minimum temperature is  $\leq 2^{\circ}\text{C}$

III) For coastal stations:

When the Departure of Minimum Temperature is -4.5°C or less and Minimum Temperature is 15°C or less.

**B. Conditions for Cold Day:** When minimum temperature is 10°C or less for plains and 0°C or less for Hilly regions and fulfils following criteria:

Cold day: Maximum Temperature Departure is -4.5°C to -6.4°C

Severe Cold day: Maximum Temperature Departure is < -6.4°C

## HEALTH IMPACT OF COLD WAVE

Extreme cold may lead to injuries and death if precautionary measures are not taken. Exposure to intense cold may lead to **Hypothermia**, **Frostbite**, and other non-freezing peripheral cold injuries like immersion (trench) foot and chilblain (pernio).

### HYPOTHERMIA

- It is caused by prolonged exposures to very cold temperatures where your body begins to lose heat faster than it's produced. It will eventually use up the body's stored energy leading to lower body temperature.
- Very low body temperature affects the brain, making the person unable to think clearly or move well. This makes hypothermia especially dangerous.
- Dangerous hypothermia can occur even at less cold temperatures if a person becomes chilled from rain, sweat, or submersion in cold water.

### WHO ARE VULNERABLE TO HYPOTHERMIA?

- Older adults with inadequate food, clothing, or heating
- Babies sleeping in cold bedrooms
- People who remain outdoors for long periods—the homeless, hikers, hunters, etc.
- People who drink alcohol or use illicit drugs.

### SIGNS AND SYMPTOMS OF HYPOTHERMIA

Adults		Babies
Shivering	Memory loss	Bright red, cold skin
Exhaustion or feeling very tired	Slurred speech	Very low energy
Confusion	Drowsiness	
Fumbling hands		

### Hypothermia is a medical emergency. Take ACTION!

If you see a person with any of the above signs get medical attention immediately!

### WHEN MEDICAL ATTENTION IS AWAITED, TRY TO WARM THE PERSON UP.

- Get the person into a warm room or shelter and change clothes, remove any wet clothing
- Warm the person's body with skin-to-skin contact, dry layers of blankets, clothes, towels, or sheets.
- Give warm drinks to help increase body temperature, but do not give alcoholic drinks. Do not try to give beverages to an unconscious person.
- After body temperature has increased, keep the person dry and wrap their body, including their head and neck, in a warm blanket.
- Get the person proper medical attention as soon as possible.

A person with severe hypothermia may be unconscious and may not seem to have a pulse or to be breathing. In that case, handle the person gently, and get emergency assistance immediately.

## BE PREPARED FOR COLD WEATHER

IT REDUCES THE RISK OF DEVELOPING HEALTH PROBLEMS  
RELATED TO COLD WEATHER

## FROSTBITE

- It is a type of injury caused by freezing. It leads to a loss of feeling and colour in the areas it affects, usually extremities such as the nose, ears, cheeks, chin, fingers, and toes.
- Frostbite can permanently damage the body, and in severe cases can lead to amputation (removing the affected body part).

### WHO ARE VULNERABLE TO FROSTBITE?

Individuals with poor circulation

Individual not dressed properly for extreme cold temperature

### SIGNS AND SYMPTOMS OF FROSTBITE

Redness of skin or pain in an area that is exposed/unexposed in cold weather may be a beginning of frostbite.

#### Frostbite presents as:

- A white or grayish-yellow skin area,
- Skin that feels unusually firm or waxy
- Numbness

A person who has frostbite may not know they have it until someone else points it out because the frozen parts of their body are numb.

**If you notice signs of frostbite on you or someone else, seek medical care.**

### IF A PERSON SHOWS SIGNS OF FROSTBITE WITHOUT HYPOTHERMIA AND IMMEDIATE MEDICAL CARE IS NOT AVAILABLE:

- Get the person into a warm room as soon as possible.
- Unless absolutely necessary, do not walk on feet or toes that show signs of frostbite—this increases the damage.
- Do not rub the frostbitten area with snow or massage it at all. This can cause more damage.
- Put the areas affected by frostbite in warm—not hot—water (the temperature should be comfortable to the touch for unaffected parts of the body).
- If warm water is not available, warm the affected area using body heat. For example, you can use the heat of an armpit to warm frostbitten fingers.
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can easily burn.
- Frostbite should be checked by a health care provider.

## IMMERSION (TRENCH) FOOT

- It occurs when the feet are wet for long periods of time.
- **Sign and symptoms include:** tingling and/or itching sensation, pain, swelling, cold and blotchy skin, numbness, and a prickly or heavy feeling in the foot. The foot may be red, dry, and painful after it becomes warm. Blisters may form, followed by skin and tissue dying and falling off. If untreated it may lead to loss of toes, heel, or the entire foot.
- **Prevention by** air-drying and elevating your feet, and exchanging wet shoes and socks for dry ones
- **Seek medical care if any signs and symptoms appear**
- If you have a foot wound, check your feet at least once a day for infections or worsening of symptoms.

## CHILBLAIN (PERNIO)

- It is a painful inflammation of small blood vessels in your skin that occur in response to repeated exposure to cold but not freezing air.
- **Sign and symptoms include:** itching, red patches, swelling, and blistering on your hands and feet.
- **Prevent by** limiting your exposure to cold, dressing warmly, and covering exposed skin
- It usually improves in one to three weeks, especially if the weather gets warmer
- **Seek medical care if signs and symptoms do not improve**