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NATIONAL HEALTH MISSION
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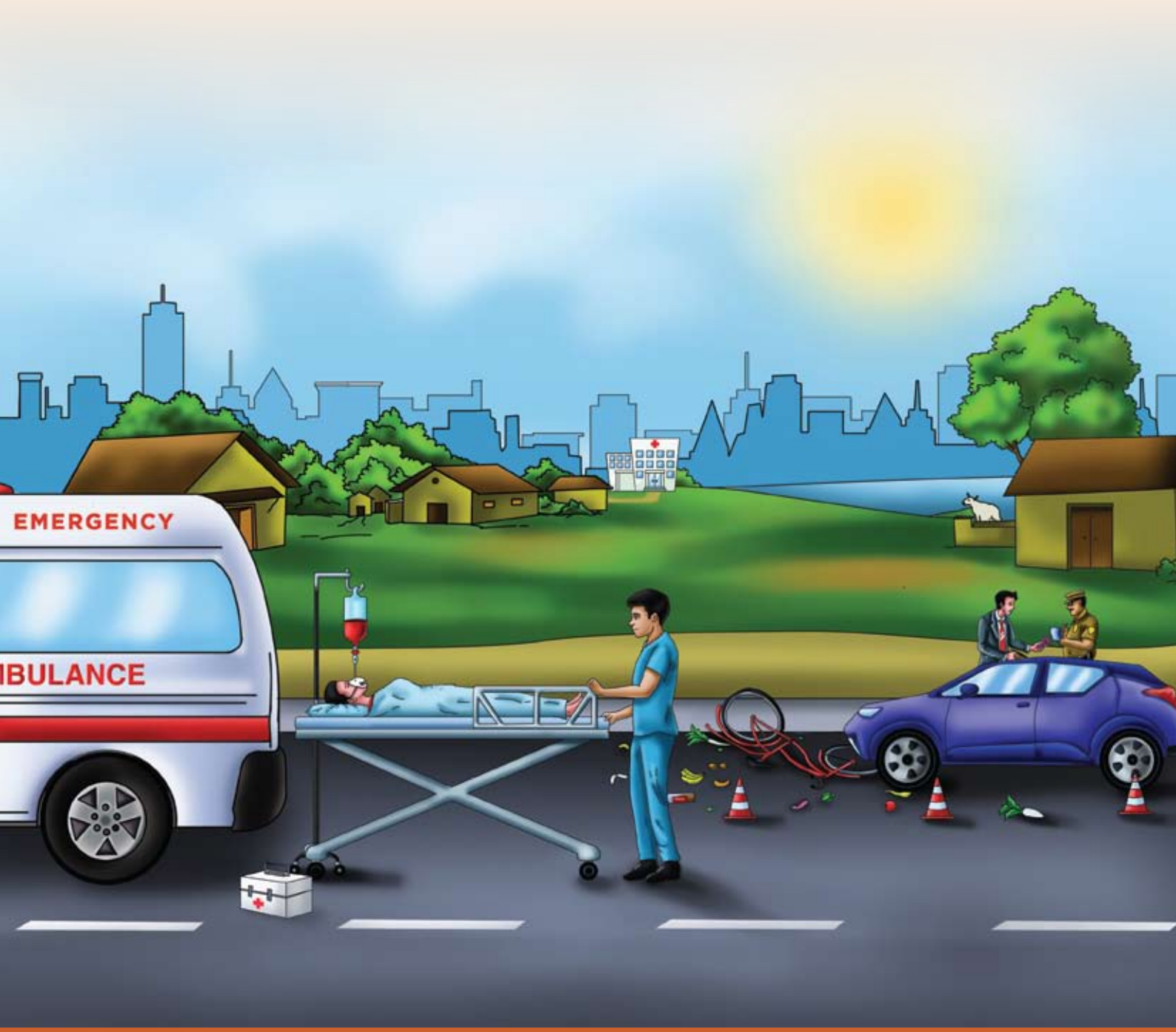


# Training Manual on Management of Common Emergencies, Burns and Trauma for Staff Nurse

## at Ayushman Bharat- Health and Wellness Centres

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CHAPTER 1

# Introduction

In the last fifteen years, primary health care has focused on maternal, child and adolescent health, communicable diseases, non-communicable diseases and other chronic 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. Emergency, burns and trauma care is one of the 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. 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 PHC-HWC. This training module will help you understand your role with respect to Emergency, burns and trauma care in terms of 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 cases to the appropriate higher facility.

CHAPTER 2

# Role of Staff Nurse in Emergency, Burns and Trauma Care

PHC-HWCs are envisioned to provide comprehensive primary health care.

You as a Staff Nurse play an important role in early identification of life-threatening situations, assist MO I/C in providing advanced care management to referred in cases and stabilize the victim before referring to higher centers. Your role with respect to emergency burns and trauma care is largely clinical.

## Clinical functions

- At the PHC level, your role is to attend to the emergency cases brought in/referred by ASHA/MPW/CHO and assist the MO I/C in arriving at a treatment plan or further referral as 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 center.
- You shall follow necessary referral protocol in cases requiring surgical interventions. You shall help the Medical Officer In-Charge in delivering advanced care management to victims of trauma and emergency situations.

# CHAPTER 3

# Clinical Functions of Staff Nurse in Emergency, Burns and Trauma Care – General Measures

As you have learnt in the previous chapter, your clinical roles and responsibilities at the PHC-HWC level would mostly revolve around managing referred cases at the PHC-HWC, providing prompt stabilization and referring cases that cannot be treated at the PHC-HWC by consulting the MO I/C. In this chapter, you shall learn about the various protocols for management of emergency situations and skills required from you to attend to such cases. Your responsibility would also be that of assisting the work of the Medical Officer I/C.

## Knowledge and skills for management of emergency medical cases including common medical, surgical, burns, trauma and others

| Activity | Knowledge | Skills |
|---|---|---|
| ▪ Conduct initial assessment of the patient to determine if the patient is critically ill and assess the need for prompt stabilization and safe transport to higher level of care.<br>▪ Provide first-aid care and stabilization before referral to appropriate centers of care<br>▪ Administer life-saving drugs/interventions, as appropriate, in acute cases<br>▪ Timely referral of patients in emergency | **Clinical Knowledge:**<br>▪ First aid care<br>▪ Hemodynamic stabilization<br>▪ Triage of emergency cases<br>▪ Differential diagnosis and management of common emergencies<br>▪ Emergency drugs and procedures<br>**Health Systems Knowledge:**<br>▪ Roles of different health cadres and available facilities at primary, secondary and tertiary level centers of public health system<br>▪ Institutional capacities of the referral units in the area | **Clinical Skills:**<br>▪ Efficient history taking in critical cases<br>▪ General and systemic examination<br>▪ Identify danger signs and symptoms from history<br>▪ Perform lifesaving stabilization procedures<br>▪ ABC, CAB and (H)ABCDE /ABCDE protocol (details below)<br>▪ Applying sutures<br>▪ Insert IV cannulas for administering drugs<br>▪ Basic life support (BLS)<br>▪ Cardio-Pulmonary Resuscitation<br>▪ Assisted ventilation using AMBU bag<br>**Communication Skills**<br>▪ Case discussions with MO I/C and other doctors at referral centers |

## Attending to cases referred from SHC-HWC/ Community

If the case has been referred by ASHA/MPW/CHO, you should coordinate with the first responder to understand the situation. The ASHA/MPW/CHO 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 early recognition of critical illness which involves assessing patient's mental status (using AVPU scale) and the appropriate emergency protocol ABC, CAB or ABCDE approach (henceforth collectively referred to as the ABC approach).

### GENERAL MEASURES

These approaches are the most basic and universal to all medical and trauma emergencies. This section will cover basic protocols for evaluation of critical illness. Subsequent chapters will cover specifics of management of different emergencies.

- **AVPU scale:** This scale is a good first step in evaluating any emergency. It gives you an idea how serious the condition of the patient is.

The AVPU method is used to check the person's mental status (level of consciousness) in 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 instructions, open eyes spontaneously, and track objects.

**V**: Verbally Responsive: The person is not alert. On calling the person's name or on trying to talk to the person, they will respond by opening eyes, may talk or mumble a few words. They close eyes and then stop responding. They are responding to 'VERBAL' stimuli.

**P**: Responsive to Pain**:** The person's eyes do not open on their own and will only respond if a painful stimulus is given by pinching the shoulder muscles (do not poke or put pressure to the chest). The victim may move, moan, or cry out directly in response to the painful stimuli for a moment and then closes eyes.

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

A person in the P or U condition is critically ill and has serious underlying medical complications from trauma.

#### ABCDE approach:

This approach helps in rapid assessment and recognition of critical illness. This standard protocol offers a consistent and reproducible framework for evaluation and management of the critically ill patient. This sequence has minor variations in certain scenarios.

- ABC in non-trauma medical emergencies.
- CAB in patients with cardiac arrest where addressing C is a priority. CAB is the standard sequence recommended for CPR.
- (H) ABCDE only in trauma cases where H stands for management of life threatening Haemorrhage.

In the first few minutes of evaluating patient in an emergency situation, a quick review of vital and adjuvant vital signs will provide clues to the criticality of the condition.

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

"H" refers ONLY to controllable life threatening hemorrhage. This is seen in burn and trauma patients (traffic accidents, fall, injury in the farm, etc.) and meets the following criteria

- The bleeding is severe enough to kill the person within minutes
- The bleeding is in the hands and legs where it can be controlled by compression (pressure)

It does not refer to tiny bleeds which will not kill a person in minutes or hours.

| **Controllable** | **Uncontrollable** |
|---|---|
| Usually in the extremities and it can be controlled with compression. This prevents further blood loss and may help stabilize blood pressure | Internal bleeding: abdomen, chest and pelvis. It cannot be controlled with pressure. This can only be stopped by a surgeon. However, internal bleeding in pelvic fractures can be controlled by tying a bedsheet/pelvic binder around the pelvis as a first aid. |
| Internal (uncontrollable) bleeding can be stopped only by surgery: Stabilize and then transfer such patient as soon as possible to a surgeon's care | |

## Airway

The first response in an emergency is to assess and address patency of airway. This should be done in less than a minutes.

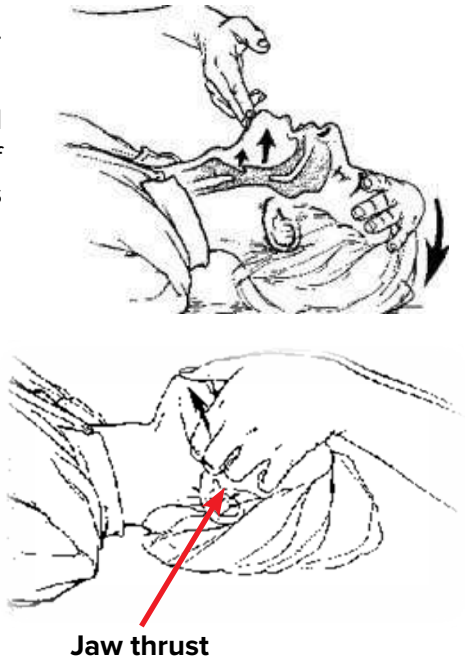
The goal is to avoid periods of hypoxia of the brain and other vital organs

1. Is the patient conscious? AVPU scale is a simple tool which helps in quick assessment of consciousness level of the patient (described above).
2. Is the airway obstructed? Obstruction is usually by the tongue or oral secretions. Severe facial trauma causing fractures of maxillary and mandibular bones can compromise airway due to derangement of airway anatomy and due to bleeding.
3. Is the cervical spine stable? Cervical spine injury is common in trauma. Patients with chronic disease like rheumatoid arthritis, cancer (may have bony metastasis), osteoporosis etc. are prone to cervical spine injuries from neck movements.

| **A (Airway): 30 seconds** | | |
|---|---|---|
| **Inquire** | **Infer** | **Intervene** |
| Is the patient conscious? | | |
| Consciousness<br>**Alert** (able to talk normally)<br>**Verbal** (responds to verbal stimuli)<br>**Pain** (responds to pain)<br>**Unresponsive** (unconscious) | A: Airway is open<br>V: Airway patent but needs close monitoring<br>P: may aspirate or tongue may obstruct*<br>U: Needs immediate response* | A: Check $SpO_2$ (Saturation of Peripheral Oxygen) If low deliver $O_2$<br>V: Deliver $O_2$, consider nasal airway if tongue is obstructing<br>P: Prevent tongue obstruction, assist breathing: BVM (Bag and Mask Ventilation) consider intubation<br>U: assist breathing, urgent intubation |

| A (Airway): 30 seconds | | |
|---|---|---|
| **Inquire** | **Infer** | **Intervene** |
| **Is airway obstructed?** | | |
| For:<br>▪ Gurgling<br>▪ Snoring | Presence of oral secretions, or blood<br>tongue obstructing airway and airflow | Suction: oral or nasal<br>Airway maneuvers: Head tilt, chin lift and or jaw thrust (precaution as below) |
| **Is cervical spine stable?** | | |
| **Trauma:** have a high index of suspicion for cervical spine injury (assume all cases have cervical spine injury until proven otherwise)<br>**Non-Trauma:** If awake or caregivers present ask for **History** of cervical disease (rheumatoid arthritis, neck surgery, etc.) | Presume cervical spine injury in trauma and unconscious patients and take precautions to prevent spinal cord injury / quadriplegia | In both cases avoid neck manipulation. Only jaw thrust to relieve tongue obstruction (**head tilt and chin lift must NEVER be performed**)<br>**Quadruple immobilization** consists of:<br>▪ Hard cervical collar<br>▪ Small bolsters/pillows on either side of head and<br>▪ Forehead tape. |
| * *The patient is barely awake or unconscious, such patients cannot protect airway against vomitus and aspiration from oral secretions and from tongue obstruction. They need to be referred for endotracheal intubation. Until that time keep airway open and continue AMBU (Bag and Mask Ventilation or BMV) bagging.* | | |

- **Head-tilt/chin-lift technique**: Press down on the forehead while lifting the jaw with two to three fingers of the other hand; avoid hyperextension of the neck. This should not be done if neck injury is suspected.
- **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.



