Patient Assessment and Emergency Activation

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Fundamentals of First Aid and Emergency Care for Radiography

Medical Technical Radiology Department

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Student Learning Outcomes

By the end of this course, students will be able to:

1. **Define** patient assessment and **explain** its importance in emergency and critical care situations.
2. **Describe** the steps of the **systematic ABCDE approach** used in emergency patient evaluation.
3. **Identify** life-threatening conditions that require **immediate emergency activation** and intervention.
4. **Perform** an **Airway assessment**, recognizing signs of obstruction and selecting the appropriate airway management technique (head-tilt chin-lift, jaw-thrust).
5. **Assess and manage** breathing problems.
6. **Assess Mental status** using the **AVPU scale**.
7. **Conduct** a full **exposure assessment** to detect hidden injuries or environmental threats while maintaining patient privacy and preventing hypothermia.
8. **Recognize** when to **activate emergency response systems** and **prioritize rapid transfer** for patients requiring advanced or surgical care.

Rapid Assessment in Emergency Care

- The treatment of seriously ill or injured patients requires rapid assessment of illness or injuries and institution of life-preserving therapy. Because time is of the essence, a systematic approach that can be easily reviewed and practiced is most effective.
- This process is termed "**Patient Assessment**" which is an important part of emergency patient evaluation.

- Even though it may seem time-consuming, it is necessary to properly and completely examine the patient to determine what care the patient requires.
- It is required not only to detect life-threatening conditions and correct them as quickly as possible but also detect problems that may become life-threatening if they go un-noticed.

ABCDE APPROACH

- This stepwise approach is designed to ensure that life-threatening conditions can be identified and treated early, in order of priority. If a problem is discovered in any of these steps, it must be addressed immediately before moving on to the next step.

- The ABCDE approach should be performed in the first 5 minutes and repeated whenever a patient’s condition changes or worsens.

ABCDE APPROACH

- A– Airway: check for and correct any obstruction to movement of air into the lungs.
- B– Breathing: ensure adequate movement of air into the lungs.
- C– Circulation: evaluate whether there is adequate perfusion to deliver oxygen to the tissues; check for signs of life-threatening bleeding.
- D– Disability: assess and protect brain and spine functions.
- E– Exposure: identify all injuries and any environmental threats and avoid hypothermia.

Life-saving Interventions During Initial Assessment

- Unconscious or suspected cervical spine injury- immediate manual stabilization of head and neck followed by cervical immobilization.

A. Airway Assessment

- Can the patient talk normally? If YES, **the airway is open**.
- If the patient **cannot** talk normally:
- Look to see if the chest wall is moving and see if there is air movement from the mouth or nose.
- Listen for abnormal sounds (such as stridor, grunting, or snoring) or a hoarse or raspy voice that indicates a partially obstructed airway. Stridor plus swelling and/or hives suggest a severe allergic reaction (anaphylaxis).
- Look and listen for fluid (such as blood, vomit) in the airway.
- Look for foreign body or abnormal swelling around the airway, and altered mental status.
- Check if the patient is able to swallow saliva or is drooling.

Airway Management in Unconscious or Non-Breathing Patients

- **No Trauma:**
  → Open airway with **Head-Tilt & Chin-Lift Maneuver**

- **Suspected Trauma:**
  → Maintain **Cervical Spine Immobilization**
  → Open airway with **Jaw-Thrust Maneuver**

- **Maintain Airway Patency:**
  → Insert **Oropharyngeal (OPA)** or **Nasopharyngeal (NPA)** airway

Jaw thrust

Chin lift

B. Breathing Assessment

Look, Listen, and Feel for breathing.

•Assess rate and depth — **very fast, slow, or shallow**.

•Observe for **increased work of breathing:**

- Use of accessory muscles
- Chest retractions / nasal flaring
- Abnormal chest movement

Listen for breath sounds:

- **Wheezing / Crackles** → airway obstruction or fluid

Monitor oxygen saturation (SpO_2) using a **pulse oximeter**

Pulse Oximeter

Management of Abnormal Breathing

- **Unconscious + Abnormal Breathing:**
  Start **bag-valve-mask (BVM) ventilation** immediately; follow **CPR protocols**.

- **Inadequate breathing** (too slow/shallow):
  → Begin **BVM ventilation with O_2** — *don't delay if O_2 not ready*.

- **Fast breathing / hypoxia:**
  → Give **oxygen**.

- **Wheezing:**
  → Administer **salbutamol**, repeat as needed.

- **Severe allergy (anaphylaxis):**
  → Give **intramuscular adrenaline**.

