



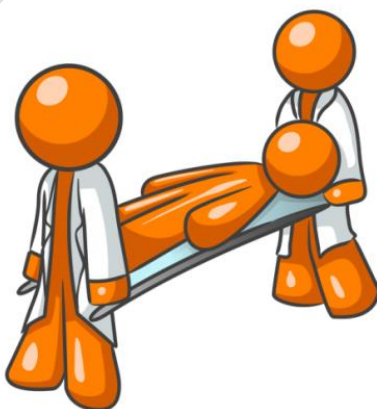
CPR First Aid

Work Book 2018

HLTAID006

Part 2

4 Modules



Index Reference		
Module 13	Human Anatomy and Physiology	<ul style="list-style-type: none"> • Skeleton, Joints and Muscles • Levels of consciousness
Module 14	Casualty Management	<ul style="list-style-type: none"> • BVM • Triage • Managing a First Aid Team • Emergency Management services • Secondary Survey Assessment • Vital Signs
Module 15	Providing First Aid for...	<ul style="list-style-type: none"> • Emergency Childbirth • Aged / infirmed • Children • Burns: chemical, electrical • Skin injuries • Spinal injuries using immobilisation principles • Major and minor accidents in the workplace
Module 16	Safe Work Practices	<ul style="list-style-type: none"> • Risks and hazards • Dangerous goods / chemicals / SDS • Medication – legal requirements

WARNING!

Readers are warned that certain pages contain graphic images of real or simulated injuries to real people. All images have been added for the purpose of education only.

This workbook is not suitable for minors

Instructions: Mark your answers by placing an x in the appropriate square, submit your answers as per booking instructions, if your answer is not correct it will be sent back to you for your second and final attempt. (Questionnaire and Assessment answer sheet can be requested separately if required – refer to last page)

Please note: The submission of the Assessment Answer sheet (Online or hard copy) is evidence of completion of the workbook, however you will also be assessed in the classroom on this workbook. If you are unable to answer the same questions in the classroom then you will be deemed not competent and not pass the course.

This is to deter copying and cheating.

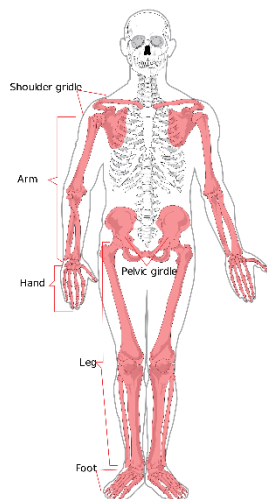
Module 13 – Human Anatomy and Physiology

In this lesson, you'll be learning about:

- 1) Skeleton, Joints and Muscles
- 2) Levels of consciousness

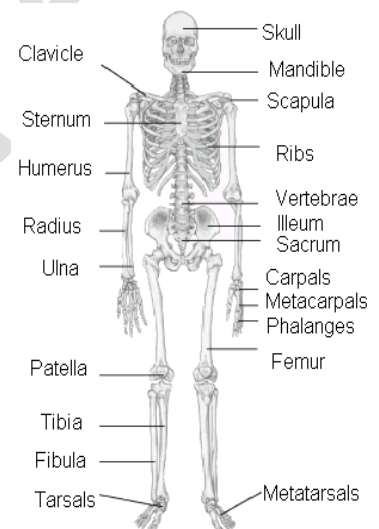
Estimated Completion Time: 15 minutes

Topic 13.1 - Skeleton, Joints and Muscles



The musculoskeletal system is a term used to describe the bones, as well as the adjoining ligaments, tendons and muscles. The following section will provide an overview of the names and locations of different bones; however, you are not expected to demonstrate a complete knowledge of all the bones listed.

It is recommended that you become familiar with the following section, as it will assist you in understanding medical terminology, and give you a greater knowledge base as a first aider in which to understand and communicate effectively.



Topic 13.1 - Skeleton, Joints and Muscles

The skeletal system is made up of 206 bones that provides structure to our bodies, and protects our internal organs from damage. Muscles, ligaments and tendons are closely linked with this system and all play vital roles in allowing movement and function of limbs and body parts.

The bones of the skeleton have 4 main functions:

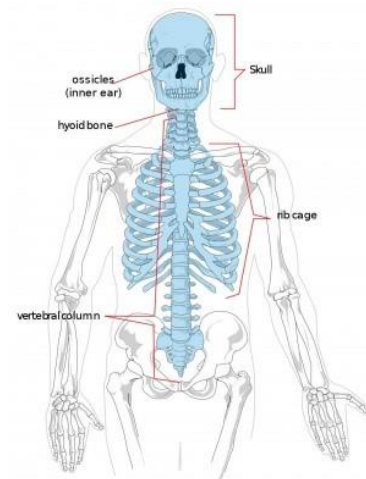
1. To give shape to the body
2. To produce blood cells
3. Support muscles to allow movement
4. Protect vital organs



Topic 13.1 - Skeleton, Joints and Muscles

Upper Limb Bones - Medically, the term **arm** refers to the part of your arm that lies between your shoulder and elbow. The bone in the arm is called the humerus. The length of your arm below your elbow is actually termed the **forearm**, which includes the radius (the bone on the thumb side of the arm) and ulna (the bone on the side of your little finger).

The bones in the wrist are called carpal bones (there are 8). In the hand, the next group of bones which are between your wrist and fingers are called the metacarpals. The fingers are referred to as digits, and the bones in the digits are called phalanges (singular = phalanx).



Topic 13.1 - Skeleton, Joints and Muscles

Lower Limb Bones - The part of the leg that lies between your hip and knee is called the **thigh**, and the bone commonly known as the 'thigh-bone' is called the femur. It can be confusing to note that whilst the term arm refers to the 'upper' part of your arm, the term **leg** medically refers to the part of the leg between your knee and ankle. The leg contains the tibia (the bone on the inside of your leg) and the fibula (the bone on the outside). The correct term for the kneecap is the patella. The main bone in the ankle which connects to the leg is called the talus. Your heel bone is called the calcaneus.

The bones in the part of the foot closest to the ankle are called tarsals, the longer bones of the forefoot are called metatarsals, and the toes are digits with the toe bones being called phalanges. (Note the foot terminology is very similar to the hand).

Topic 13.1 - Skeleton, Joints and Muscles

The following is a brief list outlining some of the specific medical terms relating to different commonly known names for bones. Again, you do not need to memorise this list, but it is recommended that you read through it so you recognise these terms.

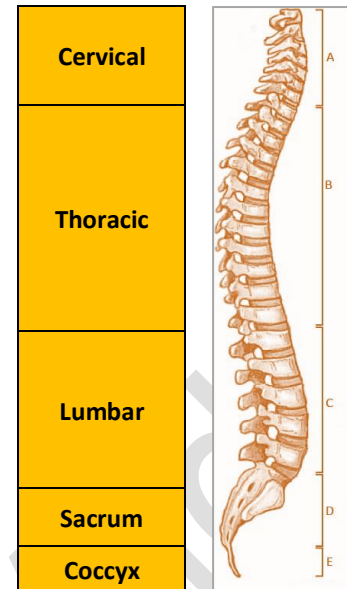
Basic Name	Medical Name	Basic Name	Medical Name
Collar Bone	Clavicle	Upper Arm	Humerus
Shoulder Blade	Scapula	Fingers/Toes	Phalanges
Chest Bone	Sternum	Kneecap	Patella
Neck	Cervical Spine	Heel	Calcaneum
Upper Back	Thoracic Spine	Wrist Bones	Carpal Bones
Lower Back	Lumbar Spine	Thighbone	Femur
Tail Bone	Coccyx	Nose Bone	Nasal Septum
Chest	Thorax	Adam's apple Bone	Hyoid
Tummy	Abdomen		

Topic 13.1 - Skeleton, Joints and Muscles

The Spine

The levels of the spine are referred to by their area and level, such as C5, or L2. C5 refers to the 5th cervical vertebra. L2 refers to the 2nd lumbar vertebra.