**Jaw thrust**

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

## Breathing

This step involves three components two of which are vital signs and should be performed in about 30-60 seconds.

1. Is the respiratory rate normal? Tachypnea or Bradypnea?
2. Is the oxygen saturation low?
3. Are chest movements and auscultation normal?

In this phase the examination should include assessment of respiratory rate, oxygen saturation, and a very quick chest examination. This will provide a quick pointer towards the underlying life-threatening condition. For example, severe acute asthma patient who has been hypoxic prior to arrival or a trauma victim with tension pneumothorax will progress to terminal stages within few minutes.

| B (Breathing): 30 seconds | | |
|---|---|---|
| **Inquire** | **Infer** | **Intervene** |
| **1. Is the patient having Tachypnea (Higher than normal Respiratory Rate) or Bradypnea (Lower than normal Respiratory Rate)?** | | |
| Respiratory rate check respiratory rate for 30 seconds) | In adult Tachypnea (>20/min)<br>Bradypnea (<10/min) | Deliver $O_2$ |
| **2. Is the patient hypoxic ($O_2$ saturation low)?** | | |
| Pulse oximetry:<br>Is $SpO_2$ <90%? | Hypoxia | Deliver $O_2$ |
| **3. Are chest movements and auscultation normal?** | | |
| **Inspection**: trachea deviated, engorged neck veins or chest injuries?<br>**Palpation:** trachea deviated, tenderness, fractures?<br>**Percussion:** dull, hyper-resonant?<br>**Auscultation**: airflow, crepitation, rhonchi, etc. | Tension pneumothorax<br>pneumothorax / haemo-pneumothorax<br>flail chest<br>severe asthma<br>CCF, Pneumonia etc. | Emergency needle thoracotomy-14 gauze needle to be inserted in the 2nd intercostal space in the midclavicular line and refer for urgent placement of chest tube<br>and<br>bronchodilators<br>antibiotics, diuretics etc. |

## 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.

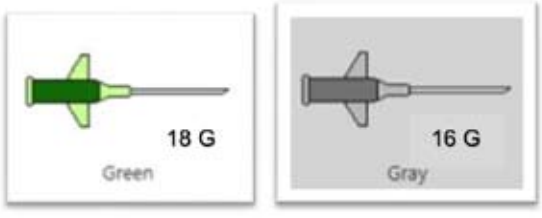
Circulation is assessed by reviewing vital signs and adjunct vital signs. A low blood pressure and fast pulse are indicative of shock. However, blood pressure may be normal in early shock and can be misleading.

Pulse rate increases first in response to shock, before blood pressure drops. Similarly, capillary refill time increases (>2 seconds) early in shock before the blood pressure drops. It is another sensitive indicator of shock.

| C (circulation) | | |
|---|---|---|
| **Inquire** | **Infer** | **Intervene** |
| **Time: 2 minutes** | | |
| **1. What is the Pulse rate? Tachycardia or bradycardia?** | | |
| Inquire | Infer | Intervene |
| Heart rate: Absent<br>(pulse) Present | Cardia arrest<br><br>Yes:<br><br>Tachycardia (>100 /min)<br><br>Bradycardia (<60/min) | Start CPR<br><br>IV access: fluids<br><br>Medications |
| **2. Is the peripheral circulation reduced?** | | |
| capillary refill time:<br>is >2 seconds? | Early indicator of shock (even if BP is normal) | Place large bore No. 16 or No. 18 (Grey or Green) IV cannula, start IV bolus: 1 or 2 liters of normal saline or ringer lactate |
| Caution: capillary refill time can be increased in other conditions like peripheral vascular diseases and hypothermia. | | |
| **3. What is the Blood Pressure?** | | |
| If BP machine not available, use location of pulse to estimate systolic BP | | |
| No Pulse<br>Only Carotid Pulse +<br>Femoral Pulse +<br>Radial Pulse + | Cardiac arrest<br>SBP > 60 mm of Hg<br>SBP >70 mm of Hg<br>SBP > 90 mm of Hg | Start CPR<br>Large bore IV cannula+ IV bolus (as above) |
| Note: If anaphylactic shock suspected (based on evaluation of ABC) IM adrenaline should be given even before placement of IV access. | | |

The three components of circulation are:

- Intravenous (IV) access or Intra-osseous (IO)
- Fluid resuscitation with IV fluids or Blood
- Vasopressors (to be used only by treating physcians)




Obtain IV lines at the earliest

- At least 2 lines
- Large bore cannula
  - 18 G (green) & 16 G (grey)
- Preferably in ante-cubital fossa

**Intra-Venous (IV) access:** Intravenous access must be obtained at the earliest to administer fluid boluses and other lifesaving medications. Every minute of delay of these interventions will cause a further drop in blood pressure. This will lead to a vicious cycle which makes it harder to visualize and access veins.

**NOTE**: In locations where facilities are available, after obtaining an IV or IO line, blood samples should be obtained to do appropriate tests for example, blood culture, serum electrolytes. Though

the results of these tests may not be available immediately and not be of much help in the 'golden hour', they provide valuable information. This information could be used later in managing the patient, like in choosing appropriate antibiotics or for providing etiology-based management of the critical condition.

**Intra-Osseous (IO) access:** If you are unable to get an IV access, then an intra-osseous (IO) line is a simple yet effective alternative. It can be done fast and gives direct access to the bone marrow. IO route is equivalent in absorption as IV route and all medications, fluids, and blood products can be infused. The common site for IO access are tibial tuberosity, humeral head and iliac crest. If an IO needle is not available, a Jamshidi bone marrow needle or Lumbar Puncture (Quincke) needle can also be considered. Special purpose IO placement gadgets, if available, are easy to use and can be used. Using a 20 ml syringe and 3-way tap is essential to infuse rapidly through IO access as there is natural resistance to flow due to the bone marrow.

**Caution**: If too much force is used, the needle may cross the bone marrow and pierce through the other side of cortex. This happens especially in children as their bones are softer. When fluids are administered they would leak in and out of the marrow and cause soft tissue swelling. In such cases the needle should be removed and the IO should be attempted on another side or site.

**Fluid resuscitation:** Critically ill patients with shock are severely volume depleted and require fluids for volume resuscitation. Generally, such patients may need up to 2-3 liters of fluids. *The primary goal in critical illness is to ensure adequate tissue perfusion to oxygenate the vital organs like brain and the heart and not to normalize blood pressure*. The blood pressure is targeted at a level that is adequate to perfuse the vital organs. Until the target blood pressure is reached, IV fluids should be infused rapidly as boluses. After reaching target blood pressure, fluid flow rate must be reduced to maintenance rate (about 75 -125 mL/hour in adults.)

1. The **target systolic blood pressure in** medical patients with shock is 110 mm of Hg. However;
    I. In patients with heart failure, use lesser volume of fluids to resuscitate as they can develop pulmonary edema. They may require vasopressors sooner.
    II. If the patient does not respond to normal saline or ringer lactate, then colloids – 500-1000 mL can be used before trying vasopressors.
2. The **target systolic blood pressure in trauma patients** with shock is 90 mm of Hg (**Permissive Hypotension**). However, there are three exceptions: children, pregnant women and adults with head injury:
    I. **Head injury** patients: Brain swells inside the hard skull causing Increased Intracranial Pressure (ICP). Therefore, in head injuries almost normal BP is needed to perfuse the injured and swollen brain so that normal cerebral perfusion pressure can be maintained. In such cases, give enough IV fluids or blood to restore systolic blood pressure to 110 -120 mmHg.

**Bolus v/s maintenance**

if BP is < target blood pressure

- **bolus** 500-1000ml as fast as possible (usually in 30 minutes)

Asses BP every 10-15 minutes

- If < target BP, continue boluses

If BP at target

- Start **maintenance** 75-125 mL per hour

    II. **Pregnancy** (there is not enough data to support permissive hypotension): The target is 110 mm of Hg
    III. **Pediatrics**: The target blood pressure is normal for age. Children delay signs of shock until severe hypovolemia presents. Hypotension is a pre-terminal event for a child.

In children, IV boluses are given at the rate of 20mL/kg IV bolus, then reassessed if target blood pressure is achieved and repeated as necessary.

Normal for age systolic blood pressure for children is calculated using the simple formula, **2 x Age + 70.**

- Use 20 cc/kg IV fluid boluses (or 10 cc/kg colloid boluses) and
- Repeat until target systolic BP is reached, then change to maintenance rate.
- Formula to calculate normal systolic BP: **(2 X age) + 70**

Example: A 7-year-old boy is seen in the Emergency Department (ED) after a fall. He has multiple injuries. The child weighs 20 kg. The blood pressure is 80 mm of Hg. How much fluid (NS or ringer lactate) should be administered? What is the target blood pressure in this case? How much fluid to administer now? Bolus or maintenance?

- Normal for age systolic blood pressure calculate: (2 x 7) + 70= 84 mm of Hg
- The child should get 20 cc / kg of fluids which is 20 cc x 20 kg = 400 cc bolus

**Special consideration in trauma fluid resuscitation**: **In trauma patients with shock,** the body tries to form clots to plug the leak. The best replacement fluid in these instances is blood. However, blood is not available immediately in most instances and hence patients are resuscitated with fluids. Resuscitation with IV fluids to correct blood pressure tends to:

1. Disrupt this protective mechanism of blood clot formation by:
   - Diluting clotting factors
   - Causing hypothermia as IV fluids are at a cooler temperature than the body. Hypothermia inhibits clot formation.
2. Increasing blood pressure which if high can dislodge the clot (POPs the clot)

**In Trauma, the goal is to restore perfusion, NOT a normal BP**

**Don't 'POP' the clot**

**Hence 'Permissive' Hypotension: target Systolic BP is 90 mm of Hg**

Too much fluids can tilt the balance unfavorably and the protective blood clot may get dislodged. How to balance these competing priorities of ensuring adequate perfusion of vital organs versus protecting the blood clot? Let us recall that the **primary goal is to ensure adequate tissue perfusion to oxygenate the vital organs and not to normalize blood pressure**. Blood pressure should be raised only to a level that would be enough to perfuse the brain, which is around 90 mm of Hg. This would normally be considered as hypotensive range. A certain degree of hypotension is intentionally permitted. Hence the concept of '**Permissive Hypotension.'**

| **Fluid resuscitation in Trauma v/s Non-Trauma patients**<br>Isotonic fluids like normal saline or ringer lactate are ideal | | |
|---|---|---|
| | **Trauma**<br>**Accidents, falls, assaults** | **Medical conditions** |
| **Preferred fluids** | Whole blood is preferred<br>If not available:<br>▪ Isotonic fluids (crystalloids) like normal saline and ringer lactate<br>▪ Colloids | ▪ Isotonic fluids: (crystalloids) like normal saline and ringer lactate |

| | | |
|---|---|---|
| Target BP | 90-100 systolic BP (Permissive Hypotension) ^ | 110 mm of Hg |
| Too much fluids | POPs the clot → more bleeding | Pulmonary edema |

*^ If Radial Pulse is absent then SBP < 90 mmHg: 500-1000 cc normal saline / ringer lactate or 250–500 cc colloid. Repeat as needed (max 500 or 1000 cc colloid).*

**What are the signs of adequate fluid resuscitation?**

- Patient looks better
- Normal (reduced) capillary refill time,
- Improved BP
- Reduced pulse rate
- Widened pulse pressure,
- Resolved diaphoresis
- Improved mental status
- Improved urine output- a much later sign

**Assessing response to fluid resuscitation:** After administering fluids the patient should be constantly reassessed by checking vital signs every 10-15 minutes and also by performing a focused clinical examination.

