



EMERGENCY FIRST AID & CPR

Student Manual

ABSTRACT

The course offers lifesaving first aid skills, and covers Cardio Pulmonary Resuscitation (CPR) and rescue breathing techniques for adults, children, and infants. The course meets legislation requirements for security professionals under Private Security and Investigative Services Act, 2005.

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Preparing to Respond

First Aid

First Aid is the care given to a person who is suddenly injured or ill, using materials on hand. First aid is normally performed until the injury or illness is satisfactorily dealt with (such as in the case of small cuts, minor bruises, and blisters) or until the next level of care, such as an ambulance or doctor, arrives. This treatment can affect the casualty's chance of survival and recovery.

Guiding Principles

The key guiding principles and purpose of first aid, is often given in the mnemonic "3 Ps". These three points govern all the actions undertaken by a first aider

- Preserve life by focusing on First Aid ABCs
- Prevent further harm and injury
- Promote recovery

First Aid Priorities

- Airway - it is important to ensure a clear, open airway at all times.
- Breathing - it is important to determine if the casualty is breathing or needs CPR.
- Circulation - is determined as present if casualty is breathing, and absent if casualty is not breathing.

First Aider

A person who uses knowledge acquired in a first aid/CPR training course to help someone in need, without specialized equipment.

Medical Help

Trained medical personnel arriving on the scene of an emergency are considered medical help. They include Firefighters, Paramedics, and Ambulance attendants. A rescuer must activate EMS (Emergency Medical System) by calling 911 for Medical Help to arrive.

Casualty

- **Adult:** over 8 years of age (approximately over 80 lbs)
- **Child:** 1-8 years of age (approximately 20-80 lbs)
- **Infant:** birth-1year of age (approximately birth-20lbs)

Emergency Scene Management

Emergency Scene Management (ESM) involves all aspects of the rescue. ESM is the control over, and organization of, the rescue environment

When followed in order, completing Check 1, 2, 3 ABCDs ensures the casualty receives appropriate care.

Casualty type in the following sequence is **Unconscious (Lack of awareness, unable to respond to verbal and/or tactile stimulation)**, with no further complications.

Quick Reference Guide to all Emergencies

Check 1, 2, 3, ABCDs:

Check 1, 2, 3

- ⇒ Check 1 - Call out for help
Check the Area for hazards, severe bleeding, spinal and pelvic injuries
- ⇒ Check 2 - Check the casualty for responsiveness
- ⇒ Check 3 - Is EMS needed?

ABC

- ⇒ A - Airway: Open the airway using a head-tilt, chin-lift.
- ⇒ B - Breathing; Look listen and feel for 10 seconds.
- ⇒ C- Circulation and Compressions; Circulation is good if casualty is breathing, skin condition may be an indicator of adequate circulation. Compressions are required if casualty is not breathing.

Ds

- ⇒ D - Deal with Shock, treat with WARTS
- ⇒ D - Detect Major Injury or Illness, conduct a rapid body survey

Table 1: Emergency Scene Management

Reference Term	What is it	What to do?
Check 1	Area Check	<ul style="list-style-type: none">• Call out for help, bystanders may be able to assist you• Identify hazards: fire smoke, gas, animals, sharp objects, chemicals, wires, or violence.• Determine what, how, when, where and why details of the emergency scene, and casualty(ies)• Observe signs and symptoms of the casualty

CPR (Cardio Pulmonary Resuscitation)

CPR stands for Cardio Pulmonary Resuscitation;

Cardio refers to the heart.

Pulmonary refers to the lungs.

Resuscitation refers to the attempts made to try and keep someone alive.

- ⇒ CPR is done only when someone is unconscious, is not responding, and has stopped breathing.
- ⇒ CPR is never done on anyone unless these conditions are met!

There are many causes of these circumstances, such as; heart attacks, strokes, drowning, electrocution, poisoning, severe injuries, etc. But, regardless of the cause the treatment is the same.

CPR involves two main things;

1. Blowing air into the casualty (because they are not breathing on their own)
2. Compressing their chest to squeeze the heart. When the heart is squeezed blood will circulate. By circulating blood we also circulate oxygen that is in the blood stream.

The main purpose of CPR is to keep organs alive by supplying them with oxygen. A few things you need to know;

- ⇒ CPR, when done correctly, is only 25% as good as 'real' breathing and 'real' circulation.
- ⇒ CPR is only successful at saving someone about 3% of the time, but it's better than 0%.
- ⇒ The person's chance of survival is greatly increased with early defibrillation and early advance medical care.
- ⇒ Ribs will break when you compress on someone's chest, but if you don't do CPR they will die for sure.

The steps for CPR need to be practiced in a real classroom setting. This is not something you can just watch or read about then try to perform.

