



FIRST AID LEVEL 2

SECTION 14: INTERMEDIATE FIRST AID THEORY

Exit Outcomes

At the end of this section you will be able to:

- *Name the Categories of Triage.*
- *Explain the difference between concussion and compression.*
- *Describe the physiology of Asthma.*

14.1 TRIAGE

Triage is required where there are multiple casualties that requires critical attention and immediate transportation to a medical facility.

Examples:

- Multiple vehicle accidents.
- Aviation accidents.
- Floods.
- Terrorist attacks.
- Bomb blasts.
- Domestic and industrial fires.



Triage is the process of prioritising casualties based on the severity of their condition. This uses the limited resources effectively. The term comes from the French and means to separate, sort or select. Triage originated and was first formalized in World War 1 by French doctors treating the battlefield wounded at the aid stations behind the front. The outcome of Triage is to determine the order and priority of emergency treatment, emergency transport, or the transport to the appropriate specialty medical facility.

Triage separates the injured into four groups or priorities. Each group has a specific colour, and specific injuries so when additional help arrives it is easy to identify the most seriously hurt casualties from those who can wait a while for treatment.

Classification of Triage Groups

- P1:** Casualties require immediate medical attention and will not survive if not seen soon.
- P2:** Casualties require medical attention within 6 hours.
- P3:** Casualties require medical attention when all higher priority patients have been evacuated and may not require stabilization or monitoring.
- P4:** Casualties are expected not to reach higher medical support alive without compromising the treatment of higher priority patients.



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Triage Groups

<p>Immediate (P1): The casualty requires immediate medical attention and will not survive if not seen soon.</p> <ul style="list-style-type: none"> • Severe bleeding • Open chest or abdominal wound • Femur fractures • Burns more than 20% • Complicated burns- chemicals, face embedded substance • Respiratory arrest/obstruction/ breathing difficulty/ chest injuries • Severe Cardiac condition 	<p>Delayed (P2): The casualty requires medical attention within 6 hours.</p> <p>Injuries are potentially life-threatening, but can wait until the immediate casualties are stabilized and evacuated. Serious but stable.</p> <ul style="list-style-type: none"> • Moderate blood loss • Open fractures, single closed fractures • Multiple fractures • Eye injuries • Head, neck or spinal injuries • Burns less than 20%, not involving airway
<p>Minimal (P3): "Walking wounded," the casualty requires medical attention when all higher priority patients have been evacuated and may not require stabilization or monitoring.</p> <p>These patients can help with treating the other casualties</p> <ul style="list-style-type: none"> • Soft tissue injuries- cuts, sprains, bruises • Burns less than 10% • Hysteria 	<p>Expectant (P4): The casualty is expected not to reach higher medical support alive without compromising the treatment of higher priority patients. Care should not be abandoned, spare any remaining time and resources after Immediate and Delayed patients have been treated.</p> <ul style="list-style-type: none"> • Fatally injured- impaled object, amputation • Exposed brain matter • Decapitation • Incineration

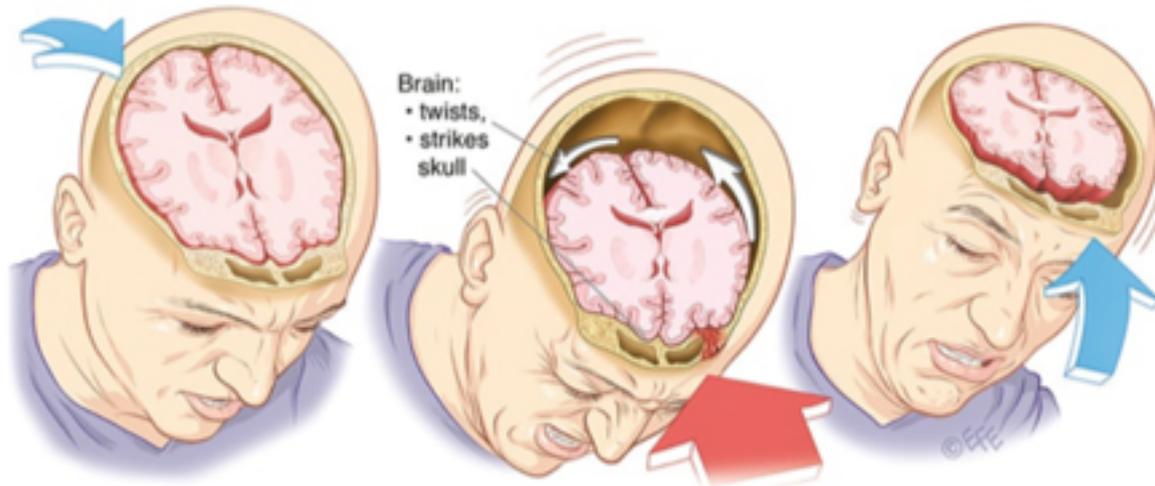
How to Triage:

1. Hazards - Remember to use a different pair of gloves for each casualty if blood or body fluids are involved.
2. Hello - Approach each casualty and assess their injuries- check if awake and talking.
3. Help - Phone for help as soon as you know how serious the situation is. (ambulance, fire brigade, police)
4. Mark the casualty as P1, P2, P3, or P4. Use the ambulance triage cards, a permanent marker or even coloured tape to identify the groups.
5. If they are conscious, control any life-threatening bleeding or burns, treat for shock and move on to the next casualty.
6. If they are unconscious, check for breathing and a pulse. If there is no breathing, clear the airway and if breathing does not return mark as P4. Treat for shock and move onto next casualty.
7. Start with Priority 1's, move onto Priority 2's, then P3's
8. Once all life-threatening injuries have been treated, do head to toe SAMPLE and Vital signs for each casualty. Record on paper or triage cards otherwise write the information on the casualty's arm.
9. The casualty must be reassessed every 5 to 10 minutes to check for a change in condition, by monitoring their vital signs.
10. Once all the casualties have been treated, and all the wounded are stabilized- move onto P4's and try to help them as much as possible.

Secondary triage: as soon as more people arrive, the first aider in charge directs them to assist in the completion of the initial triage or starts treating casualties if triage complete.

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14.2 CONCUSSION AND COMPRESSION



Concussion and compression injury can occur as a result of Direct and Indirect trauma.

- **Concussion** is a condition of temporary disturbance of the brain resulting from a blow to the head, a fall from some height landing feet first, causing bruising and brain swelling which subsides over time.
- **Compression** is a serious head injury that occurs when blood vessels within the skull rupture due to an impact to the head. The resulting bleeding in the skull causes increased pressure on the brain. Major bleeding can cause pressure to build up within minutes and cause irreversible brain damage. Although rupture of small vessels can cause a slow build-up of pressure over hours or weeks. Any casualty who sustained a head injury must be monitored for a change in their condition.
- Concussion may develop into Compression so it is important to observe the casualty after any incident involving injury to the head, for up to 48 hrs.

Signs and symptoms of Concussion and Compression

CONCUSSION	COMPRESSION
Raised level of consciousness (LOC)	Low level of consciousness (LOC)
Pupils- Equal, slow reaction to light.	Pupils- Unequal and a slow to react to light.
Shallow, rapid breathing.	Irregular breathing, mostly slow and deep.
Rapid, weak pulse.	Slow, strong pulse.
Cold, pale, clammy skin.	Flushed, red, warm skin.

First aid treatment for a suspected concussion

1. HHHHCPR
2. Immobilise the casualty's head by holding it with both hands in the position you found it in.
3. Do not move the casualty unless it is absolutely necessary for their safety.
4. Apply ice to reduce the swelling.
5. Press an ice pack to the area of injury for approximately 20-30 minutes every two-four hours.



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14.3 AIRWAY OBSTRUCTIONS

14.3.1 Asthma



Asthma is an immunological disease which causes the bronchioles to narrow by inflammation and spasm of the lining of the airway wall.