In an emergency if a sphygmomanometer (BP machine) is not available, checking for pulse provides a good proxy. If radial pulse is palpable it translates into an SBP >90 mmHg. In trauma patients with shock this is adequate as it is at the target blood pressure. IV fluid rate be slowed down (change from bolus to maintenance) to 75-125mL per hour.

Other indicators of adequate fluid resuscitation should also be assessed and monitored constantly.

**Note of Caution:**

Never use hypotonic solutions Dextrose 5% (or Dextrose 5% with 0.45% Sodium chloride) to treat hypotensive shock

**Vasopressor medications:** If the blood pressure does not improve even with adequate boluses then IV vasopressor should be used. Vasopressors are rarely indicated in trauma, except as last resort while IV fluid is underway.

Vasopressors (e.g., dopamine): should be started only after adequate fluid volume resuscitation with bolus IV fluids. For example, in septic shock patients may need multiple boluses adding up to 3 liters of fluids before considering vasopressors.

**If there is no breathing, no pulse and the patient is unresponsive, the patient is in cardio-respiratory arrest.**

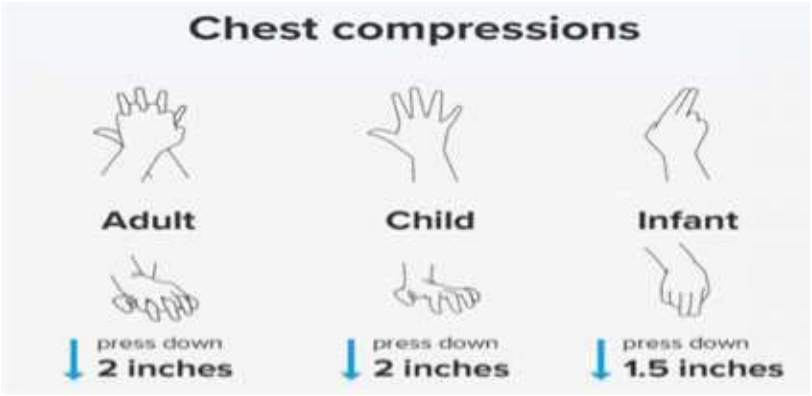
Chest Compressions: follow the steps as given below (refer annexure I for illustration)

- Position the patient in supine, on a firm, flat surface like 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 top of the first one. Interlace the fingers of both the hands and lock the elbows in position.

- "Push Hard & Push Fast" on the center of chest while delivering compressions until the return of patient's pulses.
- Arms of the rescuer should be as straight as possible, with the shoulders placed directly over the hands in a straight line to ensure 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 and is used to check for unresponsiveness/unconsciousness.

## Exposure

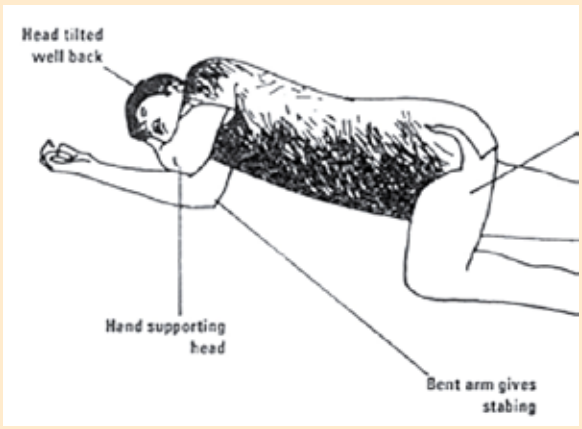
To examine the patient properly full exposure of the body may be necessary. Respect the patient's dignity and minimize heat loss by covering the person's body. The rationale behind this is to protect the victim from hypothermia.

*If the victim is unresponsive but breathing, and needs referral to a higher centre for management, turn him/her into a recovery position till transport arrives.*

- Recovery position:

  The recovery position is when a person is lying down on their side.

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.<br>Caution: Do not attempt to head-tilt, chin-lift if the person presents with any suspected spinal injury<br>Straighten his/her legs.<br>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 further help.

Advantages of recovery position:

- Keeps the airway clear so the person can breathe properly
- If person vomits, this position ensures that he/she doesn't choke
- Prevents tongue from falling back and blocking the throat
- Head is slightly lower than the rest of the body which allows liquids to drain from the mouth

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 Preserve life and emergency care and treatment to people who are sick or injured.
- To Protect unresponsive/ unconscious people.
- To Prevent the further worsening of victim's condition.
- To Promote the victim's recovery.

## References


1. Williams N, O'Connell PR, McCaskie AW. Bailey and Love's Short Practice of Surgery. 27th ed. Boca Raton, Florida: CRC Press, Taylor & Francis Group; 2018. 624 p.
2. 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 Staff Nurse in Emergency, Burns and Trauma Care – Specific Management for Common Emergency Conditions at PHC-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 PHC-HWC 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, first check the victim's level of consciousness and check for (H)ABCDE to assess the status of the victim.

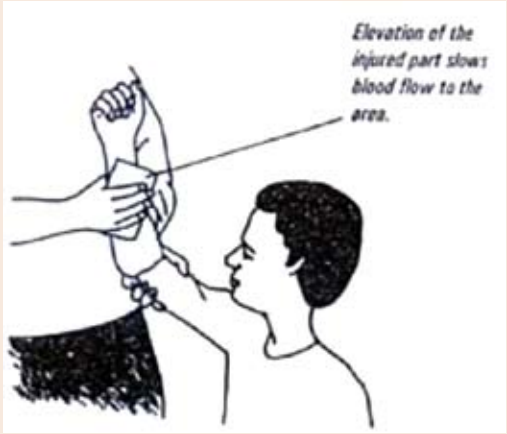
Keep **DRS** in mind: **D**anger (check the scene for danger), **R**esponse (check for the victim's consciousness) and **S**end someone to call for help.

**Moving the victim:**

- Victim 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 PHC-HWC in a stretcher, removing the patient from the stretcher has to be carried out in one swift movement.
- If any 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 |
|---|---|
| 1. Major 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.<br>▪ Expose the area: Open or remove the clothing over the wound so that you can clearly see it.<br>▪ Bleeding may be controlled by **applying direct pressure, applying pressure bandage, elevation of the body part above level of heart, pressure over the major arteries** (pressure points)<br>▪ You can use a sterile dressing or a clean piece of cloth for the wounds.<br>▪ You can add more gauze if blood soaks through, and continue applying pressure.<br>▪ 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)<br>▪ Do not move the limb if you suspect any fractures. Otherwise, elevate the wound higher than the level of the heart.<br>▪ As soon as bleeding is controlled, apply dressing and observe for shock. Secure IV access and IV fluids.<br>  |
| 2. Minor Wounds | If a patient with **a minor** cut or wound reports to you, proceed with the following steps:<br>▪ Ensure the safety of the victim as well as yourself<br>▪ Wash your hands well before touching the injured area of the victim.<br>▪ If the wound is dirty, wash it thoroughly with soap and sterile normal saline, then apply firm pressure for around 5 minutes. This will stop most bleeding.<br>▪ 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.<br>▪ Use a sterile dressing to avoid touching the wound directly<br>▪ Administer a dose of tetanus toxoid injection<br>▪ Give antibiotic such as amoxicillin 500mg 8 hourly for 5 days if needed. If at risk of infection administer IV Penicillin G and metronidazole as per instructions by PHC medical officers.<br>▪ A deep gaped or jagged wound with exposed fat or muscle will need to be sutured.<br>▪ 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. |

| Type of Injury | Management of the Injury |
|---|---|
| 3. Head Trauma | *Remember that whenever there is head trauma, you would have to provide prompt stabilization and refer the patient to a higher facility where CT and neurological facilities are present (refer annexure II to understand the referral pattern)*<br>▪ 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)<br>▪ Some other symptoms that could be present are blurred vision, nausea, vomiting, bleeding from ear nose or throat and confusion<br>▪ You have to always assume that a victim of head trauma has suffered a spinal injury unless proved otherwise. |
| 4. Spinal Injury | Spinal injuries might lead to complications like paralysis, loss of bladder control, etc. You should stabilize the victim by immobilizing and follow the necessary referral protocol. |
| 5. 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.<br>▪ Secure intravenous access and monitor respiratory rate and $SpO_2$ levels continuously.<br>▪ Monitor and assess the victim over a 3-4 hour time period; as they could present to the health facility in a stable condition and deteriorate after some time. Victims with rib fracture may slowly develop tension pneumothorax and need monitoring for the same.<br>▪ 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 like liver, kidneys, spleen, etc. in abdomen. |
| 6. Fractures | ▪ After stabilizing the victim you should follow the necessary referral protocol to transport the victim to a centre where an orthopaedic surgeon is available.<br>▪ Follow the **RICER** protocol in cases of fractures:<br>RICER –<br>**R**est<br>**I**ce/**I**mmobilization<br>**C**ompression<br>**E**levation<br>**R**eferral<br>▪ During immobilization, you can apply splint on closed fractures. |

## 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 PHC-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 various types of fractures are:

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.

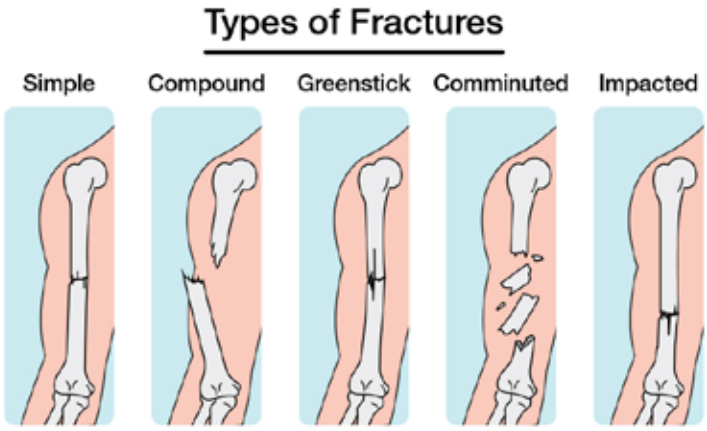
iii) **Spiral fractures** – are caused by twisting of the bones.

iv) **Transverse fractures**– horizontal breaks directly across the bone 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** – in children, the bone can be bent without breaking completely.

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, stabilize the area using a splint and follow the necessary referral protocol if the treatment needs specialized level care.

