

# **ABDOMINAL TRAUMA/ INJURIES**

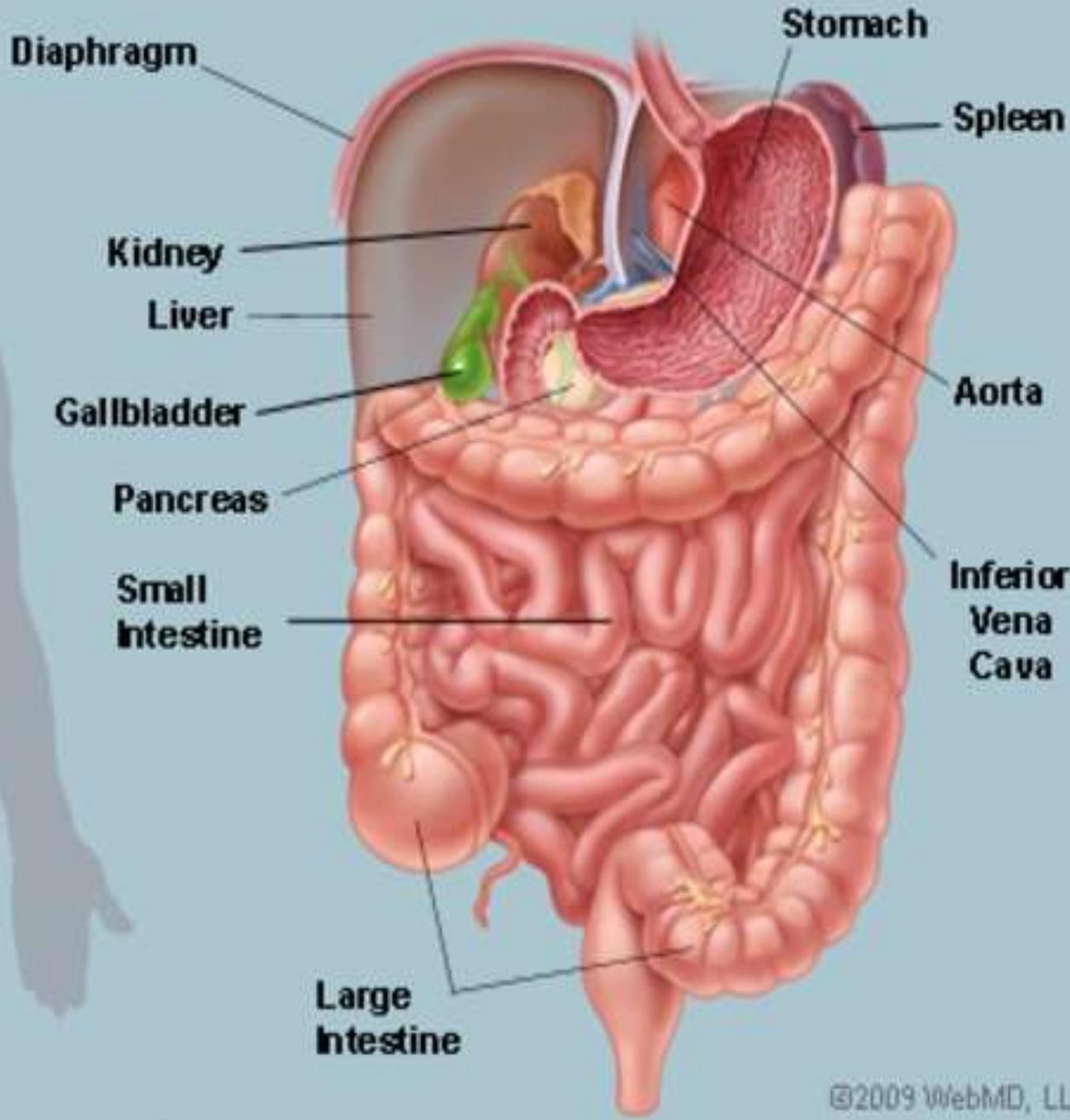


# Content outline



- Abdominal anatomy**
- Mechanism of injury**
- Symptoms**
- First Aid**
- Management**

- **Trauma is the commonest cause of death in young people.**
- **Abdominal trauma stands third next to head injury and chest injury**
- **75% of all blunt trauma to abdomens involves road traffic accident**
- **60% of injury occur in males (14-30)**



# ABDOMINAL ANATOMY

Organs can be classified as:

- **Hollow organs: (Stomach, gall bladder, large & small intestines, ureters, urinary bladder)**
- **Solid organs (Liver, Spleen, Kidney, Pancreas)**
- **Major vascular structures (Aorta and major branches)**

# MECHANISMS

## Blunt trauma

- Motor Vehicle Accident
- Seat belt injury



# MECHANISMS

## Penetrating injuries

- Stab wounds
- Gun Shot wounds



# MECHANISMS

- **Crush**

## Building collapse



# MECHANISMS

## Thermal



# Symptoms

- Severe pain
- Bruising
- External bleeding
- Nausea
- Vomiting (sometimes blood)
- Weakness
- Thirst
- Pain, tenderness, or a tight feeling in the abdomen
- Organs protruding from the abdomen
- Rigid abdominal muscles
- Other signs of shock

# FIRST AID

## **1. Place patient at total rest and assess the injury**

- Assist the patient to lie down in a position of greatest comfort, usually on the back or on the uninjured side, with both knees drawn up for relief of pain and spasm.
- Loosen any tight clothing, especially at waist and neck. Support the patient with pillows and blankets for comfort, as needed. Give frequent reassurance.

# FIRST AID

2. Call 108 for an ambulance.



# FIRST AID

## 3. Control bleeding and cover any wound

- If necessary, hold the wound edges together to control bleeding. Sometimes the patient can change position slightly to help the wound to close.
- If the intestines are visible, DO NOT touch or try to replace them.
- Cover a wound with sterile dressings soaked in warm water to avoid damage to organs.

# FIRST AID

## 4. Observe the patient

- While waiting for the ambulance to arrive,
- observe the patient closely for any changes in condition.

# MANAGEMENT

Principles of management are:

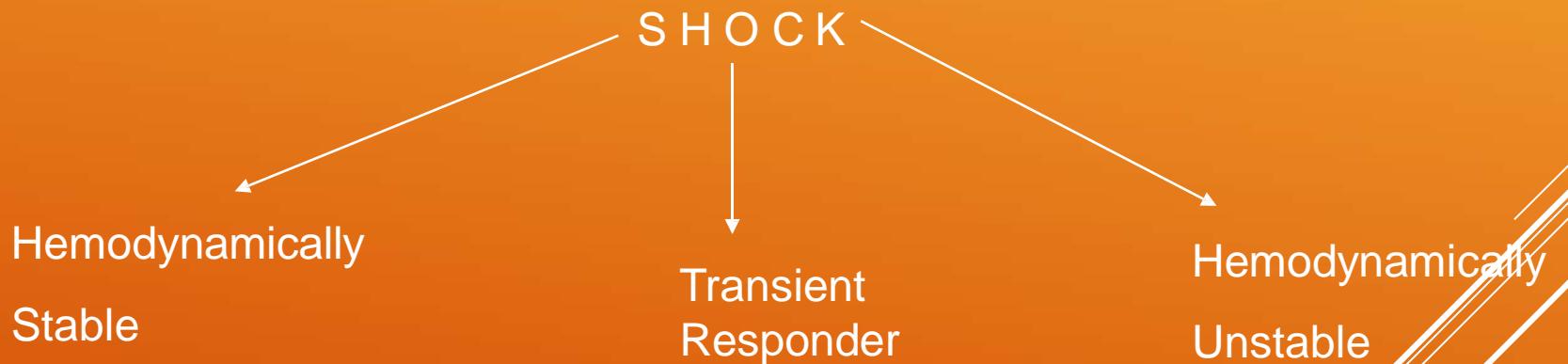
- Stop haemorrhage
- Debride devitalised tissues
- Repair injured bowel by suturing or resection
- Eliminate foreign bodies/contamination and intestinal contents

# DECISION MAKING

Circulation

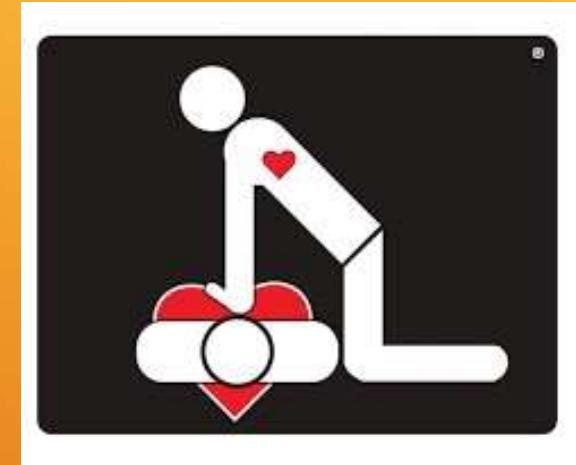
Airway

Breathing



# **MANAGEMENT...**

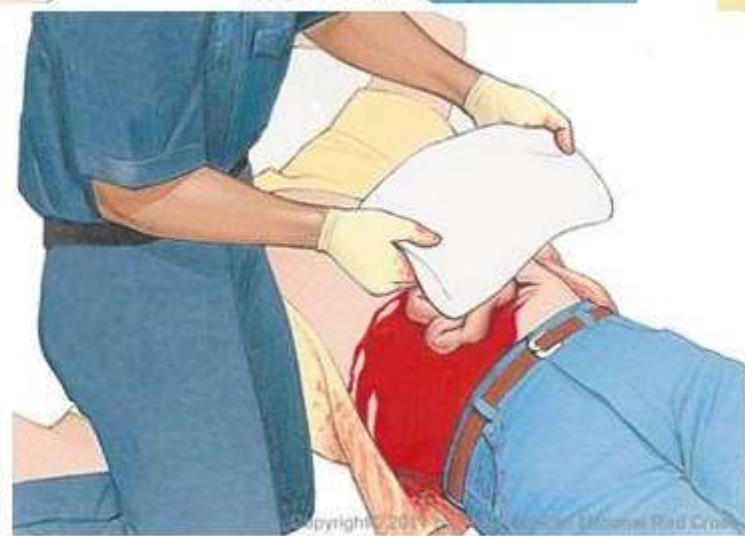
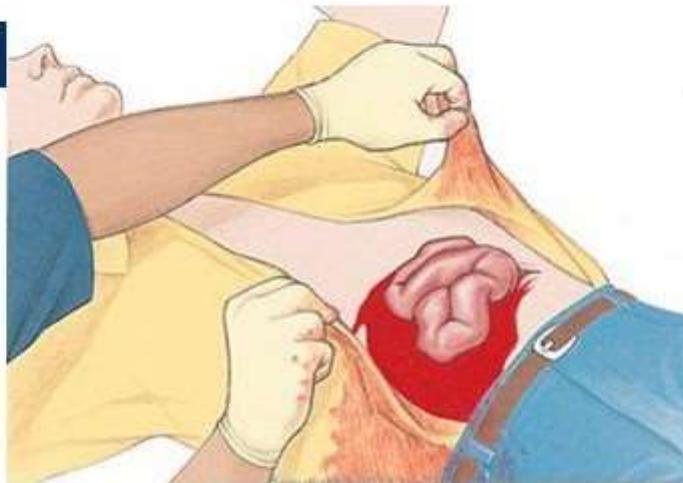
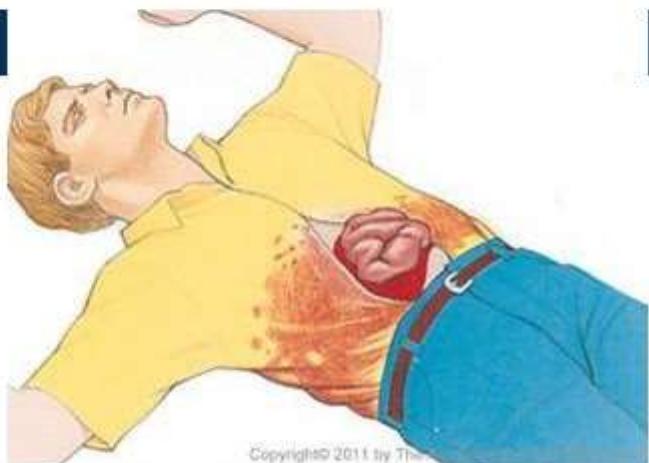
- ❖ **Initial assessment and resuscitation ( Simultaneous)**
- ❖ **Principles of CAB- Circulation, airway, breathing and treating hypovolemia**



# MANAGEMENT

- ❖ **Rule out other injuries**
- ❖ **Insert wide bore IV cannula**
- ❖ **Continuous monitoring of BP, pulse rate, oxygen saturation**
- ❖ **Initial fluid resuscitation: rapid infusion of 2 litres of crystalloid solution followed by colloid if necessary**

# Care for Abdominal Injury



Cover protruding  
organs.

Keep  
dressing  
wet.



# SECONDARY SURVEY

- **History of incident**
- **Physical examination of the exposed patient**
- **Examination of anterior and posterior abdomen**
- **Rectal examination**
- **Perineal examination**
- **Insert NG tube and urethral catheter**

# **A.M.P.L.E. – A simple MNEMONIC FOR KEY INFORMATION**

- A: Allergies (e.g. penicillin or aspirin)**
- M: Medication (e.g. a beta-blocker or warfarin)**
- P: Previous medical history (e.g. previous surgery )**
- L: Last mealtime (i.e. drink versus major meal)**
- E: Events surrounding the incident (e.g. fell 5 metres with immediate loss of consciousness)**
- Examine each body region meticulously**

# INVESTIGATIONS

- ❖ **In haemodynamically stable patients**
- ❖ **Full blood count and haematocrit**
- ❖ **Urea and electrolytes.**
- ❖ **Sonography**

# OPTIONS FOR MANAGEMENT

Diffuse Abdominal Tenderness

Yes

Laparotomy

No

Hemodynamic Stability?

**Indications for Laparotomy – Penetrating Trauma**

- Hemodynamically unstable
- Peritonitis
- Evisceration
- Violation of peritoneum

# Take home message

- If you can do so safely, try to stop any minor bleeding, using gauze.
- If the wound was a puncture wound, and an object is still embedded, allow it to remain in place. Do Not touch it, and do not try to slow bleeding. Wait for help to arrive.
- If the wound permits, and the casualty is conscious, lay casualty on back and elevate legs bent at the knees
- Speak to the person, soothe them and help them try to remain calm.

# Take home message

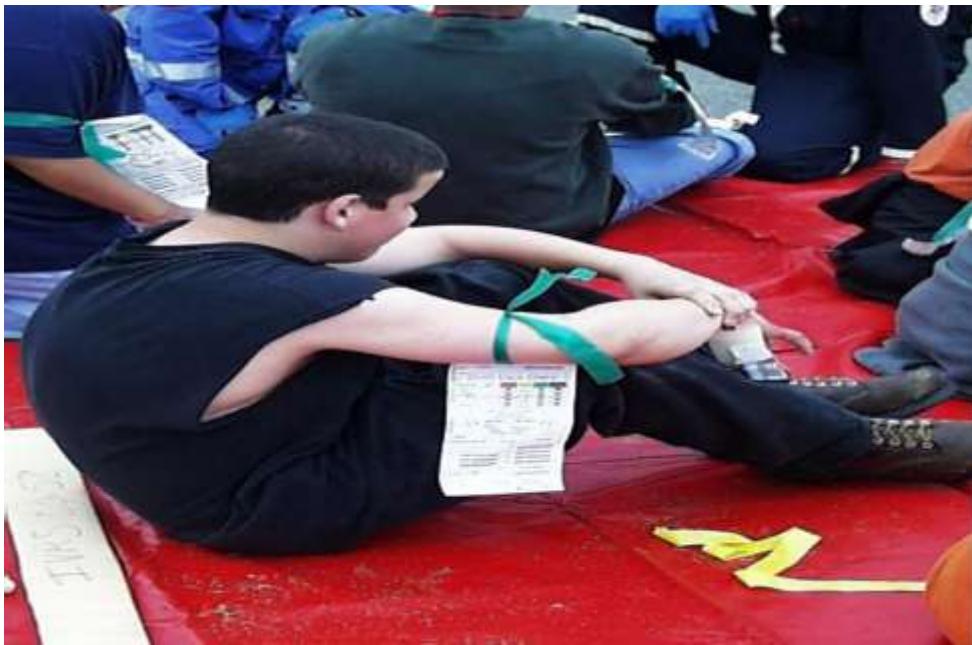
- if unconscious, stable side position with legs bent
- DO NOT attempt to replace organs

# Thank you



# Triage

**Mrs. Janet Alva  
Assistant professor  
MCON Manipal**



# TRIAGE





# Content outline



- Meaning of triage
- General principles of triage
- General procedure
- Types
- Triage categories
- Models of triage
- Meaning of extrication
- Extrication process
- Types of extrication
- Ambulance

# TRIAGE

- Triage is a process of prioritizing patients based on severity of their condition so as to treat as many as possible when resources are insufficient for all to be treated immediately.



- Patients with severe injuries that are less life-threatening should be cared for and transported first.



- The objective of triage is to sort casualties so that the maximum number of lives can be saved through effective utilization of rescuers, medical personnel and medical facilities.

# General principles

- Primary triage will be done by first-in responders
- Primary triage takes priority over emergency treatment
- Casualties are sorted according to the seriousness of their injuries and identified with tags establishing priority of treatment and transportation
- Personnel will perform a basic triage examination, categorize the patient and attach the appropriate colored tag in 60 seconds or less

# General principles

- All victims must be tagged.
- It is time consuming and potentially fatal to triage without tagging victims
- Emergency care administered by triage teams is restricted to opening airway, controlling severe hemorrhage and elevating patient's feet
- Personnel assigned to treatment areas will perform a secondary exam (secondary triage) and complete the triage tag

# General procedures

- Stop, look, listen and think
- Initial triage: **Conduct voice triage**: after identifying yourself “if you can walk, come to the sound of my voice”
- Assign someone to tag those who respond to voice triage.
- These patients can be tagged minor
- Evaluate

# Exam and tag

- All possible victims involved in the incident are to be quickly examined and tagged whether injured or not injured.



# Exam and place

- Non-ambulatory casualties are to be triaged where they lie, unless they are in an unsafe area which requires patient's removal



# Austere Intervention

- Initial triage personnel may perform the following intervention procedures, then move to the next victim:
- Open the obstructed airway
- Stop arterial bleeding
- Elevate the legs (if indicated & easily accomplished)

# Types

- **Primary Triage**

- Triage that is performed at the scene or point of first contact with patients.

- **Secondary Triage**

- Triage that is performed after further intervention is provided. Usually done in a medical sector.