Signs and symptoms: wheezing breathing, tightness in chest, anxiety, and tachypnoea/tachycardia.

First Aid Treatment for Asthma

1. HHHH CPR
2. Help casualty take own medication and sit quietly.
3. If breathing does not become easier within 10 minutes seek medical assistance.

14.3.2 Croup

Croup is an acute viral infection of the upper and lower respiratory tract that occurs primarily in infants 3 months to 3 years of age.

Signs and Symptoms of Croup

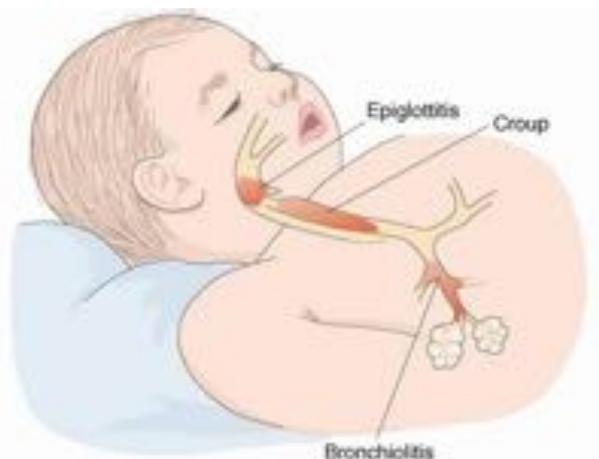
1. Hoarseness, fever, a distinctive harsh cough resulting from obstruction of the larynx.
2. The child becomes irritable, develops stridor, dyspnoea, tachypnoea.
3. A typical sign is 'horse' coughing fits which may result in the child becoming cyanotic.
4. Onset of the acute stage is rapid, usually occurs at night; may be precipitated by exposure to cold air.

First Aid Treatment for Croup

1. HHHH CPR
2. Loosen tight clothing.
3. Calm child and nebulize.
4. If condition progressively deteriorates then take child to the hospital for medical treatment.

Routine treatment consists of bed rest, adequate fluid intake and alleviation of airway obstruction to ensure adequate respiratory gaseous exchange.

Children with mild infections are usually managed at home with supportive measures, as vaporizers, humidifiers to reduce the laryngeal spasm and free secretions.





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Hospitalisation is indicated for children suffering from croup with the following signs and symptoms:

- Pyrexia (raised body temperature)
- Cyanosis (bluish discolouration of skin, especially the hands and feet).
- Progressive respiratory distress (difficulty in breathing).

14.4 CHEST WOUNDS

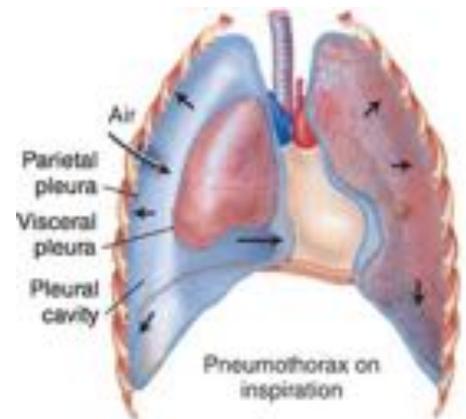
14.4.1 Pneumothorax

Pneumothorax is a collection of air or gas in the pleural cavity of the chest between the lung and the chest wall. It may occur spontaneously in people without chronic lung conditions ("primary") as well as in those with lung disease ("secondary"), and many pneumothoraces may occur after physical trauma to the chest, blast injury, or as a complication of medical treatment.

Signs and Symptoms of a pneumothorax/ Haemothorax

(Determined by the size of the air leak and the speed by which it occurs)

- | | |
|-----------------------------|---|
| • Rapid breathing. | • Chest pain. |
| • Cyanosis. | • Shortness of breath |
| • Hypotension. | • Severe hypoxia. |
| • Confusion. | • Progressing to cardiac arrest. |
| • Deviation of the trachea. | • Low blood pressure. |
| • Distended jugular veins. | • Unless the tension pneumothorax is treated. |
| • Coughing up blood | |



The affected side of the chest may be hyper-expanded and show decreased movement, with increased movement on the other side. In very severe cases, the respiratory rate falls sharply, with shock and coma.