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 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. You should use splints to stabilize the injury. In case no splint is available, 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 that 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/jelly fish
- Scorpion Bite
- Snake Bite
- Animal 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<br>Bee/wasp, jelly fish | ▪ Sharp pain at the site of sting.<br>▪ Swelling around the affected area with the central reddened puncture point.<br>▪ Sting may be there in the wound.<br>▪ Sometimes stings may lead to angioedema (swelling of lips, tongue, throat which may lead to breathlessness) or anaphylactic shock.<br>▪ 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<br>Step 1:<br>**Removal of sting**<br>▪ 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.<br>Step 2:<br>**Local Treatment**<br>▪ Bee venom is acid and it should be neutralised by application of ammonia, soda.<br>▪ Wasp venom is alkaline and it should be neutralised by application of vinegar or lemon juice.<br>▪ For jelly-fish stings, apply calamine lotion.<br>▪ Apply cold compressions and spirit at the site of sting.<br>▪ Give Ibuprofen tablet to relieve pain and swelling.<br>▪ Give antihistamine (avil/ pheniramine tablet/injection) for allergy.<br>Step 3:<br>**Treatment of insect stings inside the mouth or throat**<br>▪ To reduce swelling, give ice to suck.<br>▪ Rinse the mouth with cold water or solution of water and bicarbonate of soda. | Do not squeeze the poison sac because this will force the remaining poison into the skin. |
| Scorpion Bite | **Mild form**<br>▪ Itching and swelling at the effected site (such as eye may be closed due to swelling)<br>▪ Burning pain and increased sensation or numbness near the site of bite.<br>**Severe form (Danger Signs)**<br>▪ Restlessness, lacrimation, excessive salivation.<br>▪ Nausea, vomiting. | Examine the site of sting.<br>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.**<br>Apply ice packs on the region to slow down the absorption of poison.<br>Apply cold compress or fresh potassium permanganate solution on the wound to stop the pain.<br>Give Ibuprofen tablet to relieve pain and swelling.<br>Give antihistamine for allergy. | |

| Type of Bite | Presenting Symptoms | Treatment | What NOT TO DO |
|---|---|---|---|
| | ▪ Anxiety, palpitations, chest pain<br>▪ Profuse sweating, cold limbs, peripheries<br>▪ Prolonged and hard erection of penis<br>▪ Difficulty in breathing<br>▪ Respiratory distress<br>▪ Hypotension | 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.<br>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 begun to appear, give first dose of tablet Prazocin orally 01 mg for adults and 30 microgram/kg body weight and assist the MO I/C for further treatment. | |
| Snake Bite | Fang marks: Generally, the presence of two puncture wounds indicate a bite by a poisonous snake.<br>Pain: Burning, bursting or throbbing pain may develop immediately after the bite and spread proximally up the bitten limb.<br>*(Krait and sea snake bites maybe virtually painless.)*<br>Local swelling: Swelling may appear within 15 minutes and become 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.*<br>Local necrosis: bruising (leakage of blood from vessels and collection of blood under skin), blistering (multiple small swellings filled with inflammatory watery liquid) | You should administer anti-venom to the victim.<br>**First aid:**<br>Immobilize the limb in the same way as a fractured limb<br>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.<br>Assess the patient for any local or systemic signs or symptoms of envenomation.<br>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.<br>**RIGHT approach:**<br>**R:** Reassure the person (70% of snakebites: from non- poisonous snakes only 50% poisonous snakes inject poison).<br>**I:** Immobilize the affected body part of the person.<br>**GH**: Get to the Hospital immediately.<br>**T**: Tell the doctor about presence of any symptoms (Pain, weakness, bleeding, etc.). | Do not tie a tourniquet in cases of snake bite.<br>Snake venom does not spread through blood.<br>Do not try to suck out poison from snake bite, or cut the wound open.<br>Do not make the patient move too much.<br>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 |
|---|---|---|---|
| | 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. Krait bites usually do not cause any local reaction*<br><br><u>Secondary infection</u>:<br><br>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.<br><br>(more specific features will be dealt with in the next section) | | |
| Animal Bite **(dog, cat, monkey and wild animals)** | | **Wound management:**<br><br>Wash the wound well with soap and running water for at least 10 minutes.<br><br>Bandage the wound with sterile dressing. Avoid suturing the wound as far as possible. Suturing may cause rabies toxin to go into deeper tissues and increase chances of higher risks.<br><br>Actively bleeding large wounds which are not controlled on pressure may be sutured with minimum, loose and superficial sutures.<br><br>Apply antiviral such as betadine on the wound.<br><br>Give a single dose of tetanus toxoid 0.5ml Intramuscular.<br><br>Give anti-inflammatory analgesic tablet such as Paracetamol, or Ibuprofen for pain.<br><br>Give antibiotic such as capsule amoxicillin 500 mg TDS for five days for open and lacerated wounds.<br><br>Administer anti-rabies vaccine and rabies immune globulin.<br><br>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: | Do not apply turmeric/ limestone/ chili powder/ leaves or paste/ bark/ coin over the wounds. |

| Type of Bite | Presenting Symptoms | Treatment | What NOT TO DO |
|---|---|---|---|
| | | ▪ If the dog no longer eats<br>▪ If the dog no longer barks<br>▪ Shivers, becomes aggressive, barks at those it knows<br>▪ Has convulsions or has abnormal behaviour<br>▪ If the dog has died or was killed, send the carcass to the nearest veterinary dispensary for investigation. | |

## 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 |

### Animal Bite

In India, rabies is endemic and is spread to humans through bites, scratches and licks of infected animals. Rabies is a 100% fatal condition and causes death within hours. Most commonly spreads in India through dogs and hence every bite by any dog should be reported. There is no specific treatment for rabies once it has developed; prevention is the best strategy.

Animal bites/exposure are of three categories:

| Category | Type of Contact | Type of exposure | Management |
|---|---|---|---|
| I | Touching or feeding of animals Licks on intact skin | None | None, if reliable history is available |
| II | Nibbling of uncovered skin Minor scratches or abrasions without bleeding | Minor | Wound management Ani rabies vaccine |
| III | i. Single or multiple transdermal bites or scratches<br>ii. Licks on broken skin<br>iii. Contamination of mucous membrane with saliva | Severe | Wound management Rabies immunoglobulins Anti rabies vaccine |

**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** which can cause allergic skin reactions

These 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:

### 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

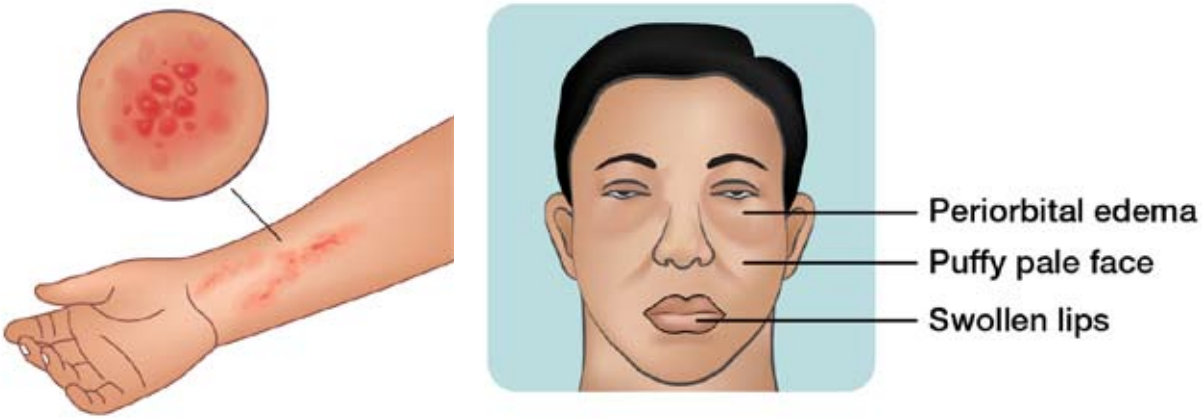
4. Physical stimuli, such as pressure, cold, heat, exercise or sun exposure.
5. Blood transfusion
6. Latex
7. Bacterial infection, includes UTI & streptococcal infection
8. Viral infection, including common cold, infectious mononucleosis & hepatitis.
9. Pet dander
10. Pollen
11. Some plants, such as 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.

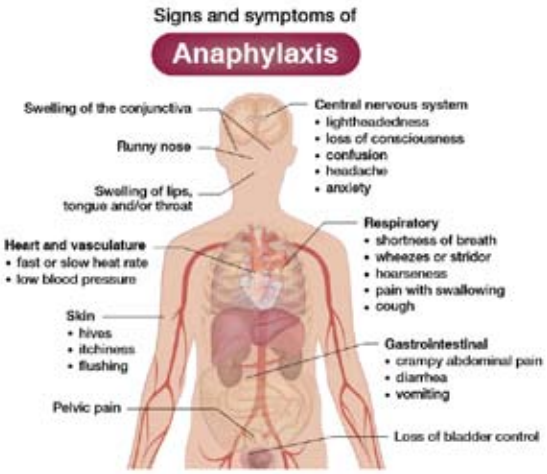
### Clinical features:

- 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 (picture below).



### First-Aid Treatment:

- Administration of 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. *Don't 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, lab tests or imaging early required.
- Short term – resolves within days to week.

### Clinical features:

- Raised itchy lesions, either red or skin-coloured.
- Blanching (when pressed, the centre of a red hive turns white)
- Hives can appear on any part of the body, they may change shapes, move around, disappear & reappear over short period of time.

## 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 (5mg/kg body weight).
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,** follow the necessary referral protocol**.**

**REMEMBER**

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

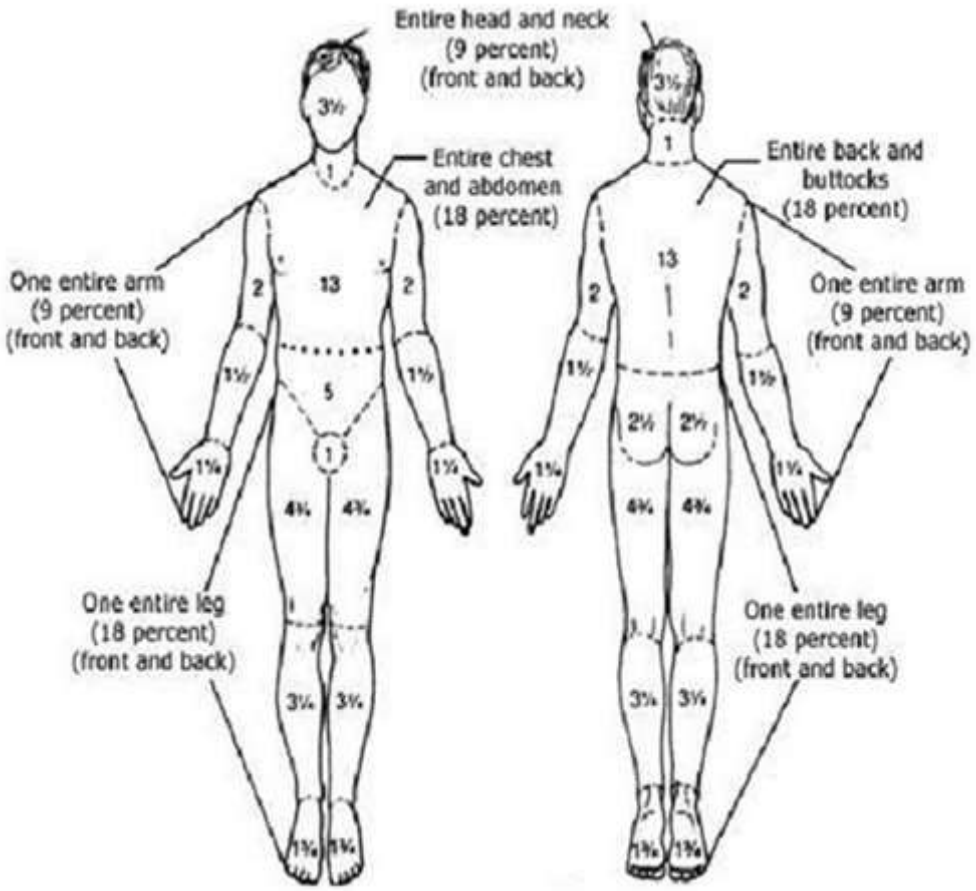
- If the patient is able to speak, a thorough history of what caused the allergy should be taken so that it can be avoided in future.
- You could ask the patient if the cause of the allergy is any of the above mentioned allergens that the patient might have come in contact with.
- If not, you should 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

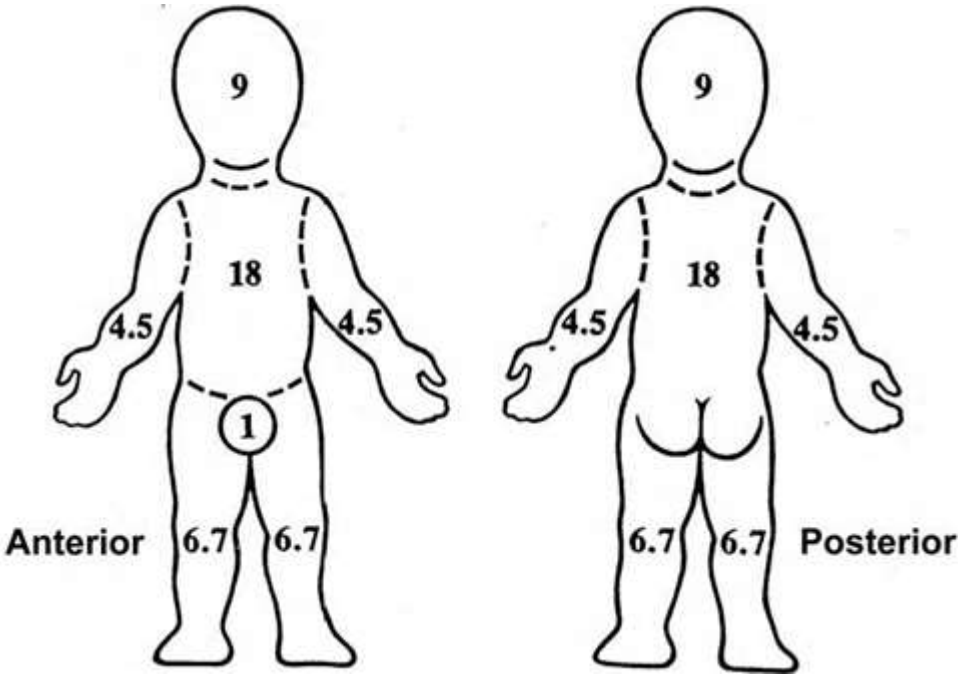
## d. Burns

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 come from 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

Assessing surface area of burns is done to estimate the amount of fluid loss that has occurred, and is the basis for IV fluid regimen following burns. Surface area of burns is assessed using Rule of Nine in adults and Lund and Browder chart in children.