- Simple triage

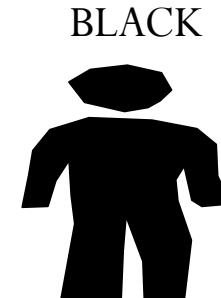
- Advanced triage

# MCI (Mass Casualty Incident) Triage

- In order for MCI triage to work effectively, all victims must have equal importance at the time of primary triage.
- No patient group can receive special consideration other than that dictated by their physiologic state. ***This includes children!***

# Triage Categories(color codes)

- **RED** - Immediate/ emergent
- **YELLOW** - Urgent
- **GREEN** – Non urgent
- **BLACK**- Dead/little to no hope of survival





# RED - Immediate

- Ventilation present after positioning airway or respirations over 30 per minute or capillary refill greater than 2 seconds or cannot follow simple commands

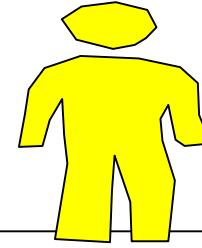
# RED - Immediate



- Severely injured but treatable injuries and able to be saved with relatively quick treatment and transport
- Priority - 1
- Examples
  - Severe bleeding
  - Shock
  - Open chest or abdominal
  - Emotionally out of control



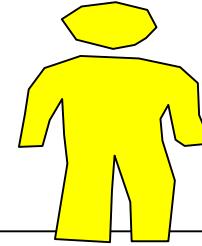
# Yellow - Delayed



- Any patient not in Immediate or Minor categories. These patients are generally non-ambulatory
- Injured and unable to walk on their own. Potentially serious injuries but stable enough to wait a short while for medical Treatment



# Yellow - Delayed



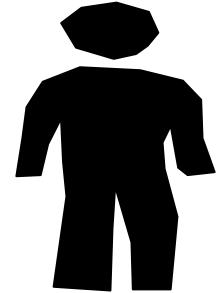
- Remember that these patients can easily be upgraded since triage is a continual process
- **Priority - 2**
- Examples
  - Burns with no respiratory distress
  - Spinal injuries
  - Moderate blood loss
  - Conscious with head injuries





# Green – Non-Urgent

- Minor injuries that can wait for a longer period of time for treatment.
- May or may not be able to ambulate
- **Priority - 3**
- Examples
  - Minor fractures
  - Minor bleeding
  - Minor lacerations



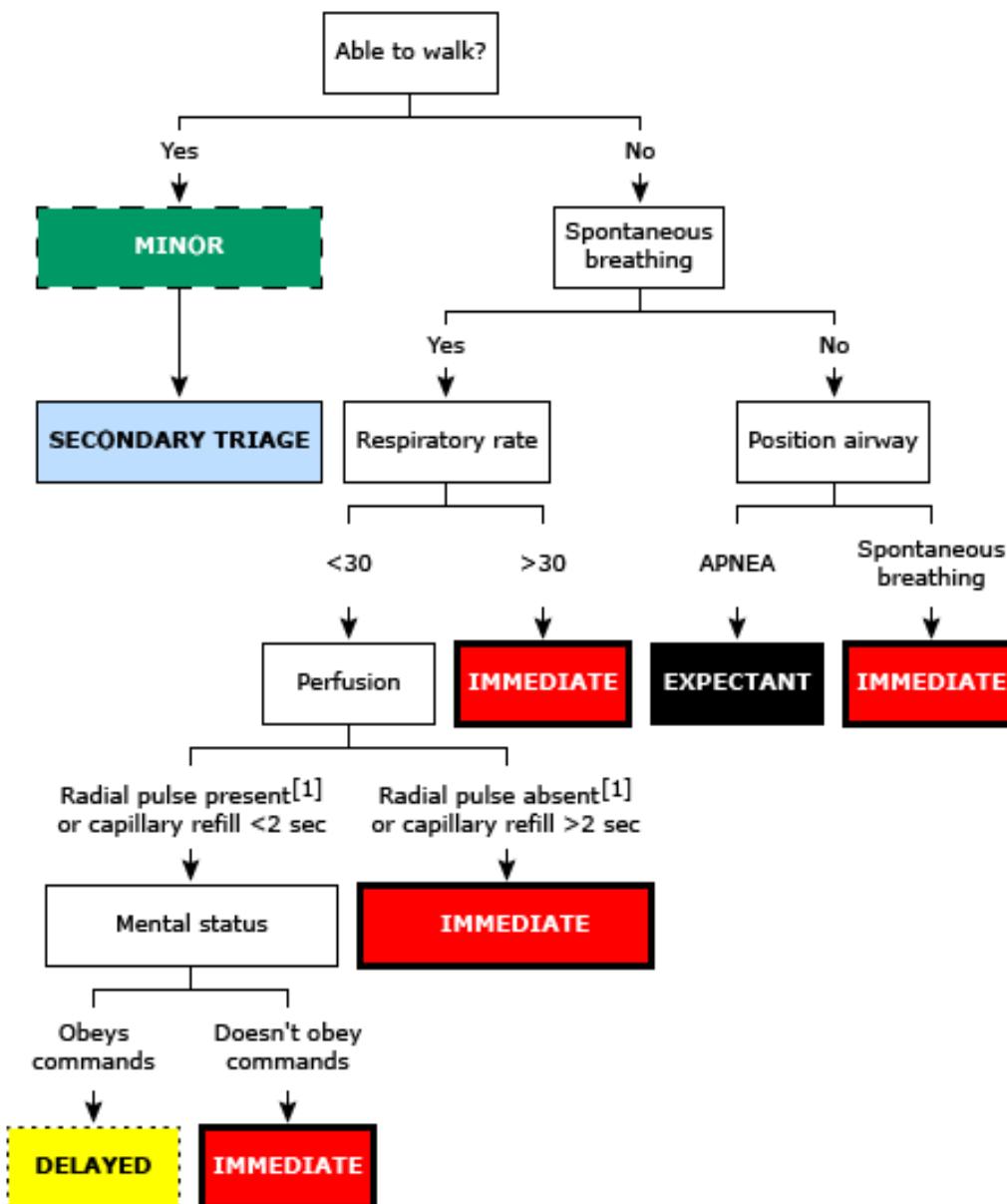
# Black -Non-salvageable or Deceased

- Dead or obviously dying.
- No ventilation present after airway is opened.
- May have signs of life but injuries are incompatible with survival.
- Handle based on local protocols
- **Priority - 0**
- Examples
  - Cardiac arrest
  - Respiratory arrest with a pulse
  - Massive head injury

- There are different models that can be used to *triage MCIs*, such as
  - START (Simple Triage and Rapid Treatment)

# START TRIAGE

(Simple Triage and Rapid Treatment)



## Triage categories

### EXPECTANT

Black triage tag node

- Victim unlikely to survive given severity of injuries, level of available care, or both
- Palliative care and pain relief should be provided

### IMMEDIATE

Thick border red triage tag node

- Victim can be helped by immediate intervention and transport
- Requires medical attention within minutes for survival (up to 60)
- Includes compromises to patient's airway, breathing, circulation

### DELAYED

Dotted border yellow triage tag node

- Victim's transport can be delayed
- Includes serious and potentially life-threatening injuries, but status not expected to deteriorate significantly over several hours

### MINOR

Dashed border green triage tag node

- Victim with relatively minor injuries
- Status unlikely to deteriorate over days
- May be able to assist in own care: "Walking wounded"

- SALT
- Sort, Assess, Lifesaving Interventions, Treatment/Transport).

# *M.A.S.S. Triage*

M – Move

A – Assess

S – Sort

S – Send



# Tag placement

- Triage tags of the appropriate color are attached to casualties near the head.
- Team Reassignment
- When all patients have been triaged, triage teams will be reassigned

# Secondary Triage

- Casualties will be triaged a second time upon arrival at the treatment area, preferably by an ACLS provider.
- **Category Change**
- Triage categories may be changed by treatment teams based on results of a second examination.
- If the triage priority of the patient improves, remove the entire bottom portion of the tag, leaving the injury information and add a new tag identifying the new triage priority and the reason(s) for the upgrade

# Treatment teams

- Following secondary triage, treatment teams will:
- Provide stabilizing care
- Complete the attached triage tag
- Note priority information & vitals
- Indicate treatment given

# Transport Priority

- Priority of transportation will be given to casualties tagged Immediate following evaluation and necessary stabilization in the treatment area, but not delaying transport for stabilization.
- Note: It could be necessary to transport immediate, delayed or minor patients in the same ambulance.

**Table 1: Crash report**

C	<b>Critical information</b>	Glasgow Coma Scale level, adequacy of ventilations and pulse
R	<b>Restraints used</b>	Types, speed and type of impact
A	<b>Assessment</b>	Account for all limbs, medical history, damage to passenger compartment
S	<b>Suspected injuries</b>	Chest assessment, spine/back discomfort, long bones and pelvis
H	<b>Help needed</b>	Plan for extrication after disentanglement

# Extrication



# Extrication

- Removal and treatment of victims who are trapped by some type of machinery or equipment

# **The extrication process**

**Size up**

**Scene safety**

**Vehicle stabilization**

**Patient access**

**Disentanglement**

**Extrication**

**Treatment and transport**

# What's your size-up?



# Dispatch Information



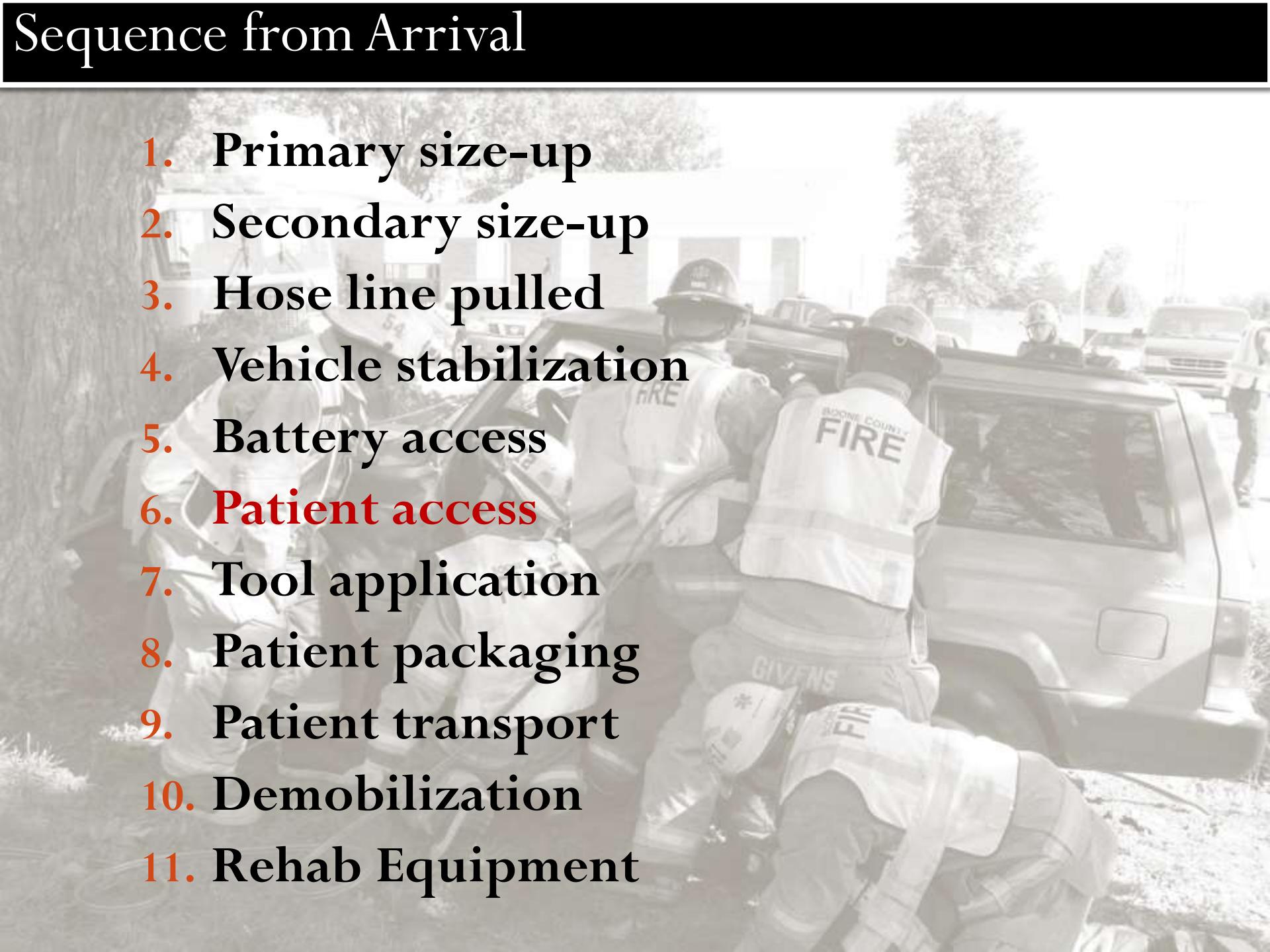
- Where are you going?
- What are you going for?
- Who is coming with you?
- What did the dispatcher tell you?

# Personal Protective Equipment

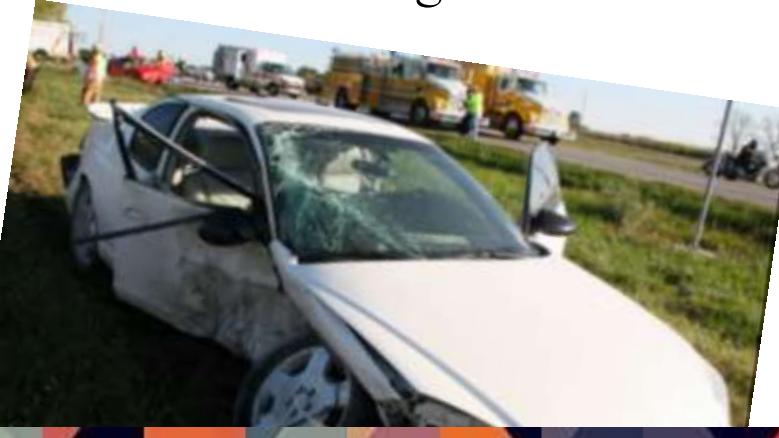
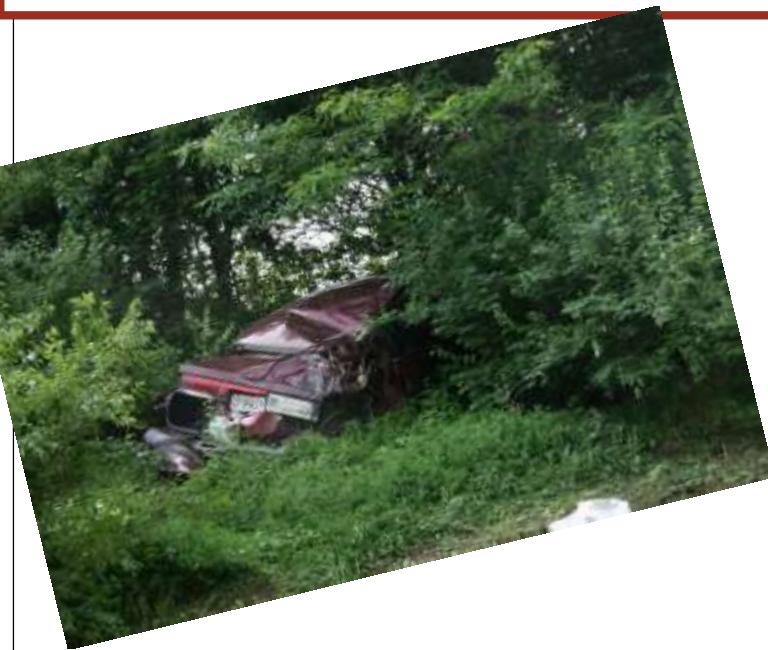
- Turnout Pants
- Turnout Coat
- Traffic Vest
- Helmet
- Gloves
- Eye Protection
- Hearing Protection
- Respiratory Protection



# Sequence from Arrival

- 
1. Primary size-up
  2. Secondary size-up
  3. Hose line pulled
  4. Vehicle stabilization
  5. Battery access
  6. **Patient access**
  7. Tool application
  8. Patient packaging
  9. Patient transport
  10. Demobilization
  11. Rehab Equipment

# Primary Size-up



1. Arrival on scene
2. Description of the vehicle
  - How many vehicles are involved?
  - Where is the vehicle(s)?
3. Description of the problem
  - How are the vehicles positioned?
  - Describe the extent of damage
  - Any obvious threats?
4. Establish Command
5. Assign a tactical channel

- scene size-up should include looking for evidence the driver was alert and reactive at the time of the accident through steering or braking maneuvers.
- Gathering information about posted and observed speeds of those involved should be obtained in conversation with law enforcement.

# Secondary Size-up



## Considerations:

1. Weather
2. Lines down
3. Hazardous materials
4. Patient count (classification)
5. Need for additional resources
  - Ambulances
  - Rescue Squads
6. Traffic Management (Formal)
  - Must happen on all incidents lasting longer than 30 minutes

# Hot Zone

- Individuals immediately engaged in extrication actives or patient care



- First-arriving EMS resources that may not be able to participate in the hot zone.
- Hot zone of the rescue can provide important information to the rescuers by using gathering information about fuel, battery locations and restraint systems.

# Warm Zone

Incident Command Post location

- Equipment cache
- Personnel staging area
- Apparatus staging



# Cold Zone

- Ambulance staging area
- Media
- Flaggers for traffic control zone
- Personnel not directly engaged in the rescue process



# Temporary Traffic Control Zone

- Emergency Traffic Signs
- Blocking Apparatus
- Positioning Rescue Squads and Ambulances



# Reasons for Controlling Traffic

- **Possible secondary accidents**
- Two main causes of vehicle accidents
  1. **Alcohol**
  2. **Cell Phones**



# REMOVAL STRATEGIES

- The most valuable part of patient removal is the planning prior to any movement.
- For safe removal, all members of the team should have a clear understanding of their assignments yet remain flexible to adjust if events change.
- The team leader should stay away from the patient to ensure all participants are safe and to observe inordinate movement of the patient.



# REMOVAL STRATEGIES

- There are two basic removal strategies:
  - laterally through the doorway
  - vertically after the roof is removed.

# REMOVAL STRATEGIES

- Lateral extrication is generally well understood by most rescuers.
- The patient is pivoted and moved to a long spine board.









# REMOVAL STRATEGIES

- The vertical method is valuable in many situations because the roof is removed and the patient can be rapidly extricated,



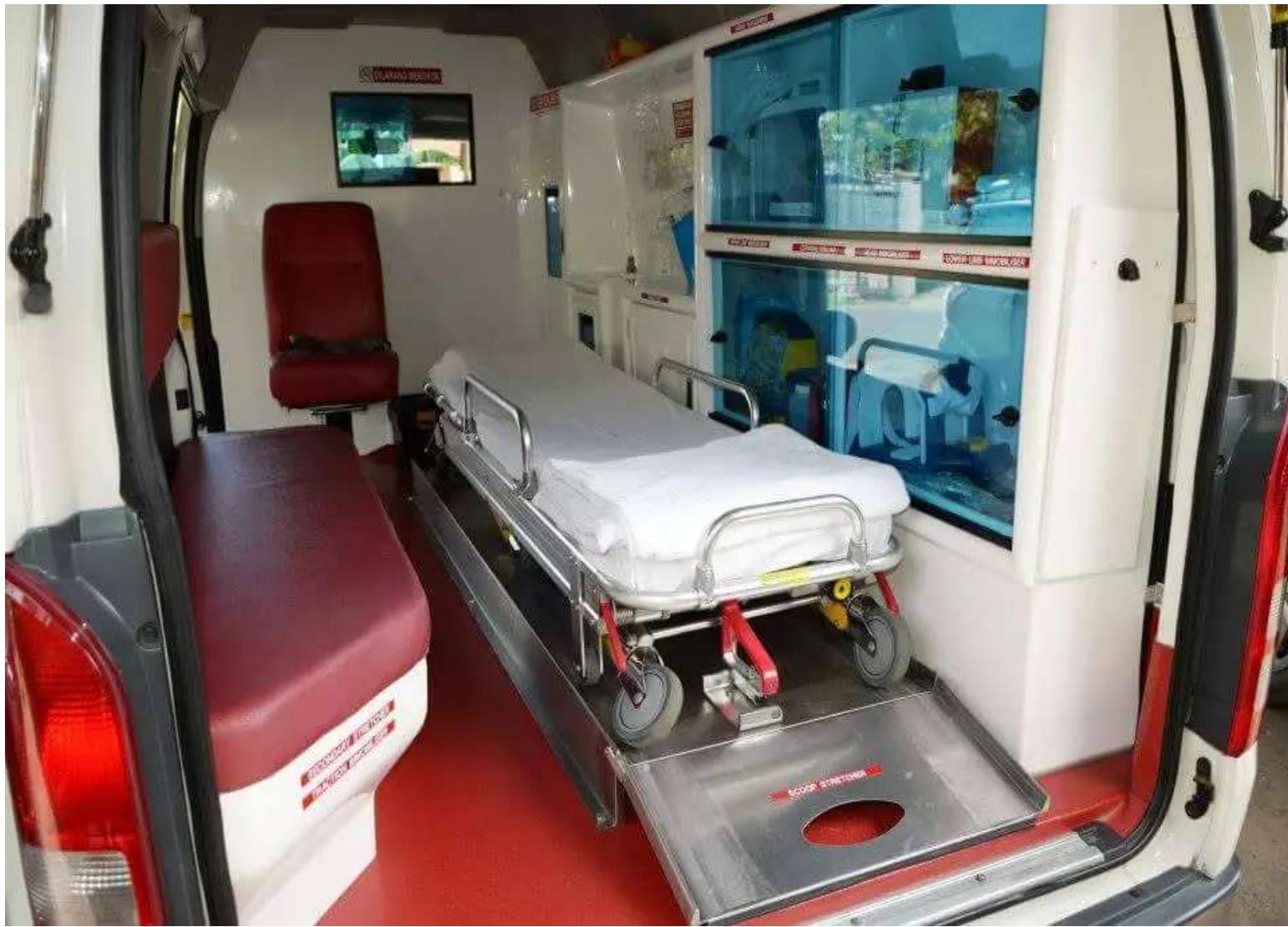
# REMOVAL STRATEGIES

- steps for vertical extrication :
- 1. The patient is collared, and one rescuer holds the head/neck securely
- 2. A long board is gently placed between the seat and the patient
- 3. Two to three rescuers slide the patient onto the board in unison, careful to support the legs as well
- 4. The long board straps and head blocks are applied
- 5. The patient is positioned and fully secured to the transferring stretcher.



# Ambulance





- **Communication :**
- Communication is key to the ambulance services, as it links the service provider to the scene
- **Contact Persons and Contact Facility Networks**
- All local, district and private hospitals are part of the contact facility network

- **Co-ordination of with rescue teams**

“Because every life counts”

In cases of disasters the ambulance has a key role.

On receipt of a disaster call, alerts all the necessary players in the Emergency Rescue service

Ambulance driver coordinates the handling and transportation of the patients at scene

- Ambulance Driver
- Paramedics / Physician

# Staff & Equipment

- Mass Casualty Kit
  - Request from nearest EMS agency
- Fire and first responders
  - Move patients to established Collection Points
- Arriving EMS units
  - Report to staging
  - Move up when directed by Transportation Officer



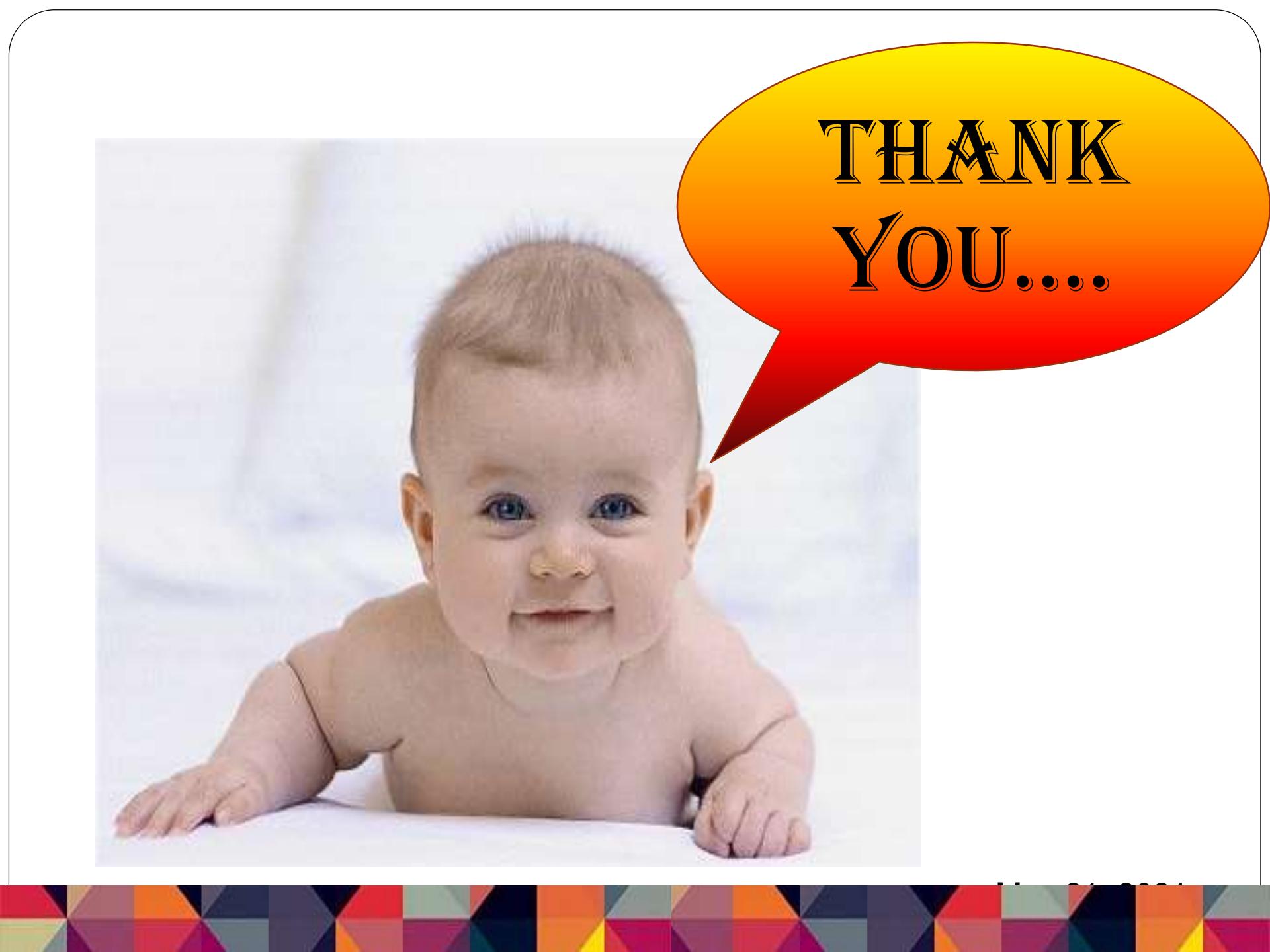




Doubts?