Haemothorax: is the presence of blood inside the lungs due to trauma, disease or poisoning.

14.4.2 Sucking Chest Wound

A sucking chest wound is identified by the sucking/ hissing sound made during inhalation by the casualty as the chest cavity is no longer sealed, allowing air to rush through the wound and into the chest. This causes the lung to collapse. This is a life-threatening condition and requires immediate treatment.

Signs and Symptoms

- | | |
|-----------------------------|---|
| • Rapid breathing. | • Chest pain. |
| • Cyanosis. | • Shortness of breath |
| • Hypotension. | • Severe hypoxia. |
| • Confusion. | • Progressing to cardiac arrest. |
| • Deviation of the trachea. | • Unless the tension pneumothorax is treated. |
| • Distended jugular veins. | • Low blood pressure. |
| • Coughing up blood | |



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First Aid treatment for a pneumothorax/haemothorax:

1. External pneumothorax:
2. HHHHCPR.
3. Have the casualty's place their hand over the wound.
4. Prepare an occlusive wound dressing.
5. Any air-tight material can be used. (E.g. cellophane, aluminium foil, duct tape, zip lock bags)
6. The patch should be large enough to extend 4cm beyond the edge of the wound. (Smaller patches tend to get pulled back into the wound)
7. Tape three sides only.
8. Check for posterior open wounds and seal them completely.
9. Finally, roll the patient onto the injured side while awaiting transportation.
10. Internal pneumothorax:
11. HHHHCPR.
12. In the event of multiple signs and symptoms as described above are evident, evacuate to hospital immediately.
13. A first aider does not have the capability to treat an internal pneumothorax.



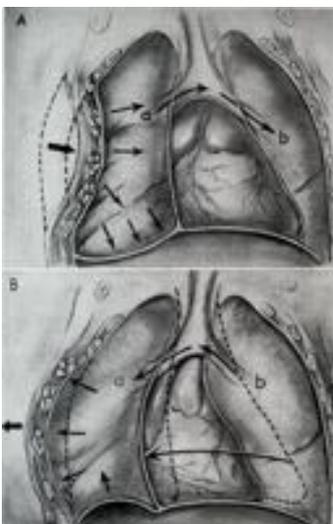
How an Occlusive dressing works: whenever the casualty exhales, air is expelled from the chest cavity from underneath the open edge of the patch, and whenever the casualty inhales, the patch sticks to the skin and keeps air from returning into the chest cavity. This helps to re-inflate the collapsed lung.

14.4.3 Flail Chest Injury

A flail chest occurs when a piece of the thoracic wall breaks from blunt force, at least two adjacent ribs are broken in at least two places. The flail segment moves in the opposite direction as the rest of the chest wall: because of the ambient pressure in comparison to the pressure inside the lungs, it goes in while the rest of the chest is moving out, and vice versa. This so-called "paradoxical motion" can increase the work and pain involved in breathing. It can also lead to pulmonary and other chest injuries.

Signs of Flail Chest: immediate respiratory distress; paradoxical breathing.

First Aid Treatment for Flail Chest



1. Stabilise the moving chest wall so the injured casualty can fill the lungs with air.
2. Roll the casualty onto the injured side.
3. Instruct someone to maintain pressure on the injured area with one hand to keep the chest wall from moving.
4. Fill a plastic bag with sand. Hold this against the side of the flail, this helps to control the pain with breathing.
5. Tape a large pad of gauze across the weighted bag, bringing the tape from one side of the chest to the other. Do not tape across the back as this will restrict breathing
6. Keep the casualty on his or her side and continually monitor for difficulties breathing. You may need to roll the casualty over and provide rescue breathing if the casualty ceases to breath.
7. Transport casualty immediately to a hospital via helicopter or carried out on a stretcher. Not via the road as too jarring on the fragile chest wall.