### Depth of burns:

First degree: Epidermal loss only, superficial layers of skin are involved

Burn wound is 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 dressings on superficial burns
- In deep burns - dress the wound with non-adherent layer and then 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 1 liter of fluid bolus initially, for shock if required, followed by maintenance IV fluids.

For severe burns, assist the MO I/C in further course of treatment.

**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 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 eighth 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 descending down into airway or esophagus and stomach. The airway may get blocked and patient could die 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**).

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

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

e) Check the mouth for any 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:**

**a) Stand behind the person.** Wrap your arms around the waist of the person and tip the 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.


**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**

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

b) Tap the 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 (like 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)

d) If small objects like 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, needing 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.

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, stabilizing the victim and initiating further treatment including observation for improvement/deterioration of health and hence, history taking is very important whether from the victim or first responder/accompanying person.

### Types of poisoning and their first aid treatment

The various common types of poisoning and their first aid treatment are mentioned below. The first assessment of the poison is presence of history of ingestion/inhalation.

Careful history taking from the victim/attender/ASHA/ANM/CHO if they have already taken history should be done.

| Types | Signs and Symptoms | Treatment |
|---|---|---|
| **Acid Poisoning**<br>▪ It can be suicidal or homicidal or accidental.<br>▪ 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.<br>▪ Burning in the mouth, throat and stomach often followed by heavy vomiting.<br>▪ Absence of ulcers or injuries in mouth or throat does not rule out corrosive poisoning.<br>▪ Diarrhoea and intense thirst.<br>▪ In severe cases, patient may be unconscious, or have signs and symptoms of asphyxia, shock or seizure | **1. General**<br>Assess consciousness level and ABCDE<br>**2. Specific**<br>▪ Do not induce vomiting.<br>▪ Do not put Nasogastric tube (NG Tube) or try to remove contents from stomach, as it may further cause more corrosive injury.<br>▪ Assist the MO I/C and follow the necessary referral protocol as needed. |
| **Alkali Poisoning**<br>▪ It can be also suicidal or accidental.<br>▪ Alkalis commonly used are ammonia, potassium hydroxide and sodium hydroxide, bleachers, detergents washing soda. | ▪ Features are mostly similar to acid poisoning.<br>▪ Membrane of the mouth may be white and swollen.<br>▪ There may be soapy appearance in the mouth.<br>▪ Absence of ulcers or injuries in mouth or throat does not rule out corrosive poisoning.<br>▪ Abdominal pain<br>▪ Vomiting may contain blood and mucous. | **1. General:**<br>Assess consciousness level and ABCDE<br>**2. Specific:**<br>▪ Do not induce vomiting.<br>▪ Do not put Nasogastric tube or try to remove contents from stomach, as it may further cause more corrosive injury. |
| **Common Indian Plant Poisoning**<br>a. Castor Oil Plant<br>▪ Poisoning is common among children. | ▪ Pain in throat and abdomen<br>▪ Nausea<br>▪ Vomiting<br>▪ Diarrhoea | ▪ Give plenty of water<br>▪ NG tube placement and emptying of stomach contents with saline stomach wash would be useful, if patient presents within 3-4 hours of ingestion.<br>▪ If patient is hemodynamically stable and fully conscious, then give only symptomatic treatment and observe. |
| b. Dhatura (Safed dhatura and kala dhatura)<br>▪ Dried leaves and dried seeds are used as poisons.<br>  | ▪ Bitter taste, dry mouth and throat<br>▪ Burning pain in the stomach<br>▪ Difficulty in swallowing and talking<br>▪ Giddiness, ataxia, intoxication<br>▪ Dry hot skin, rise in temperature<br>▪ 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 | Signs and Symptoms | Treatment |
|---|---|---|
| c. Aconite: (Mitha Zahar, Dudhia Vish)  | ▪ Severe burning and tingling of lips, mouth, tongue and throat<br>▪ Dysphagia<br>▪ Salivation<br>▪ Vomiting<br>▪ Abdominal colic<br>▪ Vertigo<br>▪ Muscle spasm and twitching<br>▪ Impairment of vision | Same as above |
| **Mushroom**  | ▪ Pain in abdomen<br>▪ Vomiting and diarrhoea<br>▪ Urine may contain blood<br>▪ Cyanosis, rapid pulse, convulsions<br>▪ Headache, giddiness, cramps, visual disturbances<br>▪ Coma | ▪ Same as above |
| **Metal Poisoning**<br>a. Lead | ▪ Metallic taste in mouth<br>▪ Nausea and abdominal pain<br>▪ Vomiting<br>▪ Stools may be bloody dark in colour<br>▪ Headache, drowsiness, cramps, convulsions, numbness<br>▪ In chronic poisoning, blue line is seen on gums | ▪ same as above |
| b. Mercury | ▪ Metallic taste in mouth<br>▪ Burning pain in mouth and stomach<br>▪ Tongue and throat is corroded with grey white coating<br>▪ Nausea and vomiting<br>▪ Stools may be bloody dark in colour<br>▪ Headache, convulsions, numbness | ▪ same as above |
| **Organic Chemical Poisoning**<br>a. DDT | ▪ Nausea, vomiting, vertigo, tremors<br>▪ Convulsions<br>▪ Coma<br>▪ Respiratory failure<br>▪ Pain in abdomen<br>▪ Vomiting<br>▪ Tremors<br>▪ Ataxia<br>▪ Convulsions | ▪ Same as above |

| Types | Signs and Symptoms | Treatment |
|---|---|---|
| a. Organophosphorus Compounds<br>▪ Used as pesticides and insecticides in agriculture and homes<br>▪ Very lethal<br>▪ Used in suicidal and homicidal purpose | ▪ Characteristic smell<br>▪ Nausea and vomiting<br>▪ Pain in abdomen, diarrhoea<br>▪ Lacrimation, sweating and bronchial secretions<br>▪ Difficulty in breathing<br>▪ Blurring of vision<br>▪ Pin-pointed pupil<br>▪ Abdominal cramps<br>▪ Confusion, convulsions, coma | ▪ Given below |
| a. Cyanide<br>Very lethal poison<br>Used as inhalation or ingestion | ▪ Headache, dizziness<br>▪ Nausea, hypotension<br>▪ Dyspnoea, drowsiness<br>▪ Convulsions, cyanosis<br>▪ Unconsciousness<br>▪ Foam in the mouth<br>▪ Respiratory failure<br>▪ Characteristic smell of bitter almonds | ▪ Assess hemodynamic stability, resuscitation as indicated<br>▪ Assist the MO I/C and follow the necessary referral protocol as needed. |
| 1. Alcohol Poisoning | ▪ Smell of alcohol<br>▪ Vomiting, Convulsions<br>▪ Slurred speech<br>▪ Inco ordination<br>▪ Double vision<br>▪ Visual impairment<br>▪ Flushing of face<br>▪ Rapid pulse<br>▪ Dilated pupils<br>▪ Shallow breathing | ▪ Assist the MO I/C and follow the necessary referral protocol as needed |

## Organophosphate Poisoning

Organophosphate poisoning is very common is villages where farming is a major occupation. However, it is also it is also widely common for its 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, is also extremely fatal and the principles of treatment include:

Any patient with significant **hypoxia, bradycardia** (resting heartbeat of below 60 Beats per Minute) and/or Hypotension

↓

Treat with **oxygen and atropine** (2mg) IM immediately

↓

Repeat **atropine** every 5 minutes until secretions are minimal

↓

(Clear lungs, heart rate > 80BPM, adequate blood pressure)

Observe the victim. Assist the MO I/C and follow the necessary referral protocol as needed.

## 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 the 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 PHC-HWC | Treatment at PHC-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 events that happened during last episode of seizure, and confirm if it is seizure or not.<br>2. **Observe** carefully if patient has similar on-going activity in front of you and identify if it is seizure or any other abnormal movement.<br>3. **Check** previous clinical records of patient if available.<br>4. **Discuss** the care and assist the MO I/C and follow the necessary referral protocol as needed. | **1. Rule out** other common causes of seizures as infections, congenital defects<br>**2. Check** and treat hypoglycaemia<br>**3. Follow** instructions and assist the MO I/C and follow the necessary referral protocol as needed<br>**4. Instruct** family to give medicines regularly & correctly to the patient. |

| No. | History | Possible Diagnosis | Confirmation of Diagnosis at PHC-HWC | Treatment at PHC-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<br>2. Examine for site and extent of injury | 1. Manage (H)ABCDE first and stabilise the patient with severe injuries and bleeding<br>2. Assist the MO I/C and follow the necessary referral protocol or prepare plan of management as needed. |
| 3. | Fever since few hours to days, with or without headache, vomiting and skin rash, with one or more episodes of seizures | Infections:<br>Cerebral Malaria<br>Meningitis (Virus/Bacteria/ Others) | 1. RDT kits for malaria, presence of splenomegaly, hepatomegaly, dark & cola coloured urine, shock.<br>2. Rule out hypoglycaemia<br>3. Signs of raised intracranial pressure (projectile vomiting, neck rigidity) | 1. Management of ABCDE and assisting MO I/C in treatment plan.<br>2. Manage ABCDE first, discuss with PHC MO, then give first dose of IV antibiotic and refer<br>3. 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,<br>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.<br>2. Rule out malaria, hypoglycaemia by blood tests and<br>3. Examine in detail to rule out presence of any infections or other causes of seizures | 1. Give inj. Paracetamol 10mg/ kg or<br>Syrup. paracetamol 0.6ml/ kg or 15mg/kg<br>2. Give cold sponging to child<br>3. Observe for recurrence of episodes of seizures<br>4. Discuss with PHC MO<br>5. Counsel parents well, referral is mostly not needed if diagnosis is sure. |
| 4. | History of delayed cry at the time of birth, or history of similar episodes of seizures, history of delayed development in childhood | Congenital defects | 1. Confirm episode of seizure based on history of events during the episode<br>2. Thorough examination from head to toe to rule out presence of birth defects, like cleft palate, abnormal heart sounds, | Assess ABCDE,<br>Rule out presence of any infection, hypoglycaemia and assist MO I/C in treatment plan. |
| 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<br>Mild hypoglycaemia- RBS <70mg/dl<br>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 PHC-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 assist MO I/C in planning 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 assist MO I/C in further assessment.

Counselling of parents/ attendants of the patient regarding the cause likely cause of seizure, its complications and assist MO I/C.

