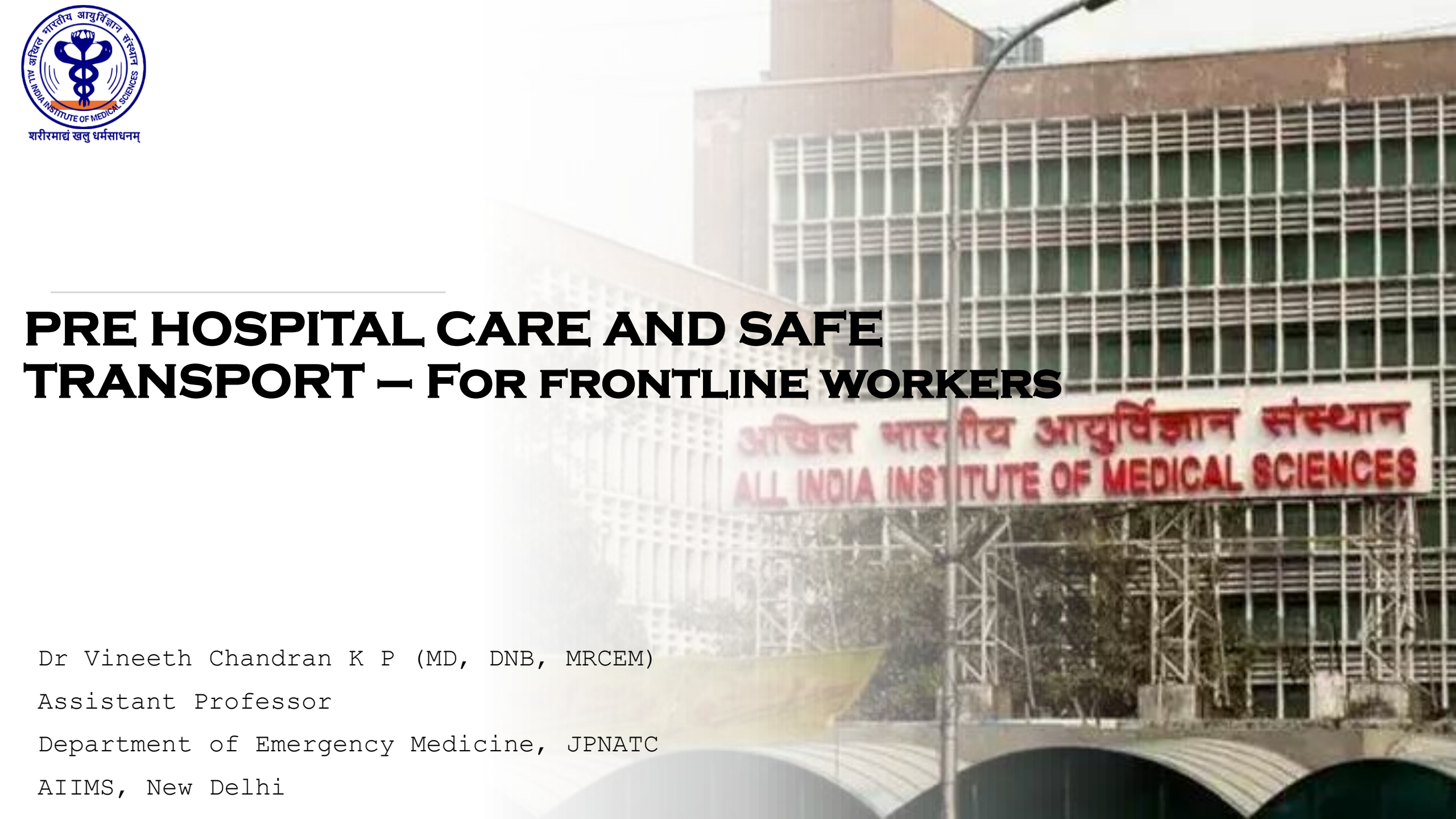
PRE HOSPITAL CARE AND SAFE TRANSPORT – For frontline workers



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Contents

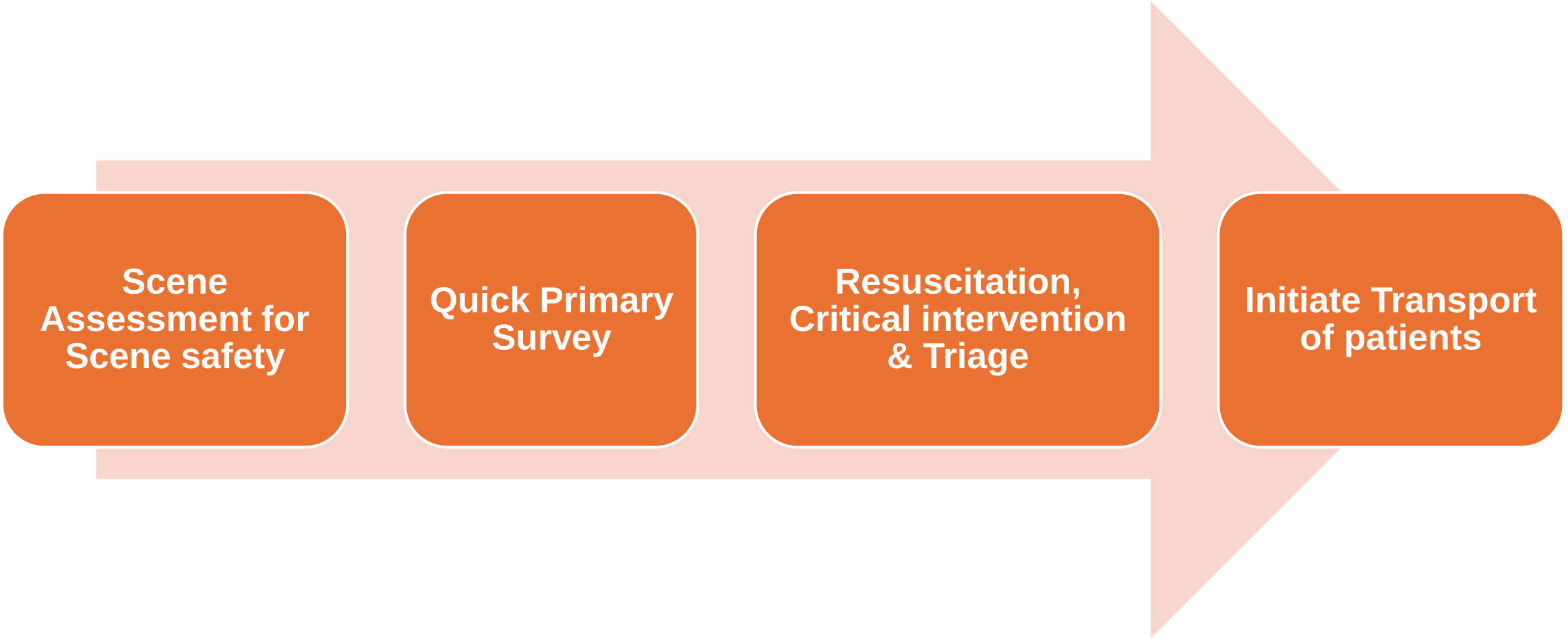
- Clinical care
  - Trauma and associated conditions
  - Cardiac and respiratory arrest
  - Bites and stings
- Administration – Triage
- Work flow pattern

CLINICAL CARE

Case scenario

- An explosion happened in nearby market
- You are deployed to that place
- You have a team of a doctor and nurse/ [illegible]
- You are seeing first case
- Middle aged man, drowsy, gurgling sounds with bleeding from left leg
- What will you do?

Pre hospital care -Approach



Pre hospital care - Approach

- Scene safety
  - Safety of the provider – universal precautions
  - Safety of the scene
  - Safety of the patient

Primary survey

X- Exsanguinating hemorrhage control

A- Airway management and cervical spine stabilization

B- Breathing (Ventilation and oxygenation)

C- Circulation (perfusion and other hemorrhage)

D- Disability

E- Exposure

What is a quick, simple way to assess a patient in 10 seconds?