# References

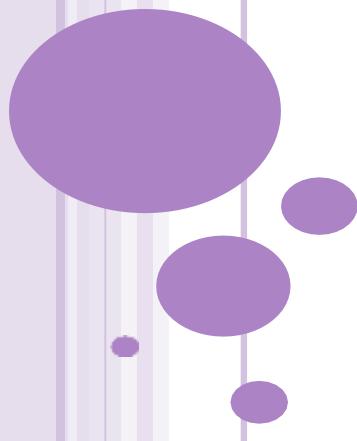
1. Smeltzer AC., Bare. BG. Brunner and Suddarth's Textbook of Medical Surgical Nursing. 10th edition(2168-70)
2. Emergency Management Institute, National Emergency Training Center.(2002). *Mass fatalities incident response course*. Emmitsburg, MD: Federal Emergency Management Agency
3. www. Upto date



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YOU....



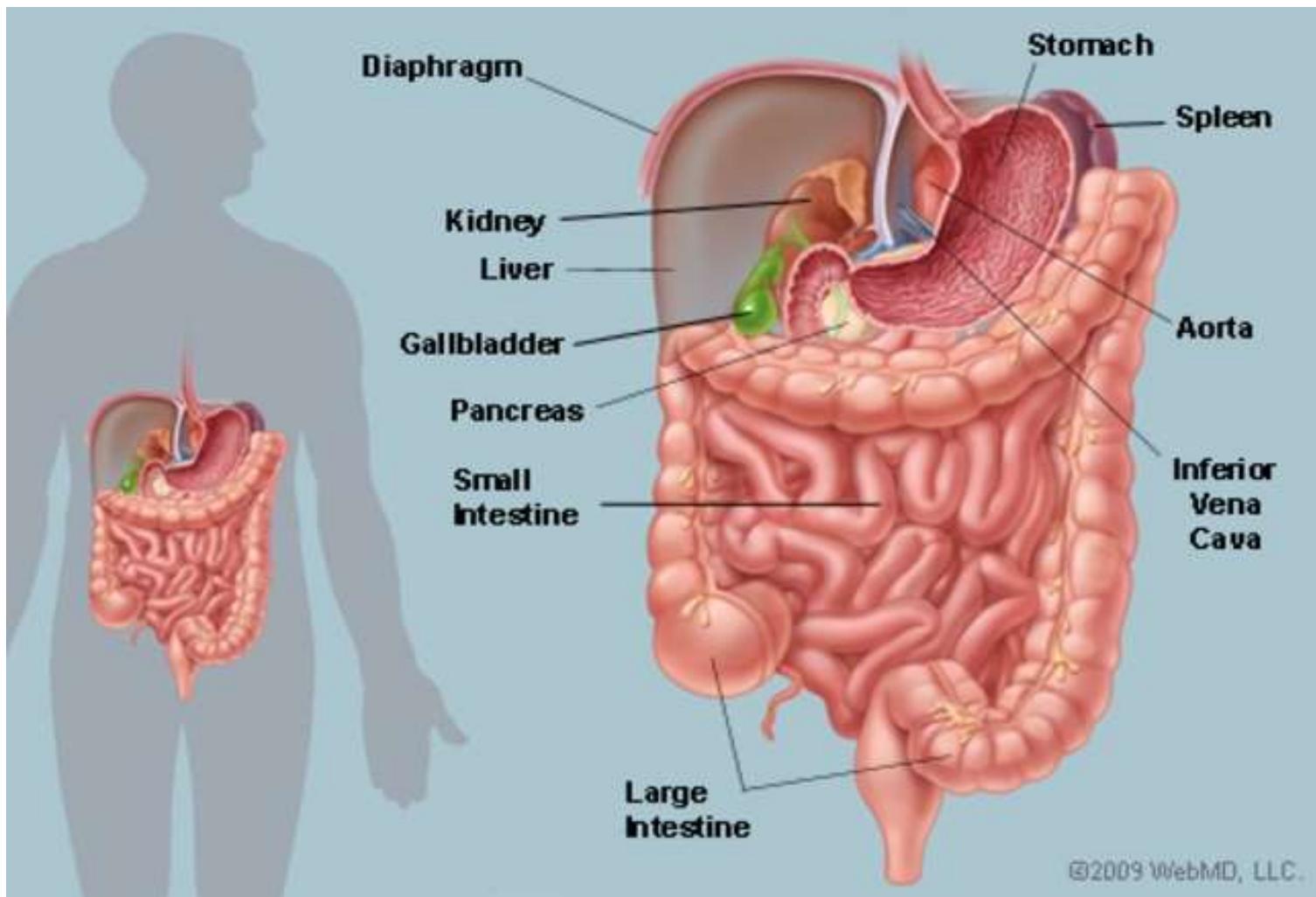
# Hematemesis



# CONTENT OUTLINE



- Anatomy and physiology of GI System
- Meaning of hematemesis
- Causes
- Symptoms Assessment
- First aid management



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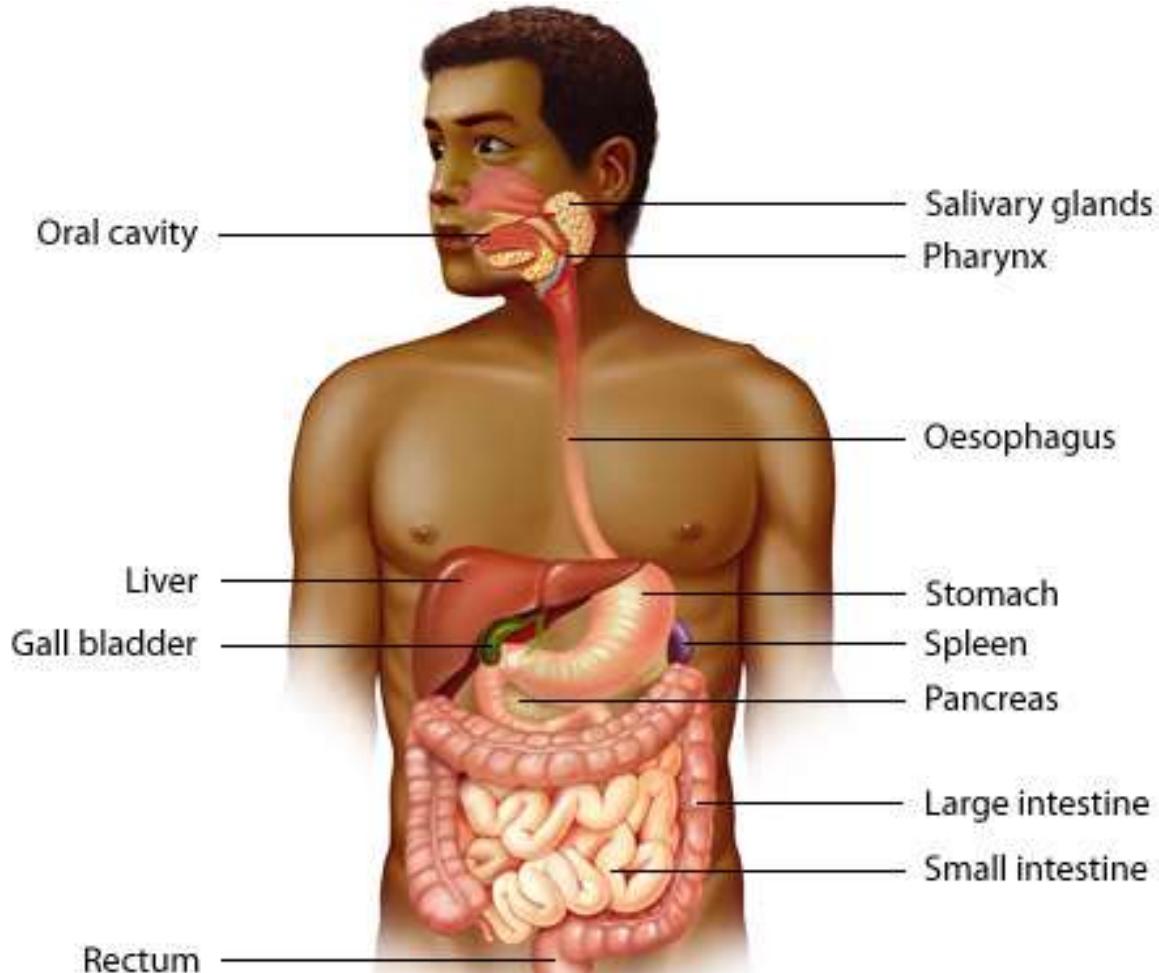
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**Organs can be classified as:**

**Hollow organs: (Mouth, Esophagus , Stomach, Gall bladder, large & small intestines, ureters, urinary bladder)**

**Solid organs (Liver, Spleen, Kidney, Pancreas)**

**Major vascular structures (Aorta and major branches)**



# GASTROINTESTINAL SYSTEM

- The gastrointestinal tract (Digestive tract, GI tract, GIT, or Alimentary canal)
- The GI system is essentially a long tube running right through the body, with specialised sections that are capable of digesting material and extracting any useful components from it, then expelling the waste products
- Nutrients from the GI tract are not processed on-site; they are taken to the liver to be broken down further, stored, or distributed.

# GASTROINTESTINAL SYSTEM

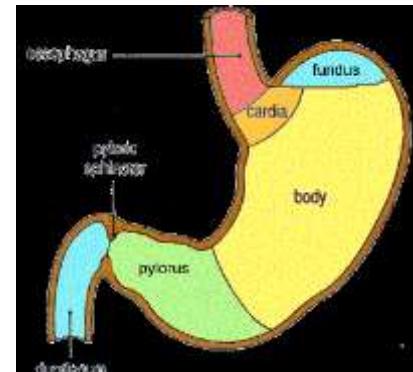
- The hollow organs that make up the GI tract are the mouth, esophagus, stomach, small intestine, large intestine, which includes the rectum and anus.
- Food enters the mouth and passes to the anus through the hollow organs of the GI tract.
- The liver, pancreas, and gallbladder are the solid organs of the digestive system.

## **FUNCTIONS OF GI SYSTEM**

- Ingestion and propulsion of food
- Digestion and absorption
- Elimination

# The stomach

- Temporary food storage
- Control the rate at which food enters the duodenum
- Acid secretion and antibacterial action
- Preliminary digestion with pepsin, lipases etc.



# The Pancreas

- The pancreas consists mainly of exocrine glands that secrete main enzymes lipases, peptidases and amylases for fats, proteins and carbohydrates respectively to aid in the digestion of food in the small intestine .
- An endocrine function that regulates blood sugar

# The liver

- Bile production.
- Excretion of bilirubin, cholesterol, hormones, and drugs.
- Metabolism of fats, proteins, and carbohydrates.
- Storage of glycogen, vitamins, and minerals.
- Synthesis of plasma proteins, such as albumin, and clotting factors.
- Blood detoxification and purification

# The gallbladder

- The main purpose of the gallbladder is to store bile, also called gall, needed for the digestion of fats in food
- Bile or gall is a dark green to yellowish brown fluid that aids the digestion of lipids in the small intestine

## The Small Intestine

The small intestine is the site where most of the chemical and mechanical digestion is carried out, and where virtually all of the absorption of useful materials is carried out.

# The Large Intestine

- By the time digestive products reach the large intestine, almost all of the nutritionally useful products have been removed.
- The large intestine removes water from the remainder, passing semi-solid faeces into the rectum to be expelled from the body through the anus

# Hematemesis



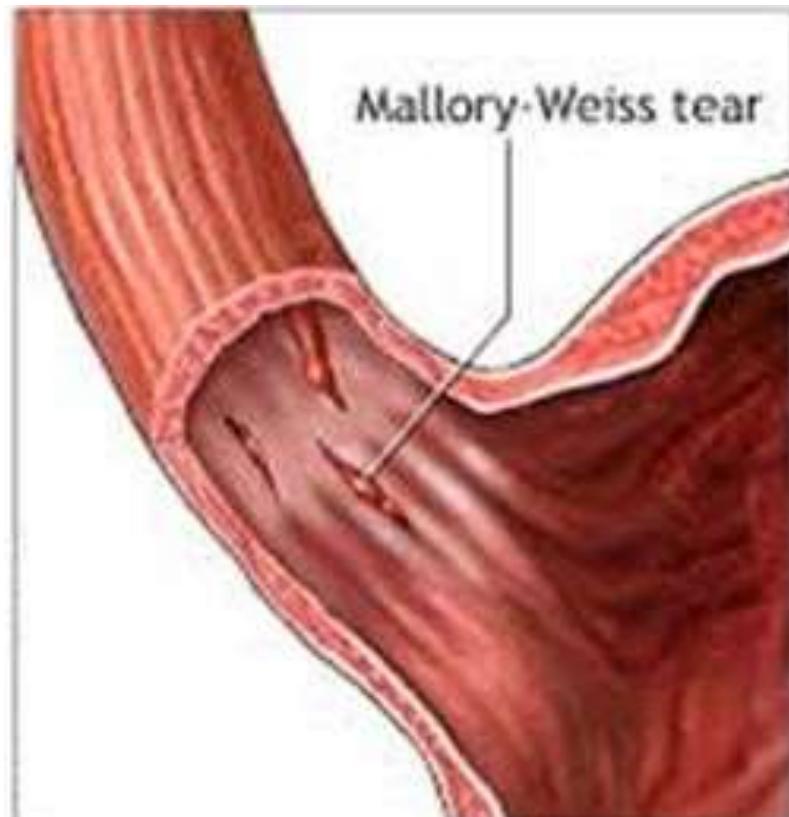


- ❑ Hematemesis is the vomiting of blood.
- ❑ The source is generally the upper gastrointestinal tract
- ❑ A very dangerous condition in which a person bleeds internally, and vomits as a result.



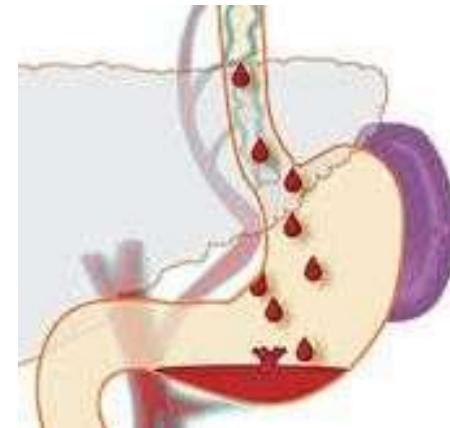
## CAUSES

Mallory-Weiss syndrome:  
bleeding tears in the  
esophageal mucosa, usually  
caused by prolonged and  
vigorous retching.



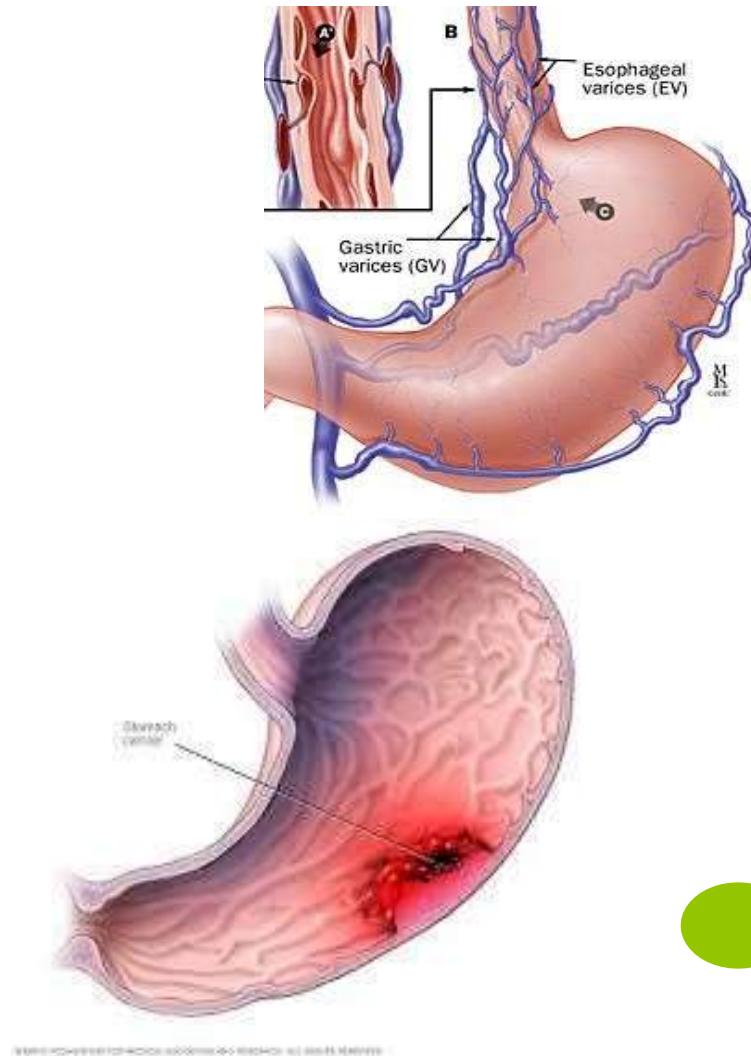
# CAUSES....

- Irritation or erosion of the lining of the esophagus or stomach
- Vomiting of ingested blood after hemorrhage in the oral cavity, nose or throat ( may not be life threatening)



# CAUSE

- Vascular malfunctions of the gastrointestinal tract, such as bleeding gastric varices or intestinal varices
- Tumors of the stomach or esophagus.



## Minor conditions

- esophagus irritation
- nosebleeds
- swallowing blood
- tear in the esophagus due to chronic coughing or vomiting
- swallowing a foreign object

## **Common causes of vomiting blood include**

- stomach ulcers
- aspirin side effects
- gastritis or stomach inflammation
- nonsteroidal anti-inflammatory drug side effects
- pancreatitis

## More serious causes

- alcoholic hepatitis
- cirrhosis
- esophageal cancer
- erosion of the stomach lining
- pancreatic cancer

# CAUSES...

- Radiation poisoning
- Viral hemorrhagic fevers
- Gastroenteritis
- Gastritis
- Peptic ulcer
- Chronic viral hepatitis
- Intestinal parasites
- History of smoking
- Injury due to invasive procedures



# Symptoms

- Nausea
- Abdominal discomfort
- Abdominal pain
- Vomiting stomach contents
- Dizziness
- Blurred vision
- Rapid heartbeat
- Changes in breathing
- Confusion
- Fainting
- Severe abdominal pain
- Vomiting blood after an injury

# ASSESSMENT

- Has this ever happened before?
- When did you first begin vomiting blood?
- How much blood did you vomit?
- Was the color bright red, or darker?
- What medical conditions do you have?
- What medicines do you take?
- Do you drink alcohol or smoke?

# Rapid Clinical Assessment

- Blood tests
- Endoscopy is a procedure used to examine your upper GI.
- CT or x-ray pictures may show the source of the bleeding. The pictures may show a tear, obstruction, or tumor that is causing you to vomit blood.