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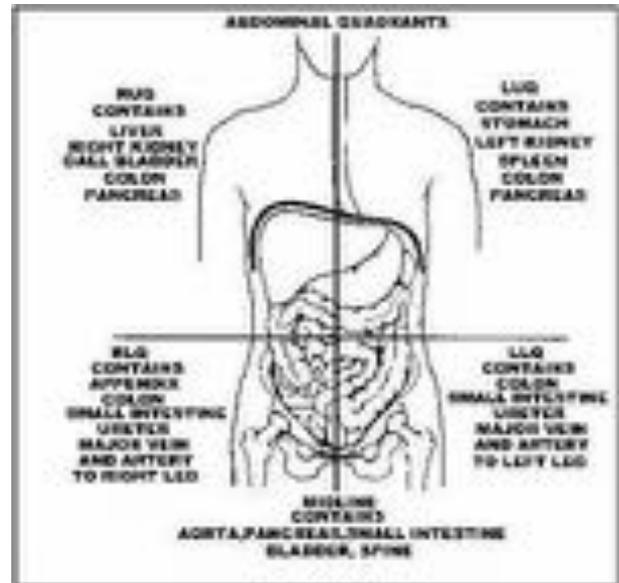
14.5 ABDOMINAL INJURIES

Quadrants of the abdomen

- Right Upper Quadrant- Contains the liver, right kidney, colon, pancreas, and the gallbladder.
- Right Lower Quadrant- Contains the colon, small intestines, major artery and vein for the right leg, the right ureter, and the appendix.
- Left Upper Quadrant-Contains the spleen, left kidney, stomach, colon, and the pancreas.
- Left Lower Quadrant- Contains the colon, small intestines, major artery and vein for the left leg, and the left ureter.

Closed Injuries: a severe blow to the abdomen without breaking the skin.

Open Injuries: a foreign object enters the abdomen and opens the abdominal cavity to the outside.



Bowel Evisceration: A portion extrudes from the abdominal cavity.

Signs and Symptoms of Abdominal Injuries

Closed / Blunt Trauma	Open / Penetrating Wound
Pain in area, guarding from pain	Obvious entry wound
Elevated heart rate	Bleeding
Signs of shock	Bowel evisceration (bowel outside the body)
Distended abdomen, firm on palpation	Distended abdomen, rigid on palpation
Obvious bruising	Guarding, pain in area
Hypoactive or absent bowel sounds	Hypotension
Hypotension	Signs of shock

First Aid Treatment for Abdominal Injuries

1. HHHHCPR	1. HHHHCPR
2. Establish baseline vital signs	2. Check for entry and exit wounds
3. Place in supine position with knees flexed	3. Cover Eviscerated bowel with damp dressing
4. Treat for shock	4. Gently secure bowel to avoid further damage.
5. Transport to medical facility immediately	5. Treat for shock, do not probe for objects
	6. Leave penetrating objects in place.
	7. Transport to medical facility immediately.



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14.6 CRUSH INJURIES

A crush injury occurs when a body part is subjected to a high degree of force or pressure, usually by being squeezed between two heavy objects.

Damage related to crush injuries include:

- Internal and external bleeding
- Bruising
- Fracture
- Laceration (open wound)
- Nerve injury
- Infection



Crush Syndrome is an increased pressure in an arm or leg that causes serious muscle, nerve, blood vessel, and tissue damage due to hypoxia and buildup of toxins that are released once pressure is removed and cause renal failure. E.g. when a tourniquet is used or when the casualty is trapped under rubble.

Signs and Symptoms of Crush Injuries

- Pins and needles of injured limb.
- Tissue swollen, bruised around the wound.
- Shock- injured limb will be pale and cold.
- Pulse absent if the arteries are compressed.

Treatment of Crush Injuries

1. HHHH CPR.
2. Calm the casualty and call for emergency assistance
3. If the trapped limb can be released immediately, remove the weight and do not let the casualty move unnecessarily, otherwise wait till EMS arrive.
4. Control bleeding and immobilize fractures.