Table 2: CPR Compressions and Techniques

	Adult	Child	Infant
Single-Person	30-2	30-2	30-2
Two-Person	30-2	15-2	15-2
Technique	Both hands	One hand	Two fingers

- **Cardiogenic shock:** This is where the blood is not pumping effectively through the body - usually caused by heart problems, such as a heart attack.
- **Anaphylactic shock:** Caused by an allergic reaction that causes air passages to swell, blocking the flow of oxygen, and causing a lack of oxygen in the blood.

Treatment

The body needs oxygen to function. Respiration is necessary to supply the body with vital oxygen (we inhale 21% oxygen and exhale 16% oxygen). Therefore, the most important treatment for shock of any variety is to try and maintain the blood flow to the body's core (thorax and head). To do this, lie the patient flat on the floor and raise their legs about 6-12 inches (15-30 cm) off the ground.

Other important factors in the treatment of shock can be remembered by the simple mnemonic WARTS (Warmth, ABCs, Rest and reassurance, Treatment of minor injuries, Semi-prone position). Treatment for shock prevents deterioration of the casualty's state. Treat until help arrives.

Table 3: Treatment of Shock

W	Warmth: Cover the casualty with a blanket, a jacket, a towel.
A	Airway, Breathing Circulation monitoring: The First Aider must constantly be monitoring the casualty's ABCs. An unconscious casualty, who may have been breathing at the first breathing check, may stop breathing any time.
R	Rest and Reassurance: The First Aider should speak calmly to the casualty, reassuring_ them that help is on the way, and that everything is under control
T	Treatment of Minor Injuries: At this point a sprained ankle can be iced, a broken bone can be slung, a minor bleed can be bandaged.
S	Semi-prone position: This position is best for an unconscious casualty, because it dears the tongue from the trachea, and allows drainage of fluids.

Shock Positions

Semi-prone Position

While the casualty is on her/his, back:

- The arm closest to the rescuer is pulled up to lie beside the casualties head.
- The arm furthest is placed with the palm of the hand over the closest cheek.
- The leg furthest from the rescuer is lifted at the knee.
- Use the raised knee and elbow to gently roll the casualty onto the side.
- The raised leg acts as a pivot point that aids in rolling even a very heavy casualty.
- The knee will stop the casualty from rolling onto their front
- The casualty's head is rested on the extended arm.



Airway Emergencies

Obstructed Airway

Causes

- A severe allergic/anaphylactic reaction (anaphylaxis)
- A foreign object lodged in the throat
- An Unconscious casualty's tongue
- An unconscious casualty's vomit



Partial Obstruction with poor air exchange/Complete Obstruction

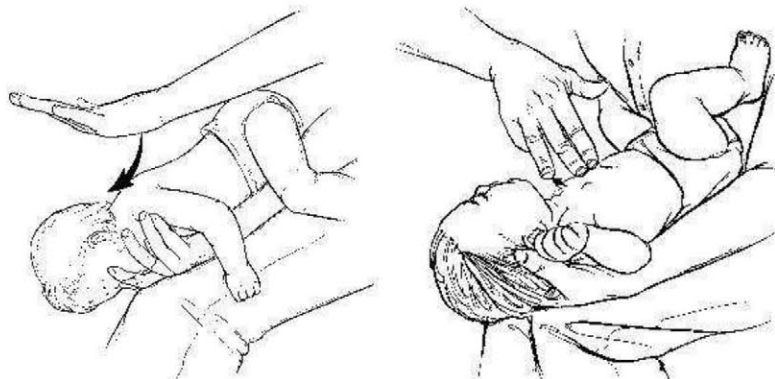
- ⇒ Check 1 - Area: Call out for help, check the scene to ensure it is safe.
- ⇒ Check 2 - Responsiveness: Determine the casualty's need, "I am trained in first aid." Are you choking? -If yes "Can I help you?"- If no "Do you have medication?"
- ⇒ Check 3: Is EMS needed?- not necessarily.
- ⇒ Airway: If there is a good air exchange, encourage them to cough it out on their own. If there is a poor air exchange, the rescuer will step in to assist.



Adult Casualty: Stand behind casualty, find abdominal landmark above the navel. Place flat fist on landmark and pull with other hand on top in and up.

Child Casualty: If a casualty is shorter than you, or a child, kneel to landmark as adult, use less force. Never pick up a child to put them on a table or a chair simply because you don't want to kneel down.

Infant Casualty: Lay them on your arm face down and give 5 back blows. Turn them over face up and give 5 chest compressions thrusts.



Pregnant, Obese and Wheelchair Casualty: If a casualty is visibly pregnant, or you can't get your arms around their abdomen then you must do chest thrusts on the breastbone. Landmark on sternum by bringing arms straight up under casualty's armpits.

Saving Yourself: Call 911 and leave the receiver off the hook- landmark above the navel thrust, the landmarked area onto a secure, hard surface until object is dislodged

Continue treatment until blockage is dislodged or casualty goes unconscious.

Cardiac Arrest

Cardiac arrest, also known as circulatory arrest, is a sudden stop in effective blood circulation due to failure of the heart to contract effectively or at all.

A cardiac arrest is different from (but may be caused by) a heart attack, where blood flow to the muscle of the heart is impaired. It is different from congestive heart failure, where circulation is substandard, but the heart is still pumping sufficient blood to sustain life.

Arrested blood circulation prevents delivery of oxygen and glucose to the body. Lack of oxygen and glucose to the brain causes loss of consciousness, which then results in abnormal or absent breathing. Brain injury is likely to happen if cardiac arrest goes untreated for more than five minutes. For the best chance of survival and neurological recovery, immediate and decisive treatment is imperative.

Causes of Cardiac Arrest

- Heart Attack
- Stroke
- Electrical Shock
- Drowning
- Severe Body Trauma
- Drug Overdose

Signs and Symptoms

- Unresponsive
- Blue Skin Colour
- Not Breathing
- No Pulse

Treatment

- ⇒ **Check 1:** Call out for help
Check the Area for hazards, severe bleeding, spinal and pelvic injuries
- ⇒ **Check 2:** Check the casualty for responsiveness
- ⇒ **Check 3:** Is EMS needed?- YES
Wait for 2 min. of CPR before calling 911 for children & infants
- ⇒ **Airway:** Open the airway using a head-tilt, chin-lift.
- ⇒ **Breathing:** Look listen and feel for 10 seconds.
No breathing is detected
- ⇒ **Circulation** is considered absent if breathing is absent,
Place heel of the hand in the centre of the sternum
Push Hard, Push Fast
30 compressions, followed by 2 slow breaths



Treatment of Injuries
Semi-sit

Administering Medication (Mx)

If the casualty says they have angina they should also have medication with them. You can help them take it but they must do the actual administering. This medication is called nitroglycerine. It is designed to cause blood vessel dilation, which means it causes the blood vessels to relax so they expand. As a result, more blood can flow through.

Viagra does not cure heart disease. It does not dissolve blood clots, it simply enlarges blood vessels temporarily.

When administering medication:

- Mx must be administered only with consent of and by the casualty.
- Mx must have casualty's name on it
- Only the prescribed dose should be taken by the casualty during the emergency.

NITRO Facts:

- a. Nitro-glycerine can be taken in the form of pills, an inhaler, or a patch.
- b. A First Aider should not touch Nitro-glycerine. Contact may cause dizziness/fainting.
- c. A casualty should not take Nitro-glycerine if he has taken any penal enhancement drugs within the last 24 hours.

Heart Attack

A heart attack (Myocardial Infarction) is a blockage in a coronary artery, starving the heart muscle of oxygen. Depending on the amount of heart muscle affected, the casualty may experience mild to severe symptoms. If the blockage affects a small part of the heart, the rest of the heart will continue to beat, while the casualty experiences signs and symptoms of a heart attack. If the blockage affects a large part of the heart, it will stop beating immediately, causing Cardiac Arrest. Either situation requires advanced medical help.

Signs and Symptoms

- Pain in chest, radiating down left and possibly right arm
- Possible pain in jaw, or shoulder blade(s)
- Shortness of breath
- Gastric reflux, Nausea
- Greyish complexion, clammy skin
- Denial
- Women may feel less chest pain, and more neck/shoulder pain, nausea, and shortness of breath

Wound Care

A wound occurs when there is a break in the soft tissues of the body. Wounds can be open or closed. An open wound is treated as a bleed with Direct Pressure and Rest.

Prevention of Infection for Wounds

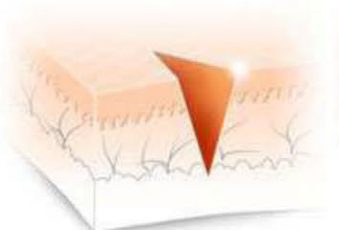
- Wash hands with soap and water
- Use clean gloves
- Don't cough/breathe over wounds
- Wash wounds under running water
- Wipe surrounding skin clean, wipe away from wounds
- Place sterile dressing on, and secure with bandage or tape
- Remove and dispose of gloves

Types of Skin Wounds

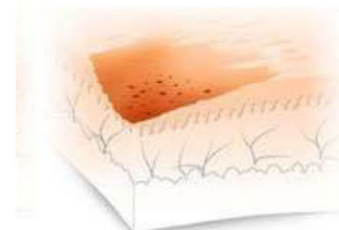
- Abrasion- a scrape or rubbing away of skin
- Laceration A jagged or straight cut in the skin
- Avulsion- A tear away of skin, or other tissue that leaves a portion attached, like a flap
- Puncture wound - pointed object pierces the skin
- Impaled object - A foreign object remains stuck in the wound
- Contusion- Ruptured blood vessel under the skin's surface



Rough Laceration



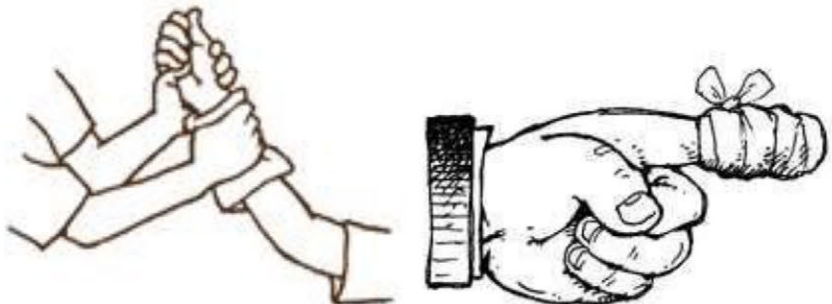
Smooth laceration



Abrasion

Bandaging

Bandaging is something you would do to control severe bleeding. Ideally you want to use sterile dressings but they may not be readily available so use whatever you have (e.g. towels, clothing). The idea is to put constant pressure over



Head and Spine Injuries

Head Injuries - Compression

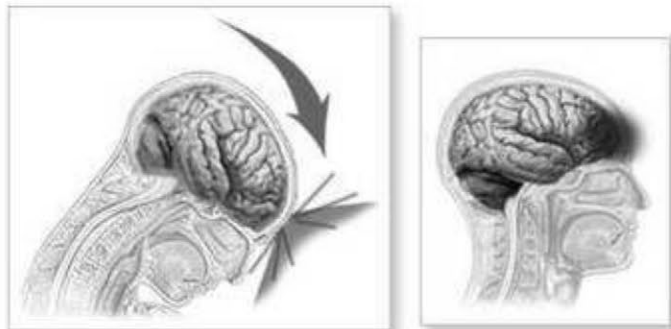
In compression there is a build-up of pressure on the brain from a build-up of liquid or broken skull bones interfering with circulation. This condition worsens over time. It may be detected immediately, or after hours, days, or even weeks. The casualty must be closely monitored after a head injury for Signs and Symptoms.

Signs and Symptoms

- Decreasing level of consciousness
- Immediate unconscious
- Nausea and vomiting
- Unequal size of pupils -not responding to light

Head Injuries - Concussion

A concussion is a violent jarring or shaking that results in a disturbance of brain function. It can be caused by a blow to the head from a fall, sport injury, or traffic accident. Brain function is temporarily interrupted, and the casualty may go unconscious. The casualty usually recovers quickly, but there is the chance of serious brain injury.



Signs and Symptoms

- Partial or complete loss of consciousness
- Pain or numbness.
- Ringing in the ears
- Nausea and vomiting
- Casualty is "Seeing stars"
- No recollection of events just prior to, or after the injury
- Loss of memory. Dizzy

Treatment

- ⇒ **Check 1, 2, 3:** Is EMS needed? YES Call 911 for serious head injuries
- ⇒ **Airway:** Casualty speaking has an open airway

- ⇒ **Breathing:** A conscious casualty is breathing
Questions: Can you take a few breaths for me?
Does it hurt when you breathe in and out?
Laboured breathing should not be ignored, assist casualty by coaching breathing.
- ⇒ **Circulation:** check for normal skin colour and temp. to determine good circulation
- ⇒ **Deal with Shock:** Treat with WARTS

Warmth

A-B-C Monitoring

Rest & Reassure

Treat Injury using RICE: Rest the person (in position causing least amount of pain)
 Immobilize the injury by slinging, or splinting
 Cold-have casualty place ice on the site of pain
 Elevate the injury when possible (providing it doesn't cause pain)

Semi Prone/Sit Position

**After splinting, or slinging an injury, check distal circulation.

Frost Bite

A freezing of a body part, such as the hand, foot, face, etc. Superficial is the surface of the skin, whereas deep frost bite affects the underlying tissues. Sometimes this is accompanied by hypothermia.

Causes

Exposure to cold, wind, wet conditions. Not wearing protective clothing.

Signs and Symptoms

- Cold feeling
- Numbness
- Inability to use the body part. Tingling, then pain. As it gets worse all sensation will disappear.
- The skin will first appear white or yellowish. If the tissue dies it will become black charred color.



Treatment

- Warm up the body part slowly and gradually by wrapping it in warm clothing and/or submersing it in luke warm water – not hot water as it will burn the skin.
- For deep frost bite call 911

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