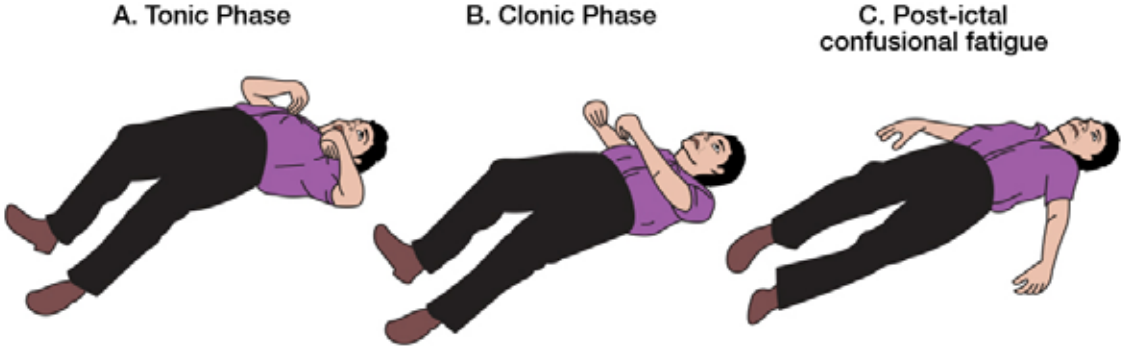
Status epilepticus: the seizure lasts longer than 5 minutes or when seizures occur close together and the person does not recover between seizures. This is a life threatening and severely debilitating condition and needs urgent medical care.

| |
|---|
| 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%<br>Check RDK/Blood smear for malaria |
| Give supplemental oxygen |
| ⬇ |
| Give rectal Diazepam (10mg for adults, 0.3-0.5 mg/kg in children) |
| Continously monitor, follow referral protocol wherever needed, counsel attendants<br>Inform referral centre about the patient beforehand |

**REMEMBER**

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

- 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 this 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

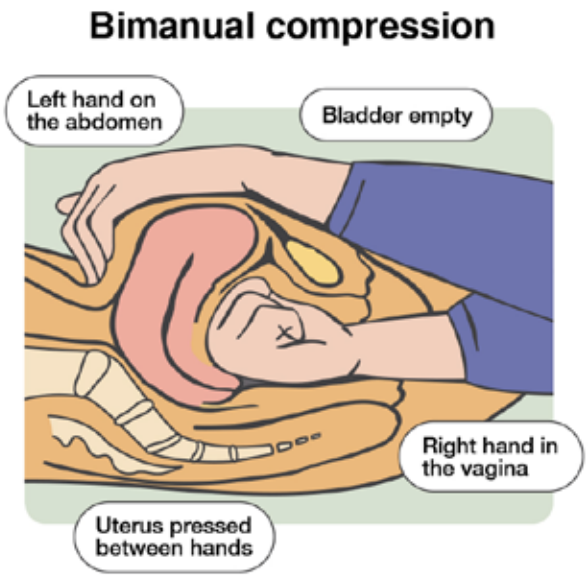
Obstetric emergencies refer to the conditions during/immediately after pregnancy which are potentially fatal for both the mother and the foetus.

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

In any cases, you should assist the MO I/C in the treatment course and also undertake the following measures yourself if and when needed.

## 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.




- 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 and raising her legs to maintain blood pressure.
- Keep the woman emotionally supported, and keep her calm.
- Follow the treatment plan as directed by MO I/C.

| Aim to maintain | Action to be taken by you |
|---|---|
| Contraction of the uterus | Apply gentle uterine massage, or two-handed compression of the uterus |
| Empty bladder | If the woman cannot urinate, insert a self-retaining catheter to drain the bladder |
| Adequate blood volume | If the woman is hemorrhaging or in shock, administer intravenous fluids |
| 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 (wherever need of referral is felt) 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 its more severe form called eclampsia. Preeclampsia is a condition where the pregnant

woman develops high blood pressure (>140/90 mm Hg). Eclampsia occurs as a complication of preeclampsia with the following symptoms:

- Severe headache
- Blurring of vision
- Swelling of hands and feet
- Upper abdominal pain
- Nausea/vomiting
- Decreased urine output
- Shortness of breath
- Seizures

Giving birth to the baby is the only definitive cure, 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, you can discuss and follow further course of treatment along as directed by MO I/C.

If the woman is presenting with seizures:

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

## Ruptured Ectopic Pregnancy

An **ectopic pregnancy** is a medical **emergency** in which a fertilized egg implants itself outside the uterus.

When an ectopic pregnancy causes a rupture, there is massive internal bleeding requiring surgery. Presence of any of the following, warrant an emergency situation and immediate stabilization and referral to a specialist should be sought.

- Sudden, severe abdominal or pelvic pain
- Dizziness or fainting
- Pain in the lower back
- Pain in the shoulders (due to leakage of blood into the abdomen affecting the diaphragm)

In every case involving the above symptoms in a pregnant woman, you should suspect ruptured ectopic pregnancy and refer to the CHC or DH (whichever is nearer), following the necessary referral protocol.

## j. Neonatal Emergencies

At the PHC-HWC level, in any type of neonatal emergencies, you should carry out ABCDE protocol, provide first-aid wherever possible and then the child should be referred 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 Illness

### 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 doing physical exertion in warm temperatures and/or humidity. Exertional heat stroke may also 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:

- It is important to initiate external 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.
- Along with the MO I/C, you should undertake stabilization of ABC with initiation of cooling measures, management of dehydration and hypotension.

Symptomatic measures:

- Seizures – manage with Diazepam or Lorazepam.
- Hypotension – must be treated 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.

- 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.

## 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:**<br>1. Shivering<br>2. Exhaustion<br>3. Confusion<br>4. Fumbling hands<br>5. Memory loss<br>6. Slurred speech<br>7. Drowsiness<br>**Infants:**<br>1. Bright red, cold skin<br>2. Very low energy | 1. Redness or pain in any skin area may be the first sign of frostbite<br>2. A white or grayish-yellow skin area<br>3. Skin that feels unusually firm or waxy<br>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.

## I. NCD related Emergencies

Non-communicable disease (especially hypertension and diabetes) 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, you should assist MO I/C in deciding treatment plan.

### ACUTE CHEST PAIN

Differential diagnosis of acute chest pain:

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

- Chest pain increasing on movements is often musculo-skeletal.
- Other causes of chest pain are due to rib-fracture (enquire history of trauma, fall) and aortic dissection, myocarditis, pericarditis.
- 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.
- 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.

## 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)
- 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 on 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.

## Treatment for cardiac chest pain at PHC-HWC

- If patient is haemodynamically unstable or in shock, start IV fluids.
- 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, diabetes, etc.
- Start oxygen by mask/ nasal prongs – 2 to 3 litres/minute and continue during transfer. Oxygen is a supportive treatment; should be given to everyone, even though patient is not hypoxic. Assisted breathing should be given with AMBU bag, if needed.
- Give tablet glyceryl trinitrate 0.5 mg sublingual. It helps in decreasing workload of heart and pain. It can be repeated by giving 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
- Systolic bp < 90mmhg
- Pulse < 50/minute

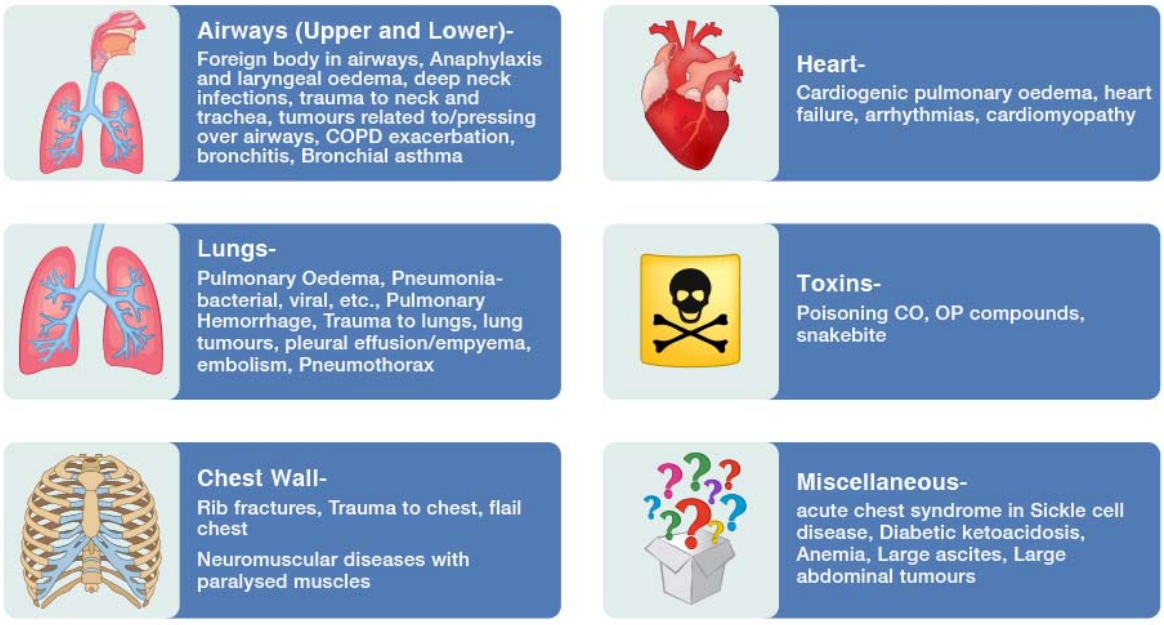
In all the above cases, nitrates will induce more hypotension and lead to shock.

- Tablet Aspirin 300 mg + Tablet Atorvastatin 80 mg orally is to be administered, if available.
- Insert IV cannula, monitor vitals frequently, pulse, BP every 15 min. and $SpO_2$ continuously and look any signs of shock.

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 of onset of symptoms.

## ACUTE BREATHLESSNESS/DYSPNOEA

Dyspnoea is the 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.

If a case of acute breathlessness presents to you, take history for foreign body ingestion, poisoning, existing COPD, heart disease, hypertension, diabetes, trauma to chest, exposure to known allergen.

Start Oxygen therapy, stabilize the patient and assist MO I/C in further treatment plan.

## 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) |
|---|---|---|
| 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

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

Some of the major signs and symptoms reported by 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 the time of the day from when all the features of stroke started to appear.*

Diagnosis of stroke is mostly clinical depending on symptoms and signs. But for treatment of stroke to save the affected parts of 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 to 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). 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. Follow the necessary referral protocol in case of high blood pressure and arrange for referral of patient to DH; this is because sudden hypotension from antihypertensive medicines will decrease blood supply to the 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 the patient in case referral is to made.

## DIABETIC EMERGENCIES

Diabetic emergencies include both 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 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 | 1. Dry mouth |
| 2. Sweating | 2. Increased thirst |
| 3. Mental confusion | 3. Weakness |
| 4. Dizziness or unconsciousness | 4. Headache |
| 5. Headache | 5. Severe dehydration |
| | 6. Nausea and abdominal discomfort |
| | 7. Severely high blood sugar levels can cause coma |

Management:

- Both hypoglycemia and hyperglycemia may present with similar symptoms/ unconsciousness.
- If a known diabetic patient with the above mentioned symptoms presents to you, administer glucose orally, or IV DNS if patient is unconscious.
- In case of hypoglycemia, the symptoms will reverse immediately.
- If symptoms do not reverse, suspect Diabetic Coma caused by severe hyperglycemia.

## 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 to you 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.

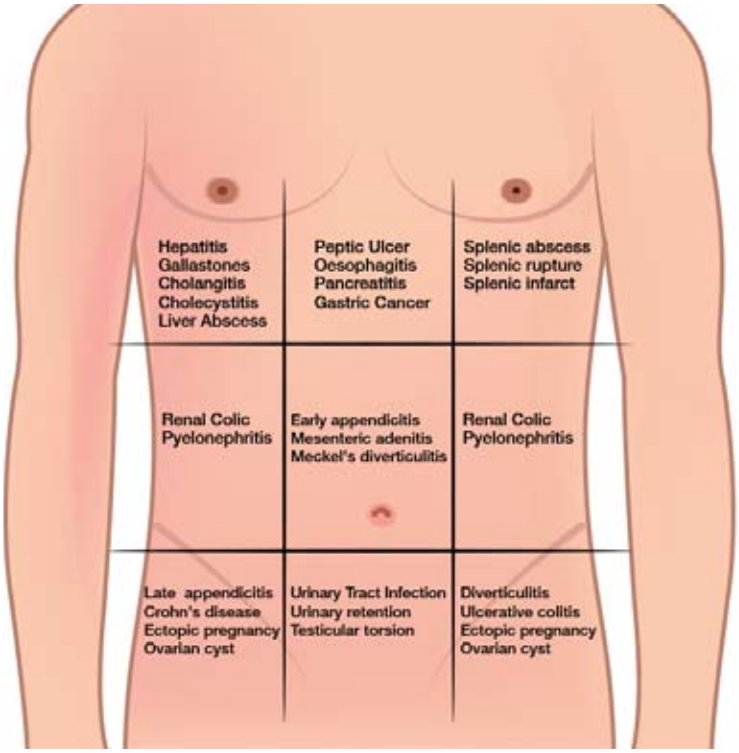
### Presentations requiring urgent surgery

- Internal abdominal bleeding

The most common causes include:

- Ruptured abdominal aortic aneurysm
- Ruptured ectopic pregnancy
- Blunt trauma to the abdomen

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




### Perforation

The causes of perforation include:

- Peptic ulceration
- Small or large intestine obstruction
- Typhoid
- Inflammatory bowel disease.

