सत्यमेव जयते
Ministry of Health & Family Welfare
Government of India

NATIONAL HEALTH MISSION
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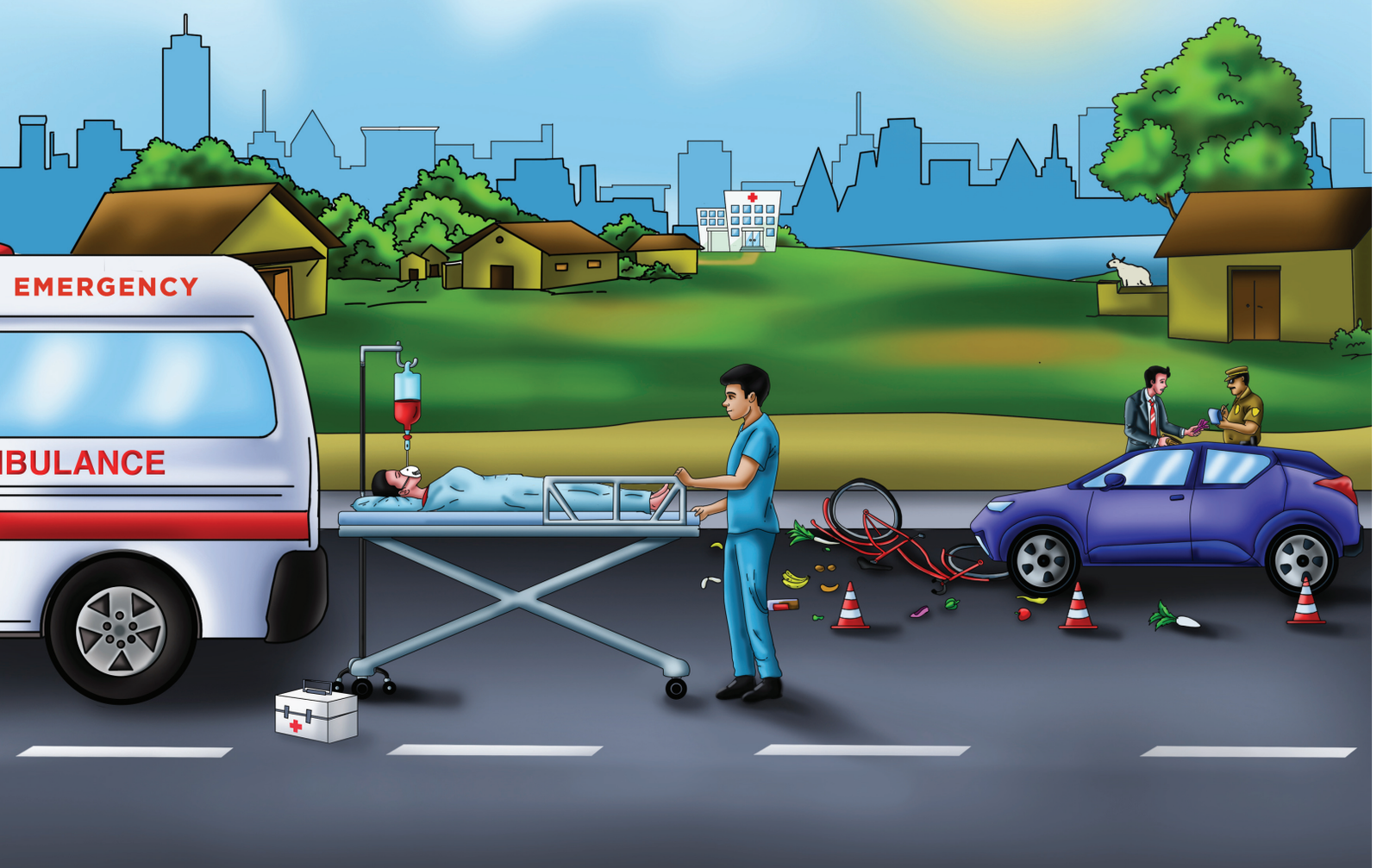

Training Manual on Management of Common Emergencies, Burns and Trauma for Community Health Officer

at Ayushman Bharat - Health and Wellness Centres

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https://gdmo.sarifudd.in

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CHAPTER 1

Introduction

In the last fifteen years primary health care has focused on health of mothers, children and adolescents, communicable diseases, non-communicable diseases and other chronic communicable diseases like tuberculosis, leprosy and HIV infection. With the launch of Health and Wellness Centres under the Ayushman Bharat programme, a wide range of additional services are envisaged to be delivered under comprehensive primary health care. As a Community Health Officer, you are the pillar of the Sub Health Centre Health and Wellness Centres (SHC-HWC) and instrumental to the roll out of the expanded range of services at the SHC-HWC. Emergency and Trauma Care is one of the new services which is being introduced in the newer package of services to be made available at the AB-HWCs.

The group of conditions which need immediate medical care and intervention, called as emergencies, are non-discriminatory as well as time bound; non-discriminatory in the sense that it can happen to anyone irrespective of age, gender, economic status etc. and time bound in the sense that most of the emergencies require intervention within one hour also called as the golden hour. Emergencies that are commonly encountered in the community may span from accidents and trauma to emergencies arising out of chronic diseases of the heart or lungs. Trauma is one of the most common emergencies that occur in the community and a major reason for morbidity and mortality in India.

Till now, you have worked to provide a set of essential services for specific population sub-groups under your SHC-HWC. This training module will help you understand your role with respect to Emergency and Trauma Care in terms of capacity building, care co-ordination and clinical management to save lives of people who need immediate medical care. The broad goal is to intervene as quickly as possible to avoid life-threatening morbidity and death in emergency and trauma cases. In this training module, you shall learn how to treat some common emergencies and to stabilize and refer the complicated ones.

CHAPTER 2

Role of Community Health Officer in Emergency, Burns and Trauma Care

Most emergencies, even though common, are also largely avoidable. As a CHO, your role with respect to Emergency and Trauma Care is manifold. Your responsibilities can broadly be categorized into:

Clinical Functions

- At the SHC-HWC level, your role is to attend to the emergency cases brought in/referred by ASHA/MPW or any other good samaritan and decide the course of treatment for the victim including further referral if need be.
- In cases which need to be referred to a higher facility, your role is to provide first aid and stabilize the victim before referring him/her to a higher centre like in cases of poisoning, trauma including fractures, major injury, severe burns, respiratory and cardiac arrest, epilepsy, animal bites, hemorrhagic and anaphylactic shock, acute gastro intestinal conditions and acute genito-urinary conditions.
- You shall identify and refer cases that need surgical management.
- You shall facilitate safe transport wherever needed in case of obstetric and neonatal emergencies like post-partum hemorrhage, eclampsia, sepsis etc.
- In disasters (natural and man-made), you shall rescue, triage, manage/refer victims and facilitate their rehabilitation.

Public Health Functions

- This includes health promotion and prevention of avoidable emergencies. Your role is to ensure awareness generation is being conducted in the community by ASHA/MPW during their field visits, or by leveraging existing community platforms like VHSNC and MAS meetings, and other activities.
- If a disaster strikes (natural/man made), you will lead and support your team in specific activities related to disaster management like triage of victims, stabilization and referral for further management.

Managerial Functions

- The Primary Health Care Team at the SHC level is led by you and hence your role will include supervising and coordinating with the team to ensure efficient functioning in various activities related to Emergency and Trauma Care. This will include supervision of activities like information dissemination and awareness generation, maintaining record of cases of emergency and trauma which are treated/referred, including their follow up and palliative care needs.

CHAPTER 3

Clinical Functions of Community Health Officer in Emergency, Burns and Trauma Care – General Measures

As you have learnt in the previous chapter, your roles and responsibilities at the SHC-HWC level would mostly revolve around attending to referred cases, providing prompt stabilization and referring cases that cannot be treated at the SHC level. In this chapter, you shall learn about the various protocols for management of emergency situations and skills required of you to attend to such cases. Your responsibility would also be that of supervising and facilitating the work of ANM and coordinating with the PHC MO.

Knowledge and Skills for management of Emergency Medical Cases including common medical, surgical, Burns, Trauma and others.

Activity	Knowledge	Skills
▪ Conducting initial assessment of the patient to arrive at probable diagnosis and assess the need for referral ▪ Provide first-aid care and stabilization before referral to appropriate centers of care ▪ Administer life-saving drugs/interventions, as appropriate, in acute cases ▪ Counsel the patient/ caregivers about the presenting condition and probable line of management ▪ Timely referral of patients in emergency ▪ Community follow up of patients discharged after emergency care in referral centers	**CLINICAL KNOWLEDGE:** ▪ First aid care ▪ Hemodynamic stability ▪ Triage in emergency room ▪ Differential diagnosis and management of common emergencies ▪ Emergency drugs and procedures **HEALTH SYSTEMS KNOWLEDGE:** ▪ Roles and available facilities at primary, secondary and tertiary level centers of public health system ▪ Institutional capacities of the referral units in the area **SOCIAL SYSTEMS KNOWLEDGE:** ▪ Local customs and beliefs ▪ Awareness regarding common traditional medical methods and practices	**CLINICAL SKILLS:** ▪ Applying sutures ▪ Insert IV cannulas for administering drugs ▪ Basic life support (BLS) ▪ Cardio-pulmonary resuscitation ▪ Assisted ventilation using AMBU bag ▪ Efficient history taking in critical cases ▪ General and systemic examination ▪ Identify danger signs and symptoms from history ▪ Making clinical decisions for appropriate management **MANAGEMENT SKILLS:** ▪ Arranging the quick response teams at AB-HWC within the available staff ▪ Monitoring of team members during management of critical cases **COMMUNICATION SKILLS:** ▪ Counselling of patient and attendants ▪ Case discussions with senior doctors at referral centers or PHC-MO ▪ Distribution of tasks among team members

Attending to cases referred to SHC-HWC

If the case has been referred by ASHA, you should take the history from her rather than taking it yourself since it will waste crucial time. The ASHA would have conducted a basic assessment of level of consciousness and ABCDE status of the victim, however, you should reassess the condition of the victim in order to arrive at a possible course of treatment. In this sub section, you shall learn about general measures (AVPU scale for assessing level of consciousness and ABCDE scale for assessing the physical status of the victim) post which specific measures will be covered to treat some common emergencies.

General Measures

These approaches are the most basic and universal to all injuries. This section will give you an idea about the approaches in general and in subsequent chapters we shall cover them with respect to specific management of different emergencies.

AVPU scale

Check the person's level of consciousness using the AVPU method in the primary care settings.

A: Alert: The person is aware and is responding to the surrounding on their own. The person will also be able to follow your instructions, open eyes spontaneously, and track objects.

V: Verbally Responsive: The person's eyes do not open spontaneously. The victim's eyes will open only in response to voice/calling out his/her name.

P: Responsive to Pain**:** The person's eyes do not open on their own and will only respond if a painful stimulus is given, eg. Pressure to the chest. The victim may move, moan, or cry out directly in response to the painful stimuli.

U: Unresponsive/unconscious: The victim does not respond spontaneously and does not respond to verbal or painful stimuli.

- **In cases of trauma, the approach is (H)ABCDE instead of ABCDE because trauma cases need management of life-threatening hemorrhage (bleeding) as the first step before ABCDE.**

Once the level of consciousness has been assessed, this approach should be performed within 1-2 minutes and repeated whenever the victim's condition worsens.

H: Hemorrhage control **A**: Airway **B**:Breathing **C**:Circulation **D**:Disability **E**:Exposure

Hemorrhage/bleeding control

If there is bleeding from any part of the body, the first step is to stop the bleeding. Profuse or uncontrolled bleeding should be given maximum priority.

Airway

Once the patient's level of consciousness has been assessed, evaluate his/her airway. For a patient who is unresponsive, make sure that he or she is in a supine (face-up) position to effectively evaluate the airway. If the patient is face-down, roll the patient onto his or her back. Take care

not to create or worsen an injury anywhere, especially over the neck. The two commonly used methods to open the airway are:

- **Head-tilt/chin-lift technique**: Press down on the forehead while pulling up on the bony part of the chin with two to three fingers of the other hand; Avoid hyperextension of the neck.
- **Jaw-thrust method**: The jaw-thrust method is used to open the airway when a patient is suspected of having a head, neck or spinal injury. To perform this manoeuver on an adult,
  - Kneel above the patient's head and
  - Put one hand on each side of the patient's head with the thumbs near the corners of the mouth pointed toward the chin, using the elbows for support.
  - Slide the fingers into position under the angles of the patient's jawbone without moving the head or neck.
  - Thrust the jaw upward without moving the head or neck to lift the jaw and open the airway.

(**Caution:** If there is neck or head injury, only chin lift should be done without turning the head of the person.)

Breathing

See if the patient's chest rises & falls with respiration, presence of flaring of nose and tightening of neck muscles during breathing. Normal breathing is quiet, regular and effortless.

In case of respiratory arrest, the patient would have a definite pulse but he/she would not be breathing. Such patients must be given ventilations immediately. Give 01 breath/ ventilation in every 5 to 6 seconds for an adult patient; with each ventilation lasting about 1 second and making the chest rise.

One must continue giving ventilation until:

- The patient begins to breathe on his or her own.
- Another trained rescuer takes over.
- The patient has no pulse. In that case one should begin CPR or use an AED (defibrillator), if it is available and ready to use.

Circulation

Check carotid artery pulse (or femoral or radial) on either side for about 06 seconds, multiply it by 10 to get pulse rate per minute. E.g.: If there were 08 pulsations felt in 06 seconds, then the approximate pulse rate would be 80/minute. Simultaneously also look for breathing, respiratory movements over chest. If there is no breathing, no pulse and the patient is unresponsive, the patient is in cardio-respiratory arrest.

Chest Compressions: Follow the steps as given below:

- Position the patient in supine, on a firm, flat surface as bed, stretcher or on ground.
- Expose the chest to ensure proper hand placement and the ability to visualize chest recoil.
- Rescuer should take a kneeling position on one side of patient's chest.
- Locate the area 2 inches above from the lower tip of the xiphoid sternum, now place the heel/ palm of one hand on the lower end of the sternum (i.e. at located area) and the other

hand is placed on the top of first one. Rescuer interlaces the fingers of both the hands and locks the elbows in position.

- "Push Hard & Push Fast" on the center of chest while delivering compressions until the return of patient's pulses.
- Arms are as straight as possible, with the shoulders placed directly over the hands in a straight line to promote effective compressions.
- Compression depth for adults should be 2 inches (about 5 cm) and rate should be at least 100/minute.

The chest must be allowed to fully recoil between each compression to allow blood to flow back into the heart following the compressions.

Disability

This is similar to AVPU scale that you have learnt in the previous sub-section. This is to check for unresponsiveness/unconsciousness.

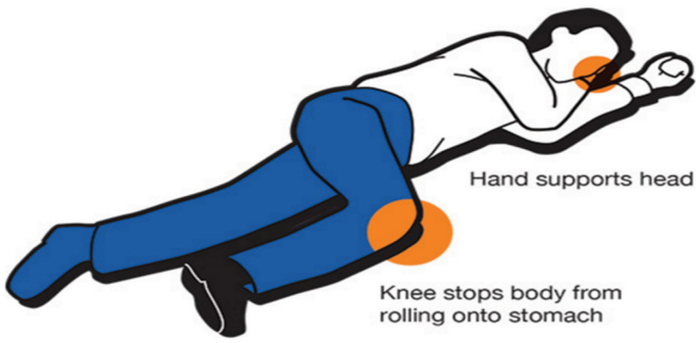
Exposure

To examine the patient properly full exposure of the body may be necessary. Respect the patient's dignity and minimize heat loss by covering the person's body. The rationale behind this is to protect the victim from hypothermia.

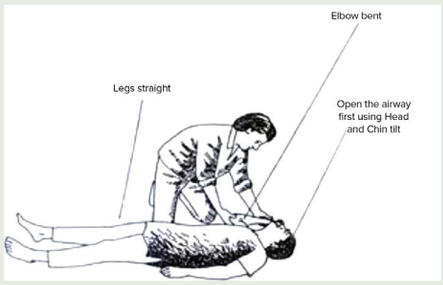
If the victim is unresponsive but breathing, turn them into a recovery position and wait for help to arrive.

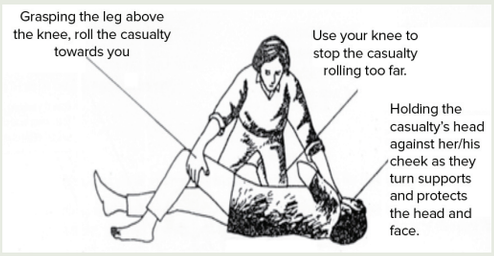
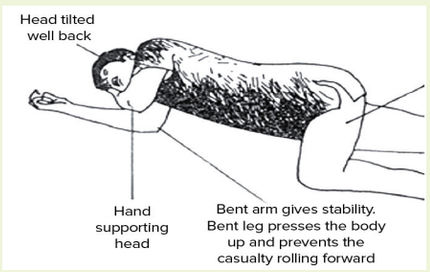
- **Recovery position:**

The recovery position is when a person is lying down on their side. Do not attempt recovery position if spinal injury is suspected.



Below is a step-by-step depiction of placing the victim in the recovery position.

Step 1	Kneel beside the person, open his/her airway by tilting the head and lifting the chin. Caution: Do not attempt to head-tilt, chin-lift if the person presents with any suspected spinal injury Straighten his/her legs. Place the arm nearer to you at right angles to his/her body, elbow bent and move the hand palm to the upper side.	

Step 2	Bring the arm further from you across the chest and hold the hand, palm outwards, against the person's cheek.	
Step 3	With your other hand, grasp the thigh further from you and pull the knee up, keeping the foot flat on ground.	
Step 4	Keeping his/her hand pressed against his/ her cheek, pull at the thigh to roll the person towards and on to her side.	
Step 5	Tilt the head back to make sure the airway remains open. Adjust the hand under the cheek if necessary, so that the head stays in this tilted position.	
Step 6	Adjust the upper leg, if necessary, so that both the hip and knee are bent at the right angles.	

Infant Recovery Position: Cradle the infant in your arms, with the head tilted downwards to prevent the child from choking on its tongue or by inhaling vomit. Maintain this position until you get medical help.

The recovery position will help in keeping their airway clear and they will be able to breathe properly. If the victim happens to vomit, this position will ensure that he/she doesn't choke. This position prevents the tongue from falling back and blocking the throat. Since the head is slightly lower than the rest of the body, it allows liquids to drain from the mouth, reducing the risk of choking on fluids or vomit. This position should also be used in fits or seizure after the shaking movements have stopped.

(***Caution: If you suspect that the person has suffered injury to the neck or spine, do not attempt the recovery position.)***

- The four **P**'s must also be kept in mind when giving first aid. These are the responsibilities of every first aider:
  - To **P**reserve life and emergency care and treatment to people who are sick or injured
  - To **P**rotect unresponsive/ unconscious people
  - To **P**revent the further worsening of victim's condition.
  - To **Promote** the victim's recovery.

References

1. Walker BR, Colledge NR, Ralston SH, Penman ID. Davidson's Principles and Practice of Medicine. 22nd ed. Churchill Livingstone Elsevier; 2014. 596 p.

CHAPTER 4

Clinical Functions of Community Health Officer in Emergency, Burns and Trauma Care-Specific Management for Common Emergency Conditions at SHC-HWC

In the previous chapter, you have been introduced to general measures which you should follow for all the emergency cases referred to you. However, each case is different and hence you would have to modify your approach in ABCDE as you deem fit. In this section, you shall learn about the various protocols that you should follow at SHC-HWC everywhere for managing emergencies.

a. Trauma and Accidents

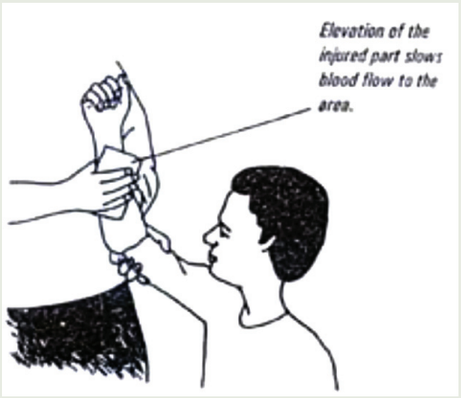
Trauma or accident is the most common type of emergency. Though it can be fatal, major disability or even death can be prevented by providing stabilization using two modes:

- Immobilization
- Control of bleeding

As discussed earlier, check the victim's level of consciousness and check for (H)ABCDE to get a proper idea of the status of the victim. **In cases of trauma, the approach is (H)ABCDE instead of ABCDE. Because trauma cases need management of life-threatening hemorrhage (bleeding) as the first step before ABCDE.** (1)

Keep **DRS** in mind: **D**anger (check the scene for danger), **R**esponse (check for the victim's consciousness) and **S**end someone to call for help.
Moving the victim: Casualty should be moved very carefully keeping in mind the immobilization and bleeding.
Immobilise the victim and provide support to injured body parts, retain the helmet in case of a motorcycle accident.
If the victim presents with branch of tree, steering wheel, any other object lodged in the body, do not attempt to remove it since it will cause uncontrollable damage.
When the victim has been carried to your AB-HWC in a stretcher, removing the patient from the stretcher has to be carried out in one swift movement.
If ASHA is present with the victim, or any other first responder is present, gather and understand the details of the victim and the accident.
**Remember that you can only help the victim, if you yourself are safe. Before attending to the victim, make sure that any open wounds, skin tears on your body are covered so there is no spread of infection.*

Once you have moved the patient, look for the following specific injuries:

Type of Injury	Management of the Injury
Bleeding wounds  	Find the source of bleeding, if the bleeding is near the area of the mouth of neck, it is possible that it could cause airway blockage. Expose the area: Open or remove the clothing over the wound so that u can clearly see it. Bleeding may be controlled by **applying direct pressure, applying pressure bandage, elevation above level of heart, pressure over the major arteries**(pressure points) (refer to annexure II) You can use a sterile dressing or a clean piece of cloth for the wounds. You can add more gauze if blood soaks through, and continue applying pressure. Do not remove the dressing even when it gets soaked with blood. Instead, add more material and continue pressure (since this can interfere with the clotting mechanism of the blood vessels) Do not move limb if you suspect any fractures. Otherwise, elevate the wound higher than the level of the heart. As soon as bleeding is controlled, apply dressing and observe for shock. Secure IV access and IV fluids. Look & identify life-threatening bleeding
Minor Wounds	If a patient with **a minor** cut or wound reports to you, proceed with the following steps: • Ensure the safety of the victim as well as yourself. • Wash your hands well before touching the injured area of the victim. • If the wound is dirty wash it thoroughly with soap and water, then apply firm pressure for around 5 minutes. This will stop most bleeding. • Elevate the wound, above the level of the heart if possible. When bleeding has reduced, clean the area with the antiseptic lotion and keep it dry. • Use a sterile dressing to avoid touching the wound directly • Administer a dose of tetanus toxoid injection • Give antibiotic such as amoxicillin 500mg 8 hourly for 5 days if needed. • A deep gaped or jagged wound with exposed fat or muscle will need to be sutured. • Adhesive strips or butterfly tape may hold a minor cut together, but if you cannot easily close the wound, refer as soon as possible. Proper closure within a few hours minimizes scarring and reduces the risk of infection. Refer in case you are not able to manage at the earliest. • For extensive injuries such as lacerations or puncture wounds (knife, bullet, etc.), stabilize the patient and refer.

Type of Injury	Management of the Injury
Head Trauma	Remember that whenever there is head trauma, you would have to provide prompt stabilization and refer the patient to higher facility where CT and neurological facilities are present (refer annexure II to understand the referral pattern) A head trauma may cause a temporary loss or altered level of consciousness which occurs after an impact to the skull area (you will notice this when you assess the victim for AVPU) Some other symptoms that could be present are blurred vision, nausea, vomiting, bleeding from ear nose or throat and confusion You have to always assume that a person has a spinal injury unless proved otherwise.
Spinal Injury	You should stabilize the victim by immobilizing and facilitate referral.
Chest and Abdomen injury	There is a possibility that the victim could have difficulty breathing with injuries to the chest. You should assist the victim's breathing in such cases. Secure intravenous access and monitor respiratory rate and Oxygen saturation (SpO_2) levels continuously. Monitor and assess the victim over 3-4 hour time period; as they would present to facility in stable condition and deteriorate after some time. Victims with rib fracture may slowly develop tension pneumothorax and needs monitoring for the same. (Blunt trauma to chest or abdomen may present without any external injury over skin or as small contusion, but may have injured deep structures such as ribs, pleura in chest and solid organs as liver, kidneys, spleen, etc. in abdomen) Victims with rib fracture may slowly develop tension pneumothorax and need monitoring for the same.
Fractures	After stabilizing the victim, you will have to facilitate the referral to a centre where an orthopaedic surgeon is available. Follow the RICER protocol in cases of fractures: RICER – **R**est **I**ce/**I**mmobilization **C**ompression **E**levation **R**eferral During immobilization, you can try to splint closed fractures (refer to the sub-section on fractures for the illustration)

Fractures

In this sub-section, you shall learn about the most common manifestation of a Road Traffic Accident/Trauma after bleeding. You shall learn about the basics of fractures and what kinds of fractures can be managed at your SHC-HWC and the ones that you will need to refer. You shall also learn the first-aid and stabilization protocol that you may follow so that the victim does not suffer major disabilities, bleeding or shock.

Fracture is an injury that causes break in the bone. The bone may be cracked or split into pieces. The break is usually complete, but in the young ones, the bone can be bent without breaking completely. This is called a greenstick fracture.

Types of fractures

i) Simple or Closed – skin is unbroken and blood is lost into tissues

ii) Compound or Open – a wound leads to be fracture, or bone protrudes through the skin. Blood loss may be severe, and infection can result.

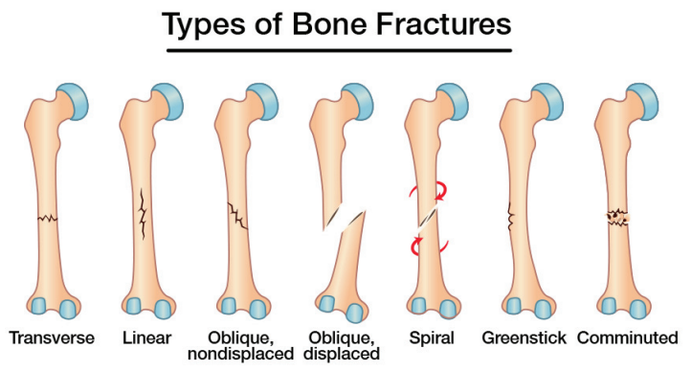
iii) Spiral fractures – are caused by twisting of the bones such as those which may occur in skiing accidents.

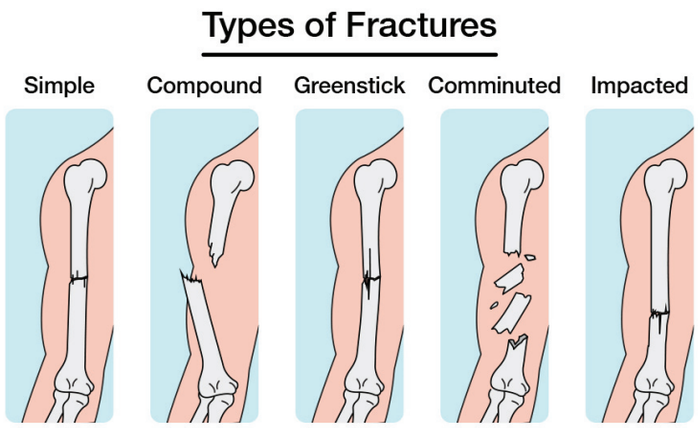
iv) Transverse fractures – are horizontal breaks directly across the bone also called stress fractures caused by repetitive, damaging motion such as running or jumping.

v) Stress fractures- transverse breaks caused mostly due to overuse or repetitive trauma.

vi) Greenstick fractures – usually the result of sudden force and are characterized by a splintering of the top layer of the bone which resemble like a piece of bark peeled from a tree and are more common in children.

vii) Comminuted fractures – are those in which the bone shatters into fragments. These fractures are caused by severe force such as car accident.





The victim who has suffered a fracture might have either felt the break, heard the break or both. Some of the common signs of a fracture are:

- Pain at the site of the bone that is fractured
- Difficult or impossible normal movement of the limb

- Deformity, abnormal twist or shortening of limb
- Tenderness at the site of fracture, when gentle pressure is applied
- Swelling over and around the fracture
- Bruising at the site of fracture
- A coarse grating sound if one end of the bone moves against the other. This is called crepitation.

In cases of fractures, mostly you will be needed to stabilize the area using a make-shift splint and refer to higher facilities.

Protocol for stabilization of victim with a fracture

- Secure IV access.
- Administer IV fluids if there is blood loss.
- Administer analgesics.
- Stop any bleeding by applying direct pressure and by elevating the injury site.
- Ice packs may be used for closed fractures to lessen pain and swelling.
- Immobilize using splints or minimize movements of the injury site to avoid further injury.
- ***RICER: REST, ICE/IMMOBILIZATION, COMPRESSION, ELEVATION & REFERRAL.***

A guide to the 'Rest, Ice, Compression, Referal' technique

Injuries such as sprains, strains and fractures can happen easily. They often happen after accidents or falls, or during sport or other physical activities.

When an injury happens, some internal bleding and swelling can develop in the injured area. Too much swelling can cause extra damage.

RICER is a first aid technique used in the first 48 hours after a sprain, strain or fracture. It can limit swelling and help speed up recovery.

R - Rest, I - Ice, C - Compression

R - Rest

After injury, stop your child taking part in any painful activity. Moving the injured part can increase bleeding and swelling, and slow down thw healing process. Don't let your child keep playing.

I - Ice

Use an ice pack to reduce pain and swelling in the affected area. Apply ice for 15 minutes every four hours for 24 hours, then for 15 minutes every four hours for 24 hours.

C - Compression

Bandage the area firmly (but not too tightly), starting just below the injured area and moving up. Overlap each layer by half. Finish bandaging about one hand's width above the injured area.

Note of Caution

When handling a suspected fracture, ***DO NOT*** do the following:

- Massage the affected area
- Apply any ointment like iodex over open wounds
- Straighten the broken bone
- Move the injured part or limb
- Move the joints above and below the fracture
- Attempt to set the fracture
- Try to push a protruding bone back

In order to attend to victims who have suffered fracture or any other trauma, you need to have the skills required for splinting and bandaging.

Splinting

A splint is a rigid appliance, usually made of wood or metal, which is tied to a fractured limb to support it and prevent movement from taking place at the site of fracture. Some first aid kits do provide such splints but in emergency situations, you need to use the resources you already have and splints can be improvised by using any article which is rigid enough and of sufficient length for the purpose for which it is required. Rolled newspapers, magazines, piece of wood, card board etc. have been used for splinting in case of emergency. The body itself can be used for splinting purposes, e.g. a fractured arm can be strapped to the side of the chest to immobilize it or a fractured leg can be tied to the other leg.

- Make sure that the splint is well padded. This is particularly important when splint are improvised from pieces of wood which are uneven.
- Make sure that the splint is sufficiently long to immobilize the joint above and below the fracture.
- Make sure that the bandages used to secure the splint have the knots tied on the splint and not on the flesh.

Bandaging

A bandage is made up of gauze which is used in fracture for:

- Keeping the dressing of wound in open fracture in place
- Immobilizing the fractured part or limb
- Reducing the swelling
- Retaining a splint in position

In order to facilitate the safe bandaging follow the instructions given as below:

- Use bandaging fairly firm so that there is no movement of fractured ends but not too tight which can stop the circulation of the blood to the area.
- Always place padding material between the ankles and knees and other hollow areas before bandaging these, to make them comfortable and steady.
- Always tie knots on the smooth side.

Instructions for referral of the victim of a fractured spine

A simple fractured spine may easily be turned into a complicated fracture involving the spinal cord unless the patient is carefully handled. The principles to be followed for shifting the patient with fractured spine are:

- The spine must not bend when moving or lifting the patient.
- Preferably do not turn the patient but if you have to, turn the patient in one piece.
- The stretcher on which the patient is being transported must be rigid so that it will not sag on lifting. Use a board, door, shutter etc. for this purpose.
- Always transport the patient lying flat.

b. Bites (Animal bite/snake bite/scorpion sting)

Bites are the wounds caused by piercing or stinging of the flesh of a person by an animal, insect or by another person.

Types of Bites:

- Insect Bite: Bee/wasp/bed/spider bug, hornet stings, jelly fish
- Scorpion Bite
- Snake Bite
- Dog Bite

In the following table, you shall learn about each of these insect/animal bites in detail

Type of Bite	Presenting Symptoms	Treatment	What NOT TO DO
Insect Bites **Bee/wasp/bed/ spider bug, hornet stings, jelly fish**	• Sharp pain at the site of sting. • Swelling around the affected area with the central reddened puncture point. • Sting may be there in the wound. • If the person is prone to allergies, the person may go into shock. • Stings in the mouth and throat may cause swelling leading to asphyxia.	The insects have sting which is left at the site of the puncture and has to be removed to prevent the person from danger Step 1: **Removal of sting** If the sting has been left embedded in the skin hold tweezers as near to the skin as possible. Grasp the sting and remove it. Step 2: **Local Treatment** Bee venom is acid and it should be neutralised by application of ammonia, soda. Wasp venom is alkaline and it should be neutralised by application of vinegar or lemon juice. For jelly-fish stings, apply calamine lotion. Apply cold compressions and spirit at the site of sting. Give Ibuprofen tablet to relieve pain and swelling. Give antihistamine (avil/ pheniramine tablet/injection) for allergy.	Do not squeeze the poison sac because this will force the remaining poison into the skin.

Type of Bite	Presenting Symptoms	Treatment	What NOT TO DO
		Step 3: **Treatment of insect stings inside the mouth or throat** To reduce swelling, give ice to suck. Rinse the mouth with cold water or solution of water and bicarbonate of soda. If breathing becomes difficult, shift the patient immediately to hospital.	
Scorpion Bite	**Mild form** • Itching and swelling at the affected site (such as eye may be closed due to swelling) • Burning pain and increased sensation or numbness near the site of bite. **Severe form (Danger Signs)** • Restlessness, lacrimation, excessive salivation. • Nausea, vomiting. • Anxiety, palpitations, chest pain • Profuse sweating, cold limbs, peripheries • Prolonged and hard erection of penis • Difficulty in breathing • Respiratory distress • Hypotension	Examine the site of sting. If the sting is on the extremity, apply a tourniquet proximal to the site of sting and release it every 5 to 10 minutes for a few seconds to prevent gangrene formation. Apply ice packs on the region to slow down the absorption of poison. Apply cold compress or fresh potassium permanganate solution on the wound. It stops the pain immediately. Give Ibuprofen tablet to relieve pain and swelling. Give antihistamine for allergy. Give 'Ring Block' at site of bite to decrease the pain. Give inj. Lignocaine 2% (without adrenaline) locally surrounding the bite site from all sides in circular motion. Look for the signs of shock, particularly in children. If prolonged penile erection, profuse loss of water and palpitations are observed, then the patient is at high risk of developing "autonomic storm", i.e. excessive activation of autonomic nervous system and followed by cardiogenic shock or cardiac arrest. If these signs begin to appear, give first dose of tablet Prazocin orally 01mg for adults and 30microgram/ kg body weight and refer immediately to appropriate higher center.	

Type of Bite	Presenting Symptoms	Treatment	What NOT TO DO
Snake Bite	• Fang marks: Generally, the presence of two puncture wounds indicates a bite by a poisonous snake. • Pain: Burning, bursting or throbbing pain may develop immediately after the bite and spread proximally up the bitten limb. *(Krait and sea snake bites maybe virtually painless.)* • Local swelling: Swelling may become apparent within 15 minutes and becomes massive in 2-3 days. It may persist for up to 3 weeks. The swelling spreads rapidly from the site of the bite and may involve the whole limb and adjacent trunk. Regional lymphadenopathy may develop. If there is no swelling 2 hours after a viper bite, it is safe to assume that there has been no envenoming. • Local necrosis: bruising (leakage of blood from vessels and collection of blood under skin), blistering (multiple small swellings filled with inflammatory watery liquid) and necrosis (blackish discolouration of the part from deaths of local tissue) may appear over few days following the bite. Bites by Asian cobras can also cause tender local swelling and blistering.	If anti-venom is present at the SHC-HWC, you can administer it. If not, you need to refer the victim to the PHC immediately. **First aid:** • Keep nil by mouth till victim reaches PHC (if referral is needed) • Immobilize the limb in the same way as a fractured limb • Ideally the patient should lie in the recovery position (prone, on the left side) with his/her airway protected to minimize the risk of aspiration of vomitus. • Assess the patient for any local or systemic signs or symptoms of envenomation. • If there are no signs/ symptoms of envenomation, keep victim under observation for 24 hours, as there may be delayed absorption of snake venom and late signs would appear, that can be life threatening. Keep looking for any danger signs.	• Do not tie a tourniquet in cases of snake bite. Snake venom does not spread through blood. • Do not try to suck out poison from snake bite, or cut the wound open. • Do not make the patient move too much. • In most cases, if the snake has been killed, it should be taken to the hospital along with the patient to make sure the treatment is right BUT DO NOT waste time in searching for the snake. It could lead to more casualty if the snake is not dead and only injured

Type of Bite	Presenting Symptoms	Treatment	What NOT TO DO
	• Krait bites usually do not cause any local reaction • Secondary infection: Bacteria in the oral cavity of the snakes contribute to secondary infection. It may take 2-5 days to develop this infection, may extend to appear in the form of cellulitis or even necrotising fascitis.		
Dog Bite		• Wash the wound well with soap and flush with running water by syringe/ tap. • If the wound is a small lacerated wound and requires only few sutures and there is no active bleeding, then rather avoid suturing on first visit. Only cleanse the wound well and take sutures after 48 hours. Suturing may cause rabies toxin to go into deeper tissues and increase chances of higher risks. • Take sutures for actively bleeding wounds or the larger ones, but keep these sutures loose and superficial. Do not tighten them. • Apply antiseptic lotion such as betadine. • Bandage the wound with sterile dressing. • Give a single dose of tetanus toxoid 0.5ml Intramuscular. • Give anti-inflammatory analgesic tablet such as Paracetamol, or Ibuprofen for pain. • Give antibiotic such as capsule amoxicillin 500 mg 8 hourly or cephalexin 500mg QID for five days for open and lacerated wounds. • Tell the patient to watch the dog for 10 days for any abnormal behaviour as follows and report back when any of the adverse signs are noticed:	

Type of Bite	Presenting Symptoms	Treatment	What NOT TO DO
		– If the dog no longer eats – If the dog no longer barks – Shivers, becomes aggressive, barks at those it knows – Has convulsions or has abnormal behaviour – If the dog has died or was killed, send the carcass to the nearest veterinary dispensary for investigation. • Give the patient first aid treatment as above and • Refer the patient to PHC doctor for anti-rabies vaccine.	

Snake Bite

There are about 300 species of snakes in India, and 60 species of them are poisonous, while 04 of them are more commonly seen: Cobra, Saw scaled viper, Russell's viper and Common Krait. The following table provides symptoms specific to each of these four snakes. About 70% of all snakebite cases are from non-poisonous snakes and hence the first thing you should try to do is calm the victim in cases of snake bites.

NOTE OF CAUTION

- Do not tie a tourniquet in cases of snake bite.
- Snake venom does not spread through blood.
- Do not try to suck out poison from snake bite, or cut the wound open.
- Do not make the patient move too much.
- In most cases, if the snake has been killed, it should be taken to the hospital along with the patient to make sure the treatment is right BUT DO NOT waste time in searching for the snake. It could lead to more casualty if the snake is not dead and only injured

In case of snake bite, use the RIGHT approach

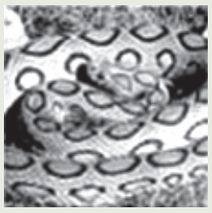
R: Reassure the person (70% of snakebites: from non- poisonous snakes only 50% poisonous snakes inject poison).

I: Immobilize the affected body part of the person.

GH: Get to the Hospital immediately.

T: Tell the doctor at the referred facility about presence of any symptoms (pain, weakness, bleeding, etc.).

Table 1: Symptomatic species-specific severity identification of venomous snakes from the Indian subcontinent

Species	Grade I Mild	Grade II Moderate	Grade III Severe	Grade IV Very Severe	Distinct Feature
Saw-Scaled Viper 	One or two punctures, ecchymosis, swelling, local pain	Rise in CT/ BT, edema, local cyanosis, bleeding from the bite site	Hemorrhage, hematuria, melena, anemia, coagulopathy	Renal failure, hypotension, severe anemia, reduction in SpO_2	Rapid discoloration near the puncture, frequent bites on the apex
Russell's Viper 	One or two punctures, ecchymose, swelling, local pain	Along with the abovementioned, blisters on the limb	Along with the abovementioned, hyper edema, blisters and necrosis on the limb	Along with the abovementioned, hyper edema and blisters on the limb	Blisters formation, punctures bigger and wider than those of Saw-Scaled Viper
Cobra 	One or two distinct fang marks, local pain, ecchymosis and swelling	Sluggish optical response, edema, diplopia and confusion	Ptosis, dilated pupils, local necrosis, arrhythmia, respiratory difficulty, low SpO_2, CNS and cardiac features	hypotension, unconscious state, cardiac arrest, respiratory arrest	Rapid cardiac and systemic features with prominent local features
Krait 	Miniscule fang marks, difficulty in swallowing after 5-12 hours	Sluggish optical response, ptosis, diplopia, glossopharyngeal dysfunction, hypokalemia.	Dilated pupils, ptosis, low SpO_2, poor respiration, arrhythmia, glossopharyngeal palsy, colic	Hypotension, unconscious state, coma, respiratory arrest, sudden cardiac arrest	Minimal local symptoms,colic and hypokalemia

Dog Bite

In India, rabies is endemic most dangerous manifestation of dog bite. This is why, every bite by any dog should be reported. Wounds following a dog bite are potentially infected because dirt and germs are introduced into wound from the teeth of the dog.

Remember

- Dog bite may cause fatal medical condition i.e., Rabies and fear of water called hydrophobia. This is a 100% fatal condition and causes death within hours. There is no specific treatment for rabies once it has developed; prevention is the best strategy.
- The dog should be watched for 10 days, if possible. If the dog is healthy after this period then there is no danger of rabies.
- The **same treatment** applies to the bites or scratches of **other animals**. Even a minute dog bite from a dog can give rise to **rabies**, therefore always **refer** the patient in such case.

The WHO rabies exposure categories are:

Category I: Touching or feeding animals, animal licks on intact skin (no exposure)

Category II: Nibbling of uncovered skin, minor scratches or abrasions without bleeding (exposure)

Category III: single or multiple transdermal bites or scratches, contamination of mucous membrane or broken skin with saliva from animal licks, exposures due to direct contact with bats (severe exposure).

Anti-Rabies Vaccine

In the recent Essential Medicines List at SHC-HWC, it is proposed that Anti-Rabies vaccine should be available at these facilities. However, for category III bites, Rabies Serum should also be administered and hence it is advisable to refer these cases to the facilities where anti-rabies serum is available.

General note of caution for all bites

Do not suture the wound before referring

c. Anaphylaxis and Acute Skin Rash

An Allergy is a condition where our body reacts to a foreign substance in the body which could either be inhaled or ingested. This reaction usually causes symptoms in the nose, lungs, throat, sinuses, ears, lining of the stomach or on the skin. Some of these foreign substances include but is not limited to the following:

- **Airborne allergens** such as pollen, animal dander, dust mites and mould
- **Certain food** particularly peanuts, wheat, soy, fish, shellfish, eggs and milk
- **Insect stings** such as from a bee or wasp
- **Medications** particularly penicillin or penicillin-based antibiotics
- **Latex or other substances you touch** which can cause allergic skin reactions

Some substances that can cause allergic reactions (as broadly mentioned above) are called as Allergens/Triggers and once diagnosed, should be avoided in the future. Some of the most common allergens or triggers are given below, however, it should be remembered that the list of allergens are not limited to the below mentioned ones.

Triggers:

1. Some food (especially peanut, eggs, nuts & shell fish)
2. Medication, such as antibiotics (especially penicillin & sulpha), aspirin & ibuprofen
3. Insect stings or bites
4. Physical stimuli, such as pressure, cold, heat, exercise or sun exposure.
5. Blood transfusion
6. Latex
7. Bacterial infection, includes UTI & streptococcal infection

8. Viral infection, including common cold, infectious mononucleosis & hepatitis.
9. Pet dander
10. Pollen
11. Some plants, such as poison oak & poison ivy

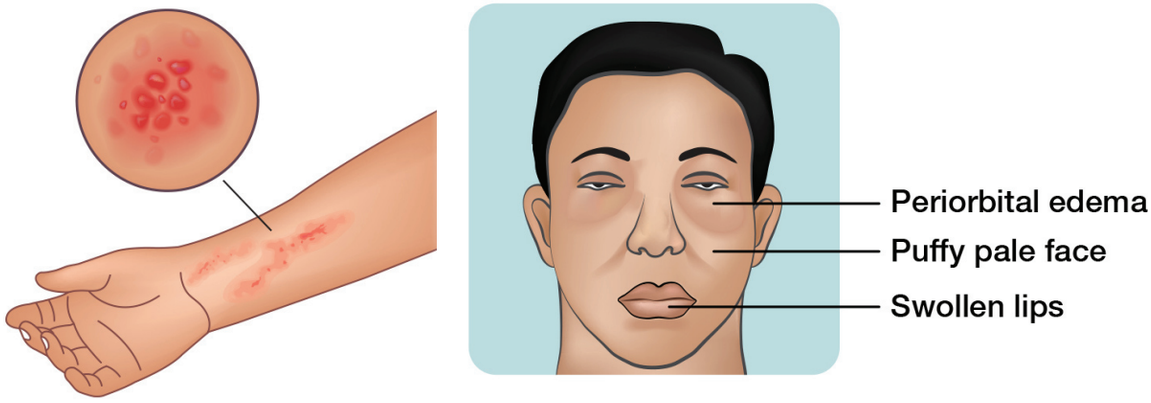
Anaphylaxis

Anaphylaxis is a serious allergic reaction that is rapid in onset and may cause death. It typically causes more than one of the following: an itchy rash, throat or tongue swelling, shortness of breath, vomiting, light-headedness, and low blood pressure. These symptoms generally last for over minutes to hours.

Signs and symptoms

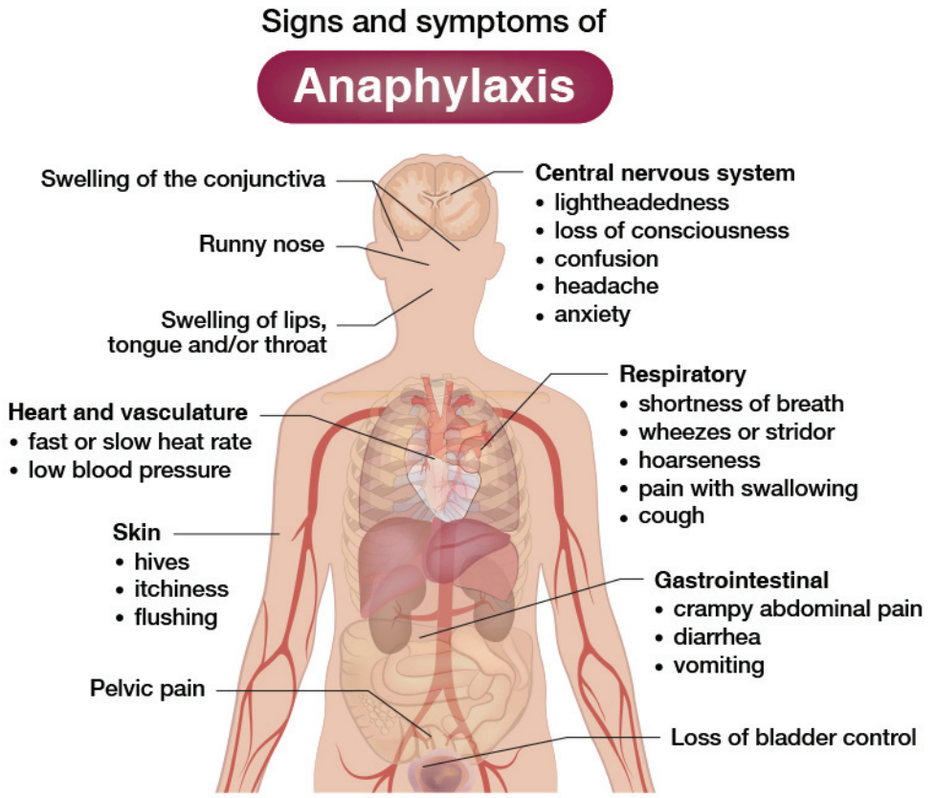
- Anaphylaxis typically presents many different symptoms over minutes or hours with an average onset of 5 to 30 minutes if exposure is intravenous and 2 hours if from eating food.
- The most common areas affected include: skin (80–90%), respiratory (70%), gastrointestinal (30–45%), heart and vasculature (10–45%), and central nervous system (10–15%) with usually two or more being involved.
- Symptoms typically include generalized hives, itchiness, flushing, or swelling (angioedema) of the afflicted tissues.

Presentations of Angioedema



First-Aid Treatment:

- Administration of epinephrine (injection adrenaline (epinephrine) 1:1000 dilution intra muscular mid anterolateral thigh) is the treatment of choice with antihistamines and steroids (for example, dexamethasone) often used as adjuncts. Do not give intravenous because it needs further dilution of drug:
  - Anaphylaxis is a medical emergency that may require resuscitation measures such as airway management, supplemental oxygen, large volumes of intravenous fluids, and close monitoring.



Acute skin rash (urticaria)

- A skin rash triggered by a reaction to food, medicine or other irritants.
- Usually self-treatable, self-diagnosable.
- Short term – resolves within days to week.

Clinical features

- Raised itchy bumps, either red or skin-coloured.
- Symptoms can last anywhere from minutes to months or even years.
- Hives can appear on any area of the body, they may change shapes, move around, disappear & reappear over short period of time.
- The bump – red or skin coloured 'Wheels' with clear edge usually appear suddenly and go away just as quickly.
- Pressing the centre of a red hive makes it turn white – process called 'blanching'.

Two types of urticaria

1. Short lived – acute
2. Long term – chronic
   - Neither is typically life-threatening, symptoms that cause breathlessness require immediate emergency care.

First-Aid Treatment

1) Avoid known trigger.
2) Use antihistamines, steroids (injection Avil {Chlorpheniramine maleate} 25mg IV stat, injection Hydrocort 100mg IV stat).
3) Oral antihistamines (Levocetrizine).
4) Cold compresses or anti – itch solutions to ease the symptoms.
5) If breathless then inj adrenaline (epinephrine) 1:1000 dilution IM.
6) If symptoms do not improve immediately shift to emergency higher centre.

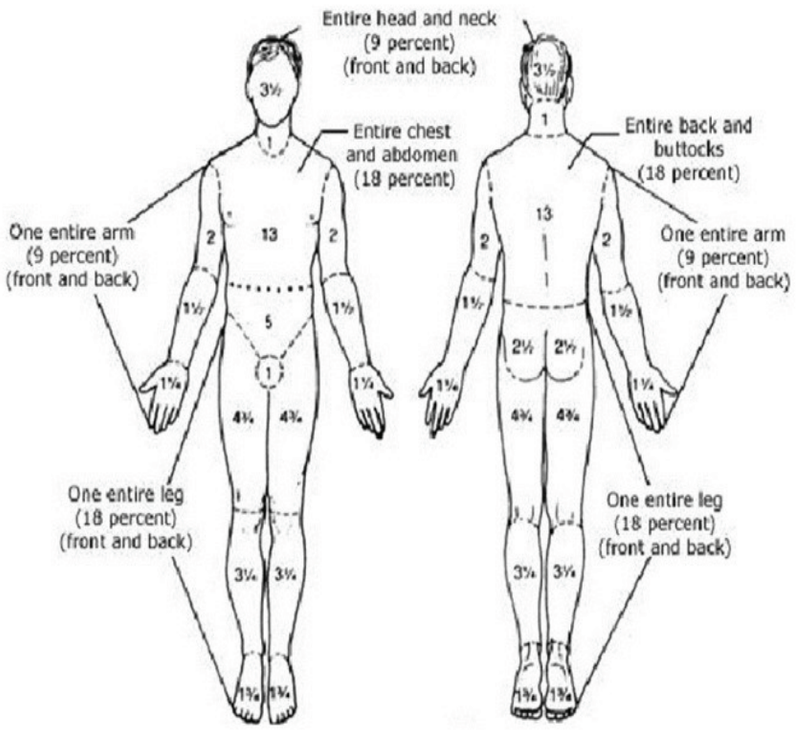
Remember

History taking is the most important method to find out the allergen

- If the patient is able to speak, a thorough history of what caused the allergy should be taken so that it can be avoided in future.
- You could ask the patient if the cause of the allergy is any of the above mentioned allergens that the patient might have come in contact with.
- If not, you should ask about any other substance that the patient had come in contact with **for the first time.**
- If the person has had allergic reactions before, ask the person about what had caused it the previous time

d. Burns

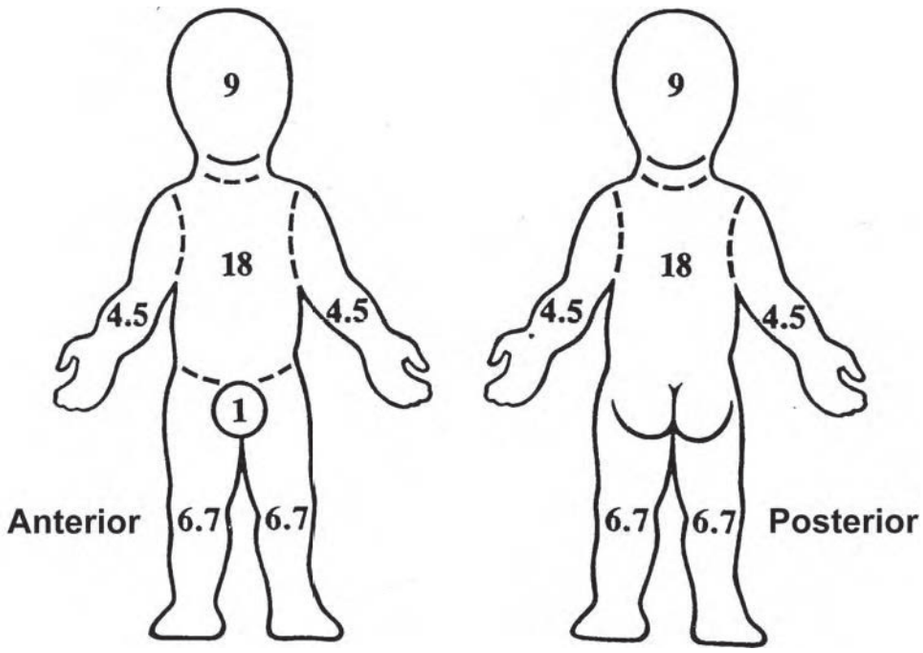
Burns are the leading cause of accidental and suicidal deaths in India and many of them are preventable and treatable at primary levels. Most of the reported victims belong to 15-40 years age group and belong to poor socioeconomic strata. In addition to the burns on skin and varying layers of deeper structures, it affects various vital organs due to loss of fluid through the burn wound and Hypovolemic shock.



Severity assessment:

Assess surface area and depth of Burns

1. Surface area using Rule of Nine in adults and Lund and Browder chart in children



1. Depth of burns:

First degree:	Epidermal loss only, superficial layers of skin are involved Burn wound pink in color, blanches on pressure, very painful
Second degree:	Depth varies with thickness of dermis, deeper layers of skin burnt, white to dark red in color Less painful or painless, no blanching on pressure Hair follicles can be pulled out easily
Third degree	Full thickness skin burns, deeper tissue may also be involved, no pain

Treatment and Management

Burn wound Care

- Clean and wash the wound with antiseptics and dry it
- Apply topical antibiotic ointment
- Apply biological dressings on superficial burns
- In deep burns -dress the wound with non-adherent layer and then gamgee pads and bandage

In hand and feet burns -splint in functional position

Systemic antibiotics

- In superficial burns – Penicillin group of antibiotics
- In deep burns – Cephalosporin, Aminoglycosides

Resuscitation on admission

1. Restore A-B-C
2. Give 100% oxygen if required
3. CPR if necessary (follow basic life support algorithm)
4. Secure IV line and administer IV fluids, about 01 liter of fluid bolus initially, for shock if required, followed by maintenance IV fluids.
5. Send blood for CBC, PCV, Coagulation profile, FBS, Creatinine, Urine myoglobin in electrical burns, ECG especially in electrical burns, S. electrolytes, burn wound swab for culture and sensitivity.

Choice of IV Fluids - Ringer Lactate in first 24 hours is preferred in most burn centers

According to Bailey & Love's short practice of surgery, 27th edition, Calculate I.V. fluids using Parkland's formula (2) as given below:

4ml x % of Burns x Body weight

First half to be administered in first 8 hours from the time of burn

Another half is divided equally between second and third eight hours

Assessment of adequacy of IV fluid administration

1. Pulse, B.P., improved hypotension
2. Hourly urine output – 0.5ml/kg/hour in adults and 1ml/kg/hour in children

e. Choking/foreign body ingestion

A foreign body is a substance that can enter in the skin, eye, ear, nose, throat, esophagus or stomach and if not removed in time, can lead to complication or even cause death of the victim. However, in this chapter and this module you shall be taught about managing foreign body choking cases entering the throat, esophagus and stomach and the rest shall be covered in modules on EYE and ENT care.

In cases of choking, the initial ABCDE assessment that you conduct is of utmost importance. There is a high risk of these objects to descend down into airways or esophagus and stomach. Airway may get blocked and patient dies within minutes due to choking.

In adults, most commonly observed foreign objects stuck in throat are food particles while coins, bottle caps, batteries etc. are commonly noted among children. These foreign bodies can be managed with following simple techniques, if followed appropriately on time.

Whenever a patient with a foreign body in the throat reports to you, proceed with the following instructions:

a) **Give 5 back blows.** First, deliver five back blows between the person's shoulder blades with the heel of your hand.

b) **Give 5 abdominal thrusts.** Perform five abdominal thrusts (also known as the Heimlich manoeuver).

Abdominal thrust may injure infants. Use chest compression instead.

a) **Alternate between 5 back blows and 5 abdominal thrusts** until the blockage is dislodged.

b) If you are the only rescuer, perform back blows and abdominal blows.

c) If another person is available, have that person call for help while you perform first aid.

d) If the person becomes unconscious, help him or her to the ground and begin CPR.

e) After attempted rescue breaths, check the mouth for an object and if visible remove it.

f) Do not perform a blind finger sweep because this could push an object farther into the airway.

Steps to perform the Heimlich manoeuver on someone else

a) **Stand behind the person.** Wrap your arms around the waist. Tip the person forward slightly.

b) **Make a fist with one hand.** Position it slightly above the person's navel.

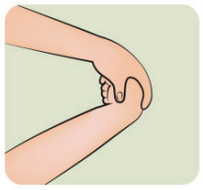
c) **Grasp the fist with the other hand.** Press hard into the abdomen with a quick, upward thrust, as if trying to lift the person up.

d) **Perform a total of 5 abdominal thrusts,** if needed. If the blockage still is not dislodged, repeat the five-and-five cycle.

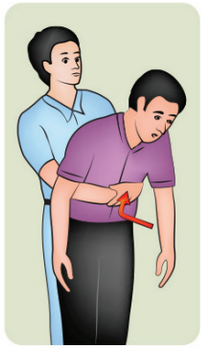
Heimlich Maneuver

1. Lean the person forward slightly and stand behind him or her.

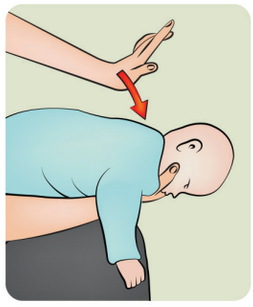
2. Make a fist with one hand.



3. Put your arms around the person and gasp your fist with your other hand near the top of the stomach just below the center of the rib cage



4. Make a quick hand movement inward and upward.



Place the infant stomach-down across your forearm amd give five thumbs on the infant's back with heel of your hand

Place fist above navel while grasping fist with other hand. Leaning over a chair or countertop, drive your fist towards yourself with an upward thrust

Note of Caution

A modified version of the technique is sometimes taught for use with pregnant or obese people. In such cases you should place your hand in the center of the chest to compress rather than in the abdomen.

Steps to perform Heimlich Manoeuver on children (Annexure)

a) Make yourself comfortable and sit holding the child in your lap in prone position, with head lowered than level of back.

b) Tap back of the child till foreign object is expelled out.

Foreign body in the Esophagus and Stomach

First Aid Management

a) Smooth objects like coins, buttons ,batteries and safety pins may be swallowed. The stomach and the intestines most often adjust themselves in a way so as to expel them spontaneously. This may take hours to get foreign body out but there is most often no need to panic.

b) Do not give laxatives routinely.

c) Ask and confirm the nature of foreign body. Sharps (as needles, safety pins, batteries) are dangerous objects and can perforate stomach and intestines. They need urgent surgical removal before any complication occurs. **Keep these patients nil by mouth** and refer for urgent surgical care or endoscopic removal, whichever is indicated (refer the annexure II to understand the referral pattern)

   If soft, small objects as seeds, coin, shirt buttons, batteries are swallowed, then reassure the patient and ask them to take soft diet (bananas, other fruits, etc.) and foreign object would be expelled out spontaneously, need no other management.

f. Poisoning

Poisons are the harmful substances found either in natural environment or are chemicals and when ingested/inhaled in sufficient doses either accidentally (by mistake or by ignorance) or for suicidal purpose, it may prove very dangerous or may kill a person.

Remember that, the most common reason for death in cases of poisoning is the loss of airway-protective reflexes either caused by aspiration of gastric contents, respiratory distress or flaccid tongue. This is the reason why ***all cases of poisoning presented before you should be assumed to have a compromised airway.***

Note: In cases of poisoning remember that your role will be limited to providing anti-dote after correct identification of the poison ingested (if it is available at your SHC-HWC), stabilizing the victim and facilitating referral to the PHC MO for further treatment.

Types of poisoning and their first aid treatment

The various common types of poisoning and their first aid treatment are mentioned below

Types and Meaning	Signs and Symptoms	Treatment
Acid Poisoning ▪ It can be suicidal or homicidal or accidental. ▪ The various common acids used are nitric, sulphuric, hydrochloric, carbolic, oxalic and acetic acid commonly seen in households as phenyl, floor cleaners etc.	▪ Burns on or around the lips. ▪ Burning in the mouth, throat and stomach often followed by heavy vomiting. ▪ Absence of ulcers or injuries in mouth or throat does not rules out corrosive poisoning. ▪ Diarrhoea and intense thirst. ▪ In severe cases patient may be unconscious, show signs and symptoms of asphyxia, shock or seizure	**General** ▪ Same as in general management of poisoning **Specific** ▪ Do not induce vomiting. ▪ Do not put nasogastric tube (NG Tube) or try to remove contents from stomach, as it may further cause more corrosive injury. ▪ Shift the casualty immediately to hospital
Alkali Poisoning ▪ It can be also suicidal or accidental. ▪ Alkalis commonly used are ammonia, potassium hydroxide and sodium hydroxide, bleachers, detergents washing soda.	▪ Features are mostly similar to acid poisoning. ▪ Membrane of the mouth may be white and swollen. ▪ There may be soapy appearance in the mouth. ▪ Absence of ulcers or injuries in mouth or throat does not rule out corrosive poisoning. ▪ Abdominal pain ▪ Vomitus may contain blood and mucous.	**General:** Same **Specific:** ▪ Do not induce vomiting. ▪ Do not put nasogastric tube or try to remove contents from stomach, as it may further cause more corrosive injury. ▪ Shift the patient immediately to hospital.
Common Indian Plant Poisoning **a) Castor Oil Plant** ▪ Poisoning is common among children.	▪ Pain in throat and abdomen, ▪ Nausea ▪ Vomiting ▪ Diarrhoea	▪ Give plenty of water ▪ NG tube placement and emptying of stomach contents with saline stomach wash would be useful, if patient presents within 3-4 hours after ingestion. ▪ If patient is hemodynamically stable and fully conscious, then give only symptomatic treatment and observe at sub centre level. ▪ Shift to hospital
b) Dhatura (Safed dhatura and kala dhatura) ▪ Dried leaves and dried seeds are used as poisons 	▪ Bitter taste, dry mouth and throat ▪ Burning pain in the stomach ▪ Difficulty in swallowing and talking ▪ Giddiness, ataxia, intoxication ▪ Dry hot skin, rise in temperature ▪ Delirium-tries to run away from bed, picks up bed clothes, tries to pull imaginary threads from the tips at his fingers and develops dreadful hallucinations of sight and hearing, convulsions & coma.	Same as above

Types and Meaning	Signs and Symptoms	Treatment
c) Aconite: (Mitha Zahar, Dudhia Vish) 	• Severe burning and tingling of lips, mouth, tongue and throat • Dysphagia • Salivation • Vomiting • Abdominal colic • Vertigo • Muscle spasm and twitching • Impairment of vision	• Same as above
d) Mushroom 	• Burning of throat and stomach. • Pain in abdomen • Vomiting and diarrhoea • Urine may contain blood • Cyanosis, rapid pulse, convulsions • Headache, giddiness, cramps, visual disturbances • Coma	• Same as above
Metal Poisoning **a) Lead**	• Metallic taste in mouth • Nausea and abdominal pain • Vomiting • Stools may be bloody dark in colour • Headache, drowsiness, cramps, convulsions, numbness • In chronic poisoning a blue line is seen on gums	• same as above
b) Mercury	• Metallic taste in mouth • Burning pain in mouth and stomach • Tongue and throat is corroded with grey white coating • Nausea and vomiting • Stools may be bloody dark in colour • Headache, convulsions, numbness	• same as above
Organic Chemical Poisoning **DDT** **Insecticides**	• Nausea, vomiting, vertigo, tremors • Convulsions • Coma • Respiratory failure • Pain in abdomen • Vomiting • Tremors • Ataxia • Convulsions	• Same as above • Same as above

Types and Meaning	Signs and Symptoms	Treatment
Organophosphorus Compounds • Used as pesticides and insecticides in agriculture and homes • Very lethal • Used in suicidal and homicidal purpose	• Characteristic smell • Nausea and vomiting • Pain in abdomen, diarrhoea • Lacrimation, sweating and bronchial secretions • Difficulty in breathing • Blurring of vision • Pin-pointed pupil • Cramps • Confusion, convulsions, coma	• Given below
Cyanide • Very lethal poison • Used as inhalation or ingestion	• Headache, dizziness • Nausea, hypotension • Dyspnoea, drowsiness • Convulsions, cyanosis • Unconsciousness • Foam in the mouth • Respiratory failure • Characteristic smell of bitter almonds	• Assess hemodynamic stability, resuscitation as indicated • Shift the patient to hospital immediately
Alcohol Poisoning	• Smell of alcohol • Vomiting, Convulsions • Slurred speech • Incoordination • Double vision • Visual impairment • Flushing of face • Rapid pulse • Dilated pupils • Shallow breathing	• Shift the patient to hospital

- **Organophosphate Poisoning**

  Organophosphate poisoning is very common in villages where farming is a major occupation. However, it is also used widely in industrial use. Organophosphates (OP) form the basis of many insecticides, herbicides and also nerve agents.

  Signs of Symptoms of OP poisoning
  S- Salivation
  L- Lacrimation
  U- Urination
  D- Diarrhoea
  G- Gastro-intestinal upset
  E- Emesis (Vomiting)

Management:

OP poisoning, however common, in also extremely fatal and the principles of treatment include:

- Decontamination
- Reversing the effect of OP

Any patient with significant Hypoxia (reduction in oxygen availability to body tissues), Bradycardia (resting heartbeat of below 60 Beats per Minute (BPM)) and/or Hypotension (Low blood pressure).

Treat with Oxygen and Atropine (2mg) immediately

Repeat Atropine every 5 minutes until secretions are minimal
(Clear lungs, heart rate > 80BPM, adequate Blood Pressure)

Observe the victim. Refer if the victim's condition does not improve

g. Seizures (fits)

Fits (convulsions/seizures) can occur due to many underlying medical causes, in both adults and children. In case of a person suffering from fits, assure the following:

- Identify whether the fits are affecting the entire body (Generalized) or some parts (Focal)
  - Generalized fits involves shaking of the whole body (the person is on the floor and vigorously shaking, he/she may appear confused or may lose consciousness).
  - Focal fits involves only some parts of the body (the person may have repetitive movements like chewing/blinking or rhythmic twitching of any body part).
- Keep surrounding safe (eg. keep pillows to avoid injury from surrounding objects, remove any objects in the way that can injure the patient further).
- Place a clean cloth between the teeth of the patient so that he/she does not bite the tongue.
- Place patient in recovery position after the fits stop.

History Taking:

Remember that your role goes beyond stabilizing the patient who has just had seizures. A thorough history taking has to be taken to understand what caused the seizures.

No.	History	Possible Diagnosis	Confirmation of Diagnosis at SHC-HWC	Treatment at SHC-HWC
1.	Repeated episodes of seizures, not associated with fever or other illnesses/ symptoms, not controlled with treatment, and no specific cause is known or found.	Epilepsy	1. **Ask** details of event happened during last episode of seizure, and confirm if it is seizure or not. 2. **Observe** carefully if patient has similar on-going activity in front of you and make sure if it is seizure and not tremors, muscle spasm or other. 3. **Check** previous clinical records of patient if available. 4. **Discuss** with PHC MO.	**1. Rule out** other common causes of seizures as infections, congenital defects **2. Check** and treat hypoglycaemia **3. Follow** instructions of senior doctor and refer if needed. **4. Instruct** family to give medicines regularly & correctly to the patient.

No.	History	Possible Diagnosis	Confirmation of Diagnosis at SHC-HWC	Treatment at SHC-HWC
2.	Head injury, fall from height with loss of conscious-ness and seizures like activity	Injury to brain and intracranial haemorrhage	1. Confirm history of injury and history of symptoms during seizure episode 2. Examine for site and extent of injury	1. Manage ABCDE first and stabilise the patient with severe injuries and bleeding 2. Discuss with PHC MO and prepare plan of management.
3.	Fever since few hours to days, with or without headache, vomiting and skin rash, with one or more episodes of seizures	Infections: Cerebral Malaria	RDT kits for malaria, presence of splenomegaly, hepatomegaly, dark & cola coloured urine, shock. Rule out hypoglycaemia	Management of ABCDE and urgent referral to PHC
		Meningitis (Virus/Bacteria/ Others)	Signs of raised intracranial features (annexure II),	Manage ABCDE first, discuss with PHC MO, then give first dose of IV antibiotic and refer Rule out malaria and hypoglycaemia
	Additional history of common symptoms of pulmonary TB in patient or family, history of treatment for TB taken by any family member	TB Meningitis	Evaluate for clinical features of tuberculosis at other site mainly lungs, lymph nodes, skin, etc.	Manage ABCDE, discuss with PHC MO Rule out malaria and hypoglycaemia, refer urgently to DH
	Age of children between 06 months to 05 years, with or without past history of episodes of seizures associated with fever and not associated with any other symptoms or disease.	Febrile convulsions	1. Confirm from history of events whether it was seizures or something else like muscle spasms, tremors, etc. 2. Rule out malaria, hypoglycaemia by blood tests, and 3. Examine in detail to rule out presence of any infections or other causes of seizures	1. Give inj. Paracetamol 10mg/kg or Syrup. paracetamol 0.6ml/ kg or 15mg/kg 2. Give cold sponging to child, 3. Observe for recurrence of episodes of seizures 4. Discuss with PHC MO 5. Counsel parents well, referral is mostly not needed if diagnosis is sure.
4.	History of delayed cry at time of birth, or history of similar episodes of seizures, history of delayed development in childhood	Congenital defects	Confirm episode of seizure based on history of events during the episode Thorough examination from head to toe to rule out presence of birth defects, like cleft palate, abnormal heart sounds,	Assess ABCDE, Rule out presence of any infection, hypoglycaemia and discuss with senior doctor or PH MO, refer if indicated.
5.	Person with or without any of the above symptoms and history, and additional history of recent lethargy, sweating & palpitations or poor feeding and poor cry in children	Hypoglycaemia	Check blood sugar levels with glucometer Mild hypoglycaemia- RBS <70mg/dl Severe hypoglycaemia- RBS <40mg/dl	Give Inj. Dextrose 25% 2ml/ kg IV bolus, check RBS again in 15 minutes and repeat the dose if necessary
6.	History similar to any local or severe infections	Electrolyte disturbance	Examine for signs of dehydration	Correct dehydration with IV fluids and refer, check and treat hypoglycaemia

At the SHC-HWC level, you can undertake the following for symptomatic treatment of seizures:

In addition to above guidelines, secure IV cannula, check for blood sugar levels, and give inj. Dextrose 25% intravenously if GRBS is < 70mg/dl or empirically when you can't measure sugar levels.

Also check for malaria (in malaria endemic zones) with RDK kits and/or peripheral smear, and if positive manage accordingly with IV antimalarial agents. Give supportive oxygen with face mask and shift the patient to the nearest higher medical centre for definitive antiepileptic treatment and evaluation.

If the child with seizure has fever, try to lower down his/her fever. Give cold sponging and syp. Paracetamol 15mg/kg as a single dose and then refer to nearby higher facility for further assessment.

Counselling of parents/ attendants of the patient for likely cause of seizure, its complications and necessary treatment before referral to higher centre is to be done.

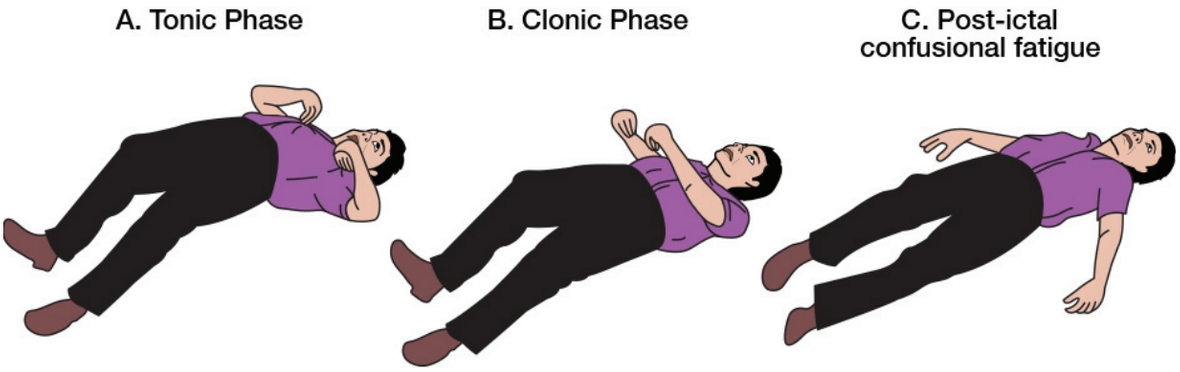
Status epilepticus: the seizure lasts longer than 5 minutes or when seizures occur close together and the person doesn't recover between seizures. This is a life threatening and severely debilitating condition and needs prompt referral to higher centres and urgent medical care.

Patient in Status Epilepticus
⬇
Check Airway, Breathing, Circulation
Keep patient in lateral position, protect from injuries
⬇
Check Blood Sugar Levels and Give inj. Dextrose 25% Check RDK/Blood smear for malaria
Give supplemental oxygen
⬇
Give rectal Diazepam (10mg for adults, 0.3-0.5 mg/kg in children)
Continuous monitoring and early referral, counselling of attendants Inform referral centre about the patient beforehand

Remember:

Patient should be admitted to hospital as an emergency in case of the following if:

- It is a first seizure
- More than three seizures occur in an hour
- If a seizure lasts for more than five minutes
- If there is no prompt response to treatment
- If there is response to treatment but seizures were prolonged or recurrent before treatment was given.



h. Near-drowning

Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid.

Near Drowning: a person **almost** died from not being able to breathe (suffocating) under water. If a person has been rescued from a **near-drowning** situation, quick first aid and medical attention are very important.

The effects of this can be fatal if not provided first aid soon after and it involves serious morbidities to even death (drowning).

Signs and symptoms of presenting drowning victim:

- No breathing
- Erratic breathing
- No pulse
- Cold and clammy skin
- Nail beds, slow or no circulation
- Mouth, nose or skin turning blue

The first aid in case of drowning would involve a series of steps:

Check for ABCDE

Check for the victim's breathing
(Use look, listen, feel)
Look for visible movement of chest
Listen for breathing sound
Feel the victim's pulse

→ Breathing →

If no spinal injury,
Put the victim in recovery position
Cover the victim in warm blanket- keep victim warm
Observe

↓

Not Breathing No Pulse

↓

DO CPR

IMPORTANT:

Remember that the above mentioned protocol for CPR is applicable for EVERY emergency that presents with the above mentioned signs and not just for cases of near-drowning.

i. Obstetric Emergencies

Obstetric emergencies refer to the conditions during/immediately after pregnancy which are potentially fatal for both the mother and the foetus.

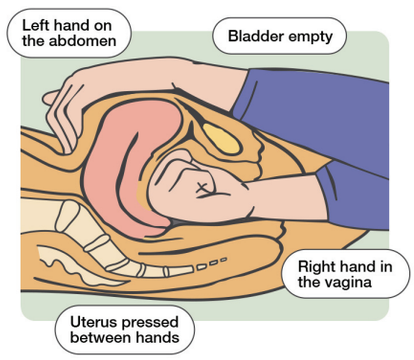
The most common emergencies are eclampsia including pre-eclampsia, Ante-partum Haemorrhage (APH), Post-Partum Haemorrhage (PPH).

In any cases, even if the medicines required to control the above mentioned conditions are available at your SHC-HWC, you should still prepare for the worst and keep the PHC MO in contact.

Post-Partum Haemorrhage (PPH)

- Uterine massage can help control the bleeding and should be done until bleeding is visibly less. Rub the uterus from outside immediately to keep the uterus well-contracted.
- Use two-handed pressure on the uterus: If bleeding is very heavy and rubbing the uterus does not stop the bleeding, try two-handed pressure on the uterus.
- Scoop up the uterus, fold it forward, and squeeze it hard (you will be shown how to do this in your practical skills training). Cup one hand over the top of the uterus. Put your other hand above the pubic bone and push the uterus towards your cupped hand. You should be squeezing the uterus between your two hands.

Bimanual compression



- Encourage the woman to empty her bladder. If she cannot urinate on her own, help her by trickling warm water over her abdomen.
- Maintain the woman's body warmth by covering with blanket.
- Position the woman by making her lay flat, rising her legs to maintain blood pressure.
- Keep the woman emotionally supported, and keep her calm.
- Facilitate the woman's referral to the PHC MO immediately after providing first aid.

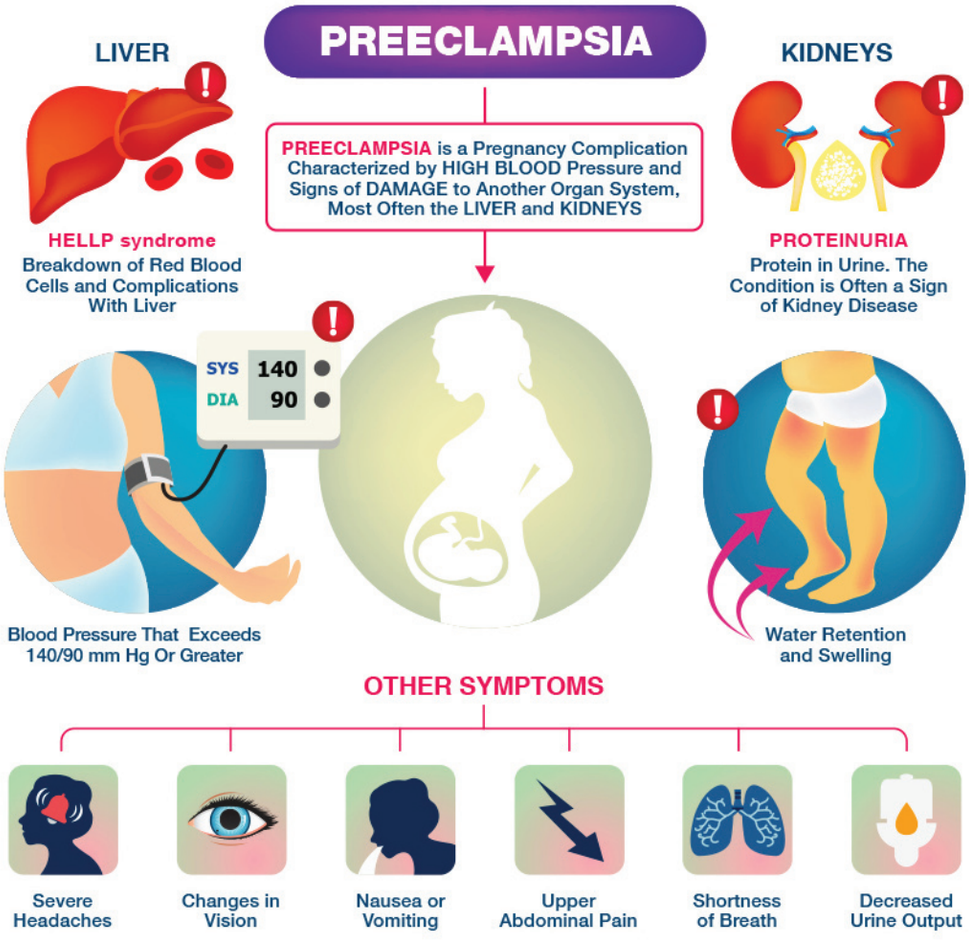
Aim to Maintain	Action to be taken by you
Contraction of the uterus	Apply gentle uterine massage, or two-handed compression of the uterus, and maintain this during referral
Empty bladder	If the woman cannot urinate, insert a self-retaining catheter to drain the bladder and leave it in place during referral
Adequate blood volume	If the woman is hemorrhaging or in shock, administer intravenous fluids and maintain the infusion during referral
Vital signs	Check color, pulse, blood pressure, temperature, blood loss, level of consciousness
Warmth	Cover the woman with blankets
Position	The woman should lie flat, but with her legs raised above the height of her head to help maintain her blood pressure
Accurate records and referral note	Write down all your findings and the interventions you are making on the referral note, with the woman's history and identification details

Eclampsia

Preeclampsia and eclampsia are conditions during pregnancy that involve the development or worsening of high blood pressure during the second half of pregnancy. **Preeclampsia**, may develop into the more severe condition called **eclampsia.** While you might be familiar with preeclampsia, a disorder that occurs during pregnancy that involves high blood pressure, you might not be familiar with HELLP syndrome, which is often considered to be a variant of preeclampsia. Like preeclampsia, HELLP can be a life-threatening complication of pregnancy, or less often, after giving birth.

During ANC visits, your team should be mindful of this fact and keep following-up on the woman if she presents with any of the symptoms as mentioned below.

Signs and Symptoms:



Severe pre-eclampsia may present with the following symptoms which is collectively called the HELLP syndrome.

H: Haemolysis

EL: Elevated Liver Enzymes

LP: Low Platelet Count

Management

A woman presenting with Eclampsia at your SHC-HWC may not always be possible to treat and hence you should keep PHC MO in contact while you continue the first aid.

Giving birth to the baby is the only definitive cure for HELLP syndrome, but depending on the time of gestation, this may not be the first-line treatment. In emergency situation, if delivering the baby is not possible and the woman is presenting with seizures, administer Inj 2ml Magnesium Sulphate and once the woman is in post-ictal phase, facilitate referral to PHC MO.

If the woman is presenting with seizures:

DOs	DO NOTs
• Keep surrounding safe (eg. keeping pillows to avoid injury from surrounding objects, remove any objects in the way that can injure the woman further). • Place a clean cloth between the teeth of the woman so that she does not bite the tongue. If the biting or jittering of the teeth is vigorous, do not attempt this since it could hurt your fingers. • Place her in recovery position after the fits stop.	• Do not attempt to hold the woman's mouth open. • Do not hold the woman down or try to stop her movements or restrain her arms/legs tightly • Do not offer the woman water or food until she is fully alert

However, as preventive measures, there are things that can be done to help treat HELLP while the foetus matures.

Treatment can include:

- Bedrest, either at home or in the hospital
- Blood transfusions to treat the anemia and low platelet counts
- Magnesium sulfate to prevent seizures
- Blood pressure medications
- Continuous fetal monitoring while in the hospital
- Regular laboratory testing to monitor the progression of HELLP syndrome

Even though obstetric emergencies may be challenging and might be more stressful when you are running out of resources, make use of technology and seek consultation from PHC MO

J. Neonatal Emergencies

At the SHC-HWC level, in any type of neonatal emergencies, you should carry out ABCDE protocol, provide first-aid wherever possible and refer the child to a facility where the presenting condition can be treated (Refer Annexure II)

The most common neonatal emergencies are collectively called "THE MISFITS"

T: Toxicity
H: Heart disease
E: Endocrine
M: Metabolic (electrolyte imbalance)
I: Inborn errors of Metabolism
S: Sepsis
F: Formula Mishaps
I: Intestinal problems
T: Trauma
S: Seizures

K. Exposure Illnesses

A. Heat Exhaustion/Heat Stroke

Heat-related illnesses are part of a continuum comprising heat cramps, heat exhaustion, heat syncope and heat stroke, and are associated with significant morbidity and mortality, especially in a tropical country like India.

Heat stroke, which is the most severe, is caused by failure of thermoregulation with elevation of core temperature to 40°C (104°F) or more, associated with central nervous system dysfunction.

Exertional heat stroke occurs in individuals exercising at warm temperatures and/or humidity. Exertional heat stroke may occur at moderate temperature, especially if humidity is high. Even in healthy individuals, dehydration or the use of common medications (e.g., antihistamines with anticholinergic side effects) may precipitate heat stroke.

Principles of management of heat stroke:

General Measures:

- Lowering of core temperature immediately to 38.9°C and supporting organ systems injured by heat, hypotension, inflammation and coagulopathy.
- It is important to initiate cooling as fast as possible and keep the individual adequately hydrated to prevent complications.
- Evaporative cooling is the easiest and most effective method in classical heat stroke while cold water immersion is very helpful in exertional heat stroke.
- Stabilization of ABC, cooling measures, management of dehydration and hypotension, renal function monitoring, prevention, and management of complications.
- Hydration – Normal Saline or Ringer's Lactate are the preferred. Most patients need 1 litre in the first hour. Further rehydration needs to be guided by estimated water losses. (*Over hydration may promote cerebral edema, pulmonary edema, and hyponatremia*)

Symptomatic measures

- Seizures – Manage with Diazepam or Lorazepam. Consider starting phenytoin if seizures do not cease
- Hypotension – must be treated with volume expansion using IV fluids. An adult will need at least one litre of fluid in the first hour. After this, fluid requirements should be titrated according to fluid deficit and serum electrolyte levels. If blood pressure is persistently low, appropriate vasopressor support may be needed
- Agitated delirium: Short-acting benzodiazepines such as Midazolam (2.5 mg–5 mg) can be given

- Antipyretic therapy: Medications to reduce temperature such as paracetamol are not useful because the hypothalamic thermostat is not reset in these patients. Moreover, these drugs may be harmful and precipitate liver and renal dysfunction

Note of caution

Investigations and other interventions should not be done at the expense of initiation of cooling measure

- Antibiotics: It is prudent to consider broad-spectrum antibiotics pending blood cultures in older patients with hyperthermia if infection is a possible aetiology.

B. Cold exposure related illnesses (Hypothermia and Frostbite)

Similar to heat related illnesses, some parts of the Indian terrain are also prone to cold exposure related illnesses especially in the Himalayan regions, Ladakh, Siachen, Leh, owing to extreme cold weather. You might have come across cases where a thumb or a toe goes numb after a long exposure to extreme cold. Any such cases should always be treated as a medical emergency.

What is hypothermia?

Hypothermia is a sharp fall in the body temperature, caused by prolonged exposures to very cold temperatures. The body's temperature drops below 95°F (35°C) against a normal body temperature of 98.6°F (37°C). When the body temperature is dangerously low, the brain and body cannot function properly and hence it should always be treated as an emergency.

What is frostbite?

Frostbite is different from hypothermia in the sense that it is more localised. It affects the body parts that are far from the heart or those with large exposed areas to cold weather. Hypothermia affects the whole body. A person with frostbite on the arms or legs may also have hypothermia. Frostbite can occur when skin is exposed to a temperature of 0°C (32°F) or lower, resulting in vasoconstriction. The resultant decrease in blood flow does not deliver sufficient heat to the tissue to prevent the formation of ice crystals. The anatomic sites most susceptible to frostbite include hands, feet, and exposed tissues (eg. ears, nose, and lips).

How is hypothermia different from frostbite?

Frostbite affects the body parts that are far from the heart or those with large exposed areas to cold weather while hypothermia affects the whole body. A person with frostbite on the arms or legs may also have hypothermia due to loss of body heat, causing lowering of body temperature.

Recognising life threatening situations

Hypothermia	Frostbite
Adults: 1. Shivering 2. Exhaustion 3. Confusion 4. Fumbling hands 5. Memory loss 6. Slurred speech 7. Drowsiness **Infants:** 1. Bright red, cold skin 2. Very low energy	1. Redness or pain in any skin area may be the first sign of frostbite 2. A white or grayish-yellow skin area 3. Skin that feels unusually firm or waxy 4. Numbness- victim unable to feel the affected area

Management protocol

Specific Measures

In a case of cold exposure related illnesses

1. Move the victim away from the cold exposure to a warm room or shelter.
2. You could use hot water bags/ bottles to help warm the affected area.
3. Do not use electric warmers or other dry heating sources as these could cause burns.
4. Do not rub or make the victim walk or use the affected body part.
5. If there are blisters, be careful to not break them or let the victim break them.
6. Remove any wet clothing the victim is wearing.
7. If the victim is conscious and alert, you could offer warm fluids like tea, warm milk or high energy food like chocolate etc.
8. Keep the body dried and wrapped, including their head and neck, in a warm blanket.
9. If the victim is unresponsive, on assessment, he/she may be in need of CPR or assisted breathing.

Note: If you are comfortable and willing, you could use skin-to-skin contact where your own body heat can be used to warm the victim, in cases where you are not able to find a hot water bottle/bag or blankets.

Caution: A victim of frostbite could often be unaware due to numbness in the skin of the affected body part. In such situations, the victim could be prone to self-harm. While stabilizing, you should be careful not to allow the victim to rub, scratch or massage the affected area.

l. NCD related Emergencies

Non-communicable disease as you already know, can lead to emergency situations if not controlled. These conditions include acute chest pain including Angina and Myocardial Infarction, Stroke etc.

In all of these cases, if you have the availability of required medication in your SHC-HWC, you should administer the medication and facilitate referral to the PHC MO immediately.

1. Acute Chest Pain

Signs and Symptoms:

i. **Angina pectoris or myocardial infarction:** Acute chest pain in the centre of the chest radiating to neck, jaw and arms, associated with sweating, nausea or vomiting, that may last for few minutes (15-20 minutes or more), aggravated by work (more frequently seen in elders with or without hypertension, diabetes mellitus, smoking).

ii. **Pleurisy, respiratory infection or pulmonary infarction:** Sharp catching pain, located laterally and increasing with deep inspiration or coughing indicates.

iii. **Pneumothorax:** Sudden pleuritic pain with progressively increasing difficulty in breathing. Pleuritic chest pain is characterised by sharp, intense, burning or stabbing pain that increases during deep inspiration, coughing, sneezing, laughing, etc.

iv. Chest pain increasing on movements is often musculo-skeletal.

v. Other causes of chest pain are due to rib-fracture (enquire history of trauma, fall) and aortic dissection, myocarditis, pericarditis.

vi. Acute chest syndrome in sickle cell disease patients presents as cough, fever and severe acute chest pain. It is usually a result of infective process or hypoxia

vii. Chest pain associated with burning sensation in chest, more backwards and radiating up to throat, and associated with burping, upper abdominal pain, regurgitation of food or sour liquid in throat and occasional vomiting, etc. may be seen in GERD (Gastro oesophageal Reflux Disease). This may be confusing at times with acute MI, and needs careful evaluation.

2. Myocardial Infarction

Signs

- Tachycardia or bradycardia (pulse > 100/min or < 60/min)
- Severe blood pressure dysregulation (systolic BP i.e.; ≥ 220 mmHg or Low blood pressures/ shock, SBP <90mmHg)
  - Additional heart sounds and apical systolic murmur in acute myocardial ischemia
  - Respiratory insufficiency (SpO_2 < 90%) may be present.
  - Some patients may only present with pain and physical examination may be normal.
  - Excessive sweating and cold limbs may be seen.
  - Patient is lying in bed in pain, restless, and holding his chest and having difficulty in breathing and/ or talking.
  - Systemic examination may be completely normal in many patients, especially in patients with no prior illness.

First-Aid Treatment for cardiac chest pain at SHC-HWC

- If patient is haemodynamically unstable or in shock, follow protocols for management of shock, which you will learn later.
- If patient is haemodynamically stable, proceed further to ask for specific history of symptoms and look for possibility of acute MI:
  - Gradual/acute onset
  - Central chest pain crushing or heaviness, radiating to shoulder, back and arms
  - Lasts for 15-20 minutes or more
  - Pain not relieved by pain killers
  - Past history of cardiac chest pain, Hypertension and diabetes, etc.
- Start oxygen by mask/ nasal prongs – 2 to 3 litres/minute and continue during transfer. Oxygen is supportive treatment; should be given to everyone, although patient is not hypoxic. Assisted breathing should be given with AMBU bag, if needed.
- Give tablet glyceryl trinitrate 0.5 mg sublingual, it helps to decrease workload of heart and decreases pain; can repeat one tablet in 10 minutes again or during transfer if pain is still severe one. ***Ask patient not to chew the tablet***.

  Do not give Nitrate tablets, if patient is already in shock or systolic BP is less than 90mmHg or Pulse is less than 50/minute or if patient has taken tablet Sildenafil (Viagra) in last 24 hours; because nitrates induce more hypotension and lead to shock.

- Tablet Aspirin 300 mg + Tablet Atorvastatin 80 mg orally is to be administered.
- Insert IV cannula, monitor vitals frequently, Pulse, BP every 15 min. and SpO_2 continuously and look for any signs of shock.
- At the same time, continue taking more history from the patient and close relatives regarding history of similar complaints in past, other major respiratory or cardiac diseases, any medications, etc.
- Discuss with family and attendants regarding the clinical condition and need for further care, referral and preparedness for care at tertiary centre.
- **Refer the patient immediately to a higher centre for higher standard of care.**

The goal of referral and management in acute MI cases is to identify candidates for thrombolytic therapy (which dissolves blood clot blocking the blood flow within the artery) and administer it within first 6 hours from onset of symptoms and definite benefit is seen if initiated within 12 hours.

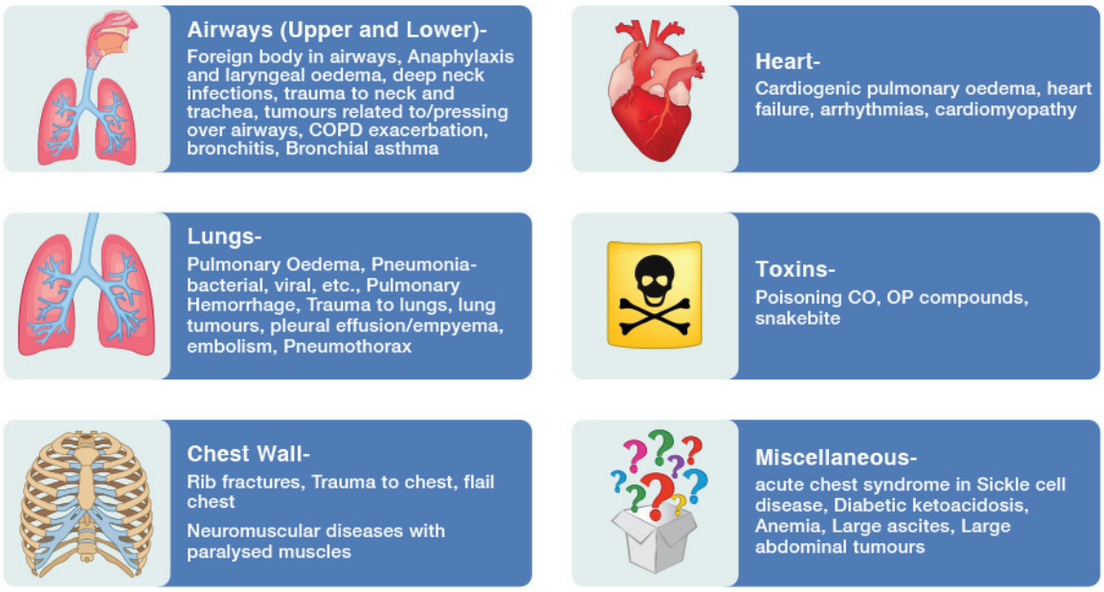
Even if there is less suspicion, do not discharge patient immediately, observe for at least 3-4 hours. Repeat history and examination and assess for other causes of chest pain. Before you discharge this seemingly stable patient or if you have doubts regarding the case, contact your medical officer at PHC or CHC and inform them about your patient and your findings and make necessary plans as indicated.

3. Acute Breathlessness/Dyspnoea

Dyspnoea is a perception of inability to breathe comfortably. It is one of the common emergency presentations that often lead to acute respiratory failure and death, if not evaluated and treated in time.

Causes of Dyspnoea

Foreign body in throat, asthma attacks, pneumonia, etc. are the most common causes of dyspnoea in children, while COPD and asthma exacerbation, heart failure, poisoning, etc. are common among adult age group.



Management

Assess the condition of the patient using the mMRC Breathlessness Scale as given below:

4. Pulmonary Oedema

When heart is acutely not able to pump the blood forward into aorta, there is retention of extra blood in pulmonary veins and lungs, which causes **breathlessness** and decreased exchange of oxygen into blood (**hypoxia**).

Rapidly progressing breathlessness if accompanied with chest pain, cough with frothy sputum, with history of hypertension / diabetes in the past will indicate possible acute pulmonary oedema.

Acute bronchial asthma

i. Patient can have an acutely progressive breathlessness with history of bronchial asthma in the past.

ii. The acute attack can be precipitated by exposure to allergen or respiratory infection.

iii. Patient is tachypnoeic with or without central cyanosis, tachycardia and rhonchi audible over the chest bilaterally.

iv. Blood pressure should be recorded

Pneumothorax (when air leaks into the space between the lung & chest wall, leading to collapse lung):

a) Primary spontaneous pneumothorax- occurs without obvious underlying lung disease.

b) Secondary spontaneous pneumothorax- results from underlying parenchymal lung disease including COPD & emphysema, interstitial lung disease, necrotizing lung infections, tuberculosis & cystic fibrosis.

c) Others include- traumatic, iatrogenic & tension pneumothorax.

In all the above mentioned cases, you should provide first-aid treatment and refer the patient to the PHC MO for further treatment.

5. Stroke

A stroke, sometimes called a “brain attack”, occurs when blood flow to an area in the brain is cut off. The cells in that part of the brain get severely injured and die from lack of oxygen and glucose supply which is needed for them to survive. If a stroke is not treated early, permanent brain damage or death can result.

Types of Stroke

Ischemic stroke	Haemorrhagic stroke	Transient Ischaemic Attacks (TIA)
It is similar to a heart attack, except it occurs in the blood vessels of the brain. About 80% of all strokes are ischemic. Blood clots can form in the blood vessels in the brain or elsewhere in the body and then travel to the brain. These clots block blood flow to any part of the brain and present as stroke with features of loss of function of that particular part of the brain.	Blood vessel in the brain breaks or ruptures resulting in blood seeping into the nearby brain tissue, causing damage to brain cells	Similar to other cases of stroke, but symptoms and signs get resolved almost completely within 24 hours.

As you are aware, the risk factors for stroke include Hypertension, Diabetes, Smoking, Family history of stroke, Past history of stroke or episode of TIA. This is why, it is important to counsel all the persons with above risk factors for risk of development of stroke and request them to take their anti-hypertensive and anti-diabetic medicines regularly and correctly.

Clinical features:

History: The signs and symptoms of stroke depend upon its causative factor and the part of the brain affected.

Some of the major signs and symptoms reported by a stroke patients include:

- Sudden feeling of weakness or numbness of the face, arm or leg on one side of the body.
- Loss of vision or dimming (like a curtain falling) in one or both eyes.
- Loss of speech, difficulty in talking or understanding what others are saying, deviation of mouth to one side.
- Sudden, severe headache with no known cause.
- Fainting or unstable walking usually combined with another symptoms like light headedness, dizziness and confusion.
- Some patients may have altered sensorium or unconsciousness.

Important part of history that you should ask is time of the day from when all the features of stroke started to appear.

Examination

All the above symptoms can be easily seen in a patient with stroke, therefore diagnosis in many cases is easy.

Vitals are necessary and all of them should be checked earlier. Some patients who develop haemorrhagic stroke may have large amount of intracranial blood loss which is not visible from outside and they may later develop hypotension and shock.

Confirm the weakness or numbness of the part of the body which is affected.

Try to perform this quick examination within minutes and save the time of patient

Investigations

Diagnosis of stroke is mostly clinical depending on symptoms and signs. But for treatment of stroke to save the affected parts of the brain, it is necessary to diagnose whether it is an ischaemic or haemorrhagic stroke, because treatment is different for both of them. This is possible only with CT scan that is usually available at district hospital level. The patient and family should therefore be counselled to immediately get CT scan exam and necessary treatment done within 3-4.5 hours of appearance of first sign of stroke.

Hence, you should refer the patient to the facility which has the availability of a CT scan.

Management:

- Keep patient lying down on his/her side.
- Keep the head high, turned on side to prevent aspiration of vomit.
- Keep the patient quiet and cover the patient lightly with blanket.
- Observe for signs and symptoms of hypotension and shock. If patient is in shock, give IV fluids like normal saline (NS), ringer lactate (RL) and do not use D5%, D10%, DNS, etc.
- Do not give any anti-hypertensive medicines even if patient has pressure as high as 160/110mmHg or 180/110mmhg. But inform your senior MO or PHC-MO about high blood pressure and arrange for referral of patient to DH; this is because sudden hypotension from antihypertensive medicines will decrease blood supply to brain and further increase the damage.
- Check and treat hypoglycaemia, if present.
- Counsel the patient and the family about diagnosis of stroke, requirement of urgent CT scan test and need of hospital admission at DH level, etc.
- Fill up the referral note with details of signs and symptoms of patient and refer patient immediately.
- Keep check on SpO_2 for hypoxia and blood pressure for hypotension during transport.

6. Diabetic Emergencies

Diabetic emergencies include high and low sugar in the body called as hyperglycemia and hypoglycemia respectively.

Patients with diabetes have high blood sugar levels because of the body's inability to utilize the glucose. Diabetic patients follow a low sugar diet and take medicines which help the glucose to get utilized and thus keeps the blood sugar levels in check.

Diabetic emergencies arise in two situations:

1. When the disease is uncontrolled (the patient does not follow low sugar diet or does not take medicines) it leads to very high blood sugar level.
2. When the patient on diabetes medicine does not eat for a long time, it leads to very low blood sugar level.

The symptoms of high and low blood sugar levels are given in the table below:

Low Blood Sugar Level	High Blood Sugar Level
1. Tiredness 2. Sweating 3. Mental confusion 4. Dizziness or unconsciousness 5. Headache	1. Dry mouth 2. Increased thirst 3. Weakness 4. Headache 5. Severe dehydration 6. Nausea and abdominal discomfort 7. Severely high blood sugar levels can cause coma

m. Acute Abdomen

Acute abdomen refers to sudden, severe abdominal pain that is considered a medical emergency, requiring immediate diagnosis and often urgent surgical intervention.

Cases presenting with acute abdomen could either need a surgical intervention or a medical treatment and you could identify this so as to refer to the appropriate facility.

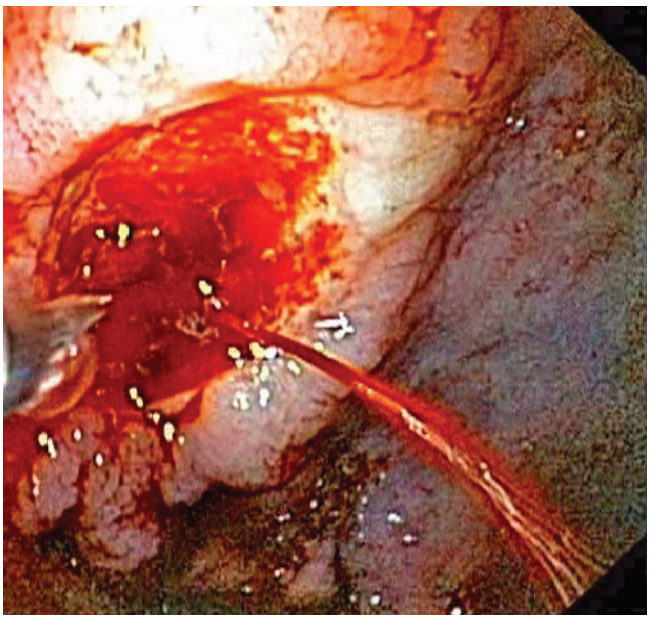
Presentations requiring urgent surgery

- Bleeding

The most common causes include:

- Ruptured Abdominal Aortic Aneurysm
- Ruptured Ectopic Pregnancy
- Bleeding Gastric Ulcer
- Trauma

These patients will typically go into hypovolemic shock. Clinical features include tachycardia and hypotension, pale and clammy skin on inspection, and cool to touch with a thread pulse.



- Perforation

Peritonitis is the inflammation of the peritoneum, and a generalised peritonitis is most commonly caused by perforation of an abdominal viscus.

The causes of perforation include:

- Peptic ulceration
- Small or large bowel obstruction
- Diverticular disease
- Inflammatory bowel disease.

Clinical features of peritonitis may include:

- Patients often lay completely still, not able to move their abdomen, and look unwell. This is especially important when compared to a renal colic, whereby patients are constantly moving and cannot get comfortable.
- Tachycardia and potential hypotension
- A completely rigid abdomen with percussion tenderness
- Involuntary guarding, the patient involuntarily tenses their abdominal muscles when you palpate the abdomen
- Reduced or absent bowel sounds, suggesting the presence of a paralytic ileus

- Ischemic bowel

Any patient who has severe pain out of proportion to the clinical signs has ischaemic bowel until proven otherwise.

Clinical feature:

- Patients will often complain of a diffuse and constant pain, however the examination can often otherwise be unremarkable. Definitive diagnosis is via a CT scan with IV contrast, with early surgical involvement.

- Colic

Colic is an abdominal pain that becomes very severe and then goes away completely. This is most typically seen in either ureteric obstruction or bowel obstruction.

- Peritonism

Peritonism (not peritonitis) refers to the localised inflammation of the peritoneum, usually due to inflammation of a viscus that then irritates the visceral (and subsequently, parietal) peritoneum.

Clinical feature:

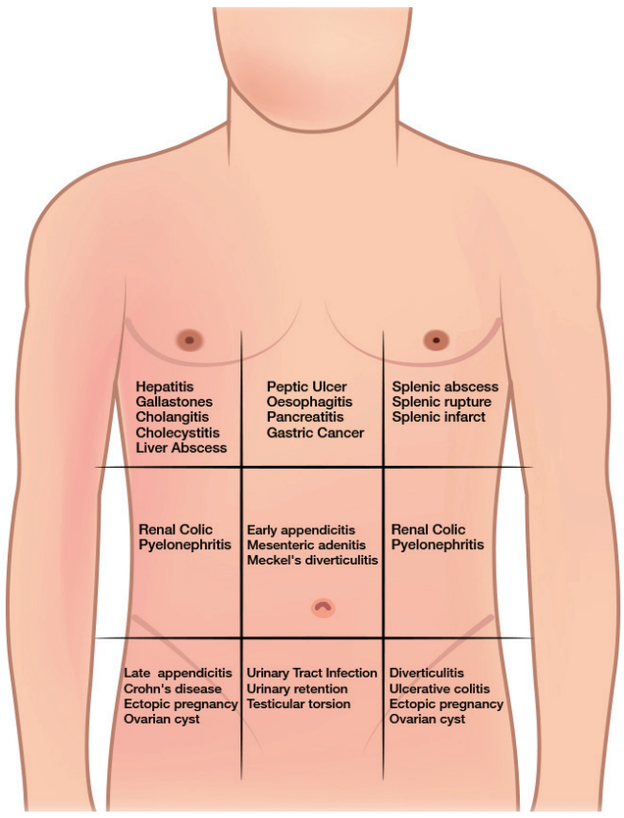
Patient complains of abdominal pain starting in one place (irritation of the visceral peritoneum) before localising to another area* (irritation of the parietal peritoneum) or becoming generalised.

**The classic example of this is acute appendicitis, with the pain migrating from the umbilical region to the right iliac fossa*

Management:

The following diagram would help you diagnose the condition that is presenting by helping you find the location of the pain either by the quadrant or region. However this is a differential diagnosis and hence only certain investigations would confirm the diagnosis at a higher facility.

Once you have arrived at a differential diagnosis, you should facilitate the patient's referral to the PHC MO.



You must remember to always consider extra- abdominal organs as the cause of the abdominal pain, including cardiac, gynaecological, respiratory or testicular condition.

References

Walker BR, Colledge NR, Ralston SH, Penman ID. Davidson's Principles and Practice of Medicine. 22nd ed. Churchill Livingstone Elsevier; 2014. 596 p.

CHAPTER 5

Public Health Functions of Community Health Officer in Emergency, Burns and Trauma Care

Information dissemination and awareness generation

As discussed in the previous chapter, your role at the community level regarding cases of emergency and trauma start with information dissemination and awareness generation along with your team. The ASHA and the ANM shall be involved in providing basic information regarding prevention of emergency situations in the community. Your role is to supervise them in this task and provide your expertise and help wherever your team finds it difficult to intervene like in cases of deep founded cultural barriers to health seeking behavior amongst the community (eg in case of snake bites etc.).

In order to spread key health awareness messages in the community you could make use of various strategies and community platforms. For example, through appropriate communication channels such as audio-visual displays, charts, pamphlets, tannoys, nukkad natak, puppet shows, mock drills at school/workplace (e.g. fire drills) etc. You should also provide guidance to school teachers, volunteers, VHNSC/ MAS, other self-help groups and sensitization for local leaders and PRI/ULB members for imparting preventive and promotive aspects of emergencies.

You have already been involved in NCD screening, treatment and follow-up. Ensuring routine screening of all individuals of age group 30 years and above for Non-Communicable Diseases shall be helpful in preventing NCD related emergency situations like stroke, cardiac arrest etc.

Disaster (natural/man-made) relief in case of mass casualties

In this sub-section you will learn to act as an emergency medical responder and provide first aid to members of your community who have been victims of situations like natural disasters such as landslides, earthquakes, flood, tsunami, cyclonic surge etc. as well as man-made disasters like fire, road-traffic accident involving more than 2 vehicles etc.

The basic principles of a disaster relief includes:

Rescue the victims who are trapped may be under debris of a collapsed building, in a building struck with fire, in the water bodies in cases of floods etc.

Triage in simple terms, is identification and grouping of people who are normal, people who need immediate help, people who are dead. After reaching the site scene of accident/disaster, look for who are injured but vital signs are fine, people who are dead and people who are severely injured with abnormal vital signs. Triage will help you to utilize all available resources including time for maximum benefit of the maximum number of the affected people by assessing the type and severity of illness/injury. While there are many protocols in place for triage, the most common and convenient is the use of four level colour codes:

- **Red – Immediate**

  This is used to label those who cannot survive without immediate treatment but who have a chance of survival.

- **Yellow – Urgent**

  This is used when for victims whose condition is stable for the moment and, they are not in immediate danger of death. These victims will still need hospital care and would be treated immediately under normal circumstances.

- **Green - Non- Urgent**

  This is reserved for the "walking wounded" who will need medical care at some point, after more critical injuries have been treated.

- **Black–Dead**

  This is used for the deceased and for those whose injuries are so extensive that they will not be able to survive given the care that is available.

Referral/Management

Based on the triage done by you and the team, it will be convenient for you to understand which victims need referral and which ones can be stabilized for the moment. 'Red' and 'Yellow' category patients will need referral to a higher facility.

Rehabilitation

The victims of a disaster of a high intensity would suffer both physical and mental trauma and hence it is important for you and your team to conduct regular follow-up visits to these victims once they have received treatment from higher facilities and are back in the community. You should also provide psycho-social support to these victims as and when need be. You should maintain proper records with complete and correct documentation. The list of records to be maintained is mentioned in subsequent sections.

CHAPTER 6

Managerial Functions of Community Health Officer in Emergency, Burns and Trauma Care

As a team leader of the SHC-HWC Team, along with the clinical and public health functions, you will also be responsible for undertaking managerial and administrative functions which you shall learn in this chapter.

The managerial functions can be categorised into the following for ease of understanding:

- Recording, Reporting and Monitoring of Service Delivery
- Undertaking administrative functions of SHC-HWC
- Supportive supervision of AB-HWC Team

In this section, you will be learning about the above mentioned functions that are expected from you in regard to Emergency and Trauma Care.

Recording, Reporting and Monitoring of Service Delivery

- Documentation for referred and counter referred cases: In emergency and trauma care, it is extremely important for you to maintain a record of every case referred to the higher centre as well as cases managed by you. You should also maintain a record of the prescriptions provided by the doctors at the referral centre which will help you in dispensing medicines as well as conducting follow-up care visits for the victims.

  This becomes even more crucial when a medico-legal case is brought to you. In such cases, if warranted, you should provide emergency first aid management to save life/stabilize, and refer to MO at PHC without any delay, with proper documentation of first aid provided.

  The format of a referral and counter referral slip has been attached in the annexure III and IV. These should be made use of while referring victims to higher centres and a copy of counter referral slip should be properly documented by you at the SHC-HWC.

Necessary reports and registers to be maintained at SHC-HWC

As a CHO, you will be responsible for maintaining the following list of registers at your SHC-HWC either manually or in computerised form.

- **OPD/Treatment Register**: Register for patients of OPD containing demographic details along with clinical findings, chief complaint (if any), and provisional diagnosis along with treatment provided.

- **Emergency Register:** One register for patients of emergency containing demographic details along with clinical findings, chief complaint (if any), and provisional diagnosis along with treatment provided.
- **Inventory Register**: Should contain information about equipment, instruments and consumables available in the health facility for emergency care along with details about their maintenance, consumption and indent.
- **Referral Register**: Should contain information on referral in/out with reason for referral. Information of follow up of cases also to be recorded.
- **Record for handing over and taking over of critical care equipment at all levels**.
- **At Risk Register for vulnerable patients in the catchment area**
- **Palliative Care Register**
- **Medico legal register**

These registers should be updated after every case and should be available at your SHC-HWC at all times.

Administrative functions

In emergency situations, it is imperative that no victim has to be referred without first aid management due to unavailability of medicines at the HWC. To avoid such situations, you shall undertake the following functions:

- Inventory management to assess availability of medicines and consumables at the SHC-HWC in accordance with the list of medicines to be available at the facility.
- Timely indenting to maintain adequate stock of medicines and consumables. You should also display the list of essential medicines and diagnostic services available at your SHC-HWC. This is particularly important in emergency situations where the major hurdle in treatment is the lack of clarity in understanding what case to refer where.
- Once you have indented and received the medicines, you should also ensure their proper upkeep and maintenance.

Supportive supervision of SHC-HWC Team

As the leader of the SHC-HWC team, one of your major managerial functions would also include supervising ASHAs, ANM in their work and provide handholding support wherever necessary. Keeping emergency and trauma care in mind, you shall be expected to carry out the following functions:

- During the monthly HWC meetings, you should help the ASHA and ANM with the problems they are facing in the community regarding handling of emergency situations.
- You should also identify actions that need to be highlighted to the PHC-MO.
- Most importantly, you should keep the team updated about the new programme guidelines and technical details regarding emergency and trauma.
- As you know, the ASHAs will be involved in promotive and preventive activities with regard to emergency and trauma care like providing information on avoidance of such situations, clearing misconceptions etc and in this pursuit, you should also conduct home visits where ASHAs and ANMs need additional support in motivating families in behaviour change, ensuring compliance etc.
- Moreover, you may also make optimum use of community platforms like VHSNC, MAS etc to address issues that are more prevalent and needs attention of the community, for example addressing a meeting to help the community prepare for a disaster situation that has been predicted.

CHAPTER 7

Referral and Safe Transport of Emergency, Burns and Trauma Cases

In the previous sections you learnt the management protocol to be followed for specific emergency conditions. You have also learnt that not all cases of emergency would be possible to address at SHC-HWC level and hence many a times you would have to refer the victim to a higher facility.

Higher facility could either be the PHC or the DH and this will depend on the severity of the presenting case, the required of lab/diagnostic investigations and machinery, the availability of doctor etc. You could refer to Annexure II to understand which facility will be equipped to manage the condition you have at hand and will help you come to a decision so that time is not wasted in referring to facility that is not equipped to address the case. However, you must act quickly and stabilize the person before you refer. It is important to confirm that the facility is capable of handling the type of emergency for which the patient is being referred. Inform the facility about referral and to be in readiness for receiving the patient. A filled referral card should be provided to the patient at the time of referral with details of the reason for referral, investigations done etc. (attached as **Annexure III).** The details should be entered in the 'refer-out' register. The transfer is complete once the patient is received at the referred unit.

CHAPTER 8

Follow up Care of Emergency, Burns and Trauma Cases

Most cases of emergency and trauma require care even after discharge from the health facility, for complete recovery. As the CHO you play an important role in identifying those persons who have received treatment but require follow-up care either for a short duration (until complete recovery) or for a longer period of time (palliative care).

The kind of follow-up care required by the victims will vary from case to case depending on the severity and type of situation. Some may require basic care like change in dressings etc. while some other may require physiotherapy or long-term medication or follow-up by their respective specialists (the consultant doctor from higher facilities).

You and your team's role in maintaining a strong continuum of care by regularly following up with persons who have suffered an emergency condition through home-care visits can help in their speedy recovery as well as early identification of any complications.

In cases where the patient is a victim of trauma/accident, animal/snake bite or burns you could provide the following care:

- **Wound care**: As you are aware, major wounds usually take a few weeks to heal completely. You can ensure that he/she receives the necessary treatment regularly like change in dressing, provisioning of prescribed medicines regularly and following good hygiene practices.
- **Check for any complication in healing**: In case the wound gets infected or healing is delayed, the person will develop redness, swelling, fever, foul smell, pain around the wound, pus/discharge etc. If any of these is present, you should provide the necessary treatment which includes debridement and fresh dressing as well as antibiotics wherever necessary.
- **Assistive devices**: If the person has been provided with any assistive devices like wheelchair, walking crutches, immobilization devices etc., then on your follow-up visits,
  - You should check for the status and maintenance of these devices and also note the difficulties the patient is facing if any.
  - If any person has been prescribed physiotherapy, you should help them attend the same at your SHC-HWC on designated days.

- In case a person develops permanent disability, ensure that he/she receives appropriate palliative care. Link him/her with the palliative care services provided through the AB-HWCs.
- Provide psycho-social support to help the person overcome the crisis.

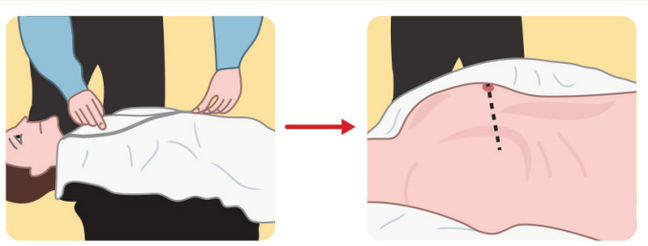
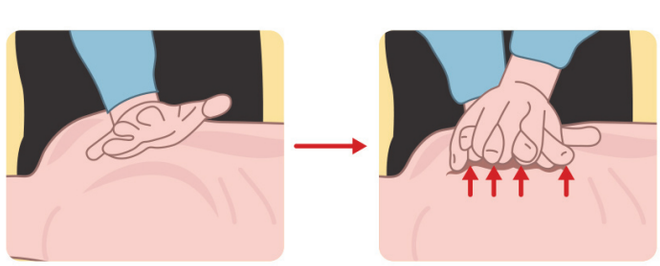
In case of **Anaphylaxis/Severe Allergic Reactions**, you should help the person identify the allergen through a thorough history taking, and educate him/her to avoid the identified allergen from then onwards. This information can also come handy in case the situation repeats.

In cases of NCD related emergencies, the follow-up care would consist of ensuring regular check-ups of the patient as well as educating him/her regarding strict adherence to dietary and lifestyle modification advice and medications, which you along with your team have already been doing.

Annexures

Annexure I: Cardio- Pulmonary Resuscitation (CPR)

CPR in adults

Step 1	Kneel by the side of the victim	
Step 2	Place the heel of one hand in the centre of victim's chest.	
Step 3	Place the heel of your other hand on top of the first hand.	
Step 4	Interlock the fingers of your hands and ensure that pressure is not applied over the victim's ribs.	

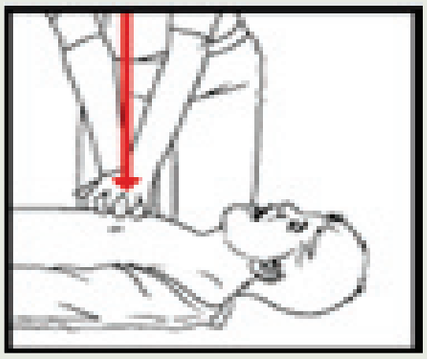
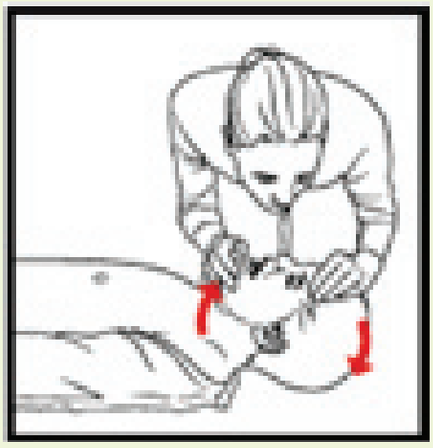
Step 5	Position yourself vertically above the victim's chest and with your arms straight, press down on the sternum 4-5 cm	
Step 6	After each compression release all the pressure on the chest without losing contact between your hands and sternum.	
Step 7	Repeat at the rate of about 100 -120 times a minute (a little less than 2 compression a second).	
Step 8	Compression and Release should take equal amount of time.	

CPR in Children

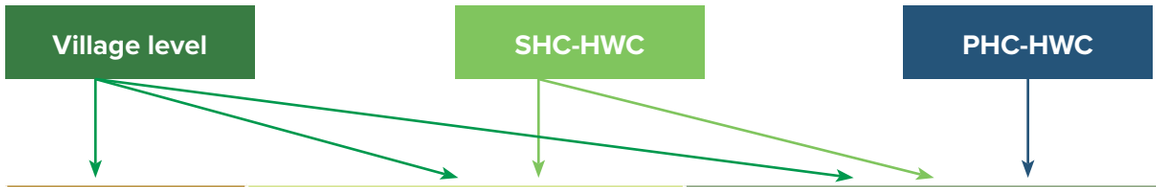
Step 1	**Shout and Tap** Shout and gently tap the child on the shoulder. If there is no response and not breathing or not breathing normally, position the infant on his or her back and begin CPR.	
Step 2	**Give 15 Compressions** Give 15 gentle chest compressions at the rate of at least 100 per minute. Use two or three fingers in the centre of the chest just below the nipples. Press down approximately one-third the depth of the chest (about 1 and a half inches).	
Step 3	**Open the Airway** Open the airway using a head tilt lifting of chin. Do not tilt the head too far back.	

Step 4	**Give 2 Gentle Breaths** If the baby is not breathing or not breathing normally, cover the baby's mouth and nose with your mouth and give 2 gentle breaths. Each breath should be 1 second long. You should see the baby's chest rise with each breath.	

CPR for children is similar to CPR for adults. The compression to ventilation ratio is 30:2.

	1. Use the heel of one or two hands for chest compression. 2. Press the sternum approximately one-third the depth of the chest (about 2 inches) at the rate of least 100-120/minute.
	3. Tilt the head back and listen for breathing. If not breathing normally, pinch nose and cover the mouth with yours and blow until you see the chest rise. Give 2 breaths. Each breath should take 1 second.

Annexure II: Facility Referral Pattern



SHC-HWC (CHO)	PHC-HWC (MO)	FRU/DH/Tertiary Care Centre (Specialist/MO)
▪ Simple Burns	▪ Fever with altered mental status	▪ Chest Pain
▪ fresh scratches / superficial	▪ Fever with Headache/ chest Pain/ Jaundice	▪ Cardiac problems (e.g. : Heart block, CHF, rhythm disturbances)
▪ wounds	▪ Chest Pain	▪ Breathing problems (difficult breathing, shortness of breath), Choking
▪ Animal/insect bites	▪ Choking	▪ Unconsciousness/ Fainting, Disorientation/ Stroke
▪ Chest Pain (only for first aid)	▪ Simple Burn injuries including chemical and acid burn	▪ Shock (including due to blood loss, dehydration etc.)
▪ Uncomplicated choking	▪ Convulsions, Epileptic seizures Headache	▪ Uncontrollable bleeding, e.g.: nose bleed, hematuria
	▪ Unconsciousness/ Fainting, Disorientation	▪ Painful Bleeding P/R
	▪ Breathing Problems (difficult breathing, shortness of breath), hanging / Drowning / Electrocution / Stroke	▪ Cyanosed infant/ child, (e.g.: Foreign Body inhalation)
	▪ Abnormal bleeding Per Vegina	▪ Convulsions, Epileptic Seizures, Diabetic emergencies
	▪ Ongoing bleeding (Blood in vomitus, Blood in cough, Blood in urine, Nose bleeding etc)	▪ Animal bites, snake bites/ Scorpion bite
	▪ Acute abdominal pain, Drug overdose, Poisoning - with stable vital signs	▪ Drowning
	▪ Severe allergic reactions	▪ Poisoning -unstable vitals
	▪ Minor head Injury and other Musculo skeletal injuries	▪ Acute abdominal pain (severe), Burns and inhalational injuries (including steam, acid attack and smoke inhalation)
	▪ Suspected spine Injury (any) Injury to a pregnant Woman	▪ Musculo skeletal injuries (e.g.: Road Traffic Injuries, fall from height etc.)
		▪ Injuries due to weapons (e.g.: gunshot wound, Stab wounds etc.)
		▪ Injuries due to violence (e.g.: Suspected sexual assault,domestic violence)
		▪ Any other life threatening condition

Annexure III: Referral Slip

Referral Slip

This is standard referral form with all the required standard information. Along with minimum requirements for information that should be provided with all referral requests, additional information may be provided. This additional information may be based on agreement between the consulting and referred doctor or may be provided based on the need at the time of referral.

Name of the Referring Facility: .....

Address: .....

Telephone: .....

Name of Patient: ..... Age:.....

Next of kin or Person Responsible in cases involving minors – (name, Address and Telephone Number): .....

Address: .....

Unique identification No. :.....

Referred on ...../...../..... (dd/mm/yr.) at ..... (time) to .... (Name of the facility) for management.

Provisional Diagnosis:

Admitted in the referring facility on ...../...../..... (dd/mm/yr.) at .... (time) with **chief complaints** of:

.....

.....

.....

Summary of Management (Procedures, Critical Interventions, Drugs given for Management):

.....

.....

.....

.....

Investigations:

Blood Group:

Hb:

Urine R/E:

Blood Glucose:

Condition at time of Referral:

Consciousness:

Temp:

Pulse: BP:

Others (Specify):.....

Reason for referral:

.....

.....

.....

Information on Referral provided to the Institution Referred to: Yes / No

If yes, then name of the person spoken to: .....

Mode of Transport for Referral: Govt/Outsourced/EMRI/Personal/Others/None.

Signature of Referring Physician/MO (Name/Designation/Stamp)

Annexure IV: Counter Referral Slip

Counter Referral Slip (level of facility)

1. The patient (name) referred to us, was diagnosed as .....
2. A copy of discharge slip giving treatment, investigation and follow-up details has been given to the patients.
3. Following 'follow-up' advice needs to be carried out:
    a. Periodic check-up (define weekly/fortnightly/monthly) on following (e.g. BP, Blood sugar etc.) is advised:
    b. The patient can be issued the following drugs for a period of 15/30/45/60 days and monitor his/her condition/status every 15/30/45/60 days before issue of drugs.
4. Any other advice

Signature & contact No. of Doctor referring the patient for follow-up

Annexure V: Essential Medicine List at SHC-HWC

S. No.	Medicine Name	Remarks	Caution(if any)
	Anesthetics Agent		
1	Oxygen gas for inhalation		
2	Lignocaine Topical forms 5%		Plain Lignocaine Injection can be kept at SC if enough caseload is there
	Analgesics, antipyretics, non-steroidal anti-inflammatory medicines, medicines used to treat gout and disease modifying agents used in rheumatoid disorders		
3	Asprin (Acetylsalicylic acid) Tablet 75 mg		Not to be used in suspected dengue patients and other clinical conditions without prescription
4	Diclofenac Tablet 50 mg Diclofenac Injection 25 mg/ml		
5	Ibuprofen Tablet 200 mg		Not to be used in suspected dengue patients and other clinical conditions without prescription
6	Paracetamol tablet 250 mg, Paracetamol Syrup 125 mg/5ml Paracetamol Syrup 250 mg/5ml		
	Anti-allergics and medicines used in anaphylaxis		
7	Levocetirizine 5mg Tablet Levocetirizine Oral Liquid		
8	Hydrocortisone Succinate Injection 100 mg		
9	Pheniramine Injection 22.75 mg/ml		
10	Adrenaline Injection 1mg/ml		Should be part of all emergency drugs
	Anti-dotes and other substances used in poisoning		
11	Atropine Injection 1 mg/ml		Ampoules should be made available
12	Activated Charcoal		
	Anti-convulsants/ Anti-epileptics		
13	Magnesium Sulfate Injection (50% solution), 2ml ampoule		
14	Diazepam Tablet 5mg Diazepam Tablet 10mg Diazepam rectal suppository	Schedule H1 (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded).	Controlled medicine.
15	Midazolam Nasal Spray	Schedule H1 (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded).	For emergency purpose

S. No.	Medicine Name	Remarks	Caution(if any)
16	Phenobarbitone Tablet 30 mg Phenobarbitone Tablet 60 mg Phenobarbitone Oral liquid 20 mg/5 ml		
17	Phenytoin Tablet 50 mg Phenytoin Tablet 300 mg		
18	Sodium valproate Tablet 200 mg Sodium valproate Tablet 500 mg Sodium valproate Syrup each 5ml contains 200mg		
Intestinal Anthelmintics			
19	Albendazole Tablet 400 mg Albendazole Oral liquid 200 mg/5 ml		
Anti-filarial			
20	Diethylcarbamazine Tablet 100 mg Diethylcarbamazine Oral liquid 120 mg/5 ml		
Anti-bacterial			
21	Amoxicillin Capsule 250 mg, Amoxicillin Capsule 500 mg Amoxicillin Oral liquid 250 mg/5ml Amoxicillin Dispersible Tablet 250mg		
22	Gentamicin Injection 10 mg/ml Gentamicin Injection 80 mg/ml		
23	Tab Co-trimoxazole [Sulphamethoxazol 80 mg +Trimethoprim 400 mg] Tab. 20mg trimethoprim + 100mg sulphamethoxazole Co-trimoxazole Oral Liquid [Sulphamethoxazol e 200 mg + Trimethoprim 40 mg/5ml]		
24	Doxycycline Capsule 100 mg		
25	Metronidazole Tablet 200 mg Metronidazole Tablet 400 mg		
26	Norfloxacin tab/ oral Liquid		
Anti-leprosy medicines			
27	As per Program Guidelines (Adults and Pediatrics)		
Anti-tuberculosis medicines			
28	As per Program Guidelines (Adults and Pediatrics)		
Anti-fungal medicines			
29	Clotrimazole Ointment Clotrimazole Cream 1% Clotrimazole Vaginal Tablet Clotrimazole Drops 1% Clotrimazole Oral Solution		
30	Miconazole Ointment		
31	Fluconazole 150mg Tablet		
Anti-malarial medicines			
32	As Per Program Guidelines (Adults and Pediatrics)		
Medicines used in Palliative care			
33	Lactulose Oral liquid 10 g/15 ml		
34	Povidone Iodine Lotion and Ointment		

S. No.	Medicine Name	Remarks	Caution(if any)
35	Ferrous salt 100 mg + Folic acid 500 mcg Tablet Ferrous salt 20 mg + Folic acid 100 mcg Table Ferrous salt 60 mg + Folic acid 500 mcg Table Ferrous salt 45 mg + Folic acid 100 mcg Table Ferrous sulphate + Folic acid Syrup		
36	Folic acid Tablet 5 mg Folic acid Tablet 400 mcg		
37	Vitamin K Injection 1 mg/ml		
	Cardiovascular medicines (Medicines used in angina)		
38	Isosorbide-5- mononitrate Tablet 5 mg		
39	Atenolol Tablet 50mg		
40	Metoprolol Tablet 25 mg Metoprolol SR Tablet 25 mg		
41	Isosorbide dinitrate Tablet 5mg (Sublingual)		
	Anti-hypertensive medicines		
42	Amlodipine Tablet 2.5 mg Amlodipine Tablet 5 mg		
43	Enalapril Tablet 5 mg		
44	Telmisartan Tablet 40 mg		
45	Hydrochlorothiazide Tablet 12.5 mg Hydrochlorothiazide Tablet 25 mg		
	Hypolipidemic medicines		
46	Atorvastatin Tablet 10 mg		
	Medicines used in Dementia		
47	Alprazolam Tablet 0.25mg Alprazolam Tablet 0.5mg		
	Dermatological medicines (Topical)		
48	Silver sulphadiazine Cream 1%		
49	Betamethasone Cream 0.05%		
50	Calamine Lotion		
51	Benzyl benzoate ointment/lotion		
52	Mupirocin (anti bacterial cream)		
53	Potassium Permanganate 0.1%		
54	Zinc Oxide Cream 10%		
	Disinfectants and antiseptics		
55	Ethyl alcohol (Denatured) Solution 70%		
56	Hydrogen peroxide Solution 6%		
57	Methylrosanilinium chloride (Gentian Violet)		
58	Bleaching powder Containing not less than 30% w/w of available chlorine (as per I.P)		

S. No.	Medicine Name	Remarks	Caution(if any)
59	Gama Benzene Hexachloride		
60	Framycetin sulphate (Ointment)		
	Ear, nose and throat medicines		
61	Ciprofloxacin Drops 0.3 % Ciprofloxacin Tablet 250 mg Ciprofloxacin Tablet 500 mg		
62	Boro-Spirit ear drop		
63	Ear wax solvent drops (combination of Benzocaine, Chlorbutol, Paradichlorobenzene and Turpentine Oil)		
	Gastrointestinal medicines		
64	Ranitidine Tablet 150 mg 50mg Ranitidine Injection		
65	Omeprazole capsule 20 mg		
66	Ondansetron Tablet 4 mg Ondansetron Oral liquid 2 mg/5 ml Ondansetron Injection 2 mg/ml		
67	Ispaghula Granules/ Husk/ Powder	Herbal Medicine	
68	Oral rehydration salts (ORS)		
69	Zinc sulphate Dispersible Tablet 20 mg Zinc Sulphate Syrup		
70	Dicyclomine Tablet 10 mg Dicyclomine Injection		
71	Dioctyl sulfosuccinate sodium		
72	Magnesium Hydroxide liquid		
73	Senna Powder	Herbal Medicine	
74	Domperidone Tablet Domperidone Syrup		
	Contraceptives		
75	Ethinylestradiol (A) + Levonorgestrel Tablet 0.03 mg (A) + 0.15 mg (B)		
76	Copper bearing intra-uterine device IUCD 380 A & IUCD 375		
77	Male Condom		
78	Ormeloxifene Tablet 30mg		
79	Emergency contraceptive Pill Levonorgestrel 1.5 mg		
80	Medroxyprogesterone Acetate Injection 150mg		
81	FP Commodities: PTK		
	Medicines used in Diabetes Mellitus		
82	Glimepiride Tablet 2 mg		
83	Metformin Tablet 500 mg Metformin SR Tablet 500 mg		

S. No.	Medicine Name	Remarks	Caution(if any)
84	Glibenclamide Tablet 2.5 mg Glibenclamide Tablet 5 mg		
	Thyroid and Anti-thyroid medicines		
85	Levothyroxine Tablet 25 mcg Levothyroxine Tablet 50 mcg Levothyroxine Tablet 100 mcg		
	Vaccines		
86	As per Current National Programme Guidelines		
87	Rabies vaccine		
	Oxytocics & Abortificent Medicine		
88	Misoprostol Tablet 200 mcg		Should be use with caution
	Medicines acting on the respiratory tract		
89	Budesonide Respirator solution for use in nebulizer 0.5 mg/ml		Nebulizer Essential
90	Salbutamol Tablet 2 mg Salbutamol Oral liquid 2 mg/5 ml Salbutamol Respirator solution for use in nebulizer 5mg/ml		Nebulizer Essential
91	Normal Saline Drops		
92	Dextromethorphan oral Syrup		
93	Hyoscinebutylbromide Tablet 10 mg		
	Solutions correcting water, electrolyte disturbances and acid-base disturbances		
94	Ringer lactate Injection		
95	Sodium chloride injection 0.9%		
96	Dextrose 5% Dextrose 25%		
	Vitamins and minerals		
97	Ascorbic acid (Vitamin C) Tablet 100 mg		
98	Calcium Carbonate Tablet 500 mg		
99	Cholecalciferol Tablet 60000 IU		
100.	Pyridoxine Tablet 25 mg Pyridoxine Tablet 50 mg Pyridoxine Tablet 100 mg		
101.	Vitamin A Oral liquid 100000IU/ml		
102.	B Complex Tablet		
	Ophthalmological Medicines		
103.	Sodium Cromoglycate 2% Eye drop		
104.	Methylcellulose eye drops		
	Diuretics		
105.	Furosemide Injection(Lasix) Furosemide Tablet 40mg		

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Abbreviations

AB	Ayushman Bharat
ABC	Airway Breathing Circulation
ABCDE	Airway, Breathing, Circulation, Disability, Exposure
ACLS	Advanced Cardiovascular Life Support
ACS	Acute Coronary Syndrome
AED	Automated External Defibrillator
AF	ASHA Facilitator
ALS	Advanced Life support
AMBU	Artificial Manual Breathing Unit
AMIs	Acute myocardial infarctions
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activists
ASV	Anti-Snake Venom
AVPU	Alert, Voice, Pain, Unresponsive
AWW	Anganwadi Worker
BGL	Blood Glucose Levels
BLS	Basic Life Support
BP	Blood Pressure
BSA	Burns of Special Areas
BVM	Bag Mask Ventillation
CAB	Circulation, airway, breathing
CCF	Congestive Cardiac Failure

CHC	Community Health Centre
CHO	Community Health Officers
COPD	Chronic Obstructive Pulmonary Disease
CHW	Community Health workers
CMO	Chief Medical Officer
COVID-19	Corona Virus Disease-19
CPR	Cardio-Pulmonary Resuscitation
CRT	Capillary Refill Time
CVAs	Cerebrovascular accidents
DALYs	Disability-adjusted life-years
DBP	Diastolic Blood Pressure
DH	District Hospital
DNA	Deoxyribonucleic Acid
DPR	Detailed Project Report
ECG	Electrocardiogram
EMT	Emergency Medical Technician
FAST	Focused Assessment with Sonography in Trauma
FGD	Focussed Group Discussion
FLWs	Front line workers
FRU	First Referral Unit
GBD	Global Burden of Disease
GCS	Glasgow Coma Scale
GDP	Gross Domestic Product
GoI	Government of India
GRS	Grievance Readressal System
HR	Human Resource
HWC	Health & Wellness Centre
HWC-PHC	Health & Wellness Centre- Primary Health Centre
HWC-SHC	Health & Wellness Centre- Sub health centre
IDSP	Integrated Disease Surveillance Programme
IEC	Information Education Communication
ISBAR	Identity, Situation, Background, Assessment, Recommendation
IV	Intravenous
IV/IO	Intra-venous/ Intra-osseous line

JAS	Jan Arogya Samithi
LMA	Laryngeal Mask airway
MAS	Mahila Arogya Samithi
MOANS	Mask Seal, Obesity, Age, No Teeth, Stiff
MD	NHM Mission Director- National Health Mission
MLC	Medico legal cases
MLP	Mid-Level Providers
MLR	Medico legal report
MO	Medical Officer
MoHFW	Ministry of Health & Family Welfare
MPW	Multi-Purpose Workers
MPW-M	Multipurpose Worker-Male
NCC	National Cadet Corps
NHSRC	National Health Systems Resource Centre
NREGA	National Rural Employment Guarantee Act
NRP	Neonatal Resuscitation Protocol
NS	Normal Saline
OPD	Out Patient Department
ORS	Oral Rehydration Therapy
PAT	Paediatric Assessment Triangle
PHC	Primary Health Centre
PIP	Program Implementation Plan
PPE	Personal Protective Equipment
PPH	Post- Partum Haemorrhage
PR	Per-Rectally
PRI	Panchayati Raj Institutions
RDT	Rapid Diagnostic Test
RICER	Rest, Ice/Immobilisation, Compression, Elevation , Referral
RIGHT	Reassure, Immobilise, Get to Hospital, Tell
RR	Respiratory Rate
RTI	Road traffic injuries
RL	Ringers Lactate
SAMPLE	Signs & Symptoms, Allergies, Medications, Past Medical History, Last Oral Intake, Events surrounding the injury or illness

SBCC	Social Behaviour Change Communication
SBP	Systolic Blood Pressure
SC	Sub Centre
SHC	Sub- Health Centre
SHC-HWC	Sub Health Centre - Health and Wellness centre
SN	Staff Nurse
SOP	Standard Operating Procedure
SOPs	Standard operating protocols
SpO_2	Partial Pressure of Oxygen
TABC	Temperature, Airway, Breathing, Circulation
TBSA	Total Body Surface Area
TOR	Terms of Reference
ULB	Urban Local Bodies
UHC	Universal Health Coverage
UPHC	Urban Primary Health Centre
VHSND	Village Health Sanitation & Nutrition Days
VHSNC	Village Health Sanitation and Nutrition Committee

Note

Note

Namaste!

You are a valuable member of the Ayushman Bharat – Health and Wellness Centre (AB-HWC) team committed to delivering quality comprehensive primary healthcare services to the people of the country.

To reach out to community members about the services at AB-HWCs, do connect to the following social media handles:

- https://instagram.com/ayushmanhwcs
- https://twitter.com/AyushmanHWCs
- https://www.facebook.com/AyushmanHWCs
- https://www.youtube.com/c/NHSRC_MoHFW

National Health Systems Resource Centre

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