# MANAGING MEDICAL AND ENVIRONMENTAL EMERGENCIES

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**Emergency management** is the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies (**preparedness, response, and recovery**). The aim is to reduce the harmful effects of all hazards, including disasters. All the hazards can be in many forms like fluid, gas, substance, etc.

## Physical

- Flood-associated injuries
- Earthquake-associated injuries

## Biological

- Mold exposures after some natural disasters like hurricane, tsunami, flood that leads to eye irritation, cough to severe life-threatening asthmatic or allergic reactions
- Body remains (human, animal)
- Flood-associated skin infections

## Chemical

- Asbestos fibers released from a building collapses during hurricane
- Silica from volcanic eruptions
- Insecticides, chlorine, ammonia, etc.


Ongoing Work Site Inspection
Accident & Incident Investigation
Hazard Control
Worker Training
Health and Safety System
Program Administration Review
Emergency Response Planning
Hazard Identification & Assessment

**Medical emergency** is any condition of undifferentiated, unscheduled patients with acute illnesses or injuries that require immediate medical attention. While not usually providing long-term or continuing care, emergency physicians undertake acute investigations and interventions to **resuscitate and stabilize patients**.

Not all medical emergencies are life-threatening; some conditions require medical attention in order to prevent significant and long-lasting effects on physical or mental health.

- Blood
- Children
- Endocrine
- Environmental
- Eyes
- Gastrointestinal
- Genitourinary
- Heart and blood vessels
- Infectious disease
- Inflammatory
- Injury
- Lungs and airway
- Nervous system
- Pregnancy
- Psychiatric
- Skin
- Toxicological
- Gynecologic

**Environmental**

- Accidental hypothermia
- Frostbite
- Heat illness
- Drowning
- Electric shock

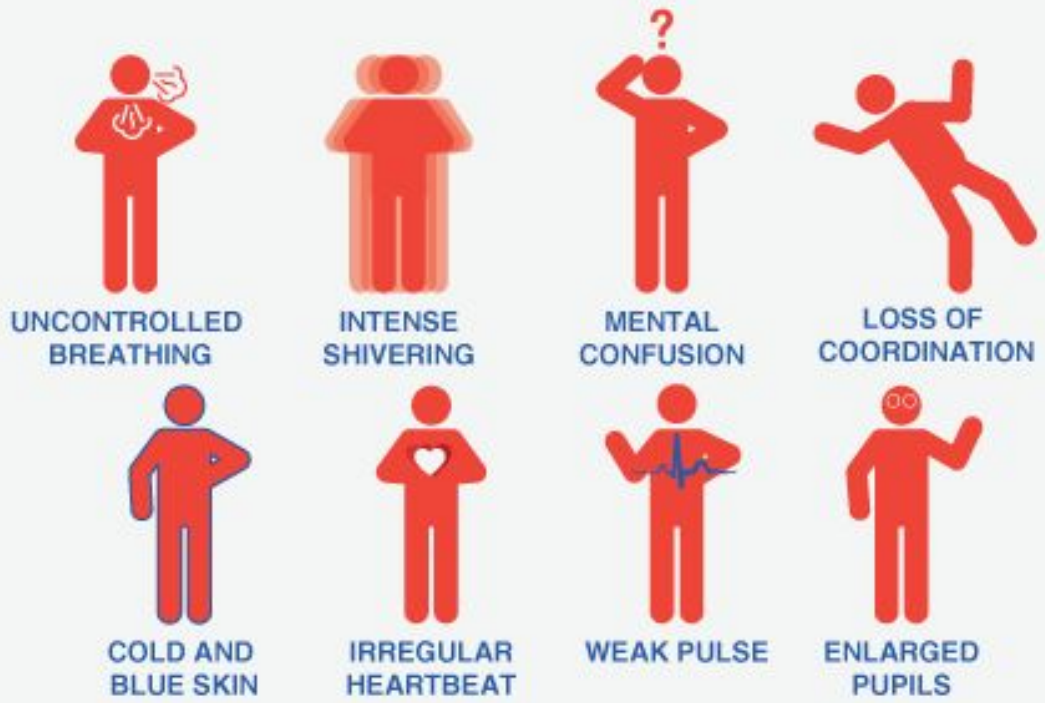
**Universal precautions** refers to the practice, in medicine, of avoiding contact with patients' bodily fluids, by means of the wearing of nonporous articles such as medical gloves, goggles, and face shields.

Universal precautions were the infection control techniques that were recommended following the AIDS outbreak in the 1980s. Every patient was treated as if infected and therefore precautions were taken to minimize risk.

Universal precautions were typically practiced in any environment where workers were exposed to bodily fluids, such as:

- Blood
- Semen
- Vaginal secretions
- Synovial fluid
- Amniotic fluid
- Cerebrospinal fluid
- Pleural fluid
- Peritoneal fluid
- Pericardial fluid
- Feces
- Urine

Universal precautions were designed for doctors, nurses, patients, and health care support workers who **were required to come into contact with patients or bodily fluids**. This included staff and others who might not come into direct contact with patients.




**Hypothermia** is reduced body temperature that happens when a body dissipates more heat than it absorbs. In humans, it is defined as a body core temperature below 35.0 °C (95.0 °F). Symptoms depend on the temperature.

## Symptoms

Based on the grades

### Mild (32-35°C)

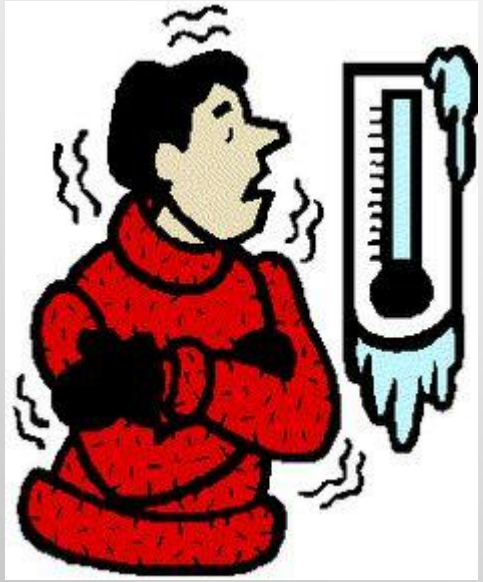
Shivering, mental confusion

### Moderate (30-32° C)

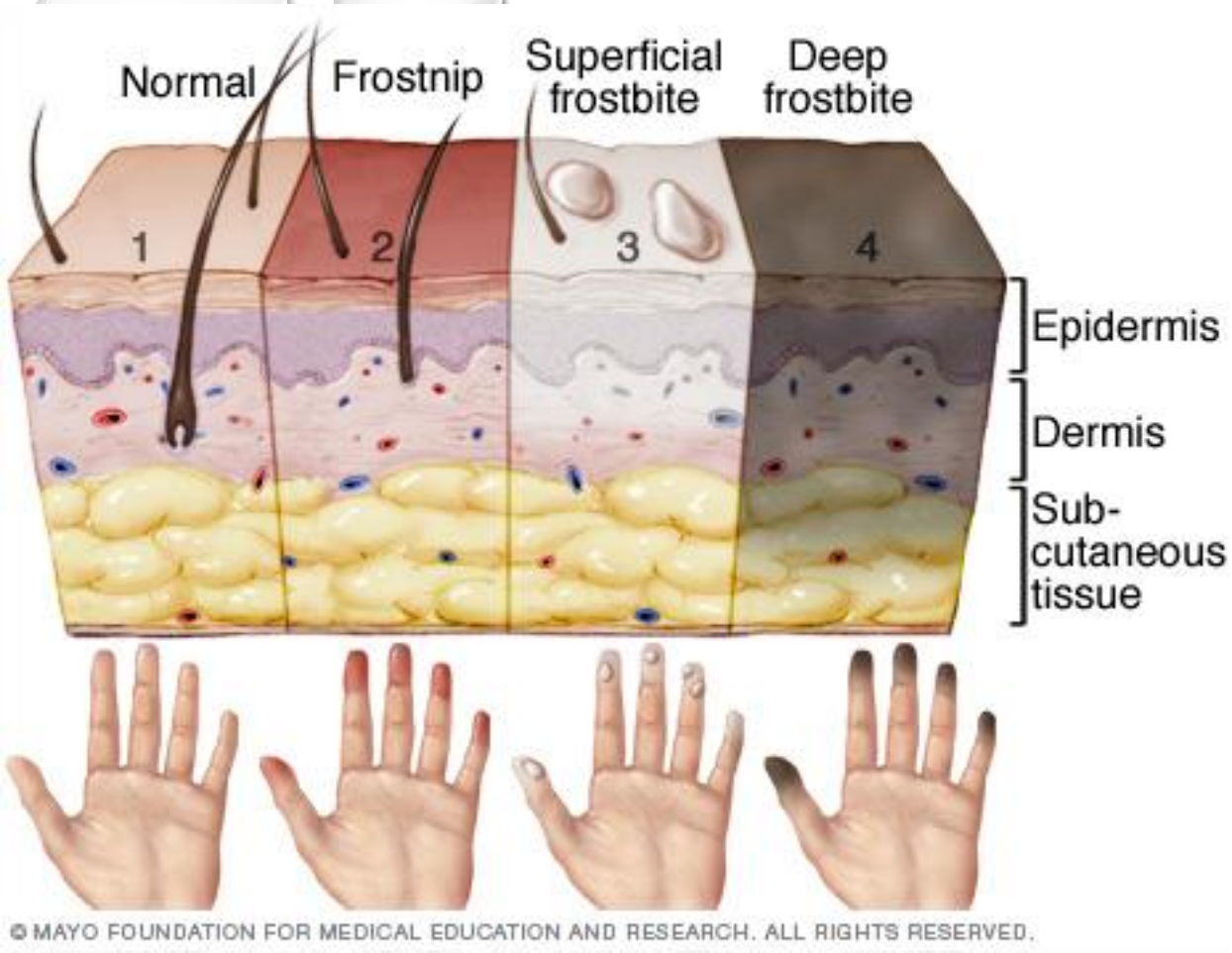
No shivering, increased mental confusion

### Severe (20-25°C)

Paradoxical undressing (patient removes his/her clothing), cardiac arrest



| | | |
|---|---|---|
| Conscious | Shivering | **Passive Rewarming**<br>Remove wet clothing and dry<br>Insulate from all heat loss<br>High Sugar food and drink<br>Encourage movement |
| | Not Shivering | **Active Rewarming**<br>Minimise movement<br>Cut away wet clothing and gently dry<br>Gently warm – heat packs and creating a warm environment<br>Insulate from all heat loss |
| Unconscious | | Do not move: Treat as a Spinal Casualty |
| | No Vital Signs | Check for breathing and Pulse for 60 seconds<br>Provide 3 minutes of mouth-to-mouth ventilations<br>Recheck for breathing and pulse for 60 seconds |
| | | **Vital Signs detected and Definitive Care < 3hrs**<br>Continue ventilations only |
| | | **No Vital Signs detected or Definitive Care > 3hrs**<br>CPR for up to 30 mins |





**Frostbite** occurs when exposure to low temperatures causes freezing of the skin or other tissues. The initial symptom is typically numbness.

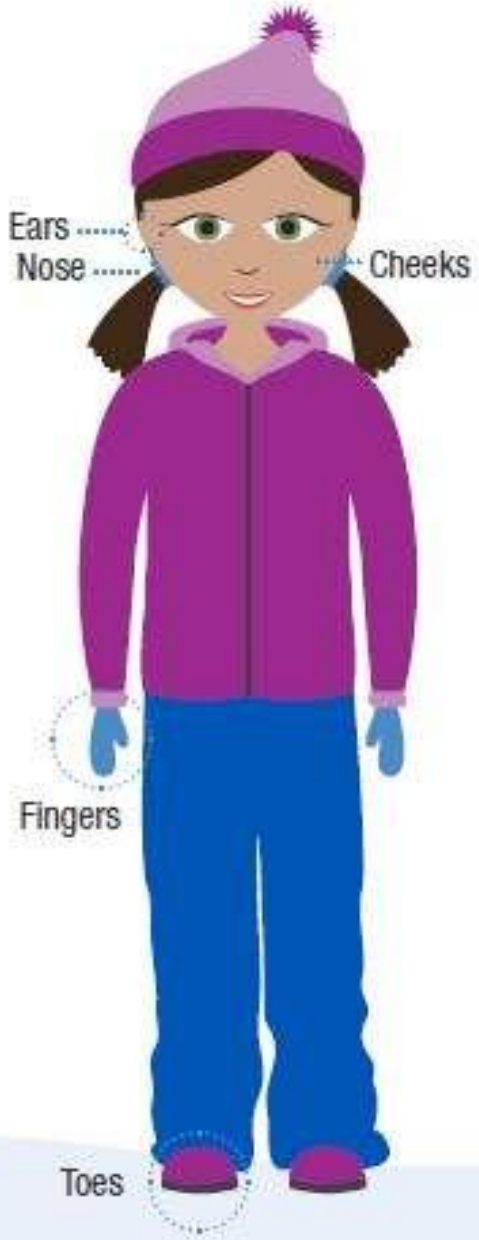
(1) Skin without cold damage is **normal**

(2) **Frostnip** is mild frostbite that irritates the skin, causing redness, prickling and a cold feeling followed by numbness. Frostnip doesn't permanently damage the skin and can be treated with first-aid measures.

(3) **Superficial frostbite,** your skin feels warm, a sign of serious skin involvement. A fluid-filled blister may appear within 24 hours after rewarming the skin

(4) **Deep frostbite.** Numbness, joints or muscles may no longer work. Large blisters may form a day or two after rewarming. Afterward, the area turns black and hard as the tissue dies.

## Most Common Sites of Frostbite




## Early Signs of Frostbite:

- Skin that is paler than normal, cold, firm and dry
- Pain, tingling, burning or aching
- Swelling
- Blisters in the first 24 hours after exposure

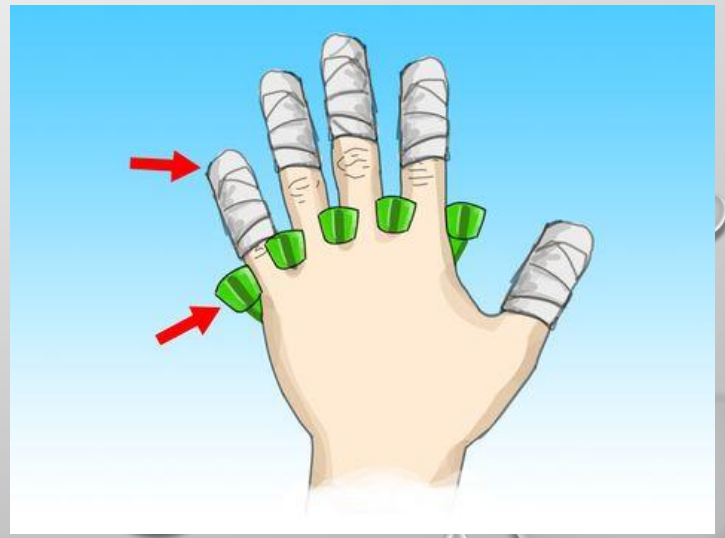
Do

- Drink warm liquids
- Remove any wet clothing
- Immerse area in warm (not hot) water for 30 minutes
- Rewarm face and ears with warm washcloths

Don't

- Try to re-warm skin by rubbing
- Re-warm skin that may freeze again
- Pop any blisters that may develop

Once the skin turns pink and starts to tingle, you can stop heat therapy. If skin remains white and hard or turns black or purple, go to the Emergency Response.



**The differences :**

# SPOT

## FROSTBITE

A victim is often unaware of frostbite because frozen tissue is numb.

**Signs & Symptoms**
- Redness or pain in any skin area may be the first sign of frostbite.

**Other signs include:**
- a white or grayish-yellow skin area
- skin that feels unusually firm or waxy
- numbness

## HYPOTHERMIA

Hypothermia often occurs at very cold T°, but can occur at cool T° (above 40°F). If a person is wet (from rain, sweat, cold water) and becomes chilled.

**Signs & Symptoms**

**Adults:**
- shivering
- exhaustion
- confusion
- fumbling hands
- memory loss
- slurred speech
- drowsiness

**Infants:**
- bright red, cold skin
- very low energy

**If a person's temperature is below 95° get medical attention immediately.**

**Heat illness** or **heat-related illness** is a spectrum of disorders due to environmental exposure to heat.

- Heat stroke
- Heat exhaustion
- Heat cramps
- Heat edema
- Heat syncope
- Heat rash
- Heat tetany

**Heat stroke -** Defined by a body temperature of greater than 40 °C (104 °F) due to environmental heat exposure with lack of thermoregulation. Symptoms include dry skin, rapid, strong pulse and dizziness.

**Heat exhaustion** - Can be a precursor of heatstroke; the symptoms include heavy sweating, rapid breathing and a fast, weak pulse.

**Heat cramps -** Muscle pains that **happen during heavy exercise in hot weather.**

**Heat edema** is a cutaneous condition characterized by dependent edema from vasodilatory pooling. Heat causes the blood vessels to expand (dilate), so body fluid moves into the hands or legs by gravity.

**Heat syncope** - Fainting or dizziness as a result of overheating.

**Heat rash** - Skin irritation from excessive sweating.

**Heat tetany** - Usually results from short periods of stress in intense heat. Symptoms may include hyperventilation, respiratory problems, numbness or tingling, or muscle spasms

**Major Heat Related Illnesses**: These illnesses include heat cramps, heat exhaustion, and heat stroke. These illnesses are all directly related to the air temperature and relative humidity that a person is exposed to while working.

## Heat Cramps

- Severe, sometimes disabling, cramps that typically begin suddenly in the hands, calves, or feet
- Hard, tense muscles

## What You Should Do:

- Move to a cooler or air conditioned area.
- Sip water slowly until the cramps go away.

## Heat Exhaustion

- Heavy sweating
- Weakness
- Cold, pale, and clammy skin
- Fast, weak pulse
- Nausea or vomiting
- Fainting

## What You Should Do:

- Move to a cooler location.
- Lie down and loosen your clothing.
- Apply cool, wet cloths to as much of your body as possible.
- Sip water.
- If you have vomited and it continues, seek medical attention immediately.

## Heat Stroke

- High body temperature (above 103°F)*
- Hot, red, dry or moist skin
- Rapid and strong pulse
- Possible unconsciousness

## What You Should Do:

- Call 911 immediately — **this is a medical emergency**.
- Move the person to a cooler environment.
- Reduce the person's body temperature with cool cloths or even a bath.
- Do **NOT** give fluids.

According to the World Health Organization, **drowning** is defined as the process of experiencing respiratory impairment from submersion/immersion in liquid.

Generally, in the early stages of drowning, very little water enters the lungs: a small amount of water entering the trachea causes a muscular spasm that seals the airway and prevents the passage of both air and water until unconsciousness occurs.

**Active drowning**

Instinctively, people in such cases **perform well-known behaviors in the last 20–60 seconds before being submerged, representing the body's last efforts to obtain air.** Notably, such people are unable to call for help, talk, reach for rescue equipment, or alert swimmers even feet away, and they may drown quickly and silently close to other swimmers or safety

**Passive drowning**

People who **suddenly sink or have sunk** due to change in their circumstances. Examples include people who drown in an accident, or due to sudden loss of consciousness or sudden medical condition

**Dry drowning**

Drowning in which **no water enters** the lungs.

**Wet drowning**

In which **water enters** the lungs.

# DROWNING

## SIGNS AND TREATMENT


## SIGNS OF DROWNING

## + TREATMENT +


CALL FOR HELP


LIFE GUARD


GET HELP

911


CHECK BREATH


CHECK PULSE


CPR


REPEAT CPR

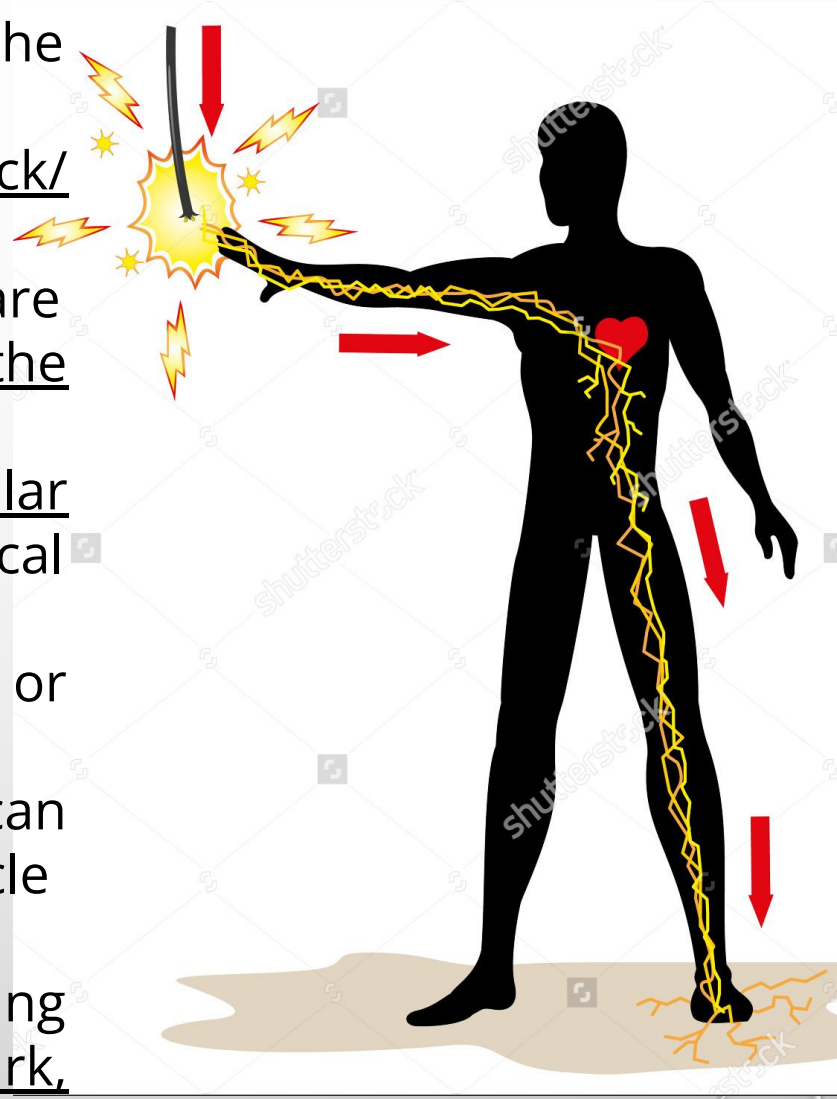

HOSPITAL

# Electric Shock

People commonly experience electric shocks from man-made objects like electrical appliances, electrical circuitry and electrical wires. Other than the manmade objects, a person can also experience an electric shock from natural sources, such as lightning strikes.

# Signs & Symptoms Of Electric Shock

- No obvious external injury or any evidence of electric shock; or the patient can have severe external burns.
- Some patients can suffer from cardiac arrest after an electric shock/ lightning strike.
- The burns which the patient experiences from electric shock are often severe at the site of contact with the electrical source and the ground. Common points of contact are hands, head and heels.
- Other than burns, injuries can occur from forceful muscular contraction due to which the patient is thrown clear from electrical source. In such cases, patient may have a spinal injury.
- If the patient is having shortness of breath, pain in the chest or abdomen, then it may indicate internal injuries.
- Pain with deformity of the hand or foot or other body part can indicate a possible fracture resulting from extreme muscle contraction from the electric shock.
- Children who suffer from electrical mouth burn, as a result of biting an electric cord, have a burn on the lip which has a red/ dark, charred appearance.
- Patient who has experienced electric shock should be examined for entry and exit marks to help assess the extent of the electric shock.



**1. NOTIFY**

- Notify surrounding that someone is down and to send help

**2. EVALUATE**

- Look first,but **DON'T TOUCH!**
- Turn off the electrical source in a safe manner. Use a non-conducting object to move it away.
- Do not move the person unless they are in immediate danger

**3. ASSESS**

- Check the victim's consciousness and response. Check the vital signs.

**4. CPR**

- 30 : 2

**5. PREVENT SHOCK**

- Lay down the person with the head slightly lower than the trunk, the legs elevated.
- Symptoms of shock include : cold sweat, irregular breathing, weakness, pale or blue color lips, fast and weak pulse, nausea.

**6. BURNS**

- Lightly cover any burned areas with sterile bandage or a clean cloth.
- Do not use a blanket or towel because loose fibers can stick to the burns.

**7. FOLLOW UP**

- Any electrical shock victim who experiences an altered level of consciousness requires urgent medical care

# HEART ATTACK

## Symptoms:

- Chest pain, spreading to one or both arms or jaw that does not ease with rest
- Breathlessness
- Discomfort, like indigestion in upper abdomen
- Collapse, with no warning
- Sudden dizziness or faintness
- Pale skin or blueness of lips
- Rapid, weak or irregular pulse
- Profuse sweating
- Extreme gasping for air (air hunger)

### 1 CALL FOR EMERGENCY HELP

**Call 999/112 for emergency help.** Tell ambulance control that you suspect a heart attack.

### 2 MAKE CASUALTY COMFORTABLE

**Help the casualty** into a comfortable position; a half-sitting position is often best. Support his head and shoulders and place cushions under his knees. Reassure the casualty.

### 3 GIVE CASUALTY MEDICATION

**If the casualty is fully conscious,** assist him to take one full dose aspirin tablet (300mg in total); advise him to chew it slowly. If the casualty has tablets or a puffer for angina, allow him to take it. Help him if necessary.

### 4 MONITOR CASUALTY

**Encourage the casualty to rest.** Keep any bystanders away. Monitor and record the casualty's vital signs – breathing, pulse and level of response – while waiting for help to arrive.

**CAUTION**

- Be aware of the possibility of collapse without warning.
- Do not give the casualty aspirin if you know that he is allergic to it.
- If the casualty loses consciousness, open the airway and check breathing (p.256). Be prepared to begin CPR (pp.258–59).

# STROKE F Face A Arms S Speech T Time

**Facial weakness** – unable to smile evenly
**Arm weakness**- may only be able to move his arms on one side of his body
**Speech problems**

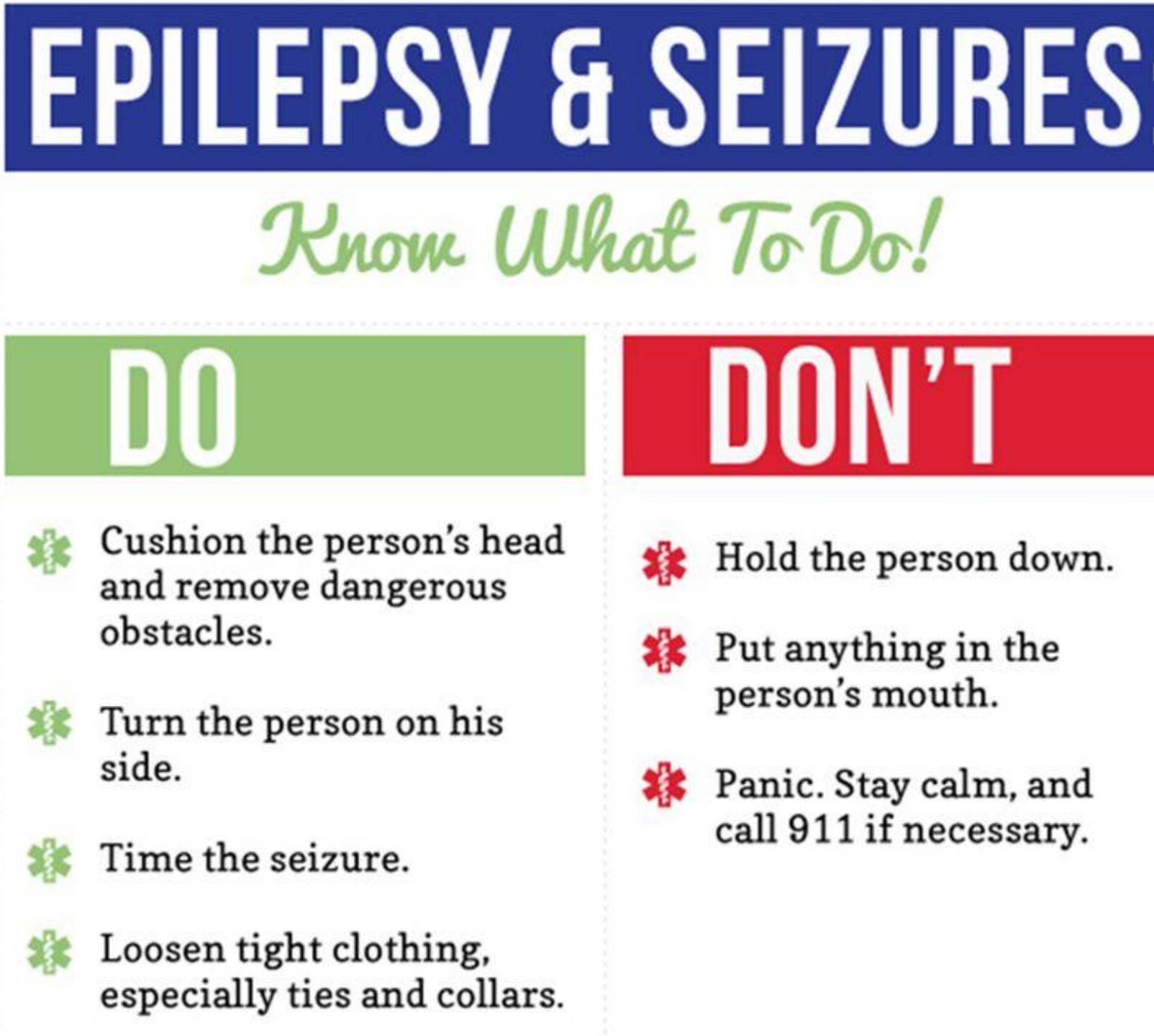
There may also be :

- Sudden weakness or numbness along one side or both sides of body
- Sudden blurring or loss of vision
- Sudden difficulty understanding the spoken word
- Sudden confusion
- Dizziness, unsteadiness of a sudden fall
- Sudden severe headache with no apparent cause

**Epilepsy** is a central nervous system disorder (neurological disorder) in which nerve cell activity in the brain becomes disrupted, causing seizures or periods of unusual behavior, sensations and sometimes loss of consciousness.

## Symptoms :

- Temporary confusion
- A staring spell
- Uncontrollable jerking movements of the arms and legs
- Loss of consciousness or awareness
- Psychic symptoms



# Thank You