### Peritonitis

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

Clinical features:

- 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 hypotension
- A completely rigid abdomen with percussion tenderness
- Involuntary guarding**,** the patient involuntarily tenses their abdominal muscles when you palpate the abdomen

### Ischaemic Bowel

- 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.

### Acute appendicitis

Acute pain in the abdomen around the umbilicus which then localizes in the right iliac fossa. Ruptured appendicitis has additional features of hypovolemic shock.

### 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.

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

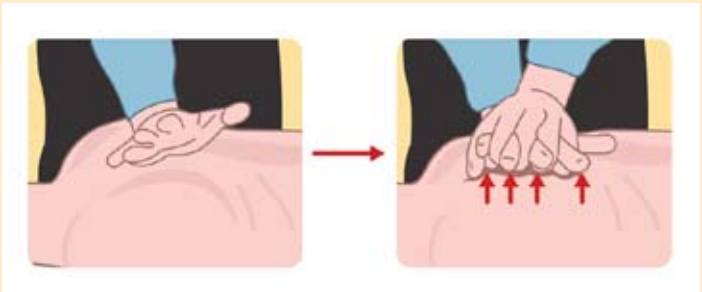
## References


1. Walker BR, Colledge NR, Ralston SH, Penman ID. Davidson's Principles and Practice of Medicine. 22nd ed. Churchill Livingstone Elsevier; 2014. 596 p.
2. Williams N, O'Connell PR, McCaskie AW. Bailey and Love's Short Practice of Surgery. 27th ed. Boca Raton, Florida: CRC Press, Taylor & Francis Group; 2018. 624 p.

# Annexures

## Annexure I: Cardiopulmonary Resuscitation (CPR)

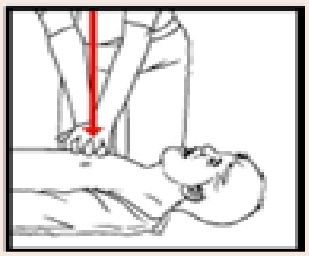
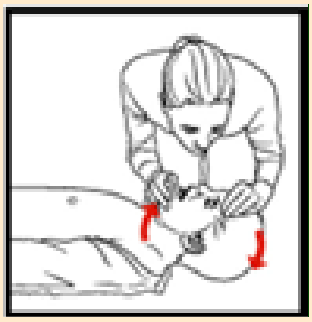
### CPR in adults: Hands-only CPR

| 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 1 | Kneel by the side of the victim | |
|---|---|---|
| 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 minimum 100 to 120 compressions per minute (a little less than 2 compression a second). | |
| Step 8 | Compression and Release should take equal amount of time. | |

## CPR in adults with rescue breaths

(**Caution**: Rescue breaths (mouth-to-mouth) carries a risk of spread of infection, considering the COVID-19 pandemic)

| | |
|---|---|
|  | 1. Use the heel of one or two hands for chest compression.<br>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. |

CPR in Children

| Step 1 | **Shout and Tap**<br>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**<br>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**<br>Open the airway using a head tilt lifting of chin. Do not tilt the head too far back. |  |
| Step 4 | **Give 2 Gentle Breaths**<br>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.<br>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.**

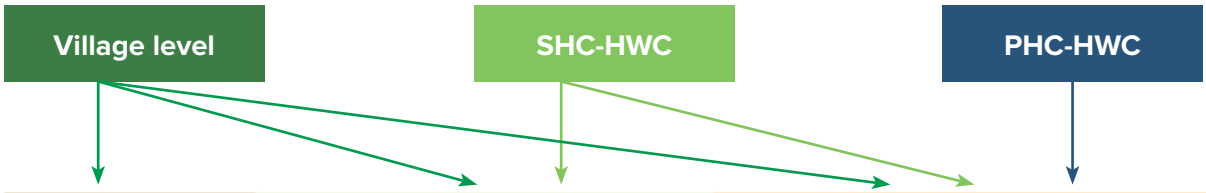
CPR in Infants:

For checking the pulse in infant, Brachial pulse is preferred –it can be felt in the middle of upper arm on the medial side.

1. Identify inter-mammary line
2. Press with two fingers just below the centre of the inter-mammary line.
3. Compress chest by 1/3 to 1/2 of the depth of the chest (about one and a half inches). Give 15 gentle chest compressions at the rate of at least 100 per minute.
4. Open the airway using a head tilt lifting of chin. Do not tilt the head too far back.
5. 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.

**Caution:** Breaths can be omitted during pandemic times and hands-only CPR may be performed.

## 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 PHC-HWC

| S.No. | Medicine Name | Remarks | Caution (If any) |
|---|---|---|---|
| | **Anesthetics Agent** | | |
| 1 | Oxygen gas for inhalation | | |
| 2 | Lignocaine Injection 2% Lignocaine Topical form 2% | | |
| 3 | Lignocaine Injection 2% + Adrenaline Injection 1:200000 (5 mcg/ml) | | |
| 4 | Atropine Injection 0.6 mg/ml Atropine Injection 1 mg/ml | | |
| 5 | Midazolam Injection 1 mg/ml | | |
| 6 | Ketamine Injection 10 mg/ml | **Schedule X** (prescription shall be in duplicate and one copy of which shall be retained by the licensee for a period of 2 Years). | Should be stored in lock and key |
| 7 | Injection Thiopentone 500mg | | |
| 8 | Bupivacaine Injection (Sensorcain) 0.5 mg | | |
| 9 | Neostigmine Injection 0.5 mg/ml | | |
| 10 | Vecuronium Powder for Injection 4 mg | | |
| 11 | Pentazocine Injection 30 mg/ml | **Schedule H1** (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded). | |
| | **Analgesics, antipyretics, non-steroidal anti-inflammatory medicines, medicines used to treat gout and disease modifying agents used in rheumatoid disorders** | | |
| 12 | Asprin (Acetylsalicylic acid) Tablet 150 mg<br>Asprin (Acetylsalicylic acid) Tablet 75 mg | | Not to be used in suspected dengue patients and other clinical conditions without prescription |
| 13 | Diclofenac Tablet 50 mg Diclofenac Injection 25 mg/ml | | |
| 14 | Ibuprofen Tablet 200 mg | | Not to be used in suspected dengue patients and other clinical conditions without prescription |
| 15 | Ibuprofen Oral Liquid 100mg/5ml, 50ml bottle | Recommended by RBSK Program Division | Not to be used in suspected dengue patients and other clinical conditions without prescription |

| S.No. | Medicine Name | Remarks | Caution (If any) |
|---|---|---|---|
| 16 | Paracetamol Tablet 500 mg, Paracetamol Tablet 100 mg Paracetamol Syrup 125 mg/5 ml Paracetamol Suppository 100 mg | | |
| | **Anti-allergics and medicines used in anaphylaxis** | | |
| 17 | Levocetirizine Tablet 5mg Levocetrizine Oral liquid 2.5 mg/5 ml (Paediatric Use) | | |
| 18 | Chlorpheniramine Tablet 4 mg | | |
| 19 | Dexamethasone Tablet 0.5 mg Dexamethasone Injection 4 mg/ml | | |
| 20 | Hydrocortisone Succinate Injection 100 mg | | |
| 21 | Pheniramine Injection 22.75 mg/ml | | |
| 22 | Prednisolone Tablet 5 mg Prednisolone Oral liquid 5 mg/5 ml | | |
| 23 | Hydroxyzine oral syrup | | |
| 24 | Betamethasone Injection 4mg per 1ml in 1ml ampoule | | |
| | **Anti-dotes and other substances used in poisoning** | | |
| 25 | Activated charcoal | | |
| 26 | Calcium gluconate Injection 100 mg/ml | | |
| 27 | Snake venom antiserum Injection | | |
| | **Anti-convulsants/Anti-epileptics** | | |
| 28 | Magnesium Sulfate Injection (50% solution), 2ml ampoule | | |
| 29 | Diazepam Oral liquid 2 mg/5 ml Diazepam Injection 5 mg/ml Diazepam Tablet 5mg | Schedule H1 (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded). | |
| 30 | Phenobarbitone Tablet 30 mg Phenobarbitone Oral liquid 20 mg/5 ml | | |
| 31 | Phenytoin Tablet 50 mg Phenytoin Tablet 300 mg Phenytoin ER Tablet 300 mg Phenytoin Injection 25mg/ml | | |
| 32 | Sodium valproate Tablet 250 mg Sodium valproate Tablet 500 mg Sodium valproate Syrup each 5ml contains 200mg | | |
| 33 | 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) |
|---|---|---|---|
| 34 | Carbamazepine Tablet 100 mg Carbamazepine Tablet 200 mg | | |
| 35 | Diphenylhydantoin Tablet 100 mg | | |
| | **Intestinal Anthelmintics** | | |
| 36 | Albendazole Tablet 400 mg Albendazole Oral liquid 200 mg/5 ml | | |
| | **Anti-filarial** | | |
| 37 | Diethylcarbamazine Tablet 100 mg Diethylcarbamazine Oral liquid 120 mg/5 ml | | |
| | **Anti-bacterial** | | |
| 38 | Amoxicillin Capsule 250 mg Amoxicillin Capsule 500 mg Amoxicillin Oral liquid 250 mg/5ml | | |
| 39 | Amoxicillin 500 mg + Clavulanic acid 125 mg Tablet | | |
| 40 | Azithromycin Tablet 250 mg Azithromycin Tablet 500 mg Azithromycin Oral liquid 200 mg/5ml | | |
| 41 | Ciprofloxacin Tablet 250 mg Ciprofloxacin Tablet 500 mg Ciprofloxacin Oral liquid 250 mg/5ml | | |
| 42 | Cefixime Tablet 200 mg Cefixime Oral liquid 50 mg/5 ml Cefixime Oral liquid 100 mg/5 ml | **Schedule H1** (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded). | |
| 43 | 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 ] | | |
| 44 | Gentamicin Injection 10 mg/ml Gentamicin Injection 80 mg/ml | | |
| 45 | Doxycycline Capsule 100 mg Doxycycline Dry Syrup 50mg/5 ml | | |
| 46 | Norfloxacin tab/oral liquid | | |
| 47 | Penicillin V Tablet 250mg | | |
| 48 | Benzyl penicillin Powder for Injection 10 lac units | | |
| 49 | Cefazolin Injection 500 mg Cefazolin Injection 1gm | | |
| 50 | Cefotaxime Injection 250 Cefotaxime Injection 500 mg Cefotaxime Injection 1 g | **Schedule H1** (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded). | |

| S.No. | Medicine Name | Remarks | Caution (If any) |
|---|---|---|---|
| 51 | Ceftriaxone Injection 250 Ceftriaxone Injection 500 mg Ceftriaxone Injection 1 g | **Schedule H1** (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded). | |
| | **Anti-leprosy medicines** | | |
| 52 | As per current program guidelines (Adults and Pediatrics) | | |
| | **Anti-tuberculosis medicines** | | |
| 53 | As per current program guidelines (Adults and Pediatrics) | | |
| | **Anti-fungal medicines** | | |
| 54 | Clotrimazole Pessary 100 mg Clotrimazole Vaginal Tablet<br>Clotrimazole Drops 1%<br>Clotrimazole Cream 1% | | |
| 55 | Fluconazole Tablet 150 mg | | |
| 56 | Miconazole ointment Miconazole Tablet | | |
| | **Anti-protozoal medicines** | | |
| 57 | Metronidazole Tablet 200 mg Metronidazole Tablet 400 mg Metronidazole Oral liquid 200 mg/5 ml | | |
| | **Anti-malarial medicines** | | |
| 58 | As per program guidelines (Adults and Pediatrics) | | |
| | **Medicines used in Palliative care** | | |
| 59 | Amitriptyline Tablet 10 mg Amitriptyline Tablet 25 mg | | |
| 60 | Lactulose Oral liquid 10 g/15 ml | | |
| 61 | Tramadol capsule 50 mg | **Schedule H1** (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded). | Should be stored in double lock and key |
| 62 | Povidone Iodine Lotion and Ointment | | |
| 63 | Ethamsylate Tablet | | |
| 64 | Deriphylline Tablet sustained release | | |
| | **Anti-parkinsonism medicines** | | |
| 65 | Levodopa (A) + Carbidopa (B) 100 mg (A) + 10 mg (B) | | |
| | **Anti-anemia medicines** | | |
| 66 | Ferrous salt 100 mg + Folic acid 500 mcg Tablet<br>Ferrous salt 60mg + Folic acid 500mcg Tablet<br>Ferrous salt 45 mg + Folic acid 100 mcg Tablet<br>Ferrous salt 20 mg + Folic acid 100 mcg Tablet | | |

| S.No. | Medicine Name | Remarks | Caution (If any) |
|---|---|---|---|
| 67 | Folic acid Tablet 5 mg Folic acid Tablet 400 mcg | | |
| 68 | IFA Syrup | | |
| 69 | Phytomenadione Injection 10 mg/ml | | |
| | **Cardiovascular medicines** | | |
| 70 | Clopidogrel Tablet 75 mg | | |
| 71 | Diltiazem Tablet 60 mg Diltiazem Tablet 90 mg SR | | |
| 72 | Isosorbide-5- mononitrate Tablet 5 mg | | |
| 73 | Metoprolol Tablet 25 mg Metoprolol SR Tablet 25 mg Metoprolol SR Tablet 50 mg | | |
| 74 | Isosorbide dinitrate Tablet 5mg (sublingual) | | |
| 75 | Dopamine Injection 40 mg/ml | | |
| | **Anti-hypertensive medicines** | | |
| 76 | Amlodipine Tablet 2.5 mg Amlodipine Tablet 5 mg | | |
| 77 | Enalapril Tablet 5 mg | | |
| 78 | Hydrochlorothiazide Tablet 12.5 mg<br>Hydrochlorothiazide Tablet 25 mg | | |
| 79 | Labetalol Tablet 100 mg Labetalol Injection 5mg/ml | | |
| 80 | Methyldopa Tablet 250 mg | | |
| 81 | Telmisartan Tablet 40 mg | | |
| | **Medicines used in shock and heart failure** | | |
| 82 | Adrenaline Injection 1 mg/ml | | |
| | **Hypolipidemic medicines** | | |
| 83 | Atorvastatin Tablet 10 mg | | |
| | **Dermatological medicines (Topical)** | | |
| 84 | Framycetin Cream 0.5% | | |
| 85 | Silver sulphadiazine Cream 1% | | |
| 86 | Calamine Lotion | | |
| 87 | Betamethasone Cream 0.1% | | |
| 88 | Benzoyl peroxide Gel 2.5% | | |
| 89 | Benzyl Benzoate ointment/lotion | | |
| 90 | Mupirocin Ointment | | |
| 91 | Potassium Permanganate 0.1% | | |
| 92 | Zinc Oxide cream 10% | | |
| 93 | Fusidic Acid Cream 5mg/10gm preparation 2% or 20mg per gram Fusidic Acid Cream 2%: 5mg/10mg Preparation | | |
| 94 | Pemethrin Cream 5% | | |
| | **Disinfectants and antiseptics** | | |
| 95 | Cetrimide Solution 20% (concentrate for dilution) | | |
| 96 | Chlorhexidine Solution 5% (Concentrate for dilution) | | |
| 97 | Ethyl alcohol (Denatured) Solution 70% | | |
| 98 | Hydrogen peroxide Solution 6% | | |
| 99 | Methylrosanilinium chloride (Gentian Violet) | | |

| S.No. | Medicine Name | Remarks | Caution (If any) |
|---|---|---|---|
| 100 | Bleaching powder Containing not less than 30% w/w of available chlorine (as per I.P) | | |
| 101 | Gama Benzene Hexachloride | | |
| | **Diuretics** | | |
| 102 | Furosemide Tablet 40 mg<br>Furosemide Injection 10 mg/ ml | | |
| 103 | Mannitol Injection 10% Mannitol Injection 20% | | |
| | **Ear, nose and throat medicines** | | |
| 104 | Xylometazoline Nasal drops 0.05 % Xylometazoline Nasal drops 0.1 % | | |
| 105 | Wax solvant ear drops: benzocaine, chlorbutol, paradicholorobenzene, turpentaine oil | | |
| 106 | Combo ear drop-Chloramphenicol 5% w/v +clotrimazole 1% +Lignocaine hydrochloride 2% | | |
| 107 | Normal saline nasal drops (.05%w/v) | | |
| 108 | Boro-Spirit ear drop | | |
| 109 | Ofloxacin Tablet 200 mg Ofloxacin Tablet 400 mg | | |
| | **Gastrointestinal medicines** | | |
| 110 | Omeprazole Capsule 20 mg | | |
| 111 | Ranitidine Injection | | |
| 112 | Metoclopramide Tablet 10 mg<br>Metoclopramide Oral liquid 5 mg/5ml<br>Metoclopramide Injection 5 mg/ml | | |
| 113 | Ondansetron Tablet 4 mg Ondansetron Oral liquid 2 mg/5 ml Ondansetron Injection 2 mg/ml | | |
| 114 | Domperidone Tablet 10 mg Domperidone Syrup | | |
| 115 | Hyoscinebutylbromide Tablet 10 mg<br>Hyoscinebutylbromide Injection 20mg/ml | | |
| 116 | Ispaghula Granules/ Husk/ Powder | **Herbal medicine** | |
| 117 | Drotavarin Tablet 500 mg | | |
| 118 | Bisacodyl Tablet 5 mg Bisacodyl Suppository 5 mg | | |
| 119 | Oral rehydration salts (ORS) | | |
| 120 | Zinc sulphate Dispersible Tablet 20mg<br>Zinc sulphate syrup | | |
| 121 | Dicyclomine Tablet 10 mg | | |
| 122 | Senna Powder | **Herbal medicine** | |
| 123 | Dioctyl sulfosuccinate sodium | | |
| 124 | Magnesium Hydroxide liquid | | |
| 125 | Sucralfate Tablet 10 mg Sucralfate Oral liquid 1 mg/ml | | |
| 126 | Hyoscine butylbromide Tablet 500 mg | | |
| | **Medicines used in diabetes mellitus** | | |
| 127 | Glimepiride Tablet 2 mg | | |
| 128 | Metformin Tablet 500 mg Metformin SR Tablet 500 mg | | |

| S.No. | Medicine Name | Remarks | Caution (If any) |
|---|---|---|---|
| 129 | Insulin (Soluble) Injection 40 IU/ml | | |
| 130 | Premix Insulin 30:70 Injection (Regular:NPH) Injection 40 IU/ml | | |
| 131 | Glibenclamide Tablet 2.5 mg Glibenclamide Tablet 5 mg | | |
| 132 | Glucose Packet 75 mg for OGTT Test | | |
| | **Thyroid and Anti-thyroid medicines** | | |
| 133 | Levothyroxine Tablet 25 mcg Levothyroxine Tablet 50 mcg Levothyroxine Tablet 100 mcg | | |
| | **Vaccines** | | |
| 134 | As per current National programme guidelines | | |
| 135 | Rabies vaccine | | |
| | **Oxytocic & Abortificents Medicines** | | |
| 136 | Misoprostol Tablet 200 mcg | | |
| 137 | Oxytocin Injection 5 IU/ml | | Only where deliveries are conducted |
| 138 | Nifedipine Tablet 10 mg | | |
| 139 | Methylergometrine Injection 0.2 mg/ml | | |
| | **Psychotherapeutic Drugs** | | |
| 140 | Alprazolam Tablet 0.25mg | **Schedule H1** (Separate H1 Register shall be maintained- Name of drug, patient, prescriber and dispensed quantity shall be recorded). | |
| 141 | Clonazepam Tablet 0.5mg | | |
| 142 | Olanzapine Tablet 5 mg | | |
| | **Medicines acting on the Respiratory tract** | | |
| 143 | Budesonide Inhalation (MDI/DPI) 100 mcg/dose Budesonide Respirator solution for use in nebulizer 0.5 mg/ml | | |
| 144 | Salbutamol Tablet 2 mg Salbutamol Oral liquid 2 mg/5 ml Salbutamol Respirator solution for use in nebulizer 5mg/ml | | |
| 145 | Montelukast Syrup Montelukast Tablet | | |
| 146 | Syrup Dextromethorphan | | |
| 147 | Syrup Bromhexine Hydrochloride | | |
| 148 | Syrup Pheniramine Maleate | | |
| 149 | Ipratropium Inhalation (MDI/DPI) 20 mcg/dose<br>Ipratropium Respirator solution for use in nebulizer 250 mcg/ml. | | |
| | **Solutions correcting water, electrolyte disturbances and acid-base disturbances** | | |
| 150 | Ringer lactate Injection | | |

| S.No. | Medicine Name | Remarks | Caution (If any) |
|---|---|---|---|
| 151 | Sodium chloride injection 0.9% | | |
| 152 | Pediatric solution like Isolyte P, N/2 & N/5 | | |
| 153 | Potassium chloride Oral liquid 500 mg/5 ml | | |
| 155 | Dextrose 5% Dextrose 25% | | |
| **Vitamins and minerals** | | | |
| 156 | Ascorbic acid (Vitamin C) Tablet 100 mg | | |
| 157 | Calcium carbonate Tablet 500 mg | | |
| 158 | Cholecalciferol Tablet 60000 IU | | |
| 159 | Pyridoxine Tablet 25 mg Pyridoxine Tablet 50 mg Pyridoxine tablet 100 mg | | |
| 160 | Vitamin A Oral liquid 100000 IU/ml | | |
| 161 | B Complex Tablet B Complex Injection | | |
| **Ophthalmological Medicines** | | | |
| 162 | Lignocaine Eye drop 4% | | |
| 163 | Tropicamide Drops 1% | | |
| 164 | Ciprofloxacin Drops 0.3 % | | |
| 165 | Sodium cromoglycate 2% eye drop | | |
| 166 | Methylcellulose Eye drops | | |
| **Contraceptives** | | | |
| 167 | Ethinylestradiol (A) + Levonorgestrel Tablet 0.03 mg (A) + 0.15 mg (B) | | |
| 168 | Copper bearing intra-uterine device IUCD 380A & 375 | | |
| 169 | Male Condom | | |
| 170 | Non- hormonal Ormeloxifene (30 mg Tablet) | | |
| 171 | Emergency Contraceptive Pill Levonorgestrel 1.5 mg | | |
| 172 | Medroxprogesterone Acetate Injection 150mg | | |
| 168 | Copper bearing intra-uterine device IUCD 380A & 375 | | |
| 169 | Male Condom | | |
| 170 | Non- hormonal Ormeloxifene (30 mg Tablet) | | |
| 171 | Emergency Contraceptive Pill Levonorgestrel 1.5 mg | | |
| 172 | Medroxprogesterone Acetate Injection 150mg | | |

# List of Contributors

## List of contributors from Ministry of Health and Family Welfare (MoHFW)

Dr Tanu Jain, DDG, DGHS

## List of contributors from National Health Systems Resource Centre (NHSRC)

Maj Gen (Prof) Atul Kotwal, Executive Director

Dr (Flt Lt) M A Balasubramanya, Advisor, Community Process and Comprehensive Primary Health Care

Dr Anantha Kumar S R, Senior Consultant, Community Process and Comprehensive Primary Health Care

Dr Rupsa Banerjee, Former Senior Consultant, Community Process and Comprehensive Primary Health Care

Dr Sushma Adappa, Consultant, Community Process and Comprehensive Primary Health Care

Dr Vijaya Shekhar Salkar, Junior Consultant, Community Process and Comprehensive Primary Health Care

## List of contributors from Rajiv Gandhi University of Health Sciences-JeevaRaksha

Dr S Sacchidanand, Vice Chancellor, Rajiv Gandhi University of Health Sciences

Dr Vijaybhaskar Reddy, Associate Professor University of Utah, USA & Senior instructor JeevaRaksha, Bengaluru

Dr Ram Krishnan Nair, Sr Consultant in Emergency Medicine, CEO, JeevaRaksha, Bengaluru

# 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*

**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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