# Emergency Intervention

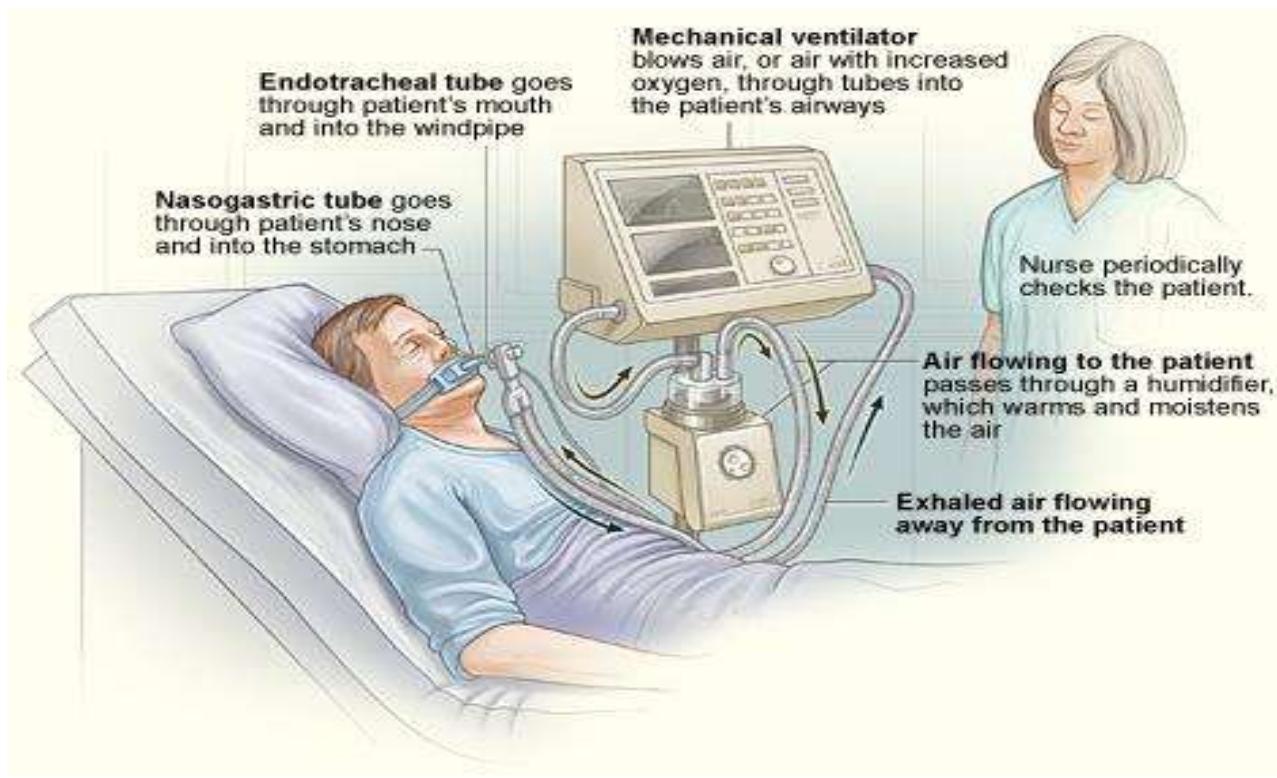
NPO( nil per oral).

I.V. lines and oxygen therapy initiated.

If life-threatening bleeding occurs, treat shock, administer blood replacement, intra-arterial vasopressin or embolization.

Surgical therapy, if indicated.

# Intubation and mechanical ventilation



# Treatment

- Medicine
- Endoscopy
- A blood transfusion
- An angiogram
- Surgery

## Medications

- Analgesics
- Gastric acid neutralizer
- Fluid replacement
- NSAIDs and anticoagulants are other common causes of GI bleeding should be stopped immediately

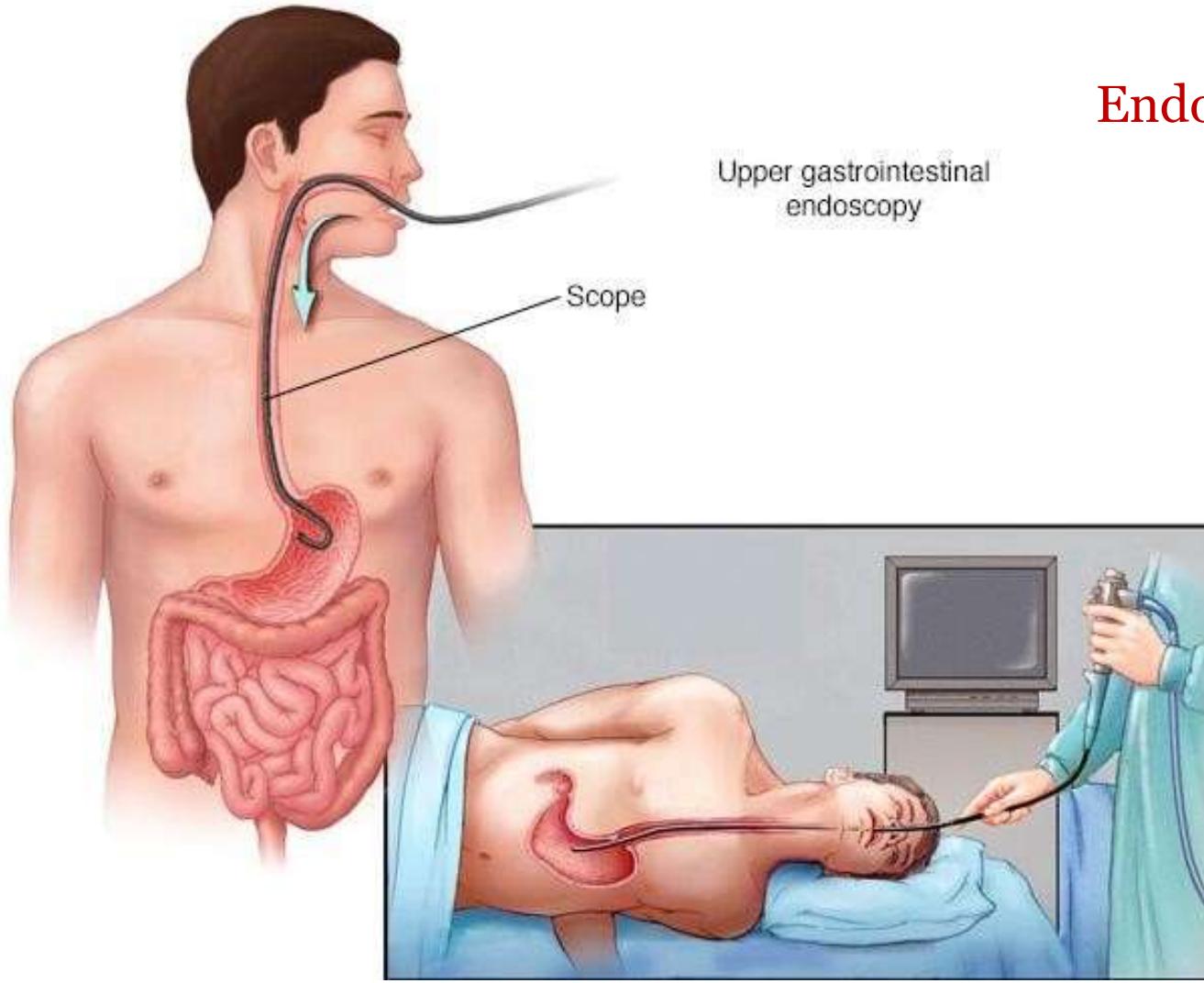






Blood Transfusion

# Endoscopy



# Nasogastric tube

An NG tube should be in place for most patients with acute or upper GI bleeding.

If the aspirate continues to be bloody after 2 to 3 L of tap water lavage, the patient may have an active bleed requiring more emergent intervention or endoscopic therapy.





surgery

## How DO I MANAGE MY SYMPTOMS

- Do not take NSAIDs
- Do not smoke
- Do not drink alcohol or caffeine
- Eat a variety of healthy foods
- Drink extra liquids as directed

**THANK YOU**





# Poly trauma

# Content outline

---



Meaning



Assessment



Signs and symptoms



First aid and Management



Crush injuries



Signs and symptoms



First aid and Management





# What is Polytrauma?

---

- Polytrauma is two or more injuries to physical region or organ systems, resulting in physical, cognitive, psychological or psychosocial impairment and functional disability.

# Polytrauma (Multisystem trauma)

---

“polytrauma” = Multisystem trauma =  
injury of two or more systems, one or the  
combination of altered vital signs.

## First Peak of Death :



.... within minutes

- Severe head injury
- Brain stem
- High cord injury
- Heart
- Aorta
- Massive blood loss

# Second Peak of Death :



- Intra cranial Bleed
- Chest injury
- Abdominal Bleeding
- Pelvic Bleeding
- Multiple limb injury

The  
“Golden hour”



# AIMS IN MANAGEMENT

“TO RESTORE THE PATIENT BACK TO HIS  
PREINJURY STATUS”

HAVING FOLLOWING PRIORTIES:

- ***LIFE SALVAGE***
- ***LIMB SALVAGE***
- ***SALVAGE OF TOTAL FUNCTION IF POSSIBLE***

# LIFE SALAVAGE



- 50% deaths due to trauma occur before the patient reaches hospital.
- 30% occur within 4 hrs of reaching the hospital.
- 20% occur within next 3 weeks in the hospital.
- If preventive measures are taken 70% deaths can be prevented meaning 30% deaths are ***nonsalvageable deaths.***

## Third Peak of Death :

... several days or weeks

- Sepsis
- Organ failure



Influenced by  
Early Management

## PHILOSOPHY FOR MANAGEMENT

*ADVANCED TRAUMA LIFE SUPPORT -- based on*

***'TREAT LETHAL INJURY FIRST, THEN REASSESS AND TREAT AGAIN'***

The steps in management are:

- **Primary survey**
- **Resuscitation**
- **Secondary survey**
- **Definitive care**

# Assessment of the injured patient

---

## Primary survey and resuscitation

- A = Airway and cervical spine
- B = Breathing
- C = Circulation and haemorrhage control
- D = Dysfunction of the central nervous system
- E = Exposure

## Secondary survey

## Definitive treatment

## Call for help 108

# Airway and cervical spine

---

- Always assume that patient has cervical spine injury
- If patient can talk then he is able to maintain own airway
- If airway compromised initially attempt a **chin lift** and clear airway of foreign bodies
  
- Intubate or cricothyroidotomy
- Give 100% **Oxygen**

# Assess Airway

- If pt conscious airway is maintained
- Open if necessary using jaw-thrust maneuver
- Consider oro- or naso-pharyngeal airway
- Note unusual sounds and correct cause
  - Snoring – oro-/naso-pharyngeal airway
  - Gurgling – suction
  - Stridor – consider intubation

# SIGNS OF AIRWAY OBSTRUCTION



## LOOK

*AGITATION*  
*POOR AIR MOVT.*  
*RIB RETRACTION*  
*DEFORMITY*  
*FOREIGN MATERIAL.*

## LISTEN

*SPEECH? "HOW ARE YOU"*  
*HOARSENESS.*  
*NOISY BREATHING*  
*GURGLE.*  
*STRIDOR.*

## FEEL

*FRACTURE CREPITUS.*  
*TRACHEAL DEVIATION.*  
*HEMATOMA.*  
*FACE.*

# Breathing

Check position of trachea, respiratory rate and air entry

- Airway patency does not assure adequate ventilation.
- Rate, Rhythm, Depth (tidal volume)
- Use of accessory muscles/retractions

## LOOK

Cyanosis  
Chest asymmetry  
Tachypnea.  
Distended neck veins.  
Paralysis.

## LISTEN

I can't breathe?  
Stridor  
Wheezing  
Decreased breath Sounds.

## FEEL

Chest tenderness.  
Deviated trachea.  
Surgical emphysema.

# Breathing

---

- If clinical evidence of tension pneumothorax will need immediate relief
- Place venous cannula through second intercostal space in the mid-clavicular line
- If open chest wound seal with occlusive dressing

# Circulation and haemorrhage control

---

- Assess pulse, capillary return and state of neck veins
- Identify exsanguinating haemorrhage and apply direct pressure
- Place two large calibre intravenous cannulas  
**Give intravenous fluids (crystalloid or colloid)**
- Attach patient to ECG monitor

# Dysfunction

---

Assess level of consciousness using AVPU method

A = alert

V = responding to voice

P = responding to pain

U = unresponsive

Assess pupil size, equality and responsiveness

# Glasgow Coma Score

- If GCS < 10 CT head is indicated
- **Limitations of GCS:-**
- Does not include pupillary assessment
- Does not identify abnormal lateralization of motor response
- Minimum score is 3

Eye Opening		
Spontaneous	4	
To voice	3	
To pain	2	
None	1	
Verbal Response		
Oriented	5	
Confused	4	
Inappropriate words	3	
Incomprehensible sounds	2	
None	1	
Motor Response		
Obeys command	6	
Localizes pain	5	
Withdrawn (pain)	4	
Flexion (pain)	3	
Extension (pain)	2	
None	1	

## **Signs of Severe Head Injury**

- Unequal pupils
- Unequal motor examination
- An open head injury with exposed brain tissue
- Neurological deterioration
- Depressed skull fracture

These are signs of severe head injury irrespective of CGS score

# Exposure and Examine

 Avoid hypothermia

Fully undress patients

- Patient should be undressed to facilitate thorough examination.
- Warm environment (room temp) should be maintained
- Intravenous fluid should be warm.
- Early control of hemorrhage.

# RESUSCITATION



- **Airway**

Definite airway if there is any doubt about the pt's ability to maintain airway integrity.

*A definite airway is a cuffed tube in the trachea.*

## **B. Breathing /Ventilation/Oxygenation**

Every multiple injured pt should receive supplemental oxygen.

*A clear distinction must be made between an adequate airway and adequate breathing.*

# RESUSCITATION



## C. Circulation

- Control bleeding by direct pressure or operative intervention
- Minimum of *two* large caliber IV(16G) should be established
  - Lactated Ringer is preferred & *better if warm.*



# Focused history and physical examination

---

- ▶ A – allergies
- ▶ M – medications
- ▶ P – past medical history
- ▶ L – last oral intake
- ▶ E – events leading up to the incident

## **ADJUNCT TO PRIMARY SURVEY & RESUSCITATION**

**A. Electro-cardiographic Monitoring**

**B. Urinary & Gastric Catheter**

**C. X-Ray & Diagnostic Studies**

C-spine lateral , CXR, Pelvic film (*TRAUMA SERIES*)

Essential x-ray should NOT be avoid in pregnant pt.

## **SECONDARY SURVEY**

- Does not begin until the primary survey (ABCDEs) is completed, resuscitative effort are well established & the pt is demonstrating normalization of vital sign.
- Head to Toe evaluation & reassessment of all vital signs.
- A complete neurological exam is performed including a GCS score.
- Special procedure is order.



---

 Reevaluation

 Definitive care.



# Crush Injury

- 
- ¶ Crush injuries can occur in different settings such as collapsed buildings, in the industrial setting or can be seen in road traffic accidents.
  - ¶ Crush injury results in muscle disintegration due to prolonged pressure on large muscles.

---



A crush injury : Injury by an object  
that causes compression of the body parts

# Signs and Symptoms

---

- There may or may not be any signs and symptoms
- Be suspicious of any patient that has had a large structure trapped for a period of time
- Tight skin around an extremity



---

## 5 P's

- Pain
- Poikilothermy (body temperature that varies with that of the environment) - cold skin
- Pallor
- Pulselessness (Distal)
- Paresthesia

# First aid management

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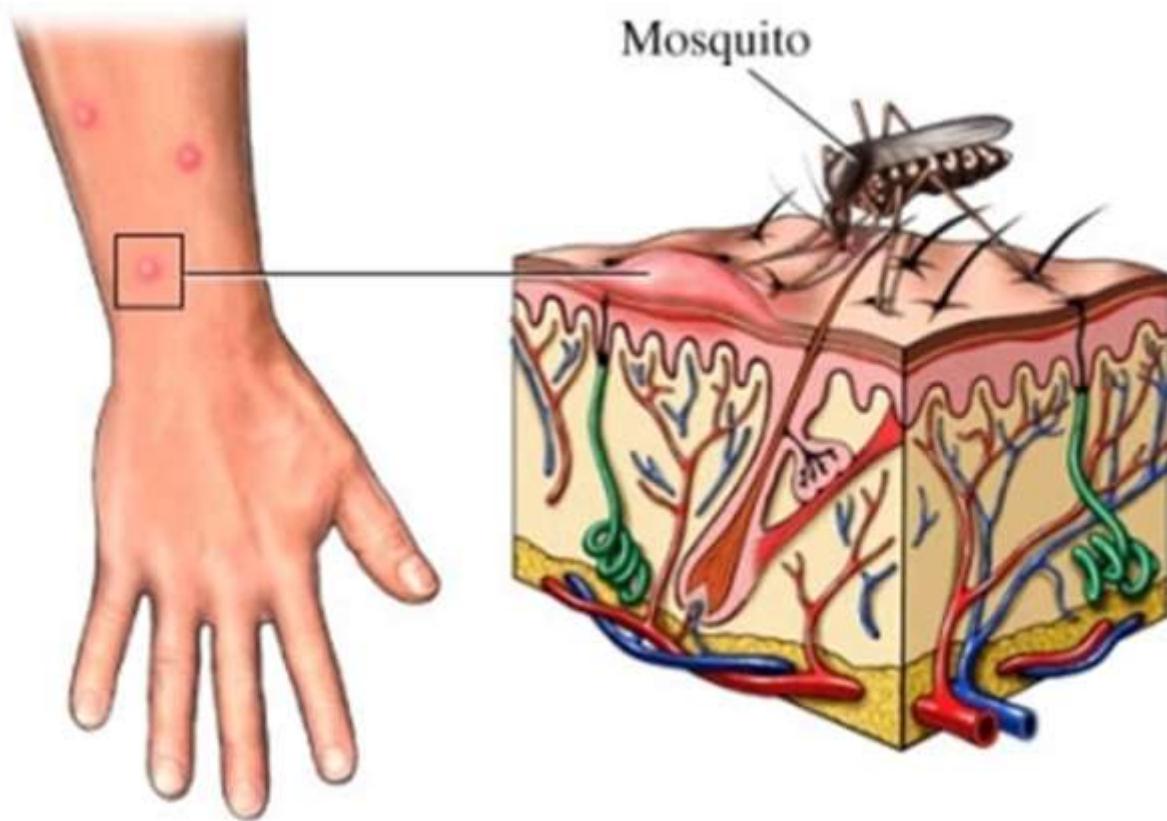
- Stop bleeding by applying direct pressure
- Cover the area with a wet cloth or bandage
- If there is suspicion of a head, neck or spinal injury, immobilize those areas if possible and then limit movement to only the crushed area

# General Management Techniques

---

- Request for paramedic backup at earliest opportunity as an IV sodium chloride solution should be started before extrication from the accident.
- Early hydration will help prevent renal collapse
- Secondary survey
- Continually monitor patient condition
- Smooth and rapid journey to hospital
- Professional handover to hospital staff

# Bites and sting



---

# Biting and Stinging Insects

- VENOMOUS:

- Wasps
- Hornets
- Yellow Jackets
- All Bees
- Fire Ants

- NON-VENOMOUS:

- Chiggers
- Fleas
- Lice
- Scabies
- Bed Bugs
- Ticks
- Mosquitoes



# Signs of Common Bites and Stings

## ■ Minor Reactions

Less severe reactions of bites and stings may trigger signals:

- A bite or sting mark
- A stinger, tentacle or venom sac
- Redness
- Swelling
- Pain or tenderness

## ■ Severe reactions

-result in “Anaphylaxis”



---

## Reactions depend on:



- The type and location of the bite or sting.
- The amount of poison injected.
- The time elapsed since the poisoning.
- The victim's size, weight, medical condition and age.



---

# Symptoms of Bites and Stings

<b><u>SYMPTOMS</u></b>	<b><u>VENOMOUS</u></b>	<b><u>NON-VENOMOUS</u></b>
Itching	Sometimes	Always
Pain	Always	Uncommon
Allergic Reactions	Common	Rare
Swelling or redness	Intense	Mild or absent

---

## Care for Insects Stings

- **To give care for an insect sting—**
  - Examine the sting site.
  - Remove stinger with credit card.
  - Do not squeeze the poison sac
  - Wash the area with soap and water and cover the site.



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---

Apply a cold compress  
spirit locally to relieve the pain and swelling.



- Apply ammonia or methylene blue locally as antidote for bee venom.
- Observe the victim for signals of allergic reaction.
- Epipen may be needed if history of reactions



- 
- For treatment of swelling caused by insect stings inside the mouth or throat, give ice to suck
  - Ask the victim to rinse the mouth with cold water
  - Place the victim in recovery position if breathing becomes difficult.
  - Treat for anaphylactic shock
-

# Signs of Tick Bites



- **Lyme disease:** bacterial infection spread through tick bites.

## General signs:

- Rash
- Fever
- Chills
- Severe headache
- Joint and muscle aches

---

## Care for Tick Bites

- Remove the tick with pointy tweezers.
- Wash the bite area with soap and water.
- Apply antiseptic or antibiotic ointment.
- Wash hands.



# Prevention of Tick Bites

- Apply repellent and wear proper clothing.
- Check and clean clothes thoroughly after having been in forest areas.
- Use precautions when removing a tick.



# Preventing Insect Bites and Stings

- Follow these general guidelines to prevent bites and stings:

- Apply repellent.
- Wear sturdy boots.
- Wear long-sleeved shirts and long pants.
- Tuck pant legs into socks or boots and tuck shirt into pants.
- Wear light-colored clothing.
- Inspect yourself carefully after being outdoors.
- Shower immediately after coming indoors.
- Spray pets that go outdoors with repellent.



# Domestic and Wild Animals bite



- **Rabies:**

deadly viral infection spread by animals



- **Tetanus:**

infection of nervous system with potentially deadly bacteria

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## **Signs of Tetanus and Rabies:**

- irritability
- headache
- fever
- painful muscular spasms
- muscular stiffness in the jaw



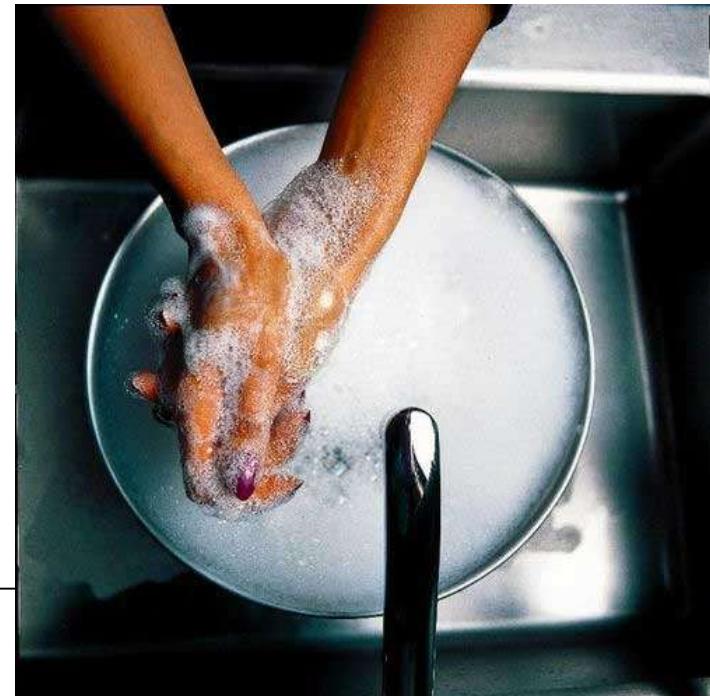
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# Care for Animal Bites

- Try to get the person safely away from the animal.