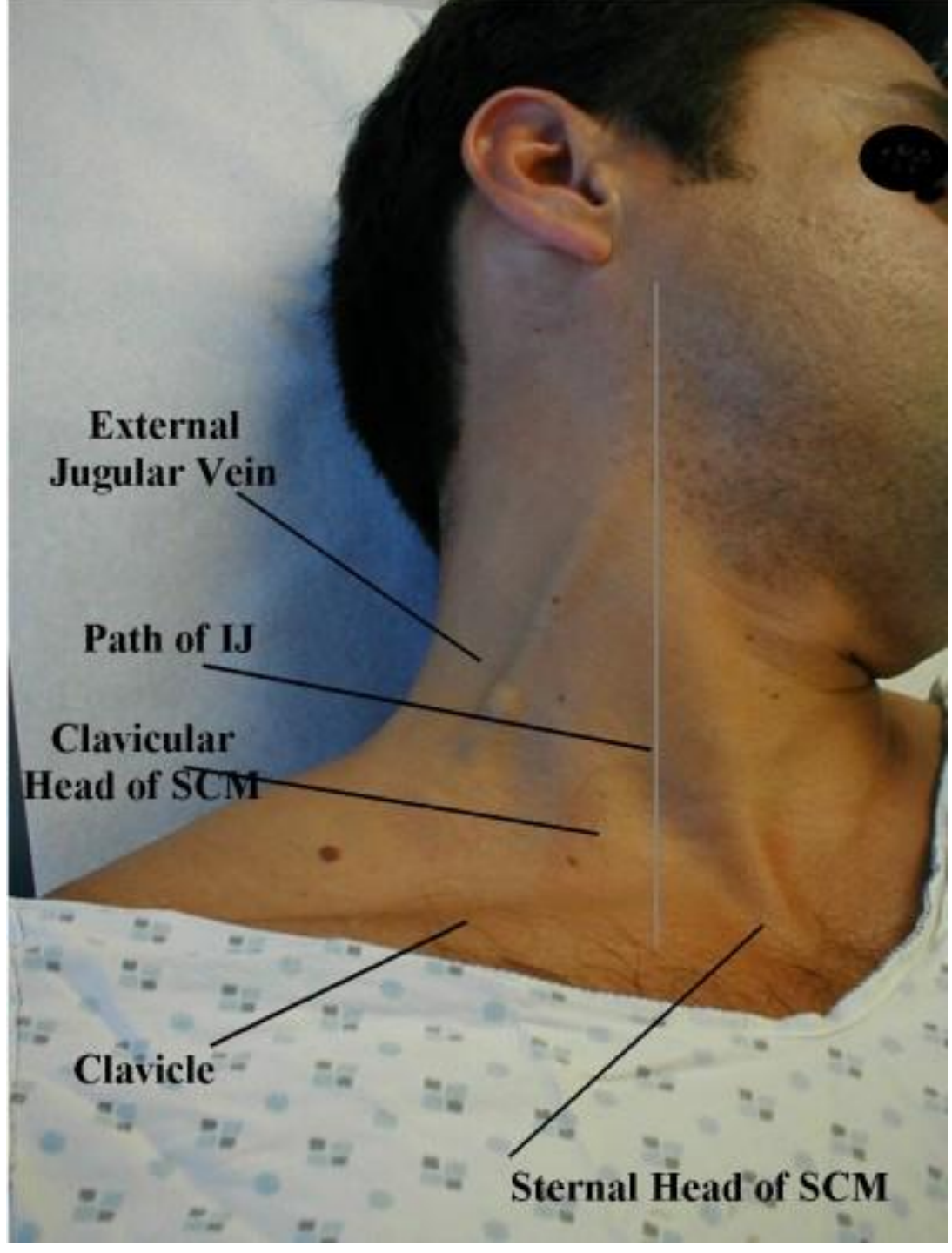
Adult Disposable Manual Resuscitator BVM

C. Circulation Assessment

- Look and feel for signs of poor perfusion (cool, moist extremities, delayed capillary refill greater than 3 seconds, low blood pressure, tachypnoea, tachycardia, absent pulses).

- Look for both external AND internal bleeding, including bleeding: into chest; into abdomen; from stomach or intestine; from pelvic or femur fracture; from wounds.

- Look for hypotension, distended neck veins and muffled heart sounds that might indicate pericardial tamponade.


External
Jugular Vein
Path of IJ
Clavicular
Head of SCM
Clavicle
Sternal Head of SCM

Circulation Management

- For cardiopulmonary arrest, follow relevant CPR protocols.
- If signs of poor perfusion, give IV fluids and oxygen and:
    - ❖ For external bleeding, apply direct pressure or use other technique to control.
    - ❖ If internal bleeding or pericardial tamponade are suspected, refer rapidly to a center with surgical capabilities.
- If cause unknown, remember the possibility of trauma: Bind pelvic fractures and splint femur fractures, or any fracture with compromised blood flow.