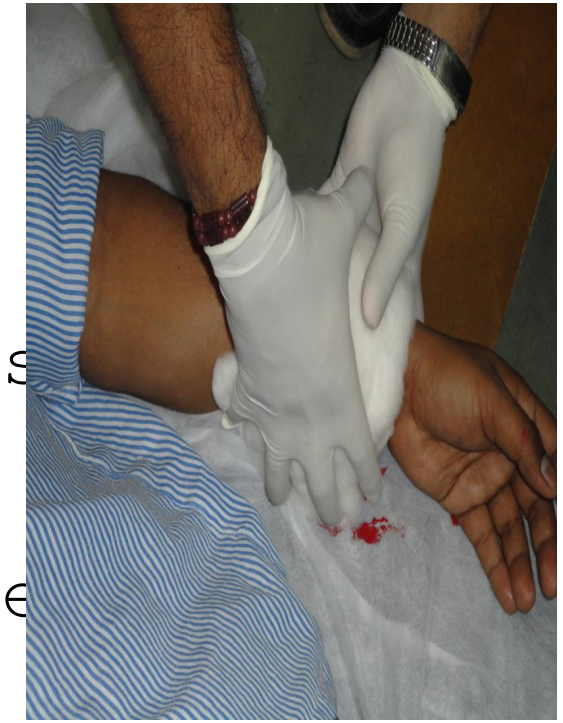
- Identify yourself
- Ask the patient his or her name
- Ask the patient what happened

Good Response indicates –

- **A** Patent airway (phonating)
- **B** Appropriate air reserve (for phonation)
- **C** Good perfusion to critical organs (brain)
- **D** Clear sensorium (full GCS)

Exsanguinating hemorrhage control

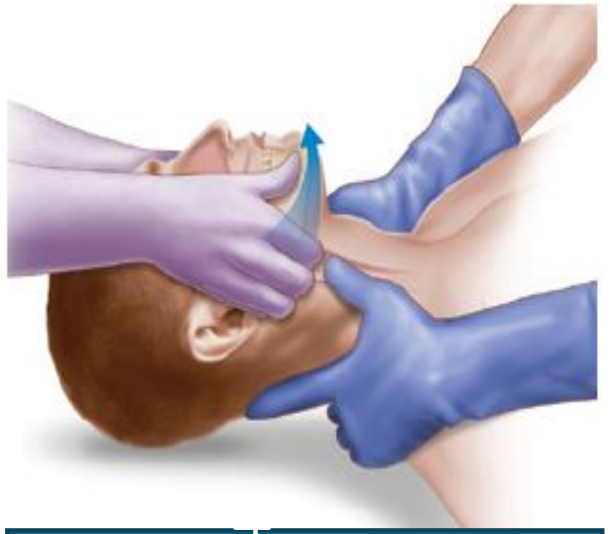
- Direct pressure
- Wound packing
- Compression dressings
- Elastic wrap
- Tourniquet-extremities
- Pelvic binder



Airway with C spine cor

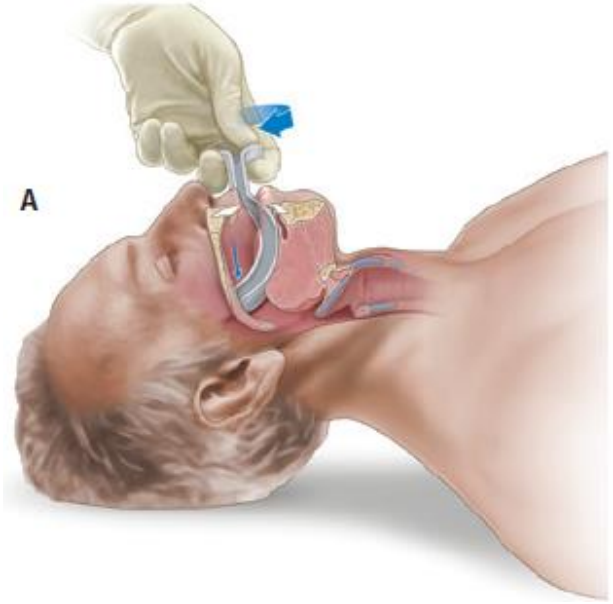
- **Look** for any obvious airway injury –face and neck
- **Listen** for any gurgling sounds, hoarseness, stridor, noisy breathing
- **Feel** the neck for any expanding swelling/ hematoma, active bleed
- Airway opening
- Definitive airway – ET intubation

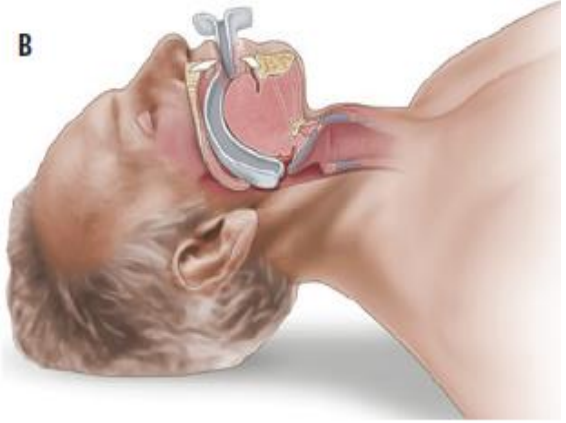
Airway management



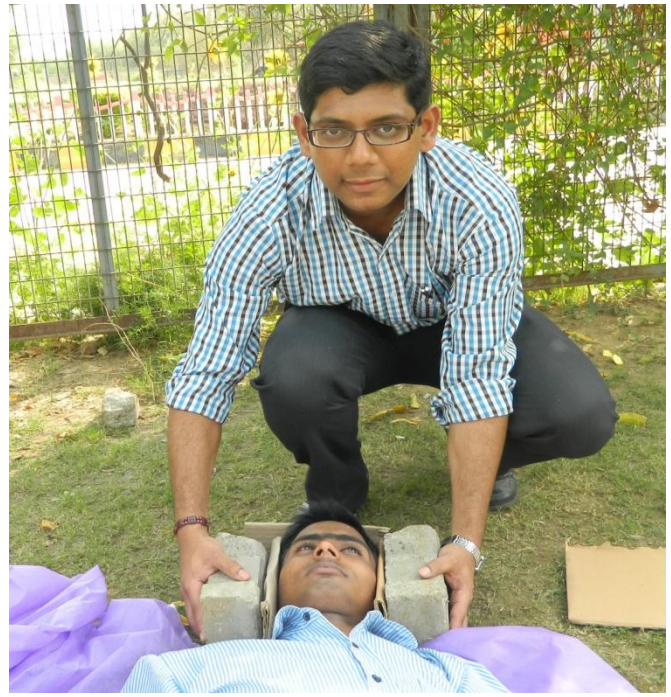
Jaw Thrust

Airway adjuncts





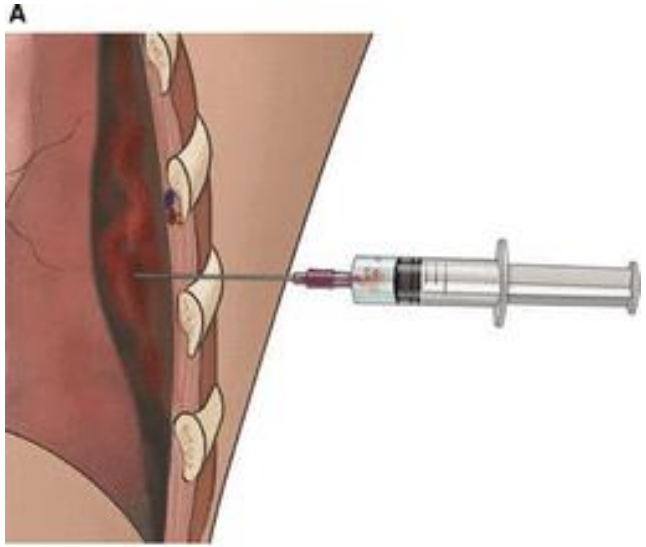
C spine stabilization

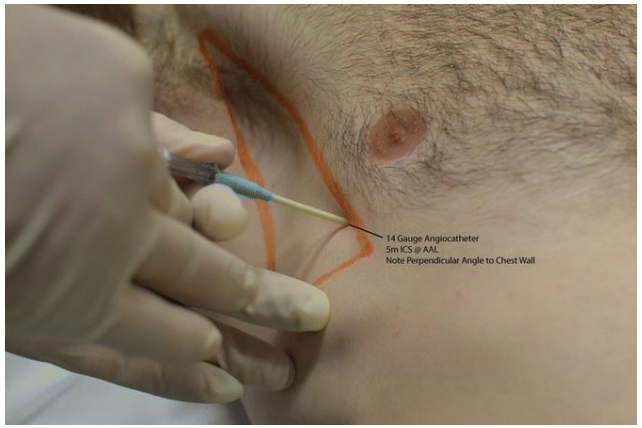


Breathing with ventilation

- Expose the neck and chest
- Start Oxygen
- **Look** for
  - Rate and depth of respiration
  - See for engorged neck veins
  - Tracheal deviation
  - U/L and B/L chest movements
  - Use of accessory muscles
  - Any signs of injury
  - Decline in Mental Status
- **Listen** for chest bilaterall
- **Feel** for
  - Chest for dullness or hyper-r
  - Crepitus (Emphysema/#)
  - Deformity