## Minor wounds

- Wash the wound with soap and water.
- Control bleeding.
- Apply a dressing & seek medical care.

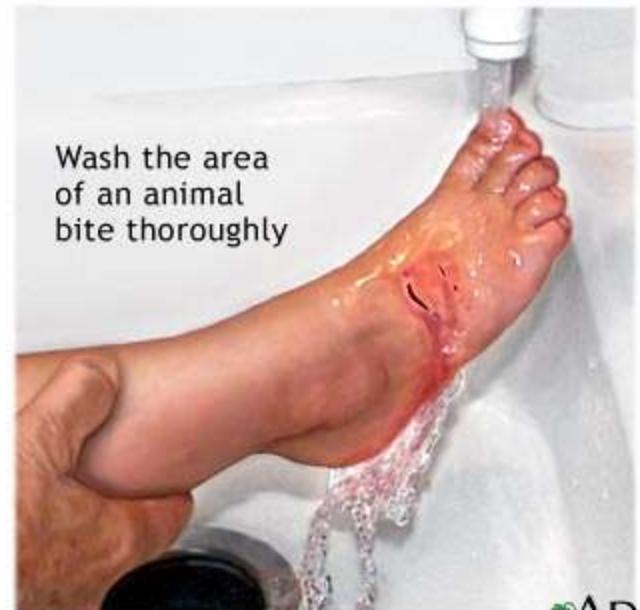
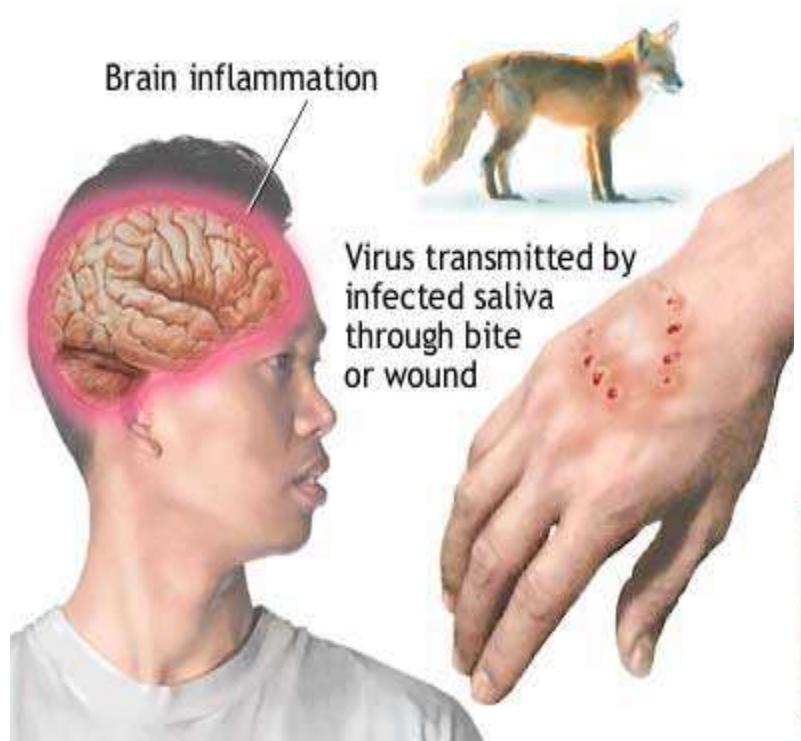


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# Severe Wounds



- Control the bleeding.
- Seek medical care immediately.
- Contact animal control authorities.



ADA

# Preventing Animal Bites and Stings



- **To prevent stings from marine animals,**

Consider wearing a wet suit or protective footwear in the water.



- **To prevent dog bites—**

- Do not run past a dog.
- Avoid eye contact, try to remain motionless.
- Do not approach a strange dog.
- Always let a dog see and sniff you before you pet the animal.

---

# Snakebite

- There are about 3000 species of snakes, of which only 250-300 are poisonous.
- The snake must be identified so that the specific anti venom can be applied.



# Management: Local

- **Tourniquet:** Between wound & heart, Pressure adequate to **occlude lymphatics only**, Released for few seconds every 10 minutes.
- **Immobilize** affected limb. **Elastocrepe bandage** may be applied (except viper bites with lots of local reaction.)

# Management: local reactions

- **BULLAE** - LEFT INTACT
- **NECROSIS** - DEBRIDEMENT
- **COMPARTMENT SYNDROME** - FASCIOTOMY

# Specific Management

- Anti Snake Venom (ASV)
  - Timing
  - Dose
  - Repeat dose
  - Hypersensitivity
- Mechanical ventilation

# Timing of ASV

- Best effects are observed **within four hours of bite**.
- Effective in **symptomatic patients even 48 hours after bite**.
- Efficacious even **6-7 days after the bite from vipers**.

# SUPPORTIVE CARE

ANTIBIOTICS

METHYL PREDNISOLONE

FFP,FRESH BLOOD

PREVENTION AND Rx OF HYPOTENSION

---

# Poisoning

---

# Poisoning

- Substances which when taken into the body cause damage to health are called poisons
- The adverse effects of plants, foods, chemicals or pharmaceutical agents on the body

# Poisoning



---

## Two peak age groups

- The first group is toddler or preschool age
- 2<sup>nd</sup> group is young adult age group, when ingestion is a form of suicidal behavior

---

## Suspect with

- GI signs/symptoms (nausea, vomiting, diarrhea, pain)
- Pupil changes, salivation, sweating
- Respiratory depression
- Burns, blisters of lips, mucous membranes
- Unusual breath sounds

---

## **Primary Assessment and Interventions**

- Primary survey-A,B,C,D,E
- Maintain an open airway
- Attain control of the airway, ventilation, and oxygenation
- Identify the poison.

---

## Try to determine

- What?
- How much?
- How long ago?
- What has already been done?
- Psychiatric history?
- Underlying illness

- 
- Continue the focused assessment
  - Obtain blood and urine and gastric content for toxicology screening
  - Cardiac monitoring
  - Monitor neurologic status and pupillary size
  - Monitor for fluid and electrolyte imbalance
-

---

## **Supportive Care**

- Initiate large-bore I.V. access.
- Administer oxygen
- Monitor and treat shock.
- Prevent aspiration
- Monitor and treat for complications: hypotension, coma, cardiac arrhythmias, and seizures.
- Psychiatric evaluations

---

# Poison management

- Based on route of entry
- Ingested poison
- Activated charcoal
- Syrup Ipecac

---

# Minimizing Absorption

- Administration of oral-activated charcoal
  - Action – it absorbs the poison on the surface of its particles and allows it to pass with the stool.
- Gastric lavage
- Forced diuresis with urine pH alteration to enhance renal clearance.

# Gastric lavage

Poison	Solution
Most poisons	Water or Saline
Oxidizable poisons(alkaloids,salicylates)	Potassium permanganate (1: 5000 or 1: 10000)
Cyanides	Sodium thiosulfate (25%)
Oxalates	Calcium Gluconate

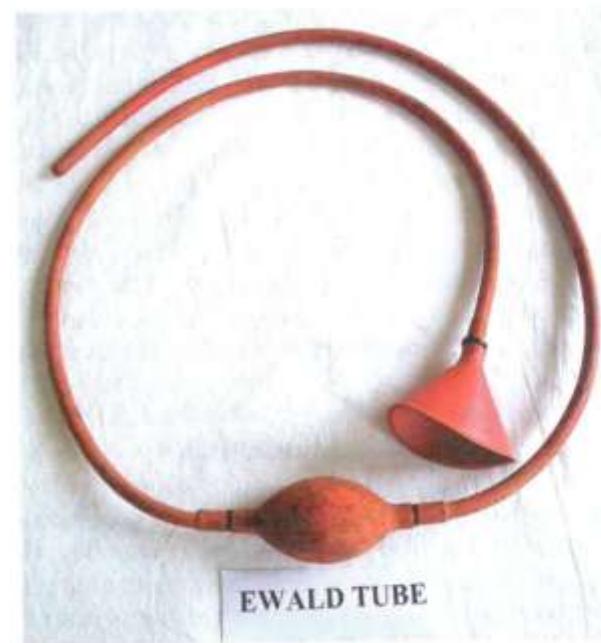


Fig 3.2: Gastric lavage (Ewald) tube (Pic: Dr Anu Sasidharan)

---

## Catharsis

- Ionic or saline-

Magnesium citrate

Magnesium sulfate

Sodium sulfate

- Saccharides (D-glucitol)

---

## **Whole bowel irrigation**

PEG-ELS ( Polyethylene glycol and Electrolytes lavage solution)

PEG-3350 (High molecular weight polyethylene glycol)

# **Activated charcoal**

- **Dosage**

- 1gm/kg of patient body
- Usual adult dose: 25-50grams
- Child dose: 12.5-25gms

- **Side effects**

- Nausea
- Vomiting
- Black stools

- **Contra indications**

- Altered mental status
- Inability to swallow
- Ingestion of acids or alkalis
- It does not bind with :
- Alcohol
- Petroleum products
- Metals

# Syrup Ipecac

- **Action:** induces vomiting by irritating stomach and stimulating vomiting center in brainstem



- 
- **Dose**
  - Children -15cc orally
  - Adults- 30cc orally
  - Repeat once after 20 minutes as needed
  - Should not be given at same time as activated charcoal
  - **Contraindications**
  - Decreased level of consciousness
  - Caustic poison
  - Petroleum based products

---

# **Reversal of synaptic biochemical abnormalities and reversal of cholinesterase blockade**

**I. Atropine-** It is the physiological antidote for acetylcholine and blocks it at muscarinic receptors.

The onset of action is within 1-4 minutes and peak effect is in 8 minutes.

Out of the various signs of atropinization , the target endpoints for atropine therapy are – drying of pulmonary secretions with no wheeze, heart rate $>80/\text{min}$ , pupil no longer pinpoint, dry axilla, systolic BP $>80\text{mmhg}$ .

- 
- **Dose-** It is given as 1-2 mg IV (children 0.05mg/kg) and if there is no effect, the dose is doubled every 5-10 mns.
  - In massive exposure, large doses (300-1500mgs/day) of atropine may be needed by continuous IV infusion.

- 
- The patient should be reviewed and assessed every 15 minutes to see the adequacy of dosage.
  - Once the parameters have settled, the patient is seen at least hourly for the next 6 hours to check the effectiveness of atropine infusion.
  - If clinical features recur, further increment in boluses and infusion (doubling) is required.
-

---

## **II. Pralidoxime (P<sub>2</sub>AM):**

- It prevents the development of Intermediate syndrome (IMS), when started early and also helps in rapid recovery in patients on ventilator due to IMS.
- Since its lipid solubility is low, it has limited CNS penetration and activity.
- Oximes are considered to have no role after 48 hours.

---

## Dose:

- The WHO recommendation is a loading dose of 30mg/kg followed by an infusion of >8mg/kg/hr5.
- The therapeutic endpoint for P<sub>2</sub>AM therapy is the resolution of muscle fasciculations and weakness, reactivation and permanent clinical improvement and incremental Serum Cholinesterase (SChE) levels.

---

## **Antidote administration**

10.1007/s00339-007-0333-1

---

## Corrosive poisoning

Signs of corrosive poisoning include greyish white or yellowish burn patches around the lips and mouth.

If corrosive poisoning never induce vomiting

- Avoid neutralizing agents
- Don't accidentally expose yourself

---

## 2. Inhaled poisons

- Remove patient from exposure
- Maximize oxygenation, ventilation
- Don't accidentally expose yourself

### In case of Carbon-Monoxide

- Apply artificial respiration.
- Give Oxygen.

### **3. Absorbed Poisons**

---

- Dry chemicals
  - dust skin, then wash
- Liquid chemicals
  - wash with large amounts of H<sub>2</sub>O
  - avoid “neutralizing” agents

**CAUTION**  
*Don't accidentally expose yourself!*

---

## 4. Injected poisoning

- Attempt to slow absorption
  - Venous constricting bands
  - Dependent position
  - Splinting of injected body part
  - Don't use cold packs-may worsen local injury by concentrating poison

---

# Mushroom poisoning

- All toxic mushrooms cause vomiting and abdominal pain
- manifestations vary significantly by mushroom type.
- Generally, mushrooms that cause symptoms early (within 2 h) are less dangerous than those that cause symptoms later (usually after 6 h).
- Treatment for most mushroom poisonings is symptomatic and supportive.
- Activated charcoal may be useful to limit absorption.
- Numerous antidotal therapies have been tried, especially for *Amanita* species, but none have shown consistently positive results.

---

# Early GI symptoms

- Mushrooms that cause early GI symptoms (eg, *Chlorophyllum molybdites* and the little brown mushrooms that often grow in lawns)
- gastroenteritis sometimes with
- headaches
- myalgia's.
- Diarrhea is occasionally bloody.
- Symptoms usually resolve within 24 h.
- Treatment is supportive.

---

# Early neurologic symptoms

- Mushrooms that cause early neurologic symptoms include hallucinogenic mushrooms, which are usually ingested recreationally because they contain psilocybin, a hallucinogen.
- Symptoms begin within 15 to 30 min and include euphoria, enhanced imagination, and hallucinations.
- Tachycardia and hypertension
- Treatment occasionally involves sedation (eg, with benzodiazepines).

---

# Early muscarinic symptoms

- Mushrooms that cause early muscarinic symptoms include members of the *Inocybe* and *Clitocybe* genera.
- Miosis
- bronchorrhea
- bradycardia
- diaphoresis
- wheezing, and fasciculations.
- Symptoms are usually mild, begin within 30 min, and resolve within 12 h.
- Atropine may be given to treat severe muscarinic symptoms (eg, wheezing, bradycardia).

---

# Early muscarinic symptoms

## Delayed GI symptoms

- Renal failure.
- hepatorenal syndrome.
- Management
- Initial care involves close monitoring for hypoglycemia and possibly repeated doses of activated charcoal.
- Neurologic symptoms are treated with pyridoxine 70 mg/kg slow IV infusion over 4 to 6 h (maximum daily dose of 5 g)
- liver failure is treated supportively.

---

# Lead poisoning

- Houses painted before 1978 (particularly when remodeled or repainted), certain ceramic ware (eg, pitchers, cups, plates) that has a leaded glaze, and certain occupational exposures increase the risk of lead poisoning.
- Test patients by measuring capillary levels PbB
- Remove the source of lead (eg, by whole-bowel irrigation for lead in the GI tract).
- Arrange chelation therapy for adults with PbB > 70 µg/dL and for children with encephalopathy or PbB > 45 µg/dL.

---

# Fish poisoning

Ciguatera poisoning is toxin that accumulates in the flesh of the fish. Older fish and large fish (eg, grouper, snapper, kingfish) contain more toxin. No known processing procedures, including cooking, are protective, and flavor is unaffected.

Symptoms may begin 2 to 8 h after eating.

Abdominal cramps, nausea, vomiting, and diarrhea last 6 to 17 h  
then, pruritus, paresthesia, headache, myalgia,  
reversal of hot and cold sensation and face pain

For months afterward, unusual sensory phenomena and nervousness may cause debilitation.

IV Mannitol has been suggested as a treatment, but no clear benefit has been shown.

---

## Fish poisoning

### Scombroid poisoning

Scombroid poisoning is caused by high histamine levels in fish flesh due to bacterial decomposition after the fish is caught.

Commonly affected species includes: Tuna, Mackerel, Bonito, Skipjack, Mahi mahi

The fish may taste peppery or bitter.

Facial flushing and possibly nausea, vomiting, epigastric pain, and urticaria occur within a few minutes of eating and resolve within 24 h.

Symptoms are often mistaken for those of a seafood allergy.

Unlike other fish poisonings, this poisoning can be prevented by properly storing the fish after it is caught.

Treatment may include H<sub>1</sub> and H<sub>2</sub> blockers.

---

# Fish poisoning

## Tetrodotoxin poisoning

freshwater and saltwater species contain tetrodotoxin.

Symptoms are similar to those of ciguatera poisoning; potentially fatal respiratory paralysis can also occur.

Treatment is supportive care with attention to ventilatory assistance until the toxin is metabolized, which may take days.

The toxin cannot be destroyed by cooking or freezing.

## **Shellfish poisoning**

Paralytic shellfish poisoning can occur from June to October, especially on the Pacific and New England coasts

when mussels, clams, oysters, and scallops are contaminated by the poisonous dinoflagellate responsible for red tide.

This dinoflagellate produces the neurotoxin saxitoxin, which is resistant to cooking.

Circumoral paresthesias occur 5 to 30 min after eating.

Nausea, vomiting, and abdominal cramps then develop, followed by muscle weakness.

Untreated respiratory paralysis may be fatal; for survivors, recovery is usually complete.

---

## Medicolegal aspects of poisoning

- Report to police
- If police require more information, attending doctor has to divulge it.
- Collect and preserve evidence suggestive of poisoning
- Collect vomitus, faeces, stomach wash, contaminated food etc and dispatch the same for chemical analysis to the nearest forensic science lab.

- 
- If a patient dies before the exact diagnosis is made or he was brought dead to the hospital, notify the police.
  - Death certificate must not be issued. Police may order an autopsy to be done.
  - Detailed written records should be made with respect to every case of poisoning and kept in safe custody.
  - If a doctor comes across a case of food poisoning from a public eatery, he must notify the public health authority concerned.

# Foreign body aspiration

Anjalin Dsouza  
Asst.Professor  
MCON,Manipal,MAHE



# Learning objectives

- ▶ Compare the anatomy and physiology of the respiratory system in children with adults.
- ▶ Identify the first aid measures in foreign body aspiration.

# **How children differ from adults**

# Difference

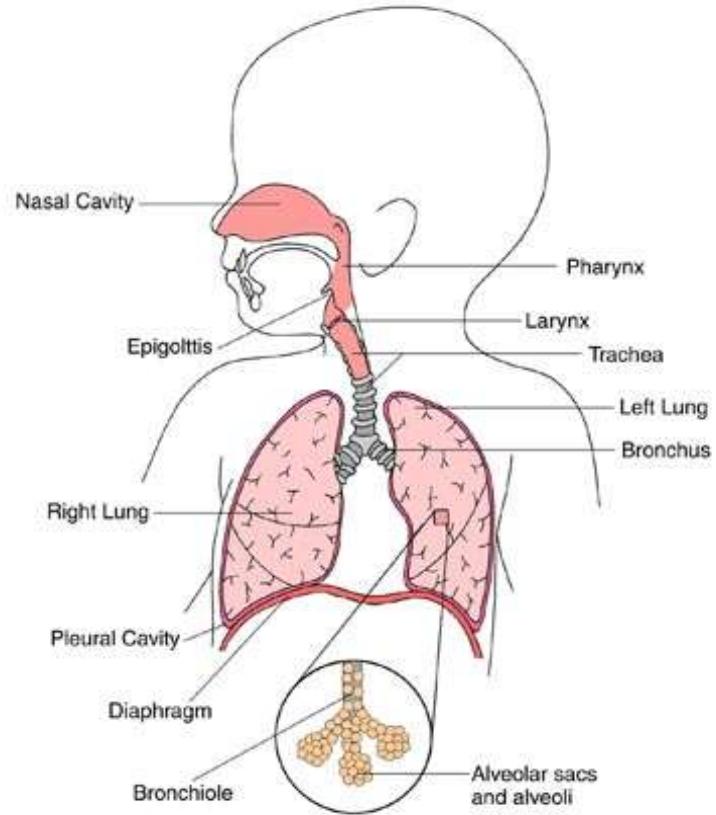
- ▶ Obligatory nose breathers upto 4 weeks.
- ▶ Tongue is larger than adults.
- ▶ Treachea- smaller lumen 4mm compared with adult 20mm



# Difference between children and adults

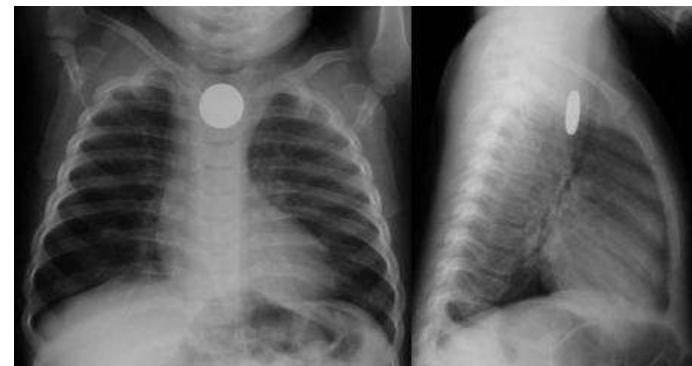
- ▶ Bifurcation of trachea occurs at the level of 3<sup>rd</sup> thoracic vertebra,(in adults at 6<sup>th</sup> thoracic vertebra)
- ▶ Alveoli–50 million , adult- 300 million
- ▶ Chest wall – highly compliant and fails to support the lungs.





# Meaning

- ▶ Foreign bodies can become lodged in the throat or other body openings, causing stasis of secretions and infections.
- ▶ Children explore objects with their mouth and they are very prone to aspirate foreign bodies into the air passages.
- ▶ It's mainly seen in children between 1 to 3 years (toddler period).

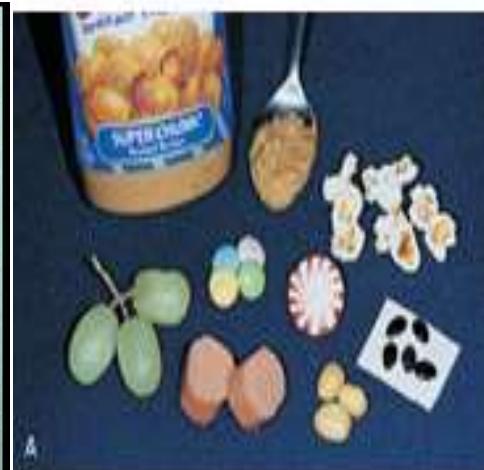


# What children may aspire?



# What children may aspirate?

- ▶ Food material -Peanut ,Bone, Seed
- ▶ Metallic object -battery, pin
- ▶ Plastic object
- ▶ Paper , chalk
- ▶ Coin
- ▶ Stone
- ▶ Bullet



# Case 1

- ▶ A 16yr old girl came to the hospital with history of swallowing a pin (used to pin the scarf)

## Case 2

- ▶ A 4yr old girl came with history of swallowing a battery (toy mobile)
- ▶ Care takers noted and brought her immediately to the hospital

## Case 3

- ▶ A 3yr old child had chronic cough, respiratory infections.
- ▶ Was on antibiotics for few days, did not resolve the infection
- ▶ Chest x-ray was taken , later bronchoscopy was done to remove the foreign body
- ▶ It was a piece of Aracnut

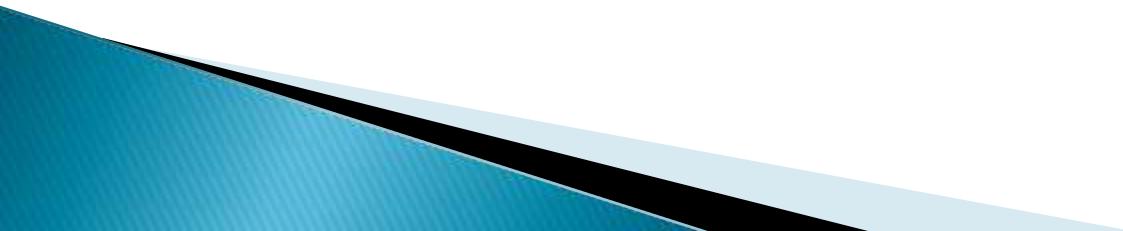
## Case 4

- ▶ A 2 yr came with history of swallowing coin

## Case 5

- ▶ A 3year old girl came to hospital with history of swallowing key chain holder.

# Clinical manifestations



# Clinical manifestations

- ▶ Irritation
- ▶ **Choking, coughing**
- ▶ Occlusion of airway – dyspnea
- ▶ Bronchial obstruction
- ▶ Suffocation, excessive sputum production, cyanosis(blue discolouration) or difficulty in breathing. These symptoms develop immediately after the aspiration
- ▶ Vomiting
- ▶ Abdominal pain

# Diagnostic evaluation

- ▶ History and physical examination
- ▶ Bronchoscopy–
- ▶ X –ray

# Management

- ▶ Removal of the foreign body as early as possible
- ▶ For choking - abdominal thrust for children over 1 years & back blows
- ▶ Chest thrust for children less than 1 year of age

- ▶ Place child prone (on abdomen) with the head down.
- ▶ Apply 5 blows with the open hand to the interscapular area.
- ▶ Turn child face up.
- ▶ Apply 5 chest thrusts using the same technique as for chest compression during CPR.



## Abdominal thrust



**Figure 8. Standing Abdominal Thrust In A Conscious Patient**



*The rescuer stands behind the patient with arms under the axilla and encircling the chest. The thumb side of one fist is placed on the abdomen (above the navel and below the xiphoid process), while the other hand encloses the fist, allowing the rescuer to perform 5 upward-inward thrusts. (Jill Parres-Gold, RRT, demonstrating on Jacob Parres-Gold. Photo by Marisa K. Bell, MD ©2009.)*

# if obstruction is total

- ▶ Open the airway and under direct vision (preferably using a laryngoscope) check in the mouth for a foreign body – if present remove it with magills forceps.

# Prevention

- ▶ Children should not be given with small objects or toys
- ▶ Teach the parents regarding the complications of aspiration
- ▶ If suspecting, teach the parents to recognize the signs and symptoms of aspiration
- ▶ Keep small objects out of reach of children
- ▶ Never leave the child alone



Hmmm, Doc, why don't we just make peanuts radio-opaque?

Then we won't worry about delayed diagnosis of FB as much.

This would be easy to see on Xray.

*Seizures...*



## Meaning

A seizure is defined as a sudden, paroxysmal electrical discharge from the central nervous system resulting in involuntary, motor, sensory disturbances with or without alteration in sensorium.



## Meaning

- Symptom of an underlying disease process.
- Epilepsy is a condition characterized by two or more unprovoked seizures and can be caused by a variety of pathologic process in the brain

# Incidence

- Epilepsy and seizures affect 2.3 million Americans.
- At least 8% of general population will experience one or more seizure in a lifetime.
- Around 3% of all children have a seizure when younger than 15 years, half of which are febrile seizures
- One of every 100 children has epilepsy-recurring seizures.

- Acute symptomatic seizures can be associated with an acute insult such as head trauma or meningitis.



## **Other causative factors:**

- Febrile episodes: Febrile seizures are the most common type of seizure seen in children-occurs due to fever



- Intracranial infection and haemorrhage
- Brain injury during prenatal, perinatal and postnatal periods

## Other causative factors -- contd

- Space occupying lesions(cyst, tumour)
- Anoxia
- Acute infections
- Drugs
- Tetanus
- Metabolic alteration: (Eg: hypoglycaemia, hypocalcaemia, certain nutritional deficiencies)

## **Types -Tonic clonic seizures(grand mal)**

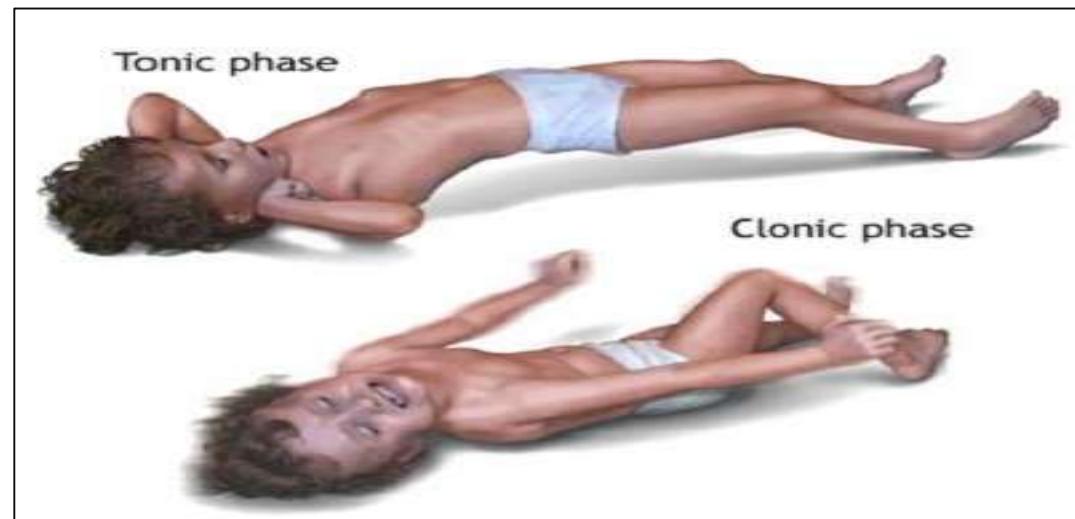
- Most dramatic of all seizure manifestations of childhood.
- The seizure usually occurs without warning
- Consists of two distinct phases: tonic and clonic

In the tonic phase:

- Lasts 10-20sec
- Uprolling of eyes upward
- Immediate loss of consciousness
- If standing, the child falls to the floor.

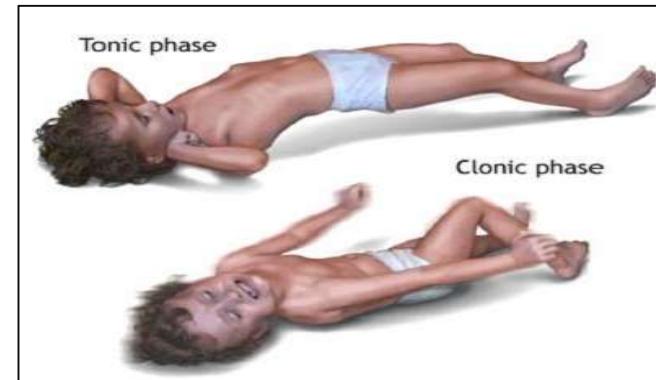


- Legs, head and neck extended
- May produce a peculiar piercing cry
- Apneic, may become cyanotic
- Increased salivation and loss of swallowing reflex
- Arms usually flexed



## In the clonic phase

- Lasts about 30seconds but can vary from only a few seconds to a half an hour or longer
- Violent jerking movements as the trunk and extremities undergo rhythmic contractions and relaxation
- Foam at the mouth
- Incontinent of faeces and urine



# Diagnostic evaluation

## History

- The type of seizure or description of child's behaviour during the event, the age of onset, and the time at which seizure occurs (early morning, before meals, while awake, or during sleep)
- Presence of any precipitating factors

- Duration and progression of seizure and the post ictal feelings and behaviour (confusion, inability to speak, amnesia, head ache and sleep) are recorded.
- It is important to determine whether more than one seizure type exists.
- Report any family history of seizure mental retardation, cerebral palsy or other neurological disorders.

# Safety precautions

- Extent of precautions depends on the type, severity and frequency of seizures. it includes
- Side rails raised when the child is sleeping or resting
- Side rails and other hard objects padded
- Waterproof ,mattress/pad on bed/crib



- Appropriate precautions during potentially hazardous activities like swimming with a companion, use of protective helmet and padding during bicycle riding
- Have child carry or wear medical identification



- Identify and avoid triggering factors whenever possible

# Complications

- Difficulty learning
- Breathing in food or saliva into the lungs during a seizure, which can cause aspiration pneumonia
- Injury from falls, bumps, self-inflicted bites, driving or operating machinery during a seizure
- Permanent brain damage (stroke or other damage)
- Side effects of medications

## Prognosis

- Seizures will remit in more than two thirds of children with childhood onset of seizure.
- Mortality is increased in children with epilepsy, those with neurological abnormalities.
- Most children who experience a second seizure will experience additional seizures.

# Management

- Teach patient and parents to identify and avoid situations that are known to precipitate a seizure (blinking lights, sleep deprivation)
- Administer **antiepileptic drugs** and teach family and patient about the purpose of medications, how to monitor for side effects of drugs
- Initiate seizure precautions at hospital
  - pad side rails of bed or crib or wheelchair
  - keep bed relatively free of objects
  - set up suction and oxygen in room

- Educate family to initiate seizure precautions at home: bathroom safety (leave bathroom unlocked), sports safety (wearing protective safety).

### Teach family about the seizure first aid

- If the child is at risk of falling, ease the child to floor
- Loosen tight or restrictive clothing
- Turn the child to side lying position
- Prevent the child from hitting head on objects
- Time the seizure
- If he vomits, or if saliva and mucus build up in the mouth, turn him on his side or stomach.
- Do not put anything on the child mouth or restrain the child.

## **Risk for aspiration**

- Place the child in a side lying position during the event on a flat surface
- Remain with the patient
- Remove secretions, foods, liquids from mouth when seizure subsides
- Monitor oxygenation status in the post ictal state
- Administer oxygen as necessary
- Administer rescue breaths if spontaneous breaths do not resume shortly after seizure subsides.
- Administer medication intended to stop seizure longer than 5minutes(rectal diazepam, iv lorazepam)

## **Fear and anxiety related to child having life threatening and incapacitating seizure activity**

- Instruct parent on proper protection interventions during seizure activity:
- Positioning, safety, airway maintenance, emergency medication administration.
- Allow parents to remain with the child
- Provide information about the nature of seizures, therapeutic intervention, life style modifications
- Encourage family involvement in the daily care
- Involve parents in discussion of fears, anxieties

## FEBRILE SEIZURE

- A febrile seizure is a convulsion in a child triggered by a fever.
- These convulsions occur without any brain or spinal cord infection or other nervous system (neurologic) cause.



- Febrile seizures are usually triggered by fevers from:
  - Ear infections
  - Roseola infantum (a condition with fever and rash caused by several different viruses)
  - Upper respiratory infections caused by a virus or gastro intestinal infections

- Mild as the child's eyes rolling or limbs stiffening.
- Often a fever triggers a full-blown convulsion that involves the whole body.
- Begin with the sudden contraction of muscles on both sides of a child's body -- usually the muscles of the face, trunk, arms, and legs.

- The child may cry or moan from the force of the muscle contraction.
- The contraction continues for several seconds, or tens of seconds.
- The child will fall, if standing, and may pass urine.
- The child may vomit or have increased secretions (foam at the mouth) or bite the tongue.
- Sometimes children do not breathe, and may begin to turn blue.

- Finally, the contraction is broken by brief moments of relaxation. The child's body begins to jerk rhythmically. The child does not respond to the parent's voice
- A simple febrile seizure stops by itself within a few seconds to 10 minutes. It is usually followed by a brief period of drowsiness or confusion.
- A complex febrile seizure lasts longer than 15 minutes, is in just one part of the body, or occurs again during the same illness.

# Management

- Control the temperature with acetaminophen (paracetamol) or by sponging
- If the seizure continues , control the seizures with diazepam .





# **PAEDIATRIC EMERGENCIES**

**Drowning ,poisoning, burns and trauma**

# Learning objectives

On completion of the class students will be able to

- List the emergency conditions in children
- Describe the clinical features
- Explain the first aid measures for specific emergencies

# Drowning:

## Definition :

- Drowning is defined as death due to suffocation from submersion in liquid. Inhaled water fills and therefore blocks the exchange of oxygen in the alveoli.



# Near drowning

- A child with a submersion injury who requires emergency treatment and who survives the first 24 hours post injury



# Clinical features

- Aspiration
- Hypoxia
- Hypothermia



# Emergency management

- Mouth to mouth resuscitation
- Endotracheal intubation
- 100% oxygen therapy
- Bronchodilators



## Emergency management

- Gradual warming – if the temperature is low
- Gastric compression to prevent vomiting and free up breathing space

# Poisoning

## Definition

Poisoning by ingestion refers to the oral intake of a harmful substance which, even in a small amount, can damage tissues, disturb bodily functions and possibly death.



# Which are the common poisons substance children consume ???



# Common poisons a child may consume

- Chemicals-Kerosine
- Pesticide
- Insecticide
- Rat poison
- Cleaning agents-Phenol
- Medicines –Iron, paracetamol, diabetic pills

# Causes

- Improper storage
- Failure to read the label
- Failure to recognize the material as poison

# Clinical manifestations

CNS :

- Convulsions
- Dilated pupils
- Coma



# Clinical features

## GI symptoms

- Anorexia
- Abdominal pain
- Diarrhoea & intestinal cramps
- Nausea & vomiting



# Clinical features

## Skin

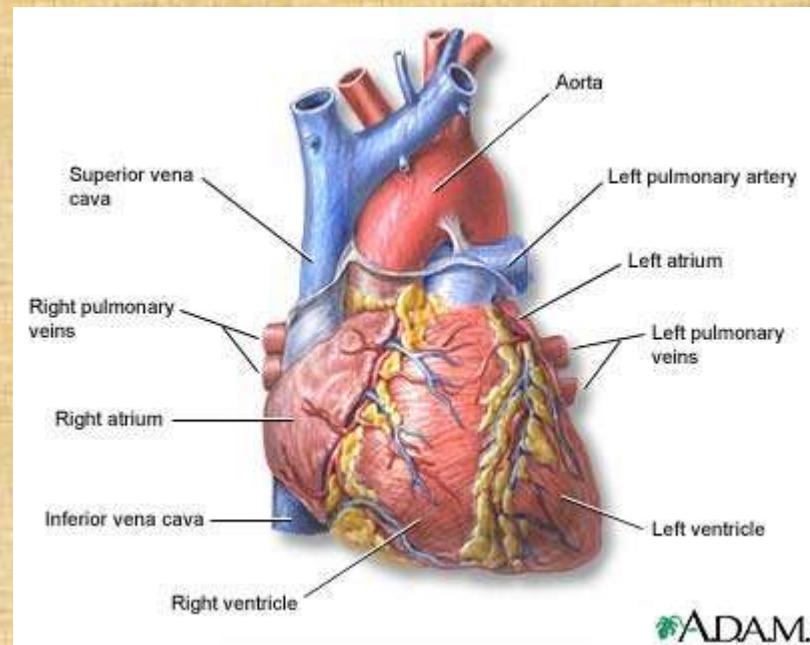
- Irritation
- Cyanosis – cyanide poisoning
- Rashes
- Inflammation of the eye



# Clinical features

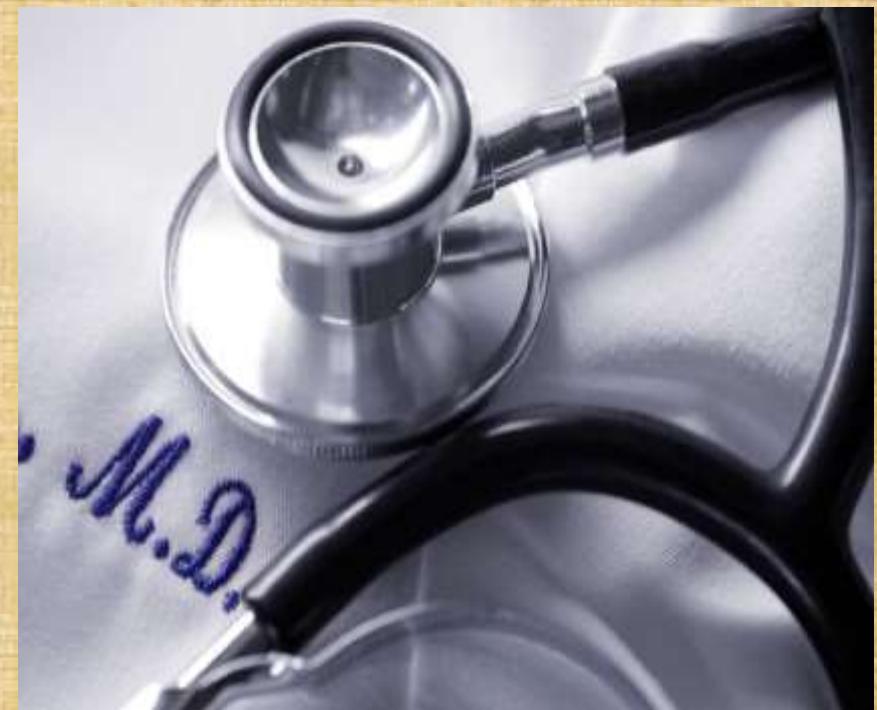
## Cardio pulmonary system

- Dyspnea
- Weak pulse
- Shallow respiration
- Signs of shock



# Diagnosis

- Analysis of vomitus or aspirate reveals the presence of toxin



# **Approach to Pediatric Toxicology**

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- 1. Resuscitation**
- 2. Risk assessment**
- 3. Supportive care**
- 4. Decontamination**
- 5. Enhanced elimination**
- 6. Antidotes**
- 7. Disposition**

# **Emergency management of poisoning at home :**

- Child's name, telephone number, address, weight and age
- How long ago the poisoning occurred
- The route of poisoning(oral, inhaled)
- Amount of poison consumed by the child

# At the health care facility

- Gastric lavage
- Saline cathartic -sorbitol
- Antidote
- Forced diuresis
- Dialysis



<b>POISON</b>	<b>ANTIDOTE</b>
Paracetamol	N-acetylcysteine
Opioids	Naloxone
Benzodiazepines	Flumazenil
Sodium channel blockers	NaHCO <sub>3</sub>
Iron	Desferroxamine
Digoxin	Digoxin fab-fragments (Digi-bind)
Organophosphates	Pralidoxime, atropine

# IRON POISONING -Management

- Syrup ipecac- to make the child vomit
- Gastric lavage
- Cathartics
- Chelating agent eg: desferoxamine
- Stool analysis – malena



# Activated charcoal (AC)Dose = 1g/kg

- Is rarely indicated in pediatric poisoning
- Risk of aspiration and subsequent chemical pneumonitis
- Can be made more palatable by mixing with ice-cream/sorbitol  
(1to 2g/kg)

# **LEAD POISONING(plumbism)**

## **Management**

- Remove the child from the environment
- Make certain that all sources of lead are removed from the child's environment
- Administer cleansing enemas if radio opaque lead particles are observed on abdominal x-rays.
- Assess blood lead level(BLL)= $20-44\text{mcg/dl}$  requires treatment

# Management

- Administer appropriate chelating agents
  - Dimercaprol, deep IM
- Oral chelator- dimercaptosuccinic acid
- Encourage hand washing before meals & at bed time to eliminate lead consumption from normal hand to mouth activity.

- Advice parents to remove the lead paints from the walls.
- Instruct the parents about the seriousness of the repeated exposure to lead.



# Corrosives(acids or alkali)- Management

- Do not induce emesis
- Do not neutralize
- Dilute with milk or water

# After ingestion of acid post effect

## Case 1

- A 2 yr old boy accidentally consumed nitric acid kept in jewellary shop, had little swallowing difficulty, shown to doctor managed conservatively
- After 1 year slowly the child started with difficulty in swallowing solid foods
- Admitted in hospital, has complete blockage of the esophagus on gastrostomy feeding -

# Acetaminophen(Paracetamol)

- Antidote- N-acetylcysteine
- **Aspirin poisoning**- antidote- activated charcoal



**About 90,000 children are seen in hospital emergency rooms each year due to unintentional poisonings.**



## Prepare and Prevent



UNITED STATES OF AMERICA  
CONSUMER PRODUCT  
SAFETY COMMISSION

# Burn trauma

- A burn injury to body tissue caused by excessive heat. Burn injuries are one of the common form of child injury.



# Incidence :

- They commonly occur in children of all the ages after infancy.
- They are the second cause of accidental injury in children 1 to 4 years of age and the 3<sup>rd</sup> cause in children 5 to 14 years.



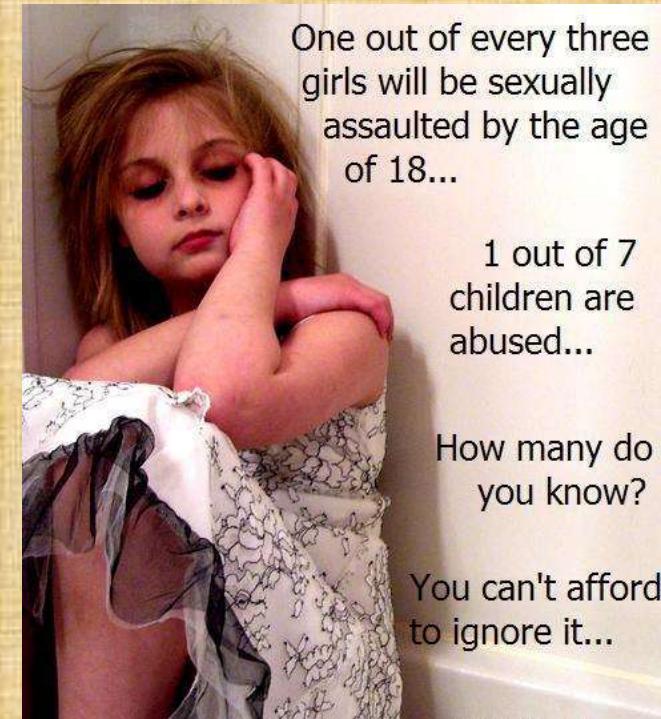
# Causes

- Turning on the hot water tap
- Biting into electrical cords
- Flames
- Heater or fire place or if they play with matches



## Causes... contd.

- Child abuse
- Chemical burns of skin



One out of every three girls will be sexually assaulted by the age of 18...

1 out of 7 children are abused...

How many do you know?

You can't afford to ignore it...

# Classification

## First degree burns

- Only the superficial epidermis is involved
- Skin colour will appear as pink or red and they will have pain while touching
- Blanching of skin on pressure



## Second degree burns

- It involves the entire epidermal layer, dermis
- Skin colour will be red
- There will be blister formation and will have pain on touch



## Third degree burns

- It involves entire epidermis, dermis, underlying fat, muscle or bone
- Skin colour will appear as white or black and it will be dry
- Are not painful- nerves are damaged



# Clinical features

- Subnormal temperature
- Pallor
- Low blood pressure
- Rapid pulse rate
- Fever
- Vomiting
- Edema



# Clinical features

- Rapid breathing and dyspnea
- Restlessness
- Substernal retractions
- Severe airway obstruction

# First aid

- Remove any heat source
- **Cool the burn**
- Cover the burn
- Call for help if the burn is large
- **Do not use ice**
- **Do not apply ointments**
- **Do not break blisters**



# Management :

- Collect detailed history and do the primary assessment of the child.
- Remove the cause if present



# Emergency care

- Minor burns :
- Cleanse the area of burn with mild soap and water
- Apply an analgesic, antibiotic ointment and a gauze bandage to prevent infection
- Do not break the blisters if they are present



- Broken blisters may be debrided to remove possible necrotic tissue
- Tetanus injection can be given if the child is not immunized
- Evaluate the child for any functional impairment



# Major burns

- See for airway clearance
- Provide oxygen therapy , intubation or mechanical ventilator as indicated in the child's condition
- Give intra venous fluid therapy
- Insert a indwelling foley's catheter



# Major burns..contd.

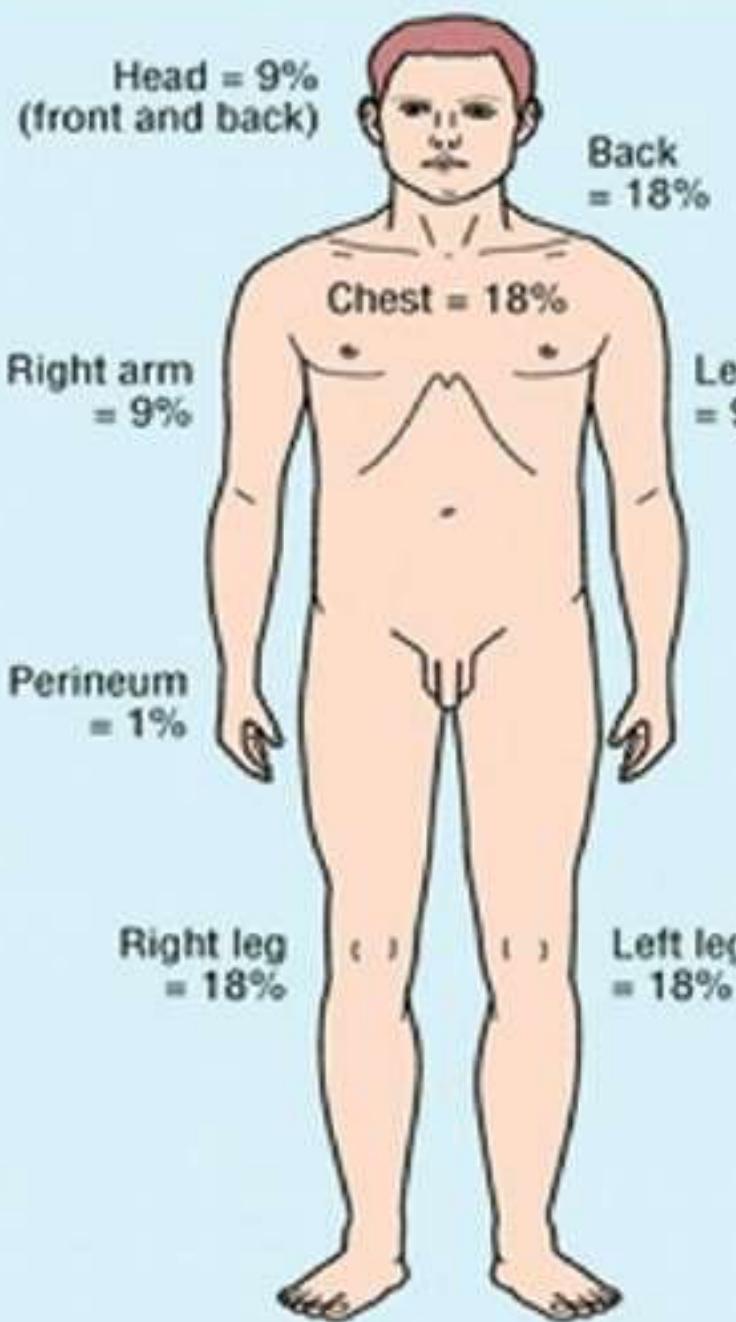
- Insert a naso gastric tube to empty stomach contents
- Evaluate the depth of burn injury
- Laboratory reports
- Escharotomy or fasciotomy



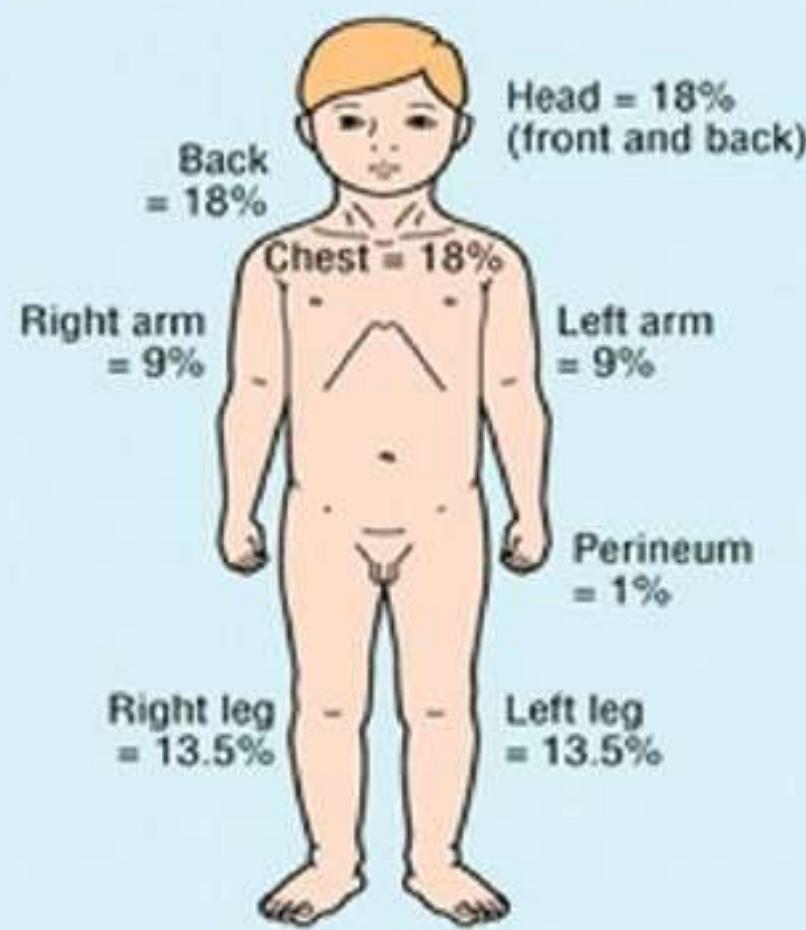
# FLUID MANAGEMENT

## Parkland Formula

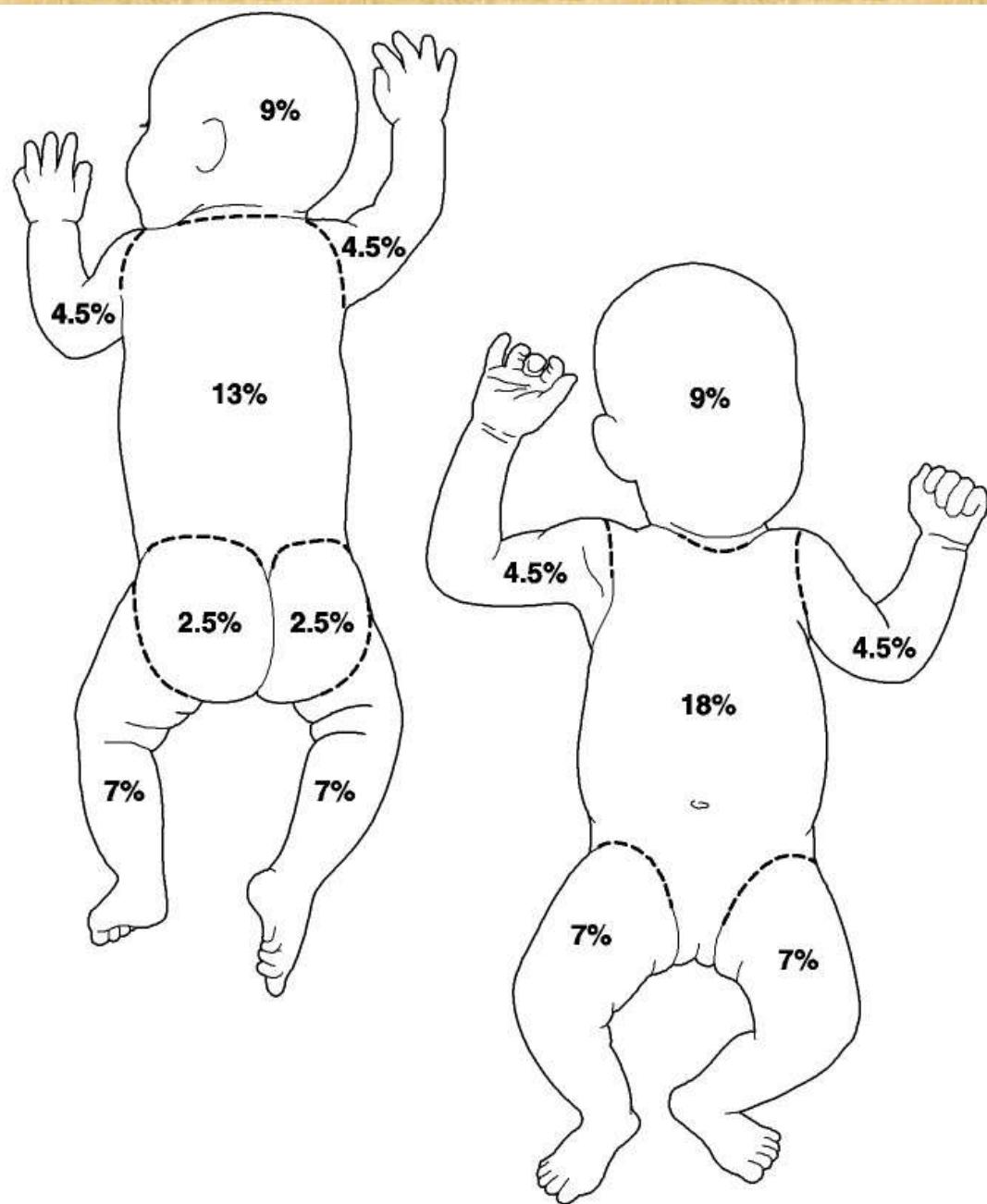
- For burn victims, fluid resuscitation is critical within the first 24 hours. The amount of fluid resuscitation can be determined from the percentage of body surface area (%BSA) involved.
- "Rule of 9's" can estimate the % BSA



**Adult**



**Child**



- The Parkland Formula is as follows.  
 $\text{Fluid for first 24 hours (ml)} = 4 * \text{Patient's weight in kg} * \% \text{BSA}$
- Afterwards, the first half of this amount is delivered in the first 8 hours, and the remaining half is delivered in the remaining 16 hours.

ಅಪ್ಪಾತಕ್ಕೆ 8 ಬಲಿ

ಅಪ್ಪಾತಕ್ಕೆ 8 ಶಾಲಾ ಮಕ್ಕಳು ಸಾವು

ಕುಂದಾಪುರ, ಉಡುಪಿ



# Haemorrhage

- Haemorrhage (bleeding) is the loss of blood or blood escape from the circulatory system
- It can occur internally or externally



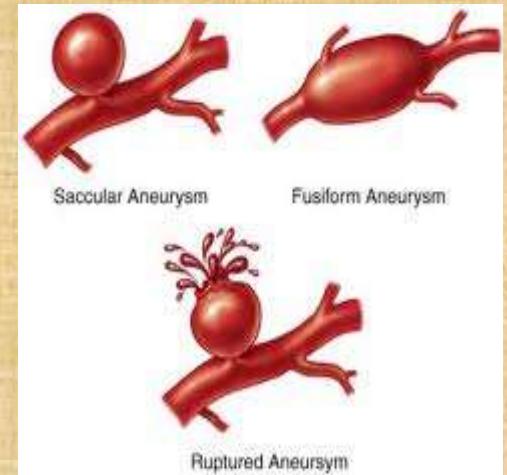
# Causes :

- Trauma
- Fights
- Falls
- Haemorrhagic diseases
- Idiopathic thrombocytopenic purpura



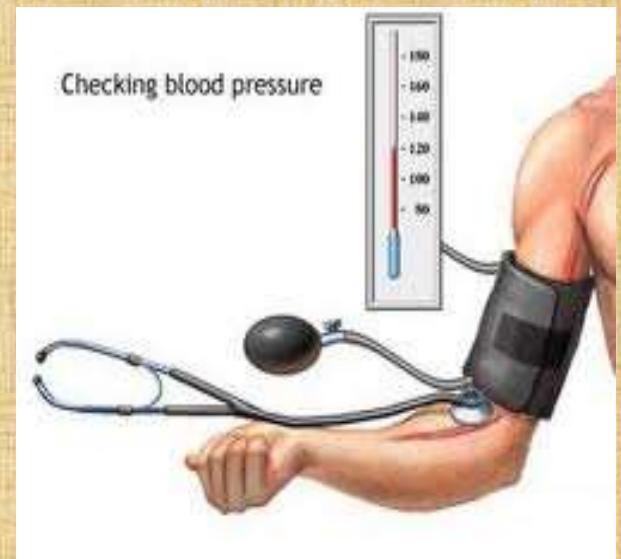
# Causes ..contd.

- Gastro intestinal causes like fistulas
- Stroke
- Penetrating head trauma
- Skull fractures
- Aneurysm rupture



# Clinical features

- Bleeding
- Hypotension
- Weak pulse
- Increased ICP
- Dilated pupils, fixed and constricted pupils
- Head ache
- Restlessness



# Diagnosis

- History and physical examination
- CT scan
- MRI



Fig 7. Axial CT scan before gadolinium injection showing a right cerebellar mass, with a hypodense cystic portion.

# Management

- Treatment of the underlying cause
- Mannitol
- Nil by mouth
- IV fluids
- Sedation for restlessness



- Acetaminophen for headache
- Antibiotics
- Surgery if indicated



# Depression

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# Depression

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- It is a mood disorder in which there will be decreased mood, decreased psychomotor activity and decreased speech for a minimum period of two weeks
- It is often associated with a variety of medical conditions

# Types

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Mild depressive episode :With somatic symptoms  
:Without somatic symptoms

Moderate depressive episode: With somatic symptoms  
:Without somatic symptoms

Severe depressive episode: With psychotic symptoms  
:Without psychotic symptoms

# Etiology

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- Neuro chemical: Decreased level of Norepinephrine, Serotonin, GABA
- Genetic
- Loss of loved subject
- Repeated losses in the past
- Stressful life situations

## Clinical features

Depressive episode:

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- Depressive mood
- Loss of interest and enjoyment
- Reduced energy : increased fatigue and decreased activity
- Decreased concentration and attention
- Decreased self esteem and self confidence
- Self harm/suicide
- Disturbed sleep,Diminished appetite

---

## Somatic symptoms:

- Lack of emotional reactivity
- Waking 2 hours before usual time
- Depression worsens in the morning
- Psychomotor agitation or retardation
- Weight loss

# Treatment

---

Somatic treatment:

- ECT
- Antidepressants
- Antipsychotics
- Mood stabilizers

---

## Psychosocial treatment:

- Cognitive behavioural Therapy
- Group Therapy
- Family Therapy

- 
- Assess risk for suicide
  - Identify possible causes
  - Available social resources
  - Observe for mood, thinking
  - Determine the amount of assistance required for personal hygiene, elimination needs

# PSYCHIATRIC EMERGENCIES



# **BEHAVIOURAL OBJECTIVES**

- Define psychiatric emergencies.
- List down the types of psychiatric emergencies.
- Enlist the causes of suicide.
- Discuss the etiology of suicide.
- Brief the risk factors of suicide.
- Enlist the warning signs of suicide.
- Describe the management of suicide.

- Define anger, aggression, violence.
- List down the etiological factors of aggression.
- Explain the psychopathology of aggression.
- Discuss the do's and don'ts in management of violence.
- Describe the management of aggression and violence.
- Explain the strategies of aggression management.

# **INTRODUCTION**

- Any condition/ situation making the patient & relatives to seek immediate treatment.
- Sudden disorganization in personality which affects the socio-occupational functioning.
- Disharmony between subject and environment.

# **DEFINITION**

- A medical emergency is defined as a medical condition which endangers life and/or causes great suffering to the individual.
- An emergency is defined as an unexpected combination of circumstances which calls for an immediate action.

# **DEFINITION**

- **Psychiatric emergency** is a condition wherein the patient has disturbances of thought, affect and psychomotor activity leading to a threat to his existence (suicide), or threat to the people in the environment.
- **Conditions in which there is alteration in behaviors, emotion or thought, presenting in an acute form, in need of immediate attention and care.**

# **TYPES OF PSYCHIATRIC EMERGENCIES**

1. A new psychiatric disorder with acute onset.
2. A chronic disorder with relapse.
3. An organic psychiatric disorder.
4. An abnormal response to stressful situation.
5. Iatrogenic emergencies
  - a. Side effects of psychotropic drugs
  - b. Psychiatric complications of drugs used in medicine ( steroids.)
6. Alcohol or drug dependence
  1. Withdrawal symptoms of drug dependence.
  2. Alcohol or drug overdose
  3. Complications
7. Deliberate harm to self or others.



# **SUICIDE**

## **(DELIBERATE SELF HARM)**

# SUICIDE

- One of the commonest psychiatric emergency.
- Commonest cause of death among psychiatric patients.
- Suicide is defined as the intentional taking of one's life in a culturally non-endorsed manner.
- Attempted suicide is an unsuccessful suicidal act with a nonfatal outcome.

## **Methods used**

- Hanging (41.8%)
- Ingesting poison (26%)
- Self-immolation (6.9%)
- Drowning themselves (5.6 %)
- Jumping off buildings or in front of trains (1.1 %)

# PSYCHOPATHOLOGY

- Psychological theories
  - ❖ Anger turned inward
  - ❖ Hopelessness
  - ❖ Desperation and guilt
  - ❖ History of aggression and violence
  - ❖ Shame and humiliation or degradation
  - ❖ Developmental stressors

- Biological theory
  - ❖ Genetics
  - ❖ Neurochemical factors

# ETIOLOGY

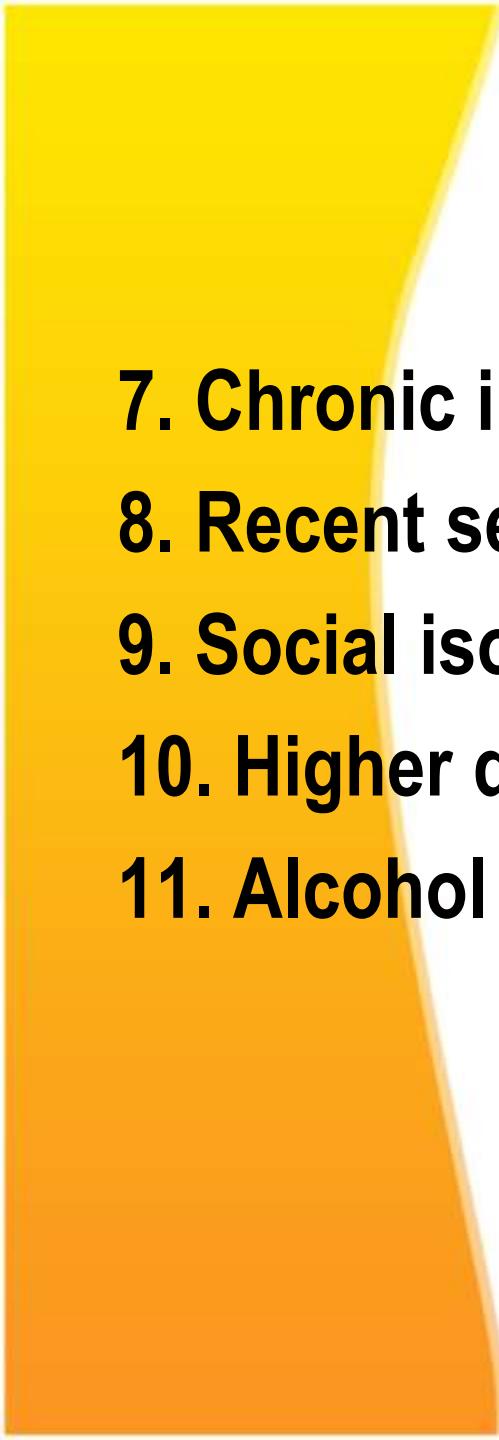
- **Physical disorders**
- ♣ Chronic or incurable physical disorders like cancer, AIDS
- **Psychiatric disorders**
- ♣ Personality disorder
- ♣ Delirium
- ♣ Dementia
- ♣ Drug or alcohol abuse
- ♣ Schizophrenia
- ♣ Major depression

## **Psychosocial factors**

- ❖ Failure in examination
- ❖ Dowry harassment
- ❖ Marital problems
- ❖ Loss of loved object / person
- ❖ Isolation from social groups
- ❖ Financial and occupational difficulties
- ❖ Relationship problems

# **RISK FACTORS**

- 1. Age > 40 years**
- 2. Male gender**
- 3. Staying single**
- 4. Previous suicidal attempts**
- 5. Depression**
  - Higher risk in the week after discharge
  - Higher risk after response to treatment
  - Presence of guilt, nihilistic ideation, worthlessness..
- 6. Suicidal preoccupation**

- 
- 7. Chronic illness**
  - 8. Recent serious loss or major stressful life event**
  - 9. Social isolation**
  - 10. Higher degree of impulsivity**
  - 11. Alcohol or drug dependence**

# **WARNING SIGNS OF SUICIDE**

- ❖ Neglecting personal hygiene
- ❖ Being preoccupied with death or dying
- ❖ Making out a will
- ❖ Giving away prized possessions/assets/goods
- ❖ Loosing interest in most activities
- ❖ Making covert statements like “it’s okay now, everything will be fine”; “I wont be a problem for much longer”

# **WARNING SIGNS OF SUICIDE**

- ❖ Making overt statements like “I can’t take it anymore”; “I wish I were dead”;
- ❖ Sleeping too much or too little
- ❖ Withdrawing from family and friends
- ❖ Feeling hopeless, expressing hopelessness
- ❖ Appearing depressed or sad most of the time

# COMMON MISCONCEPTIONS ABOUT SUICIDE

- Once a person is suicidal, he is suicidal forever.
- All suicidal individuals are mentally ill.
- Once people decide to die by suicide, there is nothing you can do to stop them.
- Suicide happens without any warning.
- People who attempt suicide really want to die.
- People who talk about suicide do not complete Suicide.

# ASSESSMENT

- The observable behaviour of the client.
- The history from the client.
- Information from friends.
- History of suicidal gestures or attempts.
- The mental status examination.
- The physical examination.

# PROBLEMS

- Risk for suicide.
- Risk for self directed violence.
- Ineffective coping.
- Hopelessness
- Chronic low self esteem
- Social isolation
- Disturbed thought process.

# MANAGEMENT

- Be aware of the warning signs
- Monitor the patient's safety needs
- Patient should never be left alone
- Somebody should accompany to the bathroom.
- Do not allow the patient to bolt the door from inside.
- Remove straps and clothing such as belts.

# **MANAGEMENT CONTD-----**

- Remove sharp instruments from the environment.
- Make sure that daily medication is swallowed.
- Do not leave the drug tray within reach of the patient
- Search for toxic agents such as drugs/ alcohol.
- Take all suicidal threats or attempts seriously.

# **MANAGEMENT CONTD-**

- Spend time with patient; allow ventilation of emotions.
- Encourage to talk about his suicidal plans/ methods
- In case of severe suicidal tendency – sedation
- A ‘no suicide’ agreement may be signed
- Enhance self esteem by focusing on his strengths.

# **MANAGEMENT CONTD-**

- Acute psychiatric emergency interview
- Counseling and guidance
  - To deal with the desire to attempt suicide
  - To deal with ongoing life stressors and teaching new coping skills.
- Treatment of psychiatric disorders

A large, stylized graphic element on the left side of the slide consists of two overlapping triangles. The top triangle is yellow and the bottom triangle is orange, both pointing towards the center of the slide.

**VIOLENCE  
EXCITEMENT  
AGGRESSIVE BEHAVIOR**

# VIOLENCE

- Physical aggression by one person on another.
- During this stage, patient will be irrational, unco-operative, delusional and assaultive.

# **AGGRESSION**



- Is one way that individuals express anger
- Is a behavior that is intended to threaten or injure the victim's security or self-esteem
- Can cause damage with words or weapons, but it is virtually always designed to punish.

# PREDISPOSING FACTORS

## Neurophysiological Disorders

- Brain tumors
  - Brain trauma
  - Encephalitis
  - Aggressive behavior may have some correlation to alterations in brain chemicals

## **Socioeconomic Factors**

- Poverty is thought to encourage aggression because of the associated deprivation, disruption of families, and unemployment.

## **Environmental Factors**

- Physical crowding of people
- Discomfort associated with a moderate increase in environmental temperature
- Use of alcohol and some other drugs, particularly cocaine,/sedatives
- Availability of firearms

# ETIOLOGY

## Organic psychiatric disorders

Delirium

Dementia

## Other psychiatric disorders

Schizophrenia

Mania

Withdrawal from alcohol and drugs

# **AGGRESSION**

- **Aggression** can be identified by a cluster of characteristics that include
  - Pacing(walk up and down)
  - Restlessness
  - Tense face & body
  - Verbal or physical threats
  - Threats of homicide (killing, shooting) or suicide
  - Increased agitation
  - Overreaction to environmental stimuli
  - Suspiciousness

# ASSESSING RISK FACTORS

- Three factors are important considerations in identifying extent of risks:
  - Past history of violence
  - Client diagnosis
  - Current behavior
- **Past history of violence** is considered the most widely recognized risk factor for violence in a treatment setting.

# **DO'S**

- **Protect yourself**
- **Keep the doors open**
- **Keep others near you**
- **Do restrain if necessary**
- **Assert authority**
- **Show concern, establish rapport and assure the patient**

## **DONT'S**

- **Do not keep potential weapon near the patient.**
- **Do not sit with back to patient.**
- **Do not wear neck tie or jewellery.**
- **Do not keep any provocative family member in the room.**
- **Do not confront.**
- **Do not sit close to the patient.**

# **MANAGEMENT**

- ❖ Untie the patient, if tied up
- ❖ Reassurance
- ❖ Talk to the patient softly
- ❖ Firm and kind approach is essential
- ❖ Ask direct and concise questions
- ❖ Avoid yes or no questions
- ❖ Assist the patient in defining the problem
- ❖ Sedation

## **CONTD.....**

- Collect detailed history and explore the cause
- Carry out complete physical examination
- Check hydration status; if severe dehydration– IV fluids
- Have less furniture in the room, remove all sharp instruments
- Keep environmental stimuli to the minimum

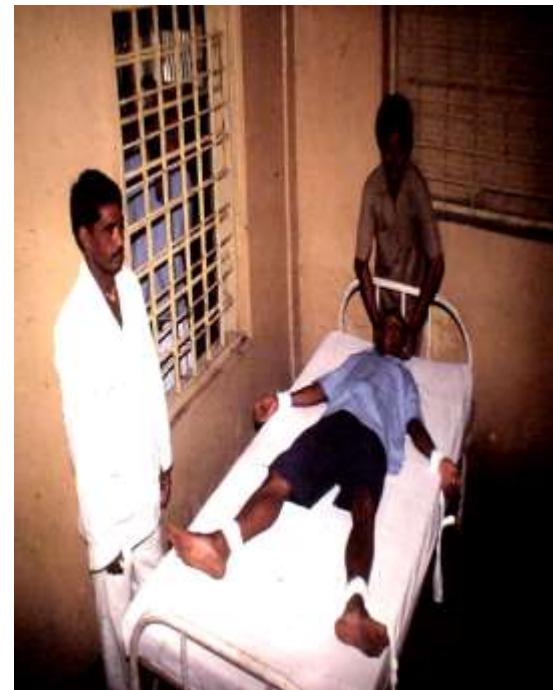
- Stay with the patient to reduce anxiety
- Redirect violent behavior with physical outlets such as exercise, outdoor activities
- Encourage the patient to ‘talk out’ the aggressive feelings rather than acting them out

# CONTD...

## Physical Restraints

- Used as a last resort
- Take written consent from care givers

## Psychopharmacological medications



# PREVENTIVE MEASURES

- Behavior therapy
- Cognitive behavioral therapy, anger management classes
- Group therapy
- Family therapy

# ASSERTIVENESS TRAINING

- Communicating directly with another person.
- Say 'no' to unreasonable requests
- Being able to state complaints.

# **ASSERTIVENESS TRAINING**

## **CONTD—**

- Staff can provide feedback to patients on appropriateness and effectiveness on their responses.
- Homework also can be given to these patients to help them generalise these skills
- Expressing appreciation as appropriate outside the group milieu.

# **COMMUNICATION STRATEGIES**

- Present a calm appearance
- Speak softly
- Speak in a non proactive and non judgemental manner
- Speak in a neutral and concrete way.
- Put space between yourself and patient
- Show respect to the patient
- Avoid intense direct eye contact

- Listen to the patient
- Avoid early interpretations
- Do not make promises that cannot keep.

# **GUIDELINES**

- Approach patient from front
- Never see a potentially violent patient alone
- Have a 4 member team to hold each extremity
- Keep talking while restraining
- Do not leave unattended after restraining
- Observe every 15 minutes for any numbness, tingling or cyanosis in the extremities.
- Ensure that nutritional and elimination needs are met.

# **GUIDELINES FOR SELF PROTECTION WHILE HANDLING AN AGGRESSIVE PATIENT**

- Never see the patient alone
  - Keep a comfortable distance away from patient
  - Be prepared to move
  - Maintain a clear exit route
  - Be sure that the patient has no weapons with him
  - If patient is having a weapon, ask him to keep it down rather than fighting with him.
- Contd-----

- **Keep something (pillow, mattress, blanket) between you and weapon.**
- **Distract the patient to remove the weapon (eg; throwing water on the face)**
- **Give prescribed antipsychotics**

- Thank You

# **SEXUAL ASSAULT**

- Sexual abuse is defined as pressured or forced sexual contact including sexually stimulated talk or actions inappropriate touching or intercourse incest and rape.

# **SEXUAL ASSAULT**

- Sexual abuse is generally inflicted on someone the abuser considers less powerful both physically or emotionally.

# **SEXUAL ASSAULT**

Involves physical or verbal sexual innuendo.

It may or may not include actual sexual activity but serves to leave the recipient uncomfortable and the workplace if that is where it occurs, unfriendly to that person or group of people.

# RAPE

- It is a crime of violence, aggression, anger and power.
- The majority of rapists are known to the person who is raped.
- Rape is not always about the sexual aspect as it is about power.

# RAPE

- It is important for the health care provider to discourage the survivor not to clean up before going to the emergency department.
- What they wash away is evidence.
- As a health professional,it is very important to follow strict policy and procedures during collection of evidence as it may be used as evidence in court.

# RAPE

- Something alarming to be aware of in caring for the elderly is rape happens to the elderly as well.
- That population is being assaulted in their private residences and in long term care and assisted living facilities.
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# ASSESSMENT

- Be empathetic, objective and nonjudgmental
- Provide private environment for examination
- Alert specially trained personnel to perform examination
- Assess for signs and symptoms of psychological trauma
- Assess patient's level of anxiety, coping mechanisms, support systems

# ASSESSMENT

- Follow facility protocols as far as obtaining lab values, and collecting legal evidence.

# INTERVENTIONS

- Provide nonjudgmental and empathetic care
- Obtain informed consent for pictures and evidence collection
- Perform rapid physical assessment of injuries
- Treat injuries and document care given
- Support patient while evidence is being collected
- Evaluate for STD's, pregnancy risk and provide for prevention
- Call patient's support system if they allow

# INTERVENTIONS

- Prepare them for thoughts, symptoms, and emotions that may occur
- Encourage to verbalize her story and emotions
- Listen and let survivor talk
- Counseling begins at emergency department.

# INTERVENTIONS

- Promotion of self care activities
- Referrals for resources and support services

# **EXAMINATION**

- I. Psychiatric History
- II. Detailed general physical and neurological examination
- III. Mental status examination

# **COMMON ADAPTIVE COPING TECHNIQUES**

- **Problem solving**
- **Assertiveness**
- **Positive self talk and self acceptance**
- **Stress and anger management**
- **Time management**
- **Community living skills**

# **GENERAL GUIDELINES TO MANAGE PSYCHIATRIC EMERGENCIES**

- 1. Handle with the utmost of tact and speech so that well being of other patients is not affected.**
- 2. Act in a calm and coordinate manner to prevent other clients from getting anxious.**
- 3. Shift the client as early as possible to a room where they can be safe guarded against injury.**
- 4. Ensure that all other clients are reassured and the routine activities proceed normally.**
- 5. Psych. emergencies overlap medical emergencies and staff should be familiar with the management of both.**

# Substance Use Disorder

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Asha K Nayak

# Introduction

- Substance abuse has been identified as one of the major health issues in our nation and is the focus of much social and political concern

# Meaning of Terms

- **Abuse:** Abuse is when a person is using alcohol or drugs for the purpose of intoxication or, in the case of prescription drugs, for purposes beyond their intended use.

# Tolerance

- It is an adaptive state characterized by a diminished response to the same quantity of a drug or by the fact that a larger dose is required to produce the same degree of pharmacodynamic effect.

# DEPENDANCE

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- It is the continuing use of alcohol or drugs despite adverse consequences to one's physical, social, and psychological well-being.

# **ADDICTION**

Here the person experiences severe psychological and behavioral dependence on drugs or alcohol

# **WITHDRAWAL**

- It is the adverse physical and psychological symptoms that occur when a person ceases using a substance

# DETOXIFICATION

- It is the process of safely and effectively withdrawing a person from an addictive substance, usually under medical supervision.

# **RELAPSE**

- It is the recurrence of alcohol or drug dependent behavior in an individual who has previously achieved and maintained abstinence for a significant time beyond the period of detoxification.

# Four important patterns of drug use disorders

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- Acute intoxication
- Withdrawal state
- Dependence syndrome
- Harmful use

# ACUTE INTOXICATION

- It is a transient condition following the administration of alcohol or other psychoactive substance, resulting in disturbances in level of consciousness, cognition, perception, affect or behavior, or other psycho physiological functions and responses

# **Withdrawal state**

- Characterized by a cluster of symptoms, often specific to the drug used, which develop on total or partial withdrawal of a drug, usually after repeated and or high dose use

# ETIOLOGY

## 1) **BIOLOGICAL FACTORS:**

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- Genetic vulnerability
- Co-morbid psychiatric disorder
- Co-morbid medical disorder
- Reinforcing effects of drugs
- Withdrawal effects and craving
- Biochemical factors

## 2) PSYCHOLOGICAL FACTORS:

- Curiosity
- General rebelliousness and social non-conformity
- Early initiation of alcohol and tobacco
- Poor impulse control
- Low self esteem

contd-----

- Concerns regarding personal autonomy
- Poor stress management skills
- Childhood trauma or loss
- Relief from fatigue and or boredom
- Escape from reality
- Lack of interests in conventional goals
- Psychological distress

### 3) **SOCIAL FACTORS:**

- Peer pressure
- Modeling
- Ease of availability
- Intra-familial conflicts
- Strictness of drug law enforcement
- Poor social or familial support
- Perceived distance with the family
- Rapid urbanization

# PSYCHOACTIVE SUBSTANCES

- 1) Depressants
- 2) Stimulants
- 3) Opiates
- 4) Marijuana
- 5) Hallucinogens
- 6) Phencyclidine
- 7) Inhalants
- 8) Nicotine

# 1. Depressants

## a. Alcohol:

- **Forms:** Spirit, Beer, Whisky, Rum
- **Route:** Ingestion
- **Action:** Depression of major brain functions such as mood, cognition, attention, concentration, insight, judgment, memory, and affect
- Overdose leads to unconsciousness, coma, depression and death

- **Intoxication:** Signs of intoxication are evident with blood levels of 150-200 mg%. With blood alcohol levels of 300-450 mg%, increasing drowsiness followed by coma, and respiratory depression develop. Death occurs with blood alcohol levels between 400-800 mg%

- **Withdrawal:** Mild tremors, nausea, vomiting, weakness, irritability, insomnia, and anxiety. The severe forms include; delirium tremens, alcoholic seizure, and alcoholic hallucinosis

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**Treatment**: Behavior therapy, Psychotherapy,  
Group therapy, Deterrent agents, Psycho-  
social rehabilitation

## 2. Stimulants

### a. Amphetamines:

- Forms: Benzedrine, Dexedrine, Methedrine
- Route: Ingestion, injection

## b. Cocaine:

- **Forms:** Crack cocaine, powder cocaine, inhaled cocaine, cocaine mixed with marijuana, cocaine mixed with heroin
- **Route:** Inhalation, smoking, injection, topical

### 3. OPIATES

- **Forms:** Heroin, morphine, meperidine, codeine, opium, methadone
- **Route:** Injection, ingestion, smoking

## 4. MARIJUANA:

- **Forms:** Cannabis, hash, hemp
- **Route:** Smoking, ingestion

## 5. HALLUCINOGENS:

- **Forms:** LSD, Mescaline
- **Route:** Ingestion, Smoking

## 8. NICOTINE:

- **Forms:** Cigarette, Gutka
- **Route:** Smoking, Chewing

# Complications

1. Acute intoxication
2. Withdrawal syndrome

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- Delirium tremens
- Alcoholic seizures
- Alcoholic hallucinosis

### 3. Neuro-psychiatric complications

- Wernick's encephalopathy
- Korsakoff's psychosis
- Marchiafava-Bignami disease

Cont...

#### 4. Medical Complications

#### 5. Social Complications

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#### 6. Other Complications

# Medical complications

## A. Gastro-intestinal system:

- Fatty liver, Cirrhosis of liver, hepatitis, liver cell carcinoma, gastritis, pancreatitis, peptic ulcer, esophageal varices, carcinoma stomach and esophagus etc

## **B. Central Nervous System:**

- Peripheral neuropathy, delirium tremens, alcoholic hallucinosis, alcoholic dementia, cerebellar degeneration, head injury etc

### **C. Miscellaneous:**

- Anemia, thrombocytopenia, alcoholic hypoglycemia,  
sexual dysfunction etc

# Social Complications

- Accidents, marital disharmony, divorce, occupational problems, criminality, financial difficulties, increased incidence of drug dependence

# Medical Management

1. Detoxification
  2. Behavior therapy
  3. Psychotherapy
  4. Deterrent agents
  5. Anti-craving agents
  6. Psycho-social rehabilitation
- contd----

Cont...

7. Motivational approaches

8. Family therapy

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9. Relapse prevention

10. Harm reduction

11. 12-step support groups

# Assessment:

## HISTORY

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- History of substance use: history of experimentation with any drugs in childhood, age of first use, amount and cost of drug used per day or week, history of needle sharing
- Presence of withdrawal symptoms:
- Substance related illness: hepatitis, pancreatitis, heart complications etc.

- Treatment history: attempts at self detoxification and outcome, names of treatment programs in dates, etc.
- Past medical history:
- Medications: usual dose, amount actually used
- Family history: history of substance abuse
- Childhood history: history of physical/sexual/emotional abuse

- Consequences of substance use: any losses
- Legal history: arrests, current status
- Psychiatric history: any known diagnosis, history of suicide,  
admissions etc.
- Social history: living situation and social support
- Sexual history:
- Gynecological history:

# **PHYSICAL AND MENTAL ASSESSMENT:**

- General observations: blood pressure, pulse, temperature, respiration
- Appearance: gait, eyes, skin, nose, presence of tremors, grooming
- Behavior: speech, attitude, mood and affect, sensorium, perception

- Height:
- Weight:
- Skin:
- Oral cavity:
- Abdomen:
- Speech:

# Screening Tests

- CAGE Questionnaire
-

# **MANAGEMENT:**

- Monitor the clients vital signs
- Assess the physiological and psychological symptoms of withdrawal
- Initiate therapeutic interventions to help the client safely withdraw from the addictive substance

- Include the client in the client's treatment process
- Provide a calm, safe, nonthreatening environment for the client
- Support the client in meeting nutritional needs
- Initiate the necessary vitamin and mineral replacement therapeutic regimen
- Provide support to the client in working through denial

- Establish a caring, empathetic relationship
- Encourage client's efforts to establish family and significant other supports through a variety of measures such as role playing
- Teach the client, family, and significant others about substance abuse, symptoms, management, and treatment outcomes