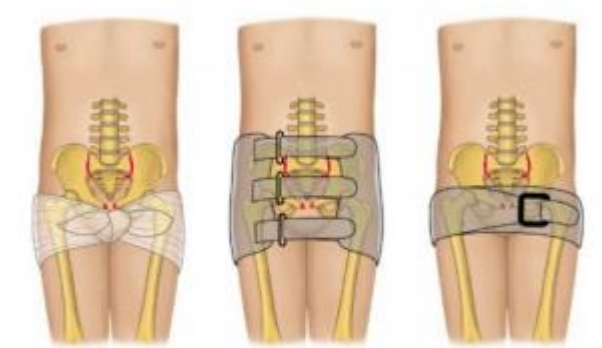
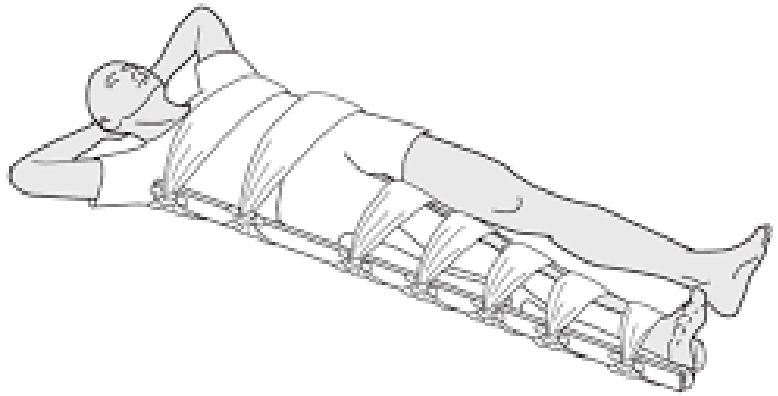


Figure 8. Pelvic Binding[15]



AO

D. Disability Assessment

- Assess level of consciousness with the AVPU scale (Alert, Voice, Pain, and Unresponsive) or in trauma cases, the Glasgow Coma Scale (GCS).
- Always check glucose level in the confused or unconscious patient.
- Check for pupil size, whether the pupils are equal, and if pupils are reactive to light.
- Check movement and sensation in all four limbs.
- Look for abnormal repetitive movements or shaking on one or both sides of the body (seizure/convulsion).

Glasgow Coma Scale (GCS)

GLASGOW COMA SCALE

Behaviour	Response
 Eye Opening	4. Spontaneously 3. To speech 2. To pain 1. No response
 Verbal Response	5. Oriented to time, person & place 4. Confused 3. Inappropriate words 2. Incomprehensible 1. No response
 Motor Response	6. Obeys command 5. Moves to localised pain 4. Flex to withdraw from pain 3. Abnormal flexion 2. Abnormal extension 1. No response

Disability Management

- No trauma: Place in recovery position.
- Low or unknown glucose: Give glucose immediately.
- Active seizures: Administer benzodiazepine.
- If pregnant: use magnesium sulphate (**mineral and electrolyte medication** for **seizures, arrhythmias, and severe asthma**).
- Slow breathing + small pupils: Suspect opioid overdose, give naloxone.
- Unequal pupils: Suspect raised intracranial pressure, elevate head 30° (if no spinal injury).
- Always plan for rapid transfer to a higher-level or neurosurgical facility.

E. Exposure Assessment

- Examine the entire body for hidden injuries, rashes, bites or other lesions.
- Rashes, such as hives, can indicate allergic reaction, and other rashes can indicate serious infection.

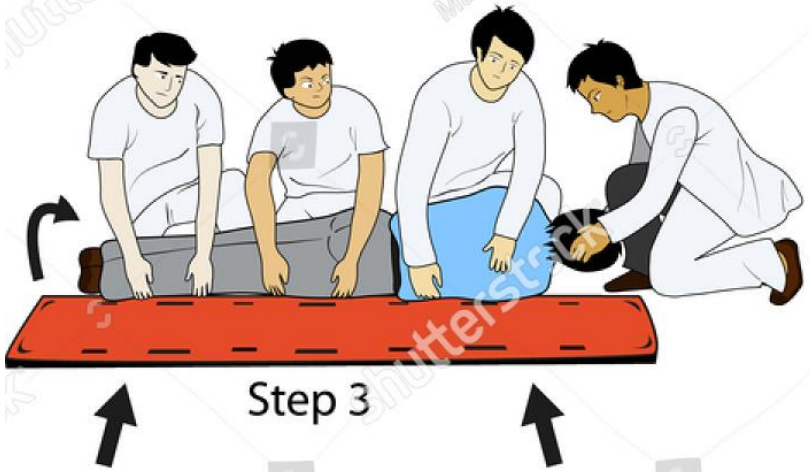
Exposure Management

- If snake bite is suspected, immobilize the limb.
- Remove constricting clothing and all jewelry.
- Cover the patient as soon as possible to prevent hypothermia. Acutely ill patients have difficulty regulating body temperature.
- Remove any wet clothes and dry patient thoroughly.
- Respect the patient and protect modesty during exposure.
- If cause unknown, remember the possibility of trauma: Log roll if suspected spinal injury.

Logroll method

Step 1

Step 2



Step 3

Step 4

ASSESSING MENTAL STATUS

- A quick assessment of the patient's mental condition can be done by following the mnemonic:
- A- Alert: awake and oriented
- V- Verbal: responds to verbal stimulus
- P- Painful: responds to painful stimulus
- U- Unresponsive