The disc spaces are named according to the levels they lie between, for example C7/T1 is the disc between the 7th cervical vertebra and the 1st thoracic vertebra.

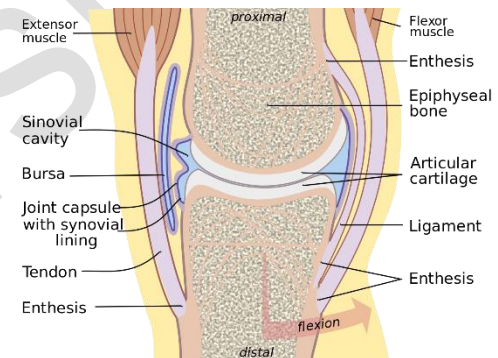


Topic 13.1 - Skeleton, Joints and Muscles

Joints

Human joints occur where two bones come together. The joints hold the bones together, allowing the skeleton to be flexible so that movement of the skeleton can happen. Ligaments and muscles provide movement and stability.

Joints are classified into categories based on the range of movement. Some of the joints are fixed and immovable like those in the skull. Other joints allow for some movement such as those found between the vertebrae of the spine.



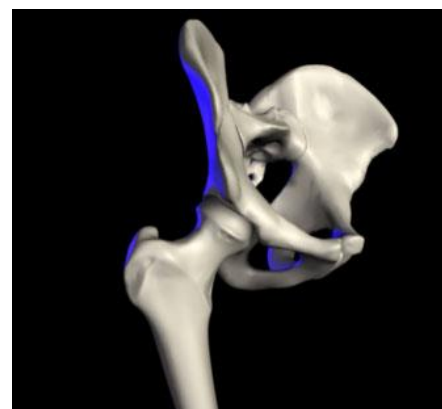
Most of our joints are free-moving synovial joints which contain synovial fluid as lubrication to help the joints move freely.

Image by Madhero88 (Own work) [CC BY-SA 3.0]

Topic 13.1 - Skeleton, Joints and Muscles

Types of Movable Joints

1. **Hinge joints:** allows movement in one direction only, similar to the functionality of a door hinge. Located at: knees and elbows
2. **Pivot joints:** allows for a spinning, rotating or twisting motion, e.g. the head moving from side to side. Located at: neck and the radius part of an elbow
3. **Ball-and-socket joints:** allows for a wide range of rotation and freeness of movement. Located at: hips and shoulders



Hip Bones: Image by Stephen Woods (Own work) [CC BY-SA 3.0]

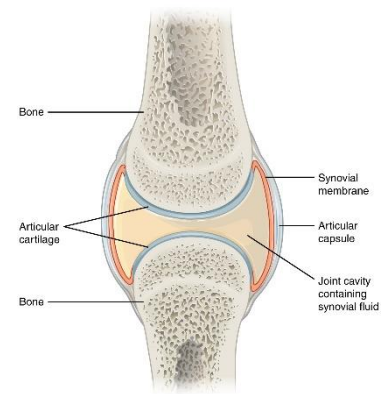
Topic 13.1 - Skeleton, Joints and Muscles

Cartilage

Cartilage is a tough, flexible, fibrous connective tissue which is less flexible and stiffer than muscle yet is less rigid and hard as a bone. It helps to provide cushioning for joints.

Cartilage is found in many parts of the body:

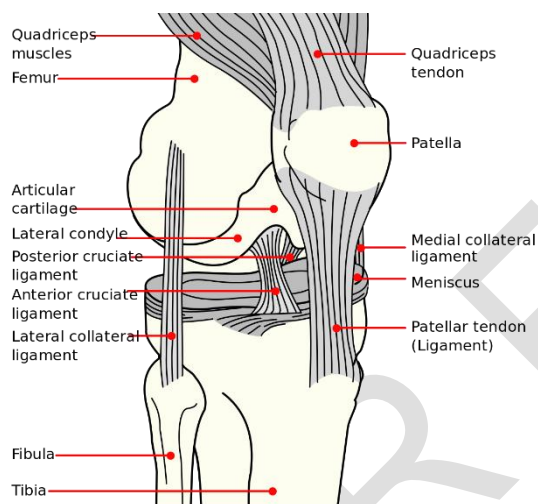
- Moving joints between bones: knees, ankles, elbows
- Nose and ears
- Between the vertebrae of the spine
- Trachea, parts of the larynx, and smaller respiratory tubes
- Ends of ribs



As cartilage does not contain blood vessels, it repairs and grows more slowly than other tissues.

Topic 13.1 - Skeleton, Joints and Muscles

Ligaments



Ligaments are tough fibrous stretchy bands of connective tissue that, in most cases, hold one bone to another at a joint. Ligaments should not be confused with tendons which connect bones to muscles.

As ligaments play a vital role in stabilising the joints, they are quite susceptible to injury due to overuse or sudden movement.

Ligaments of the Right Knee: Image by Mysid

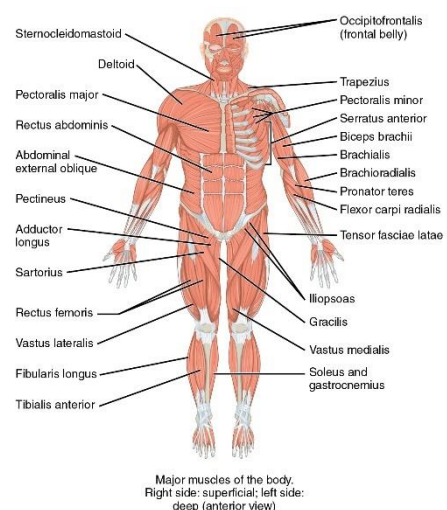
Topic 13.1 - Skeleton, Joints and Muscles

Muscular System

The main role of the muscular system is movement of the human body but it also aids in maintaining posture and circulating blood and other substances throughout the body. Over 650 muscles are attached to the bones of the skeletal system with the ability to contract and therefore move the parts of the body. Muscle movement can be classified as being either voluntary or involuntary.

The muscular system can be categorized into 3 sections:

1. Skeletal Muscle
2. Visceral or Smooth Muscle
3. Cardiac Muscle



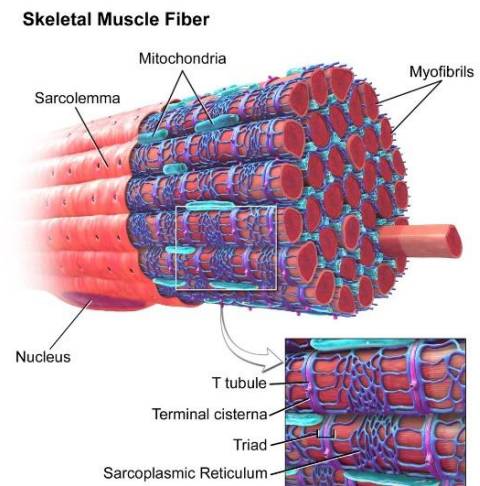
Anterior View of Muscles: Image by OpenStax College

Topic 13.1 - Skeleton, Joints and Muscles

Skeletal Muscle

- Skeletal muscle is a voluntary muscle as it is controlled consciously
- Most skeletal muscles are attached to bones anchored by tendons
- They work in pairs. One muscle moves the bone in one direction and the other moves it back again
- Contractions can be long, short or single

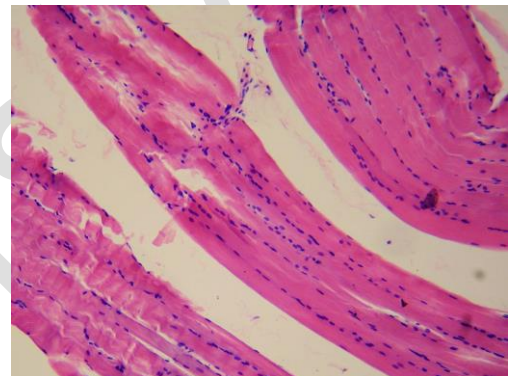
Skeletal Muscle Fiber: Image by Blausen.com staff. "Blausen gallery 2014". Wikiversity Journal of Medicine (Own work) [CC BY 3.0]



Topic 13.1 - Skeleton, Joints and Muscles

Visceral or Smooth Muscle

- Visceral/smooth muscle is an involuntary muscle as it cannot be controlled consciously
- Visceral muscle is found inside of organs like the oesophagus, stomach, intestines, bladder, the uterus (females), respiratory system and blood vessels
- The weakest of all muscle tissues
- Visceral muscle moves substances through an organ by making the organ contract, e.g. digesting food
- When viewed under a microscope, has a very smooth, uniform appearance

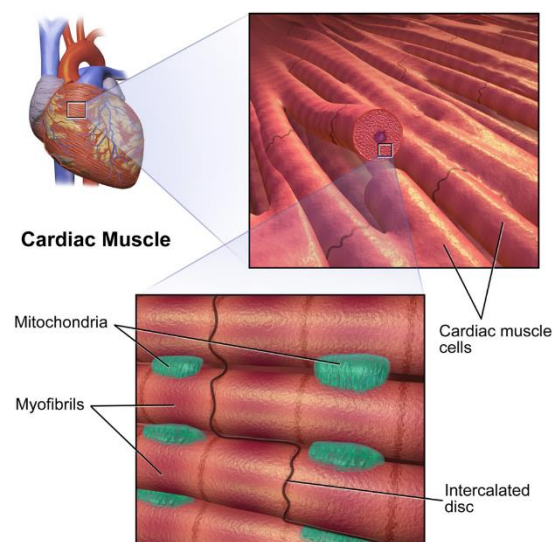


Microscopic view of Smooth Muscle Tissue: Image by Juan Carlos Fonseca Mata

Topic 13.1 - Skeleton, Joints and Muscles

Cardiac Muscle

- Cardiac muscle is an involuntary muscle as it cannot be controlled consciously
- Is only found in the walls of the heart
- Responsible for pumping blood
- Cardiac muscle stimulates itself to contract, while hormones and signals from the brain adjust the rate of contraction



Cardiac Muscle: Image by BruceBlaus (Own work) [CC BY-SA 4.0]

Topic 13.1 - Skeleton, Joints and Muscles

Issues with Bones, Joints and Muscles

Though bones are strong, they can break or fracture.

- Closed fracture
- Open Fracture
- Complicated fracture

Fractures take around four to eight weeks to heal. This depends on the type of break and the health and age of the casualty.

Muscles can become strained, torn, pulled or weakened. Joints, tendons, ligaments and cartilage can be harmed by injury or disease.

Each situation requires its own first aid process and treatment



Midshaft fracture of the humerus: Image by James Heilman, MD

Topic 13.2 - Levels of Consciousness

The medical term “Level of Consciousness” (LOC) identifies the level of a person's cognitive function (mental processes involved in gaining knowledge and comprehension). It involves their awareness of surroundings and the potential to be aroused. A person's responsiveness to stimulation will help to determine their level of consciousness.

Consciousness: The state in which a person is awake, aware, fully alert and responsive to stimuli and to the environment.

Unconsciousness: The state in which a person is unaware of self and environment, unrousable and unresponsive to stimuli, e.g. C.O.W.S.



There are a number of levels of consciousness between the two main states. These range from being alert to being in a coma.

Module 14 – Casualty Management

In this lesson, you'll be learning about:

- 1) Bag-Valve-Mask ventilation
- 2) Triage for a multiple casualty incident
- 3) Managing a multiple casualty incident, directing a first aid team
- 4) Capabilities of emergency management services
- 5) Secondary survey assessment
- 6) Vital signs

Estimated Completion Time: 15 minutes

Topic 14.1 – Bag-Valve-Mask Ventilation

For ventilating an unconscious casualty, a trained first aider can use a manual resuscitation device known as a Bag-Valve-Mask or BVM for short.

There are two types of BVMs. The first type is reusable but needs to be correctly sterilised by an autoclave machine and is more commonly used in a hospital environment. The second type is the most suitable for first aid situations, the disposable BVM, which is single use.

Bag-Valve-Masks come in three sizes; adult, child and infant. There is a nipple on the BVM where a tube can be connected for the administration of oxygen.

Note: The administration of supplementary oxygen should be limited to individuals with specific training in oxygen administration.



Image: Disposable BVM in three sizes

Topic 14.1 – Bag-Valve-Mask Ventilation

The ARC recommends that when a BVM is used, that at least two trained people are required to provide ventilation for a non-breathing casualty:

1. One person to manage the airway, mask and seal
2. The second person to operate the bag

Studies have shown that ventilations by a single operated BVM results in inadequate ventilations as it was difficult to provide an effective mask seal on the BVM. The BVM method that used two first aiders instead of one, consistently provided more effective ventilation than a single person technique.

Therefore, if only a single trained first aider is available, do not use the BVM but instead apply mouth to mouth using a face shield, or a mouth-to-mask.

Topic 14.1 – Bag-Valve-Mask Ventilation

Two Person BVM Operation

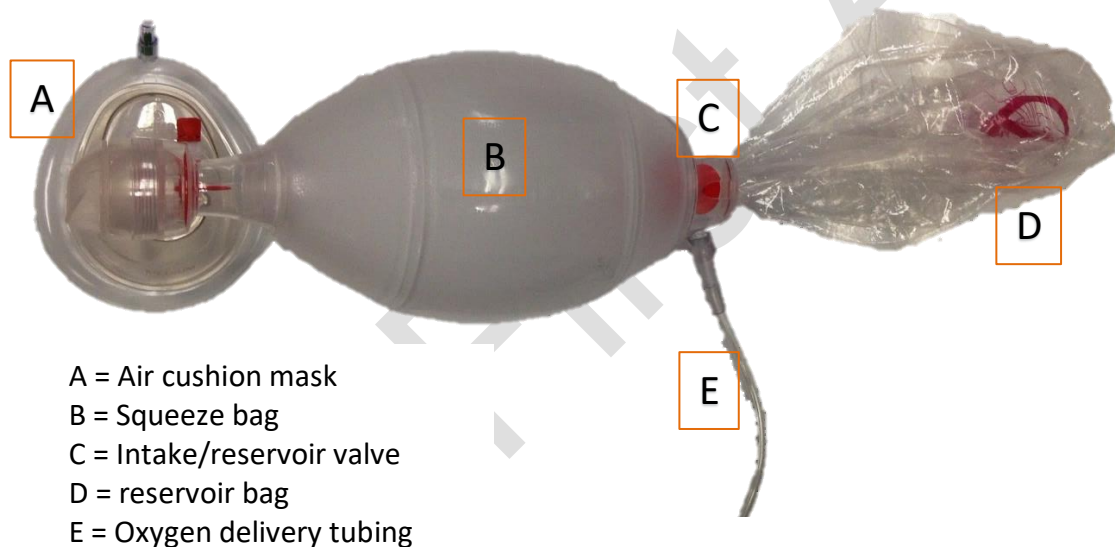
Person One:

- Position themselves behind the top of the casualty's head
- Place mask over the casualty's mouth and nose
- Use both hands to hold mask in place
- Ensure a proper seal between mask and face
- Open airway: Head tilt/ Chin lift

Person Two:

- Hold the self-inflating bag and squeeze
- Observe the rise and fall of the chest as evidence of correct ventilation amount
- Release grip on the bag to allow bag to fully self-inflate
- Repeat process for 2nd inflation
- Two inflations after every 30 compressions

Topic 14.1 – Bag-Valve-Mask Ventilation



Topic 14.2 – Triage for a Multiple Casualty Incident

A first aider might find themselves in a situation where there is a serious incident with mass casualties. When there are more casualties than first aiders, a system of determining priority of treatment is required known as triage. Otherwise there is a likelihood of a casualty dying from an injury that could have been managed if treated promptly.

In the late 90s, Australia's and New Zealand's emergency and medical departments had adopted a triage system known as the Australasian Triage Scale (ATS).

ATS Category	Description	Should be treated within
1	Resuscitation	0 minutes - immediate
2	Emergency	10 minutes
3	Urgent	30 minutes
4	Semi-Urgent	60 minutes
5	Non-urgent	120 minutes

Topic 14.2 – Triage for a Multiple Casualty Incident

In an emergency situation, first aid trained people can use a simple triage system known as Simple Triage and Rapid Treatment (**START**) as per the following chart.

Colour	No.	Priority		Description
Black	N/A	None	Dead	Deceased are left where they have fallen. They are pulseless and not breathing. An effort in trying to reposition their airway has been unsuccessful. <u>Note:</u> casualty can only be declared dead by medical professionals.
Red	1	First Priority	Immediate	Casualties who could die without immediate lifesaving procedures, e.g. CPR, severe bleeding
Yellow	2	Second Priority	Delayed	Less severe injuries and in a stable condition but will require medical treatment. Transport can be delayed
Green	3	Third Priority	Minor	Minor injuries. Walking wounded. Treatment and advanced care can be delayed

Topic 14.2 – Triage for a Multiple Casualty Incident

The goal of triage is to achieve greatest good for the highest number of injured.

At times emergency services are faced with a casualty whose condition is so severe that despite the best available advanced care that they cannot survive. If they treat this casualty it would divert medical resources from a casualty that could be treated and saved who may then be compromised. This applies especially in circumstances where there are more casualties than there are responders.

© 2007 NEMCO
Triage Tag Form

Notes

Aliases: _____
Prescription Medication: _____
Personal Information
Name: _____
Address: _____
City: _____ St: _____ Zip: _____ Phone: _____
Title: _____ Female: _____ Age: _____ Weight: _____

DECEASED
IMMEDIATE
DELAYED
MINOR

Topic 14.3 – Managing a Multiple Casualty Incident, Directing a First Aid Team

During the initial stages of a multiple casualty incident, first aiders may be overwhelmed by the scope of casualties and injuries and as the head first aider or team leader it is vital to show leadership. Try to remain calm and reassure the team. Never assume that every team member is okay and knows what they need to do. Review the situation. Give clear and precise directions to minimise confusion and anxiety. Effective leadership will instil confidence that the incident is being effectively managed.

Procedure for managing a multiple casualty incident – Pt1

1. Conduct a scene assessment – what has occurred, estimate number of casualties, what first aid equipment is required
2. Immediately call emergency services on 000 – inform them of the incident
 - a. Have someone waiting at the main entry point to direct them to the correct location of the incident and assigned triage location
3. Manage the team of first aiders in an effective manner to optimize the team size and skill level. Assure well-being of the team
4. Determine if the incident scene is safe prior to entering. If not, render safe as possible



Topic 14.3 – Managing a Multiple Casualty Incident, Directing a First Aid Team

Procedure for managing a multiple casualty incident – Pt2

5. If chemicals or hazardous goods involved, follow SDS directions and wear the appropriate PPE/C to safely handle the incident
6. Organise other people to assist with managing traffic or other hazards
7. Automatically take along first kit/s and AED to any incident
8. You may meet people self evacuating the incident as you arrive. Direct these people to a suitable area of refuge so they can be later monitored and evaluated
9. Triage commences
10. Clear out remaining “walking wounded”. Do this by announcing “If anyone is well enough to stand up and walk out of here, do so now.” Direct them to a suitable area of refuge so they can be later monitored and evaluated



Topic 14.3 – Managing a Multiple Casualty Incident, Directing a First Aid Team

Procedure for managing a multiple casualty incident – Pt3

11. Start assessing the first casualty that you encounter
12. Follow infection control principles at all times
13. Check for DRS ABCD (response, airways & breathing)
14. Check vital signs and visual survey
15. If appropriate, leave casualty in recovery position
16. Make decision of what priority level they are
17. Move on to next casualty and repeat steps 13 to 16
18. Repeat steps 13 to 17 until all casualties are assessed
19. Assign first aiders to begin more intensive treatment in order of categorizations



Topic 14.3 – Managing a Multiple Casualty Incident, Directing a First Aid Team

Procedure for managing a multiple casualty incident – Pt4

What if on your first assessment the casualty falls into the RED or immediate category? Before moving on to the next casualty, only attempt to rectify airway problems or uncontrolled bleeding. For this, assign one of your first aiders to manage. They can be assisted by a capable “walking wounded” by maintaining the casualty’s head position to keep an open airway or keeping direct pressure on a large bleeding wound. You move on to assess the next casualty.

Once all the casualties have been triaged, more intensive treatment can begin. For safety reasons, casualties may need to be moved to a safer treatment area. Casualties classified as RED or immediate are moved first, followed by those tagged YELLOW or delayed. No need to move the casualties classified as BLACK. Your role is to assign the first aiders to the appropriately categorized casualties. Move from casualty to casualty, giving direction as required, encouragement, reassurance and commendation to your team.

Topic 14.3 – Managing a Multiple Casualty Incident, Directing a First Aid Team

Evaluate Incident Response

Once the documentation and reporting process has been completed, it is vital that the following steps take place:

- Review and assess the first aider's and organisation's management and responses to the incident
- Were the required equipment and first aid resources deployed in an effective and timely manner? Were there sufficient supplies?
- Review the First Aid Plan
- Reviews can generate improvements for processes and procedures. If so:
 - Implement improvements as soon as possible
 - Communicate improvements and updates to all staff



Topic 14.4 – Capabilities of Emergency Management Services

Early Advanced Care – The Fourth Link in the Chain of Survival

Early advanced care means the sooner a paramedic can attend to the casualty; the greater chance a casualty can be stabilised. As such, it is important that you call 000 as soon as possible. The sooner you contact emergency services, the sooner a paramedic will be on the scene, which dramatically increases the casualties' chance of survival.



Don't leave the casualty unattended. Monitor the condition of casualties in accordance with first aid principles and workplace procedures. Remember to convey all details of the incident when handing over to the paramedics.

Topic 14.4 – Capabilities of Emergency Management Services

The following information in **orange text** is an excerpt from - *The Council of Ambulance Authorities: Position Statement: Disaster and Emergency Management – The Ambulance Role - 2013*

Ambulance Service Capability – Pt 1

There are two key dimensions to the capability of ambulance services in emergency management:

- The ability of ambulance paramedics to deliver skilled health care in uncontrolled environments, and;
- The ability to manage pre-hospital care, including its associated logistics, in the field.



These capabilities are supported by advanced communications capacity.

Topic 14.4 – Capabilities of Emergency Management Services

Ambulance Service Capability – Pt 2

The pre-hospital objectives in disaster situations are to:

- Get the right clinical skill set to those affected;
- Provide appropriate treatment;
- Transport patients to the most appropriate facility; and
- Ensure continuity of care.



Image: ASNSW Rescue Helicopter by YSSYguy

It is vital that this process is managed as part of an overall emergency response. This is best achieved by an experienced pre-hospital, emergency management skill set such as that held by our public ambulance services.

Ambulance Services deal with pre-hospital emergencies on a daily basis. This is a large part of their core business. They have developed management expertise and experience to routinely carry out these tasks.

Topic 14.5 – Secondary Survey Assessment

The Primary Survey for any situation is known as **DRS ABCD**. If the casualty is unconscious, always follow DRS ABCD. If instead the casualty is conscious, follow a logical progression of questioning and a visual survey to determine what has occurred.

Once completed you can conduct a more thorough assessment of the casualty known as the **Secondary Survey Assessment** or commonly known as the **Head to Toe Assessment**. Having gained consent from the casualty, inform the casualty what you are planning to do and why. For the whole assessment, be sensitive and mindful of the person's age, gender and situation. Continue to calmly talk to the casualty as you go through each step. Carefully listen for any comments made by the casualty.



Note: Do not perform the head to toe assessment if the casualty objects.
Follow infection control principles at all times.

Topic 14.5 – Secondary Survey Assessment

Head to Toe Assessment

Step 1: Head, Face and Neck

- Starting from the top. Examine the head, face and then the neck for signs of fractures, eye trauma, head or neck injuries
 - Bleeding, sweating, swelling, bruising, pain and tenderness, tingling or numbness
- Check scalp for bumps or bleeding
- Check eyes for uneven pupil size and if it reacts to light. (refer to Image by Radomil) Is there swelling around the eyes and becoming discoloured
- Is the nose bleeding or out of shape?
- Check mouth for loose teeth or for bleeding
- Is the casualty wearing a medical alert necklace?
- Can casualty wiggle fingers and toes? Ask them to squeeze your hand with each arm
- If spinal injury is suspected, do not move the head or neck



Topic 14.5 – Secondary Survey Assessment

Step 2: Shoulders, Chest, Abdomen and Pelvis

- Check for chest movements. Signs and symptoms:
 - Rise and fall, slow, fast or uneven breathing, gasping for breath and noisy breathing
- Check for penetrating injuries (do not remove any penetrating objects)
- Check for bleeding, sweating, swelling, bruising, pain and tenderness
- Gently press against the chest and abdomen with flat palm of the hand to assess for pain response
- Are there signs of incontinence?



Topic 14.5 – Secondary Survey Assessment

Step 3: Arms and Legs

- Pat down the limbs to check for:
 - Wetness that may indicate bleeding
 - Deformities such as swelling, crooked limb or protruding bone will indicate an area of injury
 - Bruising, tenderness
- Ask casualty to move arms and legs but one at a time
- Is the casualty wearing a medical alert bracelet?
- Observe the skin and note colour. Feel the skin for temperature and note if it is hot, cold, clammy or perspiring (Applies to all steps)



On completion of the head to toe assessment, along with the visual and verbal survey, the first aider should have a basic idea of the signs and symptoms indicating what first aid treatment would be required.

Topic 14.6 – Vital Signs

It is important to take and record the vital signs of the casualty as soon as is practical. Follow infection control principles at all times

The four vital signs are the casualty's **temperature**, **respiration**, **pulse**, and **blood pressure**. Vitals should be taken and recorded on a regular basis. This helps to establish a starting point of readings. Ongoing readings can help indicate if the condition is deteriorating or stabilizing.

A copy of the recorded results should be provided to the paramedics as a reference.



Topic 14.6 – Vital Signs

Temperature

Temperature	Body Effects
> 41.5°C	Dangerous high temperature
40 – 41.4°C	High temperature
38.4 - 39.9°C	Hyperthermia
37.5 - 38.3°C	Fever
37°C	Normal
34 - 35.9°C	Mild hypothermia
32 - 33.9°C	Moderate hypothermia
30.1 - 31.9°C	Mod-deep hypothermia
< 30°C	Severe hypothermia

Normal body temperature may vary by person, age, activity, time of day and which part of the body you take the temperature from. As per chart, temperature readings too low or too high can indicate serious issues for the casualty.

There are various methods of taking a person's temperature. For first aid situations use either a digital thermometer or an ear thermometer.

Avoid the use of mercury in glass thermometers as they can easily break and prove to be highly toxic.

Topic 14.6 – Vital Signs

Temperature – Digital Thermometer

- Before each use, place a plastic probe cover on the thermometer or sterilise probe with an alcohol swab (based on brand type)
- Press the button to turn thermometer on
- Place the thermometer under the tongue for two minutes. Casualty to close mouth and breathe through the nose
- Take the thermometer out of the casualty's mouth to read results and record
- Dispose of probe cover or sterilise probe



If the casualty is unable to keep the thermometer under the tongue, (could be unconscious, too young, injured mouth, etc.) place thermometer under the armpit for two minutes. Gently support in place.

Topic 14.6 – Vital Signs

Temperature – Ear Thermometer

- Always read and follow the manufacturer's directions
- Place a plastic probe cover on the thermometer or sterilise probe with alcohol swab (based on brand type)
- Gently insert thermometer's probe into the ear canal
- Press the button on the thermometer to take the reading
- Hold until the thermometer indicates that the reading has been taken
- Remove the thermometer. Read results and record
- Dispose of probe cover or sterilise probe



Topic 14.6 – Vital Signs

Respiration

Overall, children have quicker respiratory rates than adults, and women breathe more often than men. The normal ranges for different age groups are listed:

The respiration rate is the number of breaths a person takes per minute. Measure the rate while the casualty is at rest or unaware that you are counting breaths. You count breaths for one minute by counting how many times the chest rises.

Respiration rates may rise with fever, illness, and with other medical conditions. When checking respiration, it is also important to note whether a person has any difficulty breathing or the quality of their breathing, e.g. irregular rhythm, rapid, slow, laboured, shallow, difficult, gurgling or gasping.

Record respiration rate and any abnormal breathing characteristics.

Age Range	Respiratory Rate
1 - 12 months	30 - 60
1 - 5 years	20 - 40
6 - 14 years	15 - 30
15 - adult	12 - 20

Topic 14.6 – Vital Signs

Pulse

The heart rate, or pulse, is the number of times the heart beats per minute. Normal heart rate varies from person to person. The average normal resting heart rates which vary with age are as per the chart.

A normal pulse should be regular in rhythm and force.

Counting the pulse rate is a simple way to find out how fast the heart is beating. You are actually feeling an artery as the beat of the heart pushes a wave of blood through the artery.

Age Range	Heart Rate
1 - 12 months	100 - 160
1 - 5 years	80 - 130
6 - 14 years	60 - 110
15 - adult	60 - 100

Regular pulse rhythm: Steady beat with even spacing between beats

Irregular pulse rhythm: No pattern. May skip beats and spacing between beats may vary

Strong pulse force: Beat strength of the pulse is strong. Easy to feel and steady

Weak pulse force: Beat strength of the pulse is weak. More difficult to feel and is inconsistent

An irregular and/or weak pulse could be a sign of a serious health concern or illness.

Topic 14.6 – Vital Signs

Taking a Pulse

The pulse can readily be felt over two arteries:

- Radial – in the wrist
- Carotid – on each side of the neck

The most common and convenient place to measure the pulse is to feel the radial artery in the wrist. This area is located on the inside of the wrist on the thumb side.

Image: Pulse evaluation by Pia von Lützu



Use the pads of your index and middle fingers to press lightly to “feel” the pulsing artery. It is not always easy to find, so move your fingers around a bit until you feel the pulse. Count the beats for 60 seconds using a watch with a second hand or timing device on a mobile phone.

Note: Do not use your own thumb, as you may be feeling your own pulse instead of the casualty's pulse.

Record the pulse rate and any abnormal characteristics to the rhythm or strength of the pulse

Module 15 – Providing First Aid for...

In this lesson, you'll be learning about:

- 1) Emergency childbirth
- 2) Providing first aid to the aged / infirmed
- 3) Providing first aid to children
- 4) Burns: chemical, electrical
- 5) Skin injuries
- 6) Spinal injuries using immobilisation principles
- 7) Major and minor accidents in the workplace

Estimated Completion Time: 30 minutes

Topic 15.1 – Emergency Childbirth

Childbirth generally begins naturally around 280 days (9 months) after conception. For a first time pregnancy, the average length of labour is about 14 hours but can reduce to eight hours in following pregnancies. Nevertheless, many women experience a much shorter or longer labour.

In modern society, it has become quite common for women to continue working at their place of employment late into the final stage of their pregnancy. Emergency childbirth is where a birth occurs in or out of hospital without standard obstetric procedures and preparations.

It is important for a first aider to understand the fundamental principles of assisting with an emergency childbirth in case they are faced with this emergency situation.



Image by Ken Hammond USDA

Topic 15.1 – Emergency Childbirth

Preparation Steps

In the event of an emergency childbirth occurring, the following can be done. This is based on time permitting as support for the delivery should not be delayed.

- Thoroughly wash and dry hands. Wear disposable gloves if available
- If available, have a clean surface area. Place a sheet of plastic with a clean sheet on top
- Get and arrange for the following supplies:
 - A sheet or blanket to cover the mother
 - Tissues, baby wipes or toilet paper – in case soiling occurs
 - Clean towels – To place infant on and another to wrap the infant in
 - Scissors that have been sterilized – to cut the umbilical cord
 - Clamping devices that have been sterilized – Can be shoe laces, cord, string, cable ties - to clamp the umbilical cord
 - Cotton wool or clean soft cotton cloth – To gently clean the baby's face
 - Container for disposal of contaminated materials



Topic 15.1 – Emergency Childbirth

The process of childbirth can be divided into three stages of labour.

- 1) First stage of labour: Labour and dilation of the cervix
- 2) Second stage of labour: Birth
- 3) Third stage of labour: Expulsion of the Placenta - Afterbirth

First stage of labour: Labour and dilation of the cervix

Dilation of the cervix commences. It will dilate from 0 to 10 cm (fully dilated) over a period of time in which the expectant mother will have many contractions. Contractions increase in frequency, strength and intensity as labour progresses. The mother can be lying down or sitting in a leaning position.

Active pushing by the mother should not commence until the second stage. At final phase of the first stage, the contractions may feel as though they are no longer separate, but running into each other. The birth of the baby will be imminent from this point.

Topic 15.1 – Emergency Childbirth

First stage of labour: Labour and dilation of the cervix

Stage 1:
Dilation

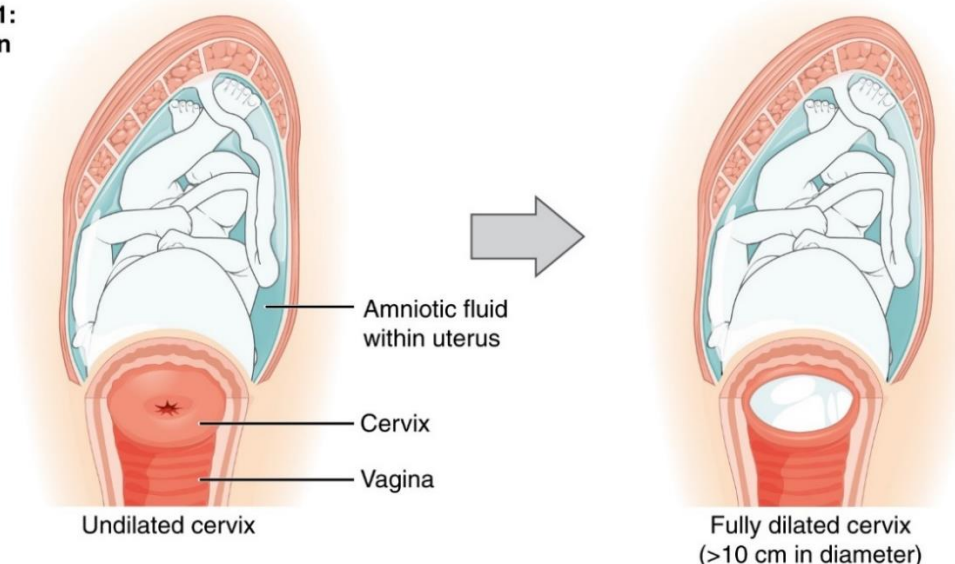


Image: Stages of Childbirth by OpenStax College: Anatomy & Physiology, Connexions Web site

Topic 15.1 – Emergency Childbirth

Support for the first stage of labour

Reassure the mother that the birth process is going smoothly.

Help the mother to be calm, patient and relaxed as possible. Standing up or walking can tend to shorten labour, so if the mother feels comfortable to do so, let her. Let her eat or drink small amounts of food, fruit juice, or suck on ice if she becomes hungry or thirsty. To relieve discomfort, the mother may need to empty her bowels or urinate frequently but don't allow her to sit on a toilet.

It is important to know how to time the contractions. This will aid in knowing how far into labour the mother is and what time is left until the baby arrives.

Time the intervals of the contractions. Start timing from the beginning of one contraction to the start of the next contraction. As labour progresses, the time between contractions decreases.

Topic 15.1 – Emergency Childbirth

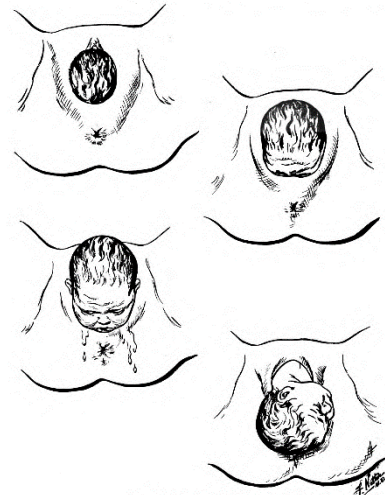
Second stage of labour: Birth

The mother enters the second stage of labour when the cervix is fully dilated and ends with the birth of the baby. Can last from 30 minutes to two hours.

The contractions of the second stage are often of a different kind. They may come further apart and the mother usually feels inclined to bear down (push) with them helping the baby to come down the birth canal. The birth of the baby is nearing completion when the top of the baby's head appears known as "crowning".

Once the head is out, the shoulders follow.

Image: Stages in the birth of the baby's head by Bookmiller_1954_176 Frank H. Netter



Topic 15.1 – Emergency Childbirth

Support for the second stage of labour – Pt 1

- Give verbal encouragement saying how well she is doing
- Don't be distressed if she displays anger or becomes emotional
- Support the baby's head as it emerges but allow it to rotate naturally
- Immediately check to determine whether or not the umbilical cord is wound around the neck. If it is, gently hook it with your finger and slip it over the baby's head
- If the cord is too tight, it has to be clamped in two spots, 5 to 8cm apart. Cut cord between the clamps and the deliver the baby rapidly
- As the shoulders emerge, be ready for the rest of the body to come out quickly. Use the cleanest material or towel available to receive the baby. Be careful as newborn babies are very slippery

① Presentation of head



② Rotation and delivery of anterior shoulder

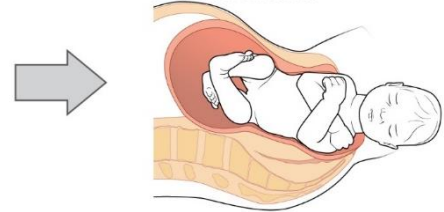


Image: Stages of Childbirth by OpenStax College: Anatomy & Physiology, Connexions Web site

Topic 15.1 – Emergency Childbirth

Support for the second stage of labour – Pt 2

- Hold the baby over the bed while raising the baby's body slightly higher than the head to drain fluid and mucous from the baby's nose and mouth. Gently clean baby's face
- In most cases, the baby will almost immediately breathe and cry
- If the baby doesn't spontaneously breathe, use your finger to gently clear the mouth of mucous. Softly rub its back to stimulate crying. If still not breathing, give extremely gentle mouth-to-mouth resuscitation with small puffs, at 20 puffs a minute
- After gently drying the baby, place the baby onto the mother's abdomen or chest if cord is long enough. Cover baby and mother with clean dry towel or blanket

③ Delivery of posterior shoulder



④ Delivery of lower body and umbilical cord



Image: Stages of Childbirth by OpenStax College: Anatomy & Physiology, Connexions Web site

Topic 15.1 – Emergency Childbirth

Support for the second stage of labour – Pt 3

- Do not pull the umbilical cord at any time
- 2 to 5 minutes after the birth of the baby, the umbilical cord can be clamped/tied and then cut
 - For emergency childbirth the cord is to be tightly clamped/tied in three places – Going from the baby's navel, tie the 1st clamp at 10cm, the 2nd at 15cm and the 3rd one at 20cm.
 - To prevent bleeding when cutting the cord, make sure all clamps are firmly tied
 - Cut the cord between the 2nd and 3rd clamp. This will leave two clamps on the baby's side
 - The cord is extremely tough to cut but will be painless due to the absence of nerves



Image: Umbilical cord of a three-minute-old child. A medical clamp has been applied.

Topic 15.1 – Emergency Childbirth

Third stage of labour: Expulsion of the Placenta - Afterbirth

The third stage of labour is the delivery of the placenta which can range from 5 to 30 minutes to take place.

The process begins with the placenta separating from the uterine wall. Contractions will naturally occur and the mother may help expel it by bearing down. Do not pull the umbilical cord at any time.

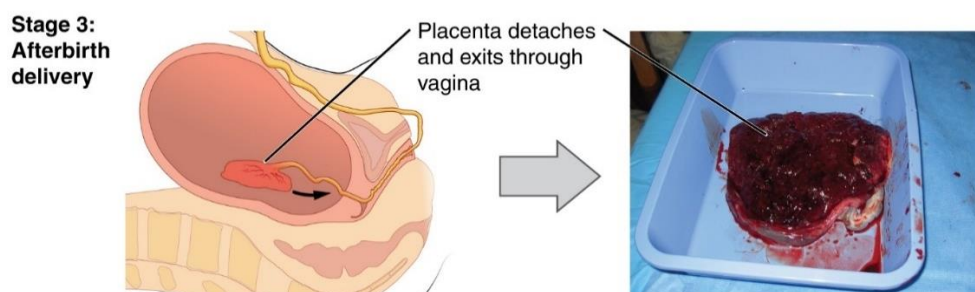


Image: Stages of Childbirth by OpenStax College: Anatomy & Physiology, Connexions Web site

Topic 15.1 – Emergency Childbirth

Support for the third stage of labour and after

- Massage the uterus to ensure that it is contracted and hard. This helps to reduce excessive bleeding
- Have the mother nurse the baby
- After delivery of the placenta, rinse the perianal area with warm sterile water. Dry area with a clean towel. Apply sanitary pads or a small towel in such a manner that the mother can hold them in place by drawing her legs together
- Encourage the mother to rest and maintain her privacy
- Be alert for signs of shock due to blood loss. Keep mother covered and warm
- Keep the placenta for medical review purposes
- Place all soiled materials into a bag/container for disposal



Supine Position
Breastfeeding in Supine Position: Image by BruceBlaus (Own work) [CC BY-SA 4.0]

Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Older adults are more likely to be vulnerable to accidents and injuries than younger people, even though they are currently energetic and active though they may be affected by diminished levels of the senses such as touch, hearing and sight. When an incident does occur, a first aider needs to beware of how best to care and aid an elderly or infirmed casualty.

The basic first aid guidelines that apply for adults are generally the same for the elderly though there are aspects that need to be considered.

Situations that may require first aid are:

- Falls
- Cardiovascular issues
- Cuts, knocks and scrapes
- Cold and heat related illness

Image of elderly frail person by James Heilman, MD



Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Falls

Hospitalisations due to falls by Australians aged 65 and over, in 2009-10. The estimated number of hospitalised injury cases due to falls in older people was 83,800 - more than 5,100 extra cases than in 2008-09 - and about 70% of these falls happened in either the home or an aged care facility. One in every 10 days spent in hospital by a person aged 65 and older in 2009-10 was directly attributable to an injurious fall.

As in previous years, a fall on the same level due to slipping, tripping and stumbling was the most common cause of hospitalised injury.

The above information quoted from: Hospitalisations due to falls by older people, Australia: 2009-10 by Australian Institute of Health and Welfare (Copyright holder)

Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Falls

Based on the previous page, it can be noted that the elderly are more vulnerable to falls. This could be due to:

- The common effects of aging with reduced level of:
 - Motor skills, balance and coordination
 - Muscle strength
 - Eyesight
- Some medications can cause rapid drops in blood pressure or dizziness
- Physical immobility or inactivity



An elderly person is much more likely to suffer a serious injury from a fall than a younger person.

Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Falls – First Aid Guideline

- Follow DRS ABCD
- Don't try to help them up right away
- Assess them for any injuries – visual and verbal assessment
- Be calm and reassuring
- Be respectful, gentle and considerate
- For serious injuries, immediately call 000
 - Don't move the casualty unless unconscious
- If casualty appears to be okay, help and support them to get up
 - Take them to a doctor to assess whether there was a medical cause for the fall and to check for any injuries



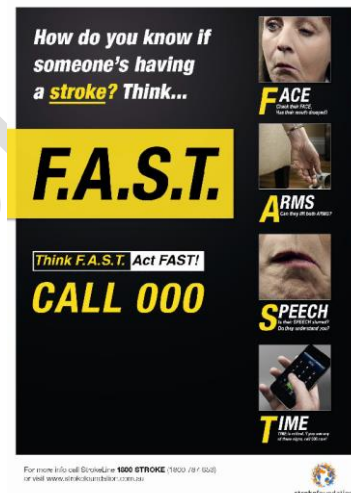
Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Cardiovascular Issues

Age-related changes in the heart and blood vessels place older adults at an increased risk of heart attacks, heart failure, and strokes.

If you suspect at any time that an elderly person is having heart problems or a stroke, immediately call 000. Be calm and reassuring while keeping them warm until emergency help arrives.

For specific first aid guidelines refer back to pertinent topics previously covered.



Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Cuts, Knocks and Scrapes

As the skin ages, it becomes thinner and more delicate, making it more prone to cuts, knocks and scratches. These can be quite serious or superficial.

Cuts, Knocks and Scrapes: Awareness Points

- All superficial cuts and scratches need to be properly cleaned and dressed if required
- After cleaning the wound and surrounding area, follow R.I.D for deep cuts. Take the casualty to a doctor to assess
- Be gentle in how you touch the casualty to avoid causing bruising or skin tears



Image by Andreas Bohnenstengel

Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Cold and Heat Related Illness

As a person ages, they become more vulnerable to temperature fluctuations, especially those with chronic illnesses or by taking certain prescription medications that can affect their temperature balance.

When outdoors, the elderly should always wear sunscreen and protective clothing, irrespective if it's hot or cold outside.

- COLD: Protect all of their skin from exposure by wearing enough layers of clothing
- HOT: Stay hydrated and protect their skin from the sun

If you suspect at any time that an elderly person is suffering from heatstroke or hypothermia, immediately call 000. Be calm and reassuring while keeping them cool or warm (as applicable to the issue) until emergency help arrives.

For specific first aid guidelines refer back to pertinent topics previously covered.

Topic 15.2 – Providing First Aid to Casualties who are Aged or Infirm

Before providing first aid to an elderly or infirmed casualty, we need to consider the previous points. At all times when providing first aid to the elderly or infirmed remember to:

- Be caring and compassionate
- Be calm and reassuring
- Be respectful and considerate
- Help them to preserve their dignity
- Explain carefully what you are doing. If possible, include the carer in the discussion
- Refer them to professional help for pain management
- Beware of pre-existing conditions or medications that they may be taking



Topic 15.3 – Providing First Aid to Children

Procedures and principles for providing first aid to children are basically the same as for an adult but there are variances between infants, children and adults in physiological, anatomical, cognitive and emotional ways which need to be considered.

Awareness Points Regarding Children – Pt1

Before providing first aid to children, the following points need to be considered and/or followed:

- If a casualty is a minor (under 18yrs) you should gain the consent from a parent/guardian
- A child's resting heart rate is faster than an adult
- Children have quicker respiratory rates than adults
 - When compared to adults, children may be more vulnerable to toxins absorbed through the pulmonary route
- A high fever in a child may trigger a convulsion/seizure known as a febrile convulsion



Topic 15.3 – Providing First Aid to Children

Awareness Points Regarding Children – Pt2

- The principles of DRS ABCD are the same between children and adults while processes are slightly different due to physiological and anatomical variances
- An infant's trachea is shorter and softer than an adult
 - Tilting the head during CPR may result in airway collapse
- A child's airway is smaller and softer
 - More prone to foreign body obstruction or choking
- Children have thinner skin than adults.
 - Children are at greater risk for the absorption of toxins that can be absorbed through the skin
- The body surface area of children is proportionately larger than adults. Children are at greater risk of:
 - Excessive loss of heat
 - Excessive loss of fluids – Dehydration



Topic 15.3 – Providing First Aid to Children

Awareness Points Regarding Children – Pt3

- Cognitive and emotional levels of children are not as developed as an adult
 - Need to be mindful how we communicate to a child based on their cognitive level of development
 - Children are still developing their ability to recognize and manage their emotions or feelings

When providing first aid to an infant or a child we need to consider the previous points. At all times when providing first aid we should be:

- Caring and compassionate
- Calm and reassuring
- Respectful and considerate

Topic 15.4 – Burns: Chemical, Electrical

Chemical Burns

Government regulations on hazardous substances and WHS requires all premises to have a safety data sheet (SDS) per hazardous chemical. These SDS's provide directions on administering first aid specific to each chemical and include information relevant to eye contact, skin contact, inhalation and ingestion.

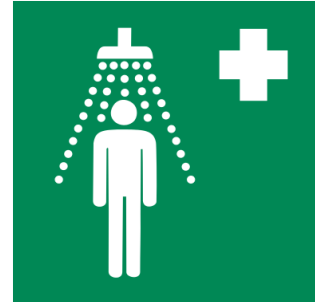
Note: The objective of first aid for chemical burns is not to cool the burn but **to dilute the chemical**.

SAFETY DATA	
SECTION 4 - FIRST AID	
act:	Flush with large amounts of water for at least 15 minutes. Do not
act:	Wash affected area gently with soap and water. Skin cream or ointment
act:	Do not induce vomiting; drink plenty of water.
act:	Remove affected person to clean fresh air.
act:	**If any of the symptoms persist, seek medical attention immediately.
SECTION 5 - FIRE FIGHTING MEASURES	
act:	Non-combustible
ing media:	Use extinguishing media appropriate to the surrounding fire.
hazards:	None
ing equipment:	Wear full bunker gear including positive pressure self-contained breathing apparatus.
SECTION 6 - ACCIDENTAL RELEASE MEASURES	
cedures:	Avoid creating airborne dust. Follow routine housekeeping procedures. If sweeping is necessary, use a dust suppressant. Do not use compressed air for clean-up. Personnel must wear approved respirator. Avoid clean-up procedures that could result in dust release.
SECTION 7 - HANDLING AND STORAGE	
Limit use of power tools unless in conjunction with local exhaust ventilation. Frequently clean the work area with HEPA filtered vacuum or accumulation of debris. Do not use compressed air for clean-up.	
This product is stable under all conditions of storage. Store in a cool, dry place.	

Topic 15.4 – Burns: Chemical, Electrical

Chemical Burns – First Aid – Pt1

- Check for danger. Evaluate and manage any hazards. Control any risks
- Use appropriate personal protection equipment/clothing (PPEC) to avoid contact with any chemical or contaminated material
- Remove the casualty to a safe area
- As soon as practical, remove the chemical and any contaminated clothing and jewellery
- Brush powdered chemicals from the casualty's skin away from you
- Immediately run cool running water directly onto the area for one hour or until the stinging stops.
 - **Note:** Be careful not to spread the chemical to unaffected areas
- Even if no burn mark is obvious, apply a non-adherent dressing



Topic 15.4 – Burns: Chemical, Electrical

Chemical Burns – First Aid – Pt2

- If chemical enters the eye, open and flush the effected eye(s) thoroughly with water for as long as tolerated and refer the victim for urgent medical attention. If only one eye is affected, then flush with the head positioned so as the affected eye is down to avoid spread of the chemical to the unaffected eye.
 - **Note:** Flushing the eye straