



Chapter 7. Environmental and Situational Emergencies Part 1. Heat and Cold-Related Illnesses

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Part 1: Heat and Cold-Related Illnesses

(Learn to recognise and treat common temperature-related emergencies such as heat stroke, hypothermia, and frostbite.)

1. Overview

The human body functions best at a **core temperature of ~37°C**. Exposure to extreme **heat or cold** can disturb this balance and lead to life-threatening emergencies. Timely first aid can prevent complications and even save lives.

2. Heat-Related Illnesses

Heat emergencies usually result from prolonged exposure to **hot weather, physical exertion**, or dehydration. These include:

A. Heat Exhaustion

A milder form of heat illness caused by **loss of water and electrolytes** through sweating.

❖ Signs & Symptoms:

- Heavy sweating
- Pale, cool skin
- Fatigue or dizziness
- Weak, rapid pulse
- Nausea or vomiting
- Muscle cramps
- Headache

□ First Aid:

1. Move the person to a **cool, shaded area**.
2. Have them **lie down and elevate legs** slightly.
3. Remove excess clothing.
4. Provide **cool water or electrolyte drinks** (if conscious).
5. Apply **cool, wet cloths** or fan the person.

If symptoms don't improve in 30 minutes, or worsen → **Call emergency services (112)**.

B. Heat Stroke (Life-Threatening Emergency)

Heat stroke occurs when the body's **cooling system fails**, and internal temperature rises above 40°C. It can cause organ



failure or death if not treated quickly.

❖ **Signs & Symptoms:**

- Hot, **dry or moist skin**
- **Confusion**, agitation, or unconsciousness
- **No sweating** despite heat
- Rapid, strong pulse
- Seizures
- Nausea, vomiting

☐ **Danger: This is a medical emergency!**

☐ **First Aid:**

1. **Call 112 immediately.**
2. Move to a **cool environment.**
3. **Cool the person rapidly:**
 - Remove clothing
 - Apply **ice packs** to armpits, neck, and groin
 - Use **cool water sponging** or cold shower
4. **Do not give fluids** if unconscious or drowsy.
5. Monitor breathing and be prepared for CPR.

3. Cold-Related Illnesses

Exposure to cold environments can lead to two major conditions: **hypothermia** and **frostbite**.

A. Hypothermia

Occurs when the body temperature drops below **35°C** due to cold, wind, or water exposure.

❖ **Signs & Symptoms:**

- Shivering (early sign)
- Cold, pale skin
- Slurred speech
- Weak pulse
- Confusion or drowsiness
- Loss of coordination
- Unconsciousness (in severe cases)

☐ **First Aid:**

1. **Call 112.**
2. Move the person to a **warm, dry place.**
3. **Remove wet clothing** and wrap in **blankets** or warm clothes.
4. Warm the **core first** (chest, neck) — not limbs.
5. **Give warm fluids** only if conscious and alert (never alcohol).
6. Avoid rapid rewarming (e.g., hot bath) — can cause shock.

B. Frostbite

Frostbite is **freezing of skin and underlying tissues**, usually affecting fingers, toes, nose, ears, and cheeks.

❖ Signs & Symptoms:

- Cold, **pale or waxy skin**
- Numbness
- Hard or frozen feeling to the touch
- Later: blisters, swelling, blackened skin

□ First Aid:

1. **Get the person to a warm environment.**
2. Remove wet clothes and cover affected areas with dry cloth.
3. Warm affected areas **gradually** (not by rubbing):
 - Use body heat (e.g., hands under armpits)
 - Soak in **warm (not hot) water - 37-40°C** for 20-30 min
4. Do NOT:
 - Rub or massage frostbitten areas
 - Use direct heat (e.g., fire or heating pads)
5. Seek medical attention—even if skin looks okay after warming.

4. Sunburn

Sunburn is **skin damage caused by UV rays**, usually from sun exposure.

❖ Signs:

- Red, warm, painful skin
- Swelling or blisters
- Headache, nausea (in severe cases)

□ First Aid:

1. Move to shade or indoors.
2. Cool the skin with **cold compress** or cool water.
3. Apply **moisturiser or aloe vera gel**.
4. Drink **plenty of fluids** to stay hydrated.
5. Avoid **re-exposure to sun** until healed.

Severe sunburn with blisters, fever, or vomiting needs medical attention.

5. Self-Check Questions

1. What is the main difference between heat exhaustion and heat stroke?
2. Why should you avoid rubbing frostbitten skin?
3. How do you warm a hypothermic person safely?
4. What are two early signs of heat exhaustion?
5. When should you NOT give fluids to someone with heat stroke?

1. Heat exhaustion still allows sweating and normal mental state; heat stroke involves high temperature, confusion,



and no sweating.

2. It causes further tissue damage and increases risk of skin loss.
3. Remove wet clothes, wrap in blankets, warm the core—not limbs—slowly.
4. Heavy sweating, dizziness, and nausea.
5. If the person is unconscious or semi-conscious.

□ Key Take-Home Points

- **Act fast** in any heat or cold emergency to prevent damage or death.
- Use **gentle cooling or warming methods**—avoid extremes.
- Learn to distinguish **life-threatening signs** (confusion, unconsciousness).
- Know when to **call emergency services**—especially for heat stroke, severe hypothermia, or deep frostbite.