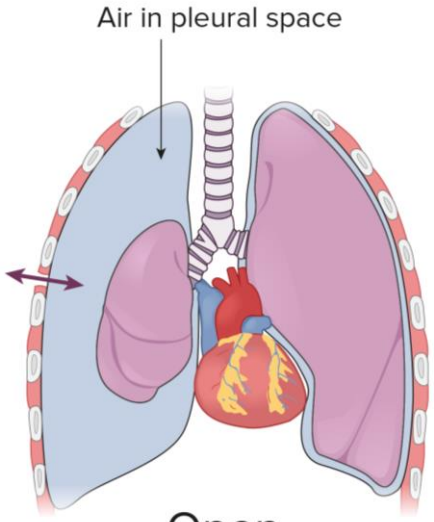
Tension pneumothorax





ICD insertion

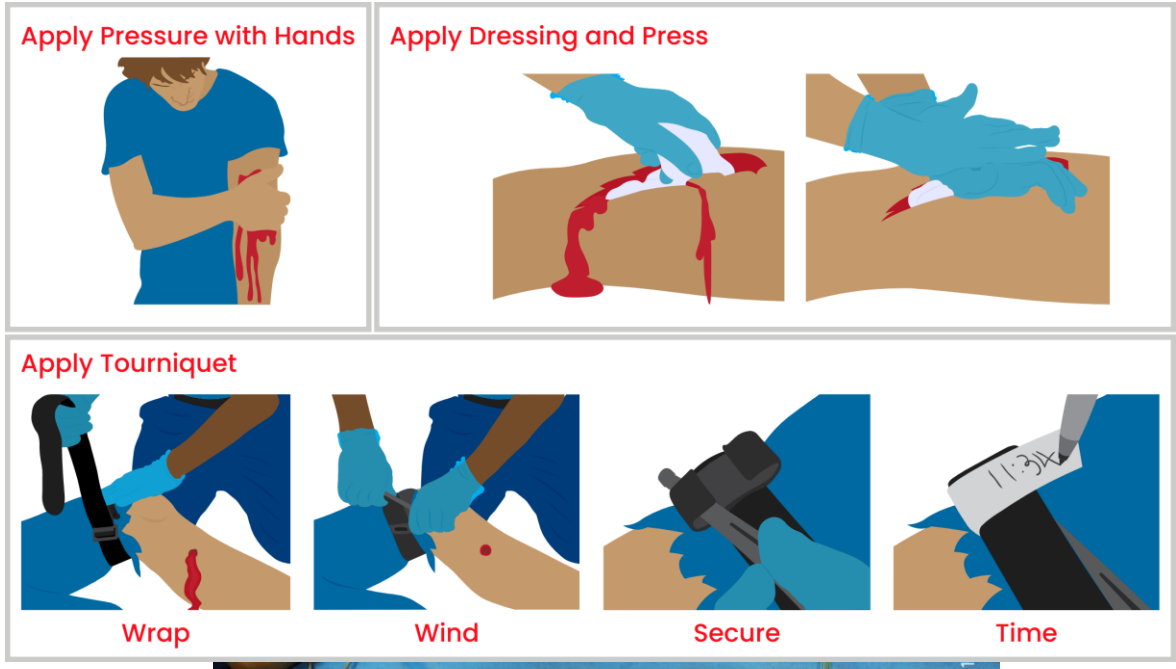
Open pneumothorax



Open pneumothorax

Circulation with hemorrhage control

- Killer bleeds
  - Chest
  - Abdomen
  - Pelvis and retroperitoneum
  - Long bones
  - Maxillofacial bleeds
- Control bleed by external pressure/ torniquet



Circulation with hemorrhage control

Assessing circulation

- Identify source of external, exsanguinating hemorrhage.
- Assess the Pulses:
  - Central (Carotid, radial),
  - Assess the skin color and temperature.
- Capillary refill time (CRT) – normal 2 seconds
- Blood Pressure measurement
- Identify potential sources of internal hemorrhage

Managing circulation

- Direct pressure to the external bleeding site
- Insert two large bore IV cannula >16G
- Initiate Intravenous fluid resuscitation. (Pre-warmed NS/RL).
- IV Tranexamic Acid.
- Try splintage to decrease bleeding from fracture sites
- Apply the Pneumatic anti shock garment (PASG) if available.
- Prevent hypothermia

Disability and Exposure

- Disability – GCS / AVPU
- Exposure
  - Look for any major external wound/ foreign body
  - Don’t remove any impaled objects
  - Prevent hypothermia

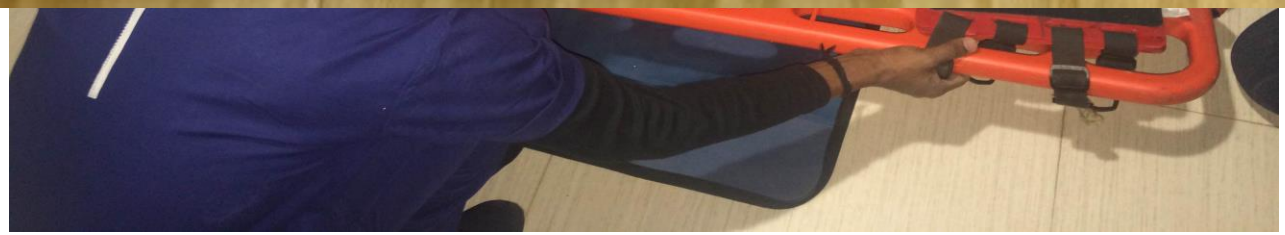
Alert
Patient is fully awake and responsive.

Voice
Patient responds to your voice.

Pain
Patient responds when you cause them pain.

Unresponsive
Patient does not respond no matter what you do.

Transporting the patient – Log roll



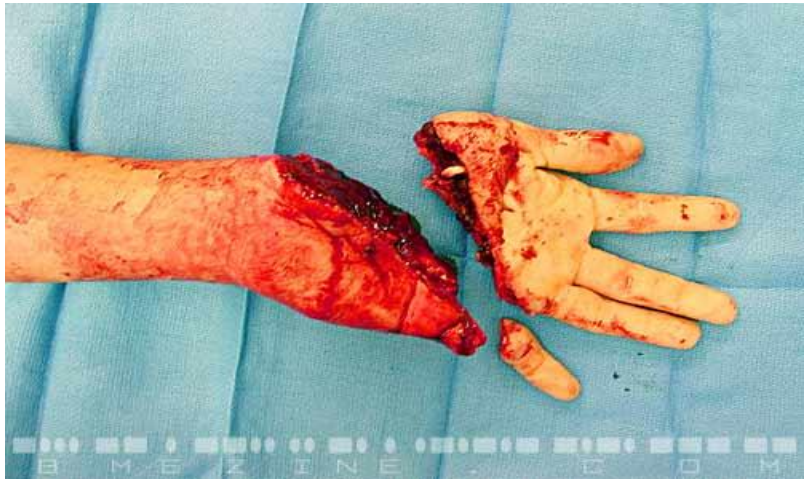
Helmet Removal

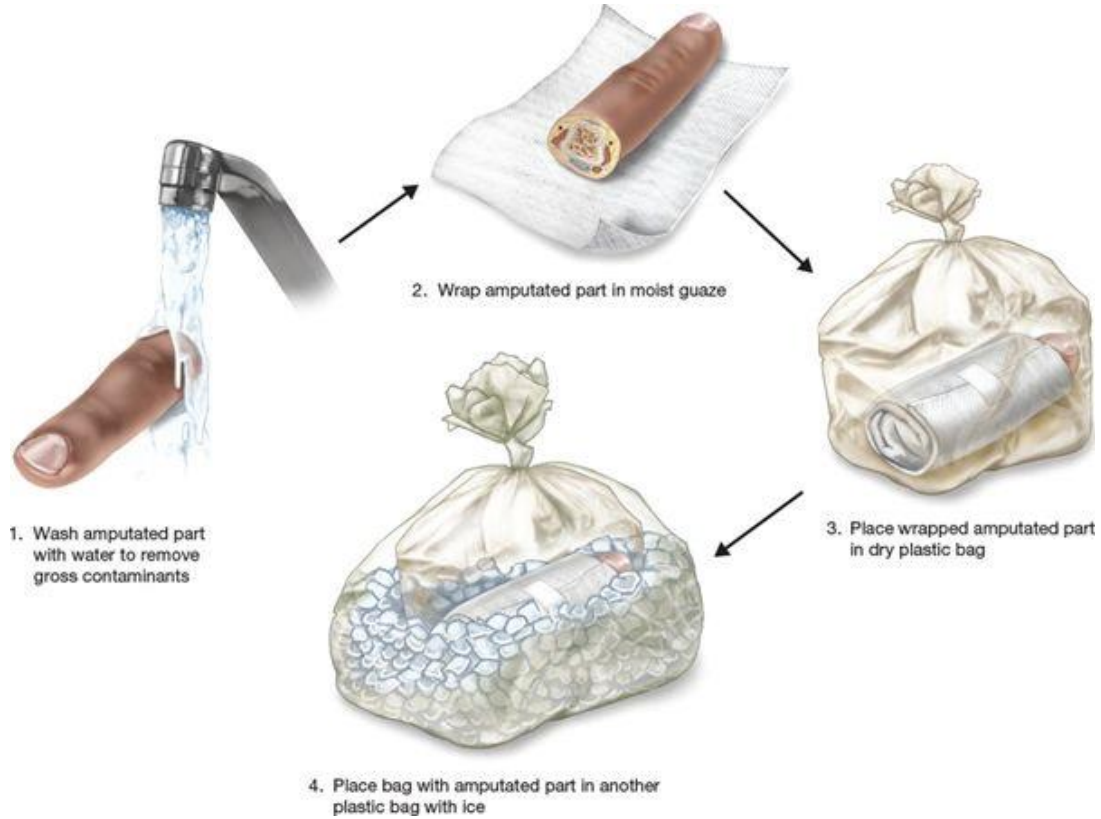
Extrication

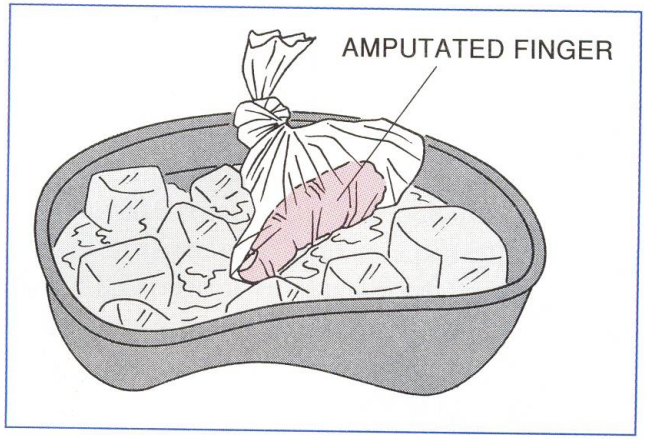
Splinting

- Do not push any exposed bone ins
- Splint one joint above and below
- Check distal neurovascular status

Amputation




1. Wash amputated part with water to remove gross contaminants
2. Wrap amputated part in moist guaze
3. Place wrapped amputated part in dry plastic bag
4. Place bag with amputated part in another plastic bag with ice

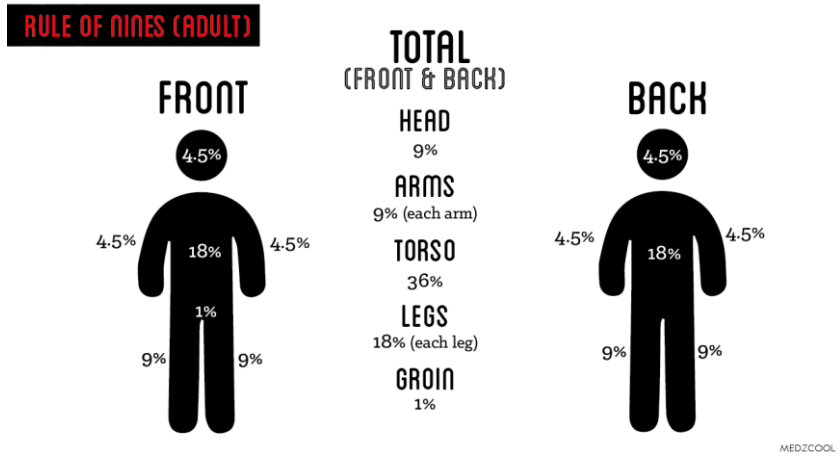

AMPUTATED FINGER

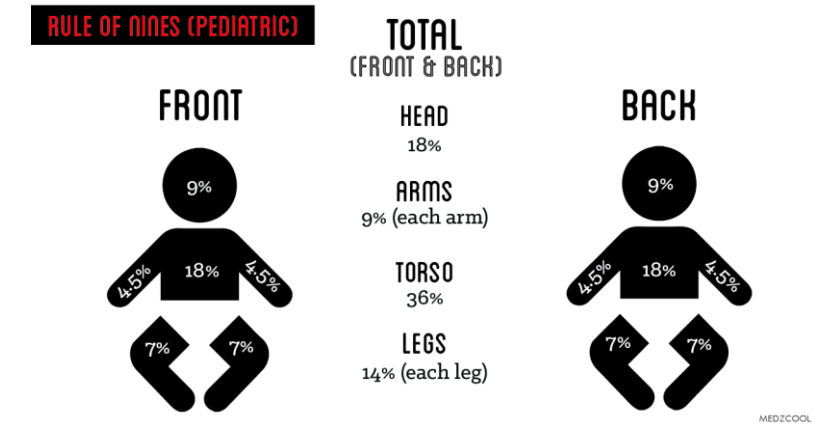
Burns

- Protect yourself
- Stop the burning process (STOP, DROP, ROLL)
- Remove clothes/jewelry
- Covering the burn with a clean plastic to reduce pain

- ABC assessment and management
- Assessment of burn severity
- Cannulation (and fluids)
- Analgesia
- Transport

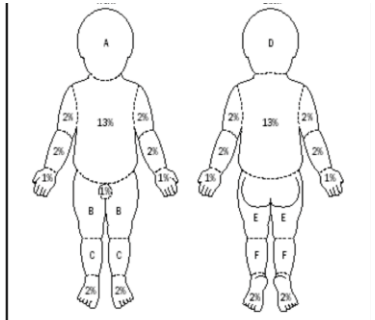
Burn severity





Management

- Wound care
  - Small wounds – saline soaked dressing
  - Large burns – sterile dressing
  - Escharotomy
- Analgesia
- IV fluids
  - Parkland formula
  - 4 ml RL * wt * BSA x 24 h
  - 3 ml RL * wt * BSA x 24 h plus maintanence
- Inhalational injury
- Ocular injury - wash

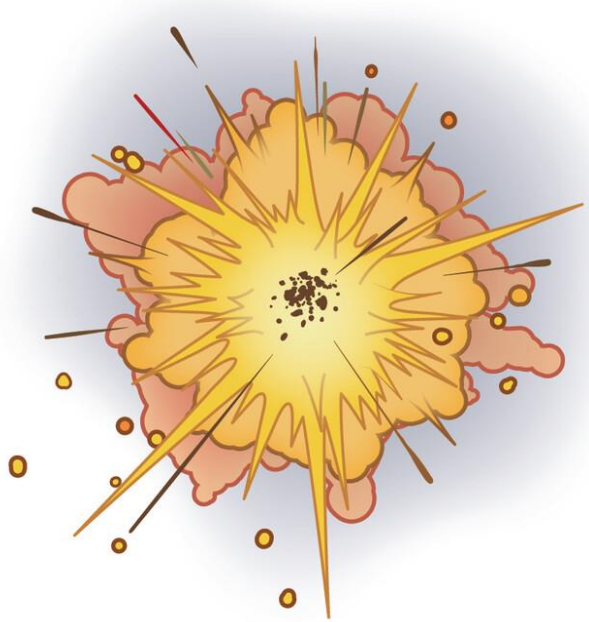


Area	By age in years			
	0	1	5	10
Head (A/D)	10%	9%	7%	6%
Thigh (B/E)	3%	3%	4%	5%
Leg (C/F)	2%	3%	3%	3%

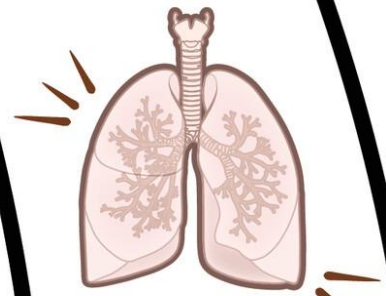
Major burn

- Partial thickness > 25%, age 10-50 y
- Partial thickness > 20%, age <10y or >50y
- Full thickness > 10%
- Involving hands, feet, face, perineum
- Involving major joints
- Circumferential burn of an extremity
- Inhalational injury
- Electrical burns
- Associated fracture or trauma
- High risk patients

Blast Injuries

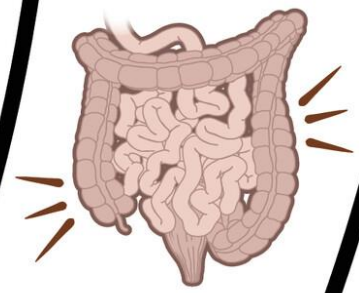


1
Primary



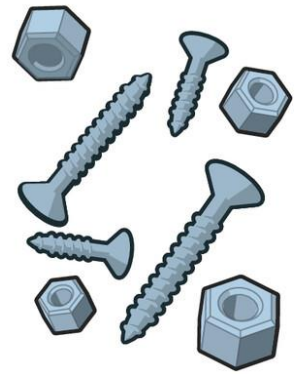
Blast lung

Ruptured tympanic membrane



Bowel perforations

2
Secondary



Penetrating trauma and lacerations

3
Tertiary

Blunt trauma and fractures

4
Quaternary

Burns, asphyxiation, and toxic substances

5
Quinary

Chemical burns, radiation, and infection

Summary – Trauma management

X- Exsanguinating hemorrhage control

A- Airway management and cervical spine stabilization

B- Breathing (Ventilation and oxygenation)

C- Circulation (perfusion and other hemorrhage)

D- Disability

E- Exposure

BASIC LIFE SUPPORT

Types of arrest

- Cardiac arrest
- Respiratory arrest

- Chain of survival

Cardiac arrest

- Identification
- Management
- Mechanical / electrical stoppage

- How do you identify?
  - Unresponsiveness
  - Apnea or inadequate breathing
  - No palpable pulse

- Management ?

Management

- Scene Safety
- Check simultaneously

  Responsiveness & Breathing
- Then perform

  Activation of EMS/ call for help

  Retrieval of AED/ defibrillator

  Check Pulse. If no pulse

  Begin compressions followed by breaths

  AED/ defibrillator

  Reassess every 2 mins

BLS STEPS

C A B – D

Scene safety

Cardiac arrest

Recognize arrest

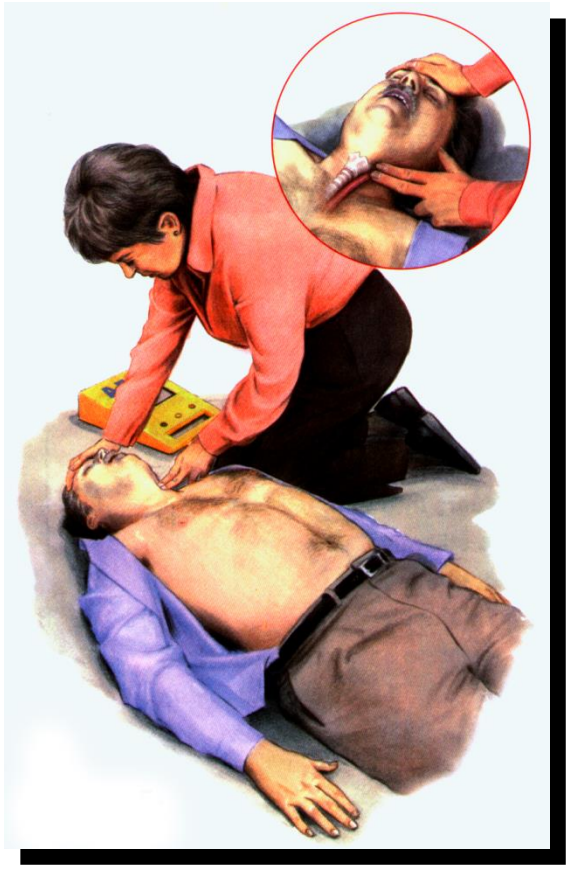
Check response and scan for breathing

If unresponsive, apneic or gasping

- Call for help
- Activate EMS
- Retrieve AED/ defibrillator

Start CPR if no pulse

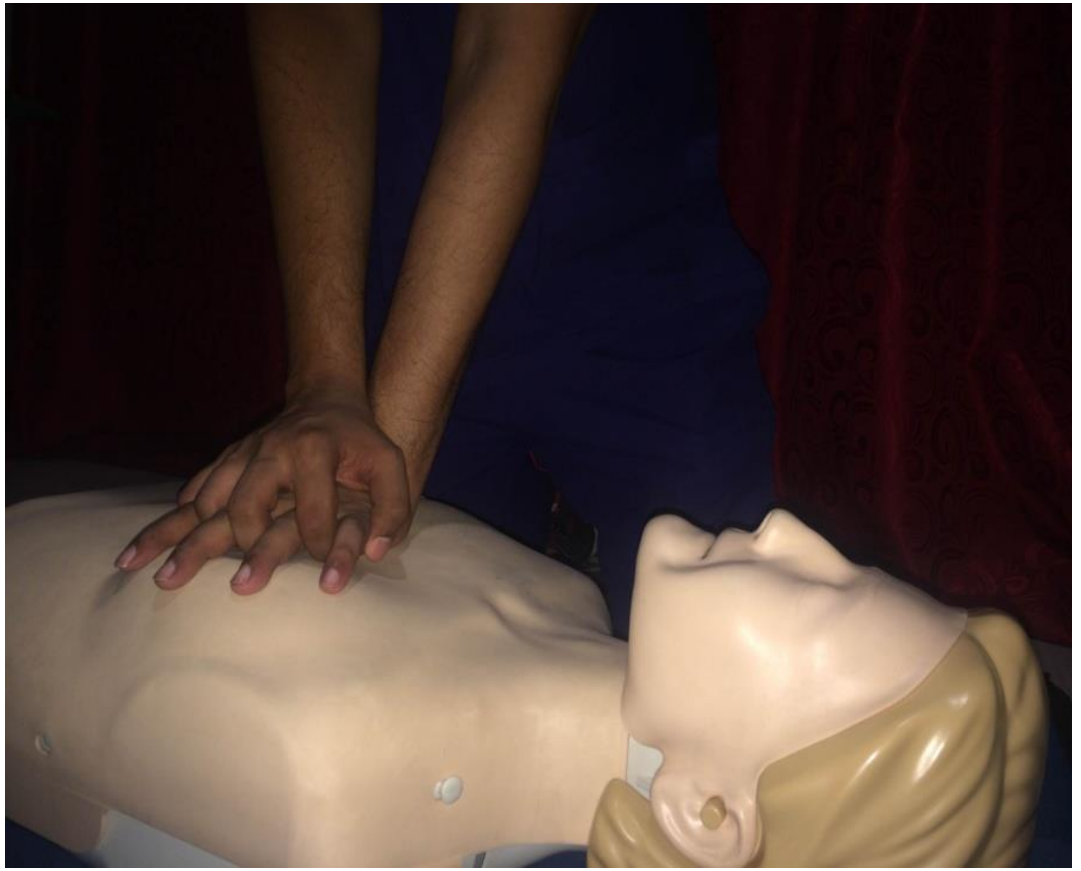
Check pulse



No Pulse

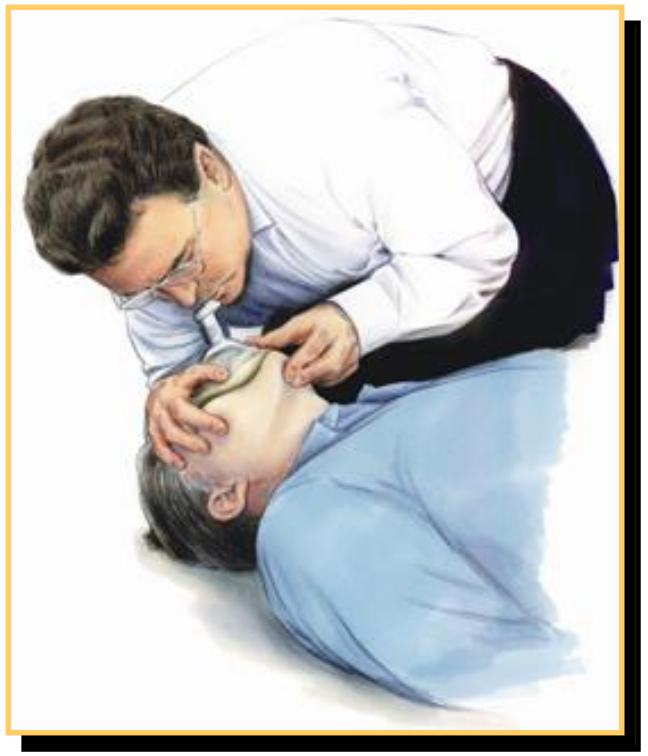
- Start chest compressions
- Give 30 compressions

Compression hand position



After 30 chest compressions "AB"

- Open the airway and give 2 breaths/ BMV



Integration of “D” with CAB

- Defibrillator or AED
- Why is electrical therapy required?
- Types of cardiac arrests

    Shockable – VF and Pulseless V

    Non shockable- All other rhyth

- Treatment of shockable arrest is Defibrillation.

Respiratory arrest

- Identification
- Management
- Breathing stops

- How do you identify?
  - Unresponsiveness
  - Apnea or inadequate breathing
  - **Pulse present**

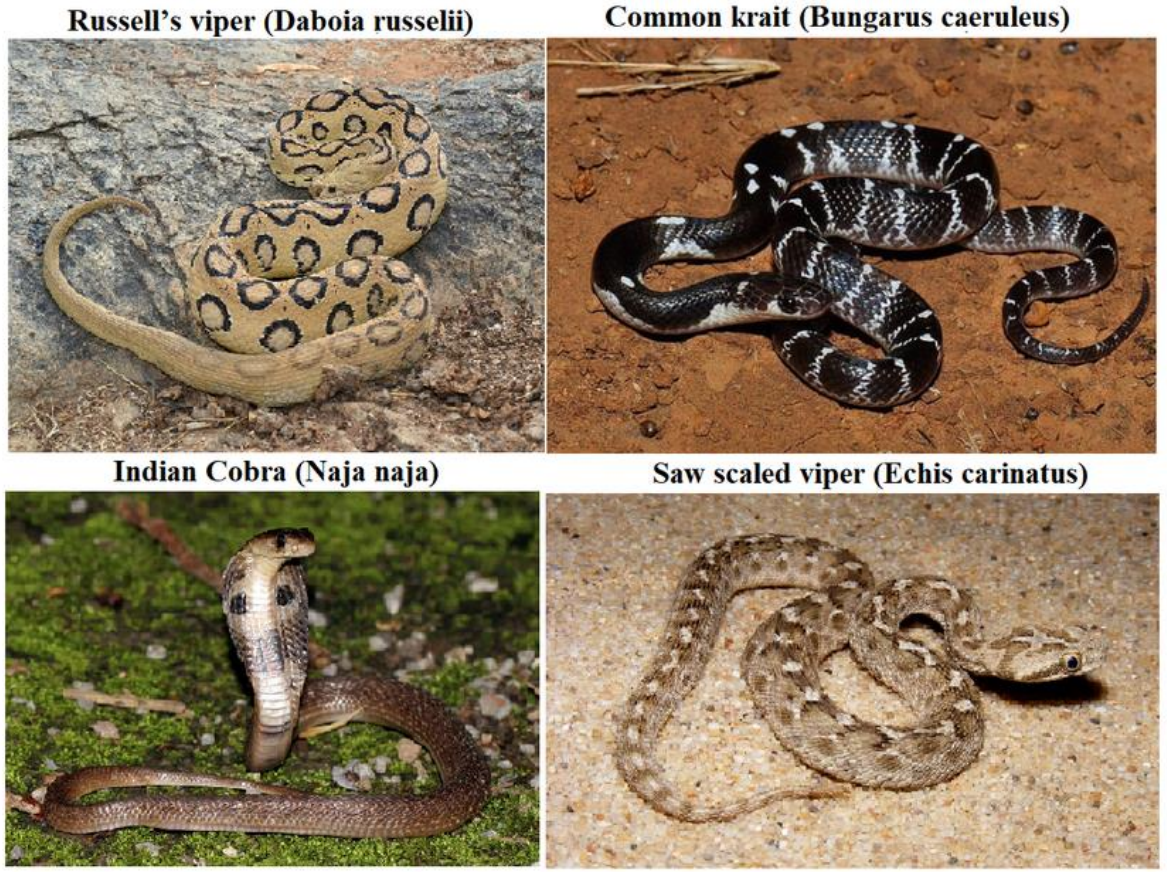
- Management ?

Management

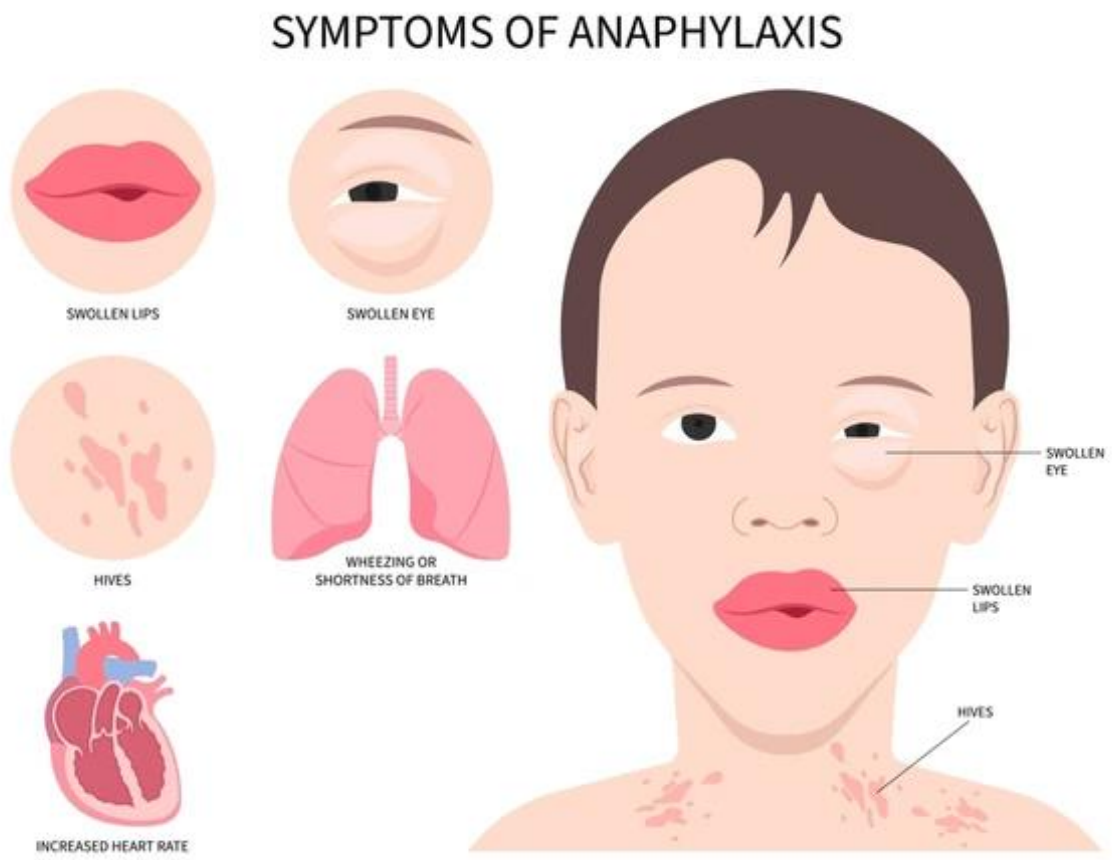
- Scene Safety
- Check simultaneously
  - Responsiveness & Breathing
- Then perform
  - Activation of EMS/ call for help
  - Retrieval of AED/ defibrillator
  - Check Pulse. If pulse present
  - Rescue breaths - One breath every 5-6 sec
    - Every 2-3 sec for pediatrics
  - Reassess every 2 mins

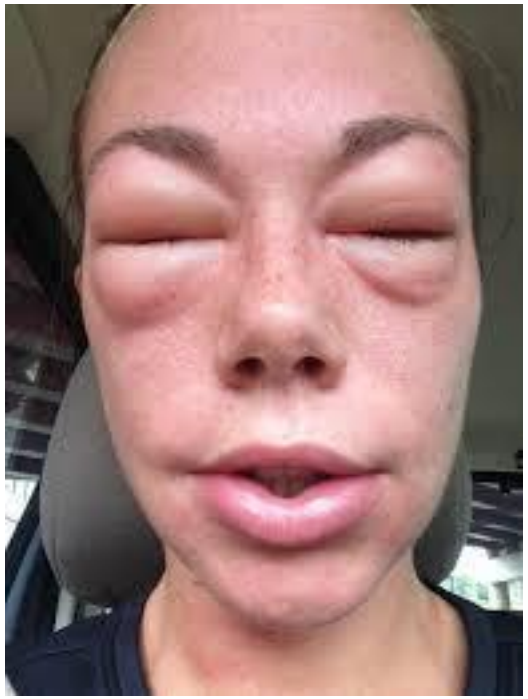
Snake bite

- DO IT RIGHT
  - Reassurance
  - Immobilization of limb
  - Get to hospital
  - Tell the doctor
- Anti snake venom



Anaphylaxis





ADMINISTRATIVE ASPECTS – TRIAGE

Triage

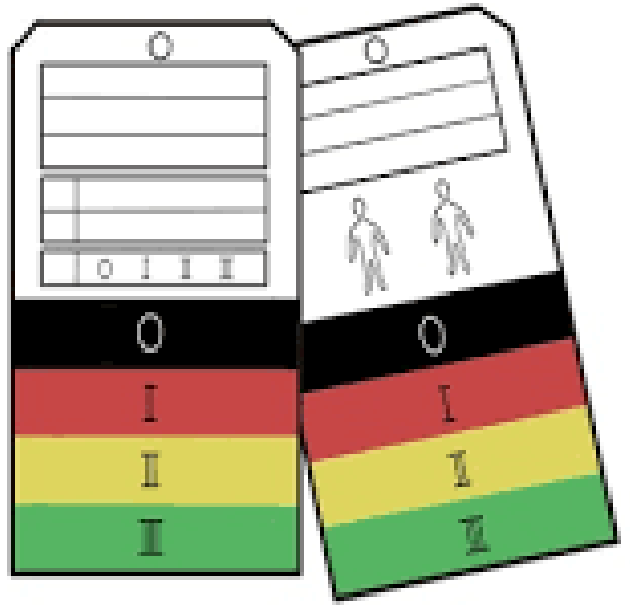
- To sort / prioritize

Out of Hospital

- Considerations – whom to resu
- Whom to transport first

In hospital

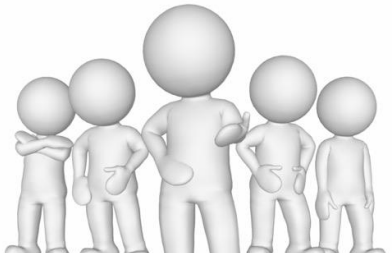
- Whom to treat first



Triage

Day-to-day emergencies

- The greatest good for each individual patient



Mass Casualty Incidents

- The greatest good for those who can most benefit from medical interventions

Large-scale disasters

- The greatest good for the greatest number of potential survivors

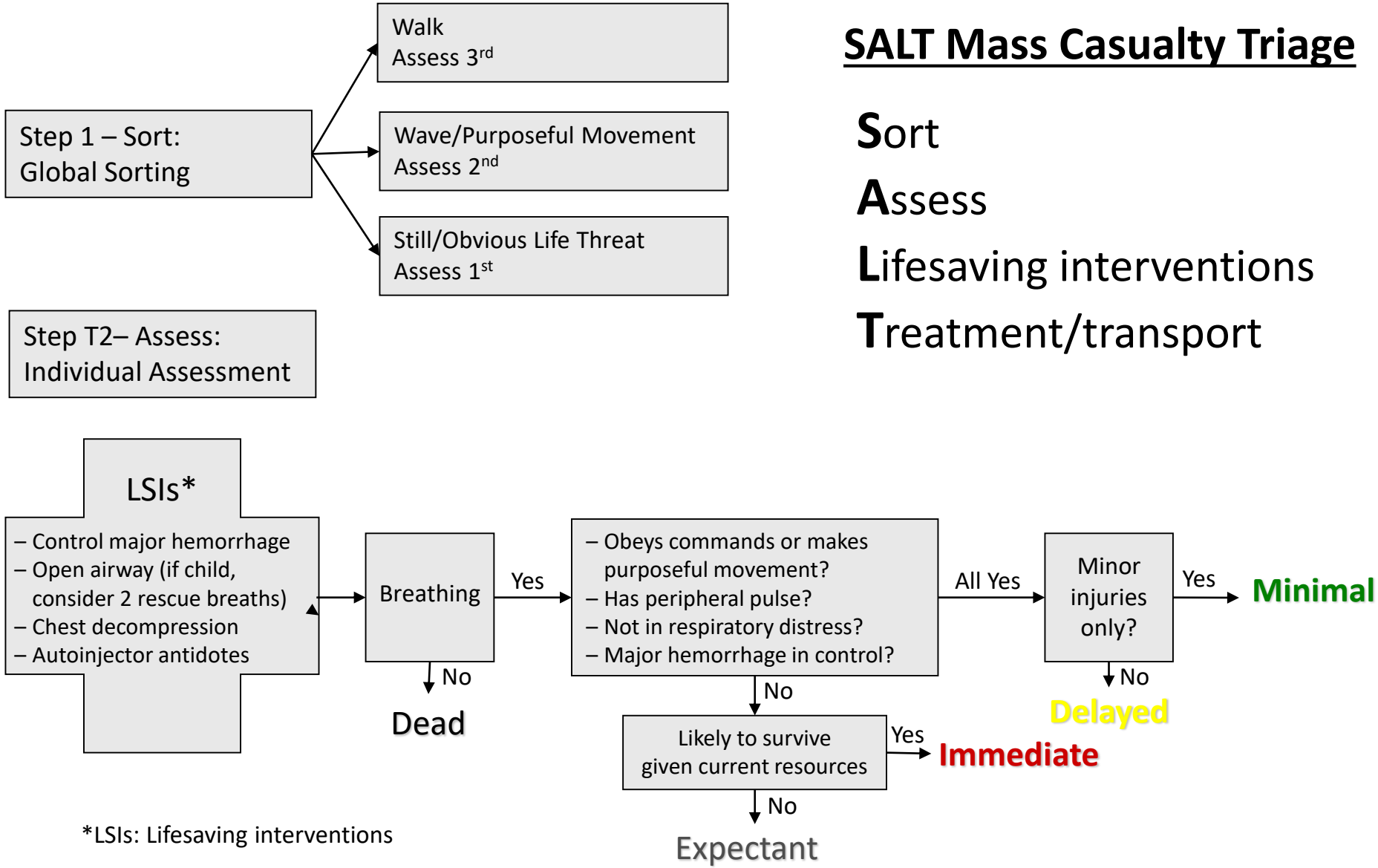
SALT Mass Casualty Triage

Sort

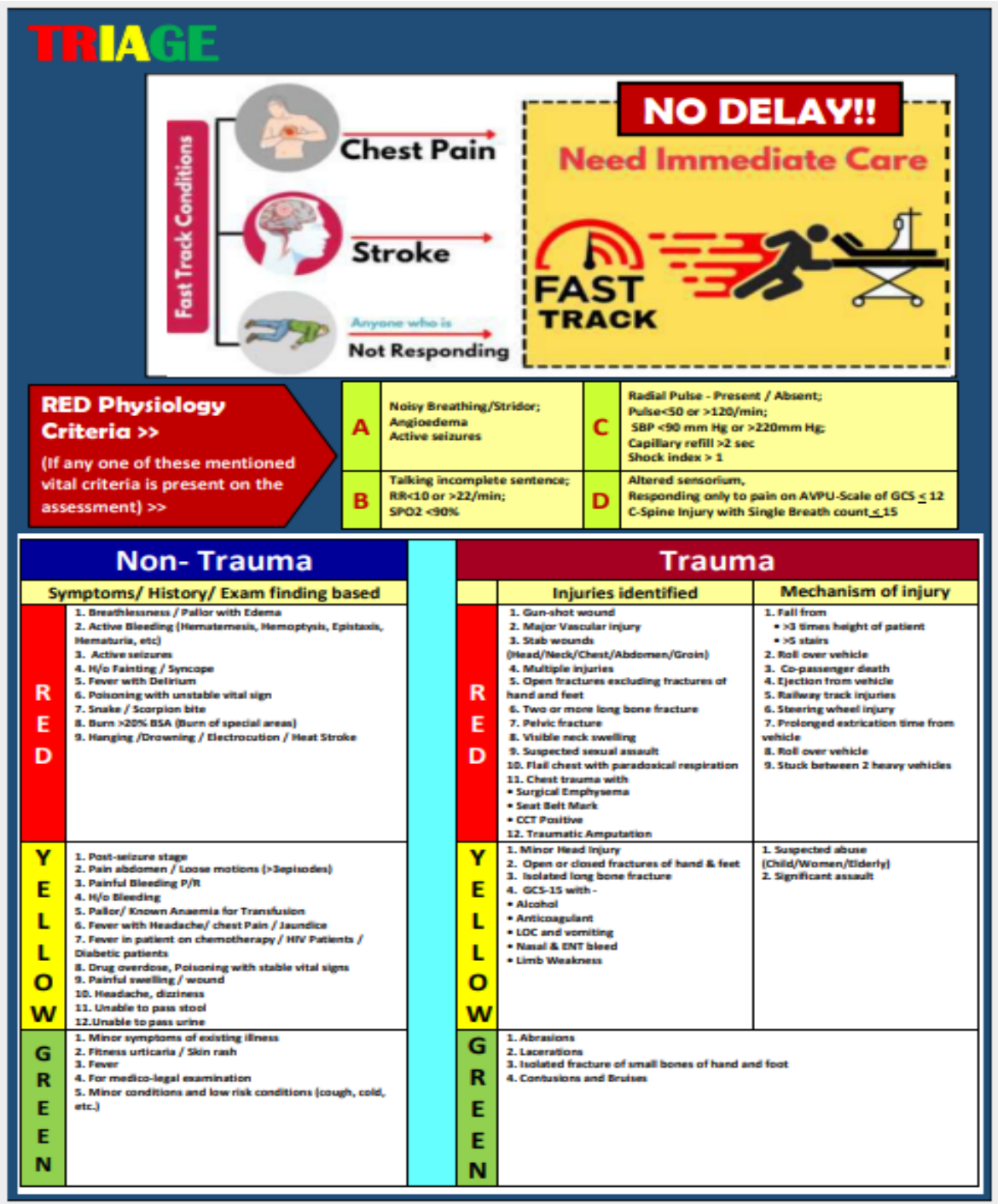
Assess

Lifesaving interventions

Treatment/transport



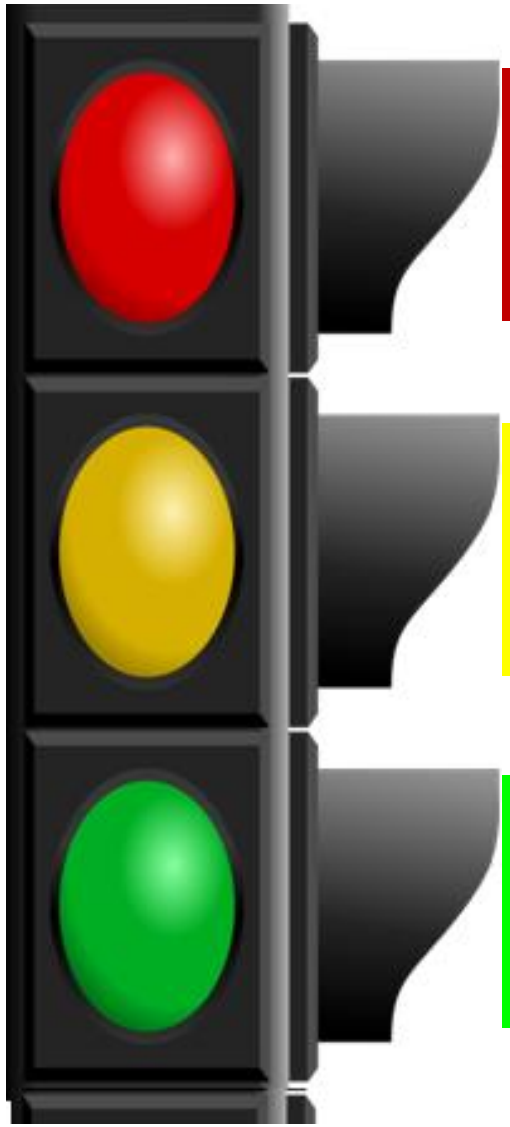
*LSIs: Lifesaving interventions



NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

Operational and Technical Guidelines on Emergency Care Services at District Hospital

Triage



Unstable	Immediate care/Resuscitation
Stable	Delayed care
Stable	Walking wounded

EXPECTANT | DEAD

Triage – basic considerations

Trauma

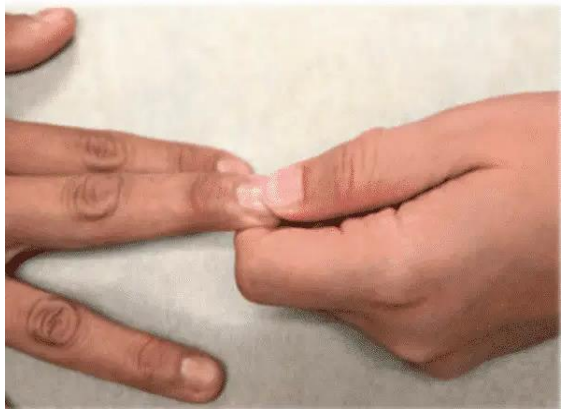
Physiology
Injuries identified
Mechanism
Vulnerable population

Non trauma

Physiology
Examination findings
Brief history
Vulnerable population

RED
Yellow
Green

Red - Based on injuries or pathology

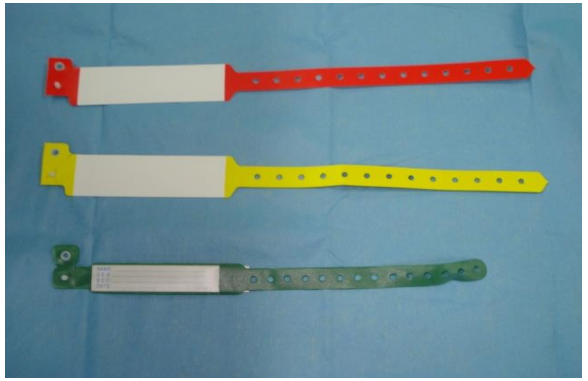


Red - Based on mechanis

Yellow

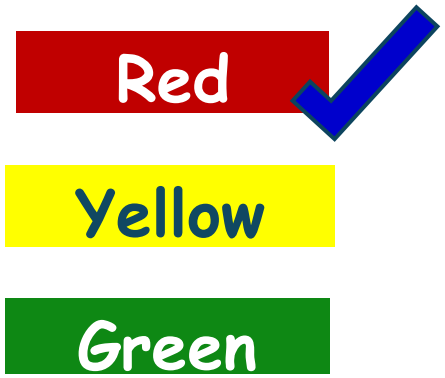
Green

Triage – in hospital



Case Scenario-1

25 year old male a Two wheeler rider hit roadside fence, vitals stable, having open chest wound
Dangerous Mechanism of Injury- Red



Case scenario- 2

19 year old man brought to ED with history of fall from two stairs.

On arrival: mouth full of blood

Red

Yellow

Green

Case Scenario-3

45 year old male presented with mild fever with vitals

SpO2- 98% at room air

Pulse Rate- 128/min

Resp. Rate- 28/min

BP- 122/78 mm of Hg

Red

Yellow

Green

Case Scenario-

A 57 year-old male driver, presented to emergency department with a 20-minute episode of diaphoresis and chest pain it was central, radiating to the left arm and cr in nature

Fast Track

Red

Yellow

Green

WORKFLOW PATTERN

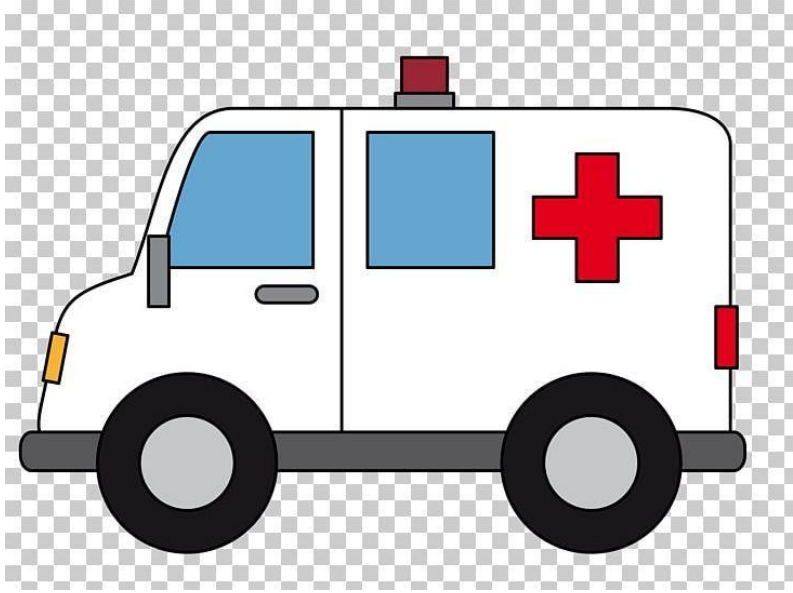
Command centre

- What all details required?
  - Confirm the caller
  - Event
  - Number of patients
  - Location
  - Route & alternate route
  - Resources required
- How will you be prepared?
  - Ambulance level
  - How many to accompany
  - Oxygen/ drugs and equipments

On scene care and ambulance shift

- Triage
- XABCDE
- Decision regarding where to transfer – under guidance of command centre
- Log roll and shift

En route care



- IV fluids
- Analgesics
- Treatment under the guidance of command centre
- Documentation

Communication with the destination hospital/ command centre

- Introduction
- MIST protocol
  - Mechanism of injury
  - Injuries sustained
  - Signs and symptoms
  - Treatment given
- ETA
- Number of patients

Hand over communication at the destination hospital

- MIST protocol
  - Mechanism of injury
  - Injuries sustained
  - Signs and symptoms
  - Treatment given

- Documentation

Scenario

- A blast in a hotel
- Call to the command centre to deploy the team

Workflow algorithm

Command centre

- Confirm caller
- Number of patients expected
- Distance and route
- Prepare your team, equipments and vehicle

Treatment and transport

- XABCDE
- Plan for destination hospital

Enroute

- Treatment
- Communication with destination hospital

Handover at destination

Documentation

Summary

- Trauma resuscitation
  - XABCDE
- Cardiac arrest
  - CABD
- Triage
- Workflow pattern

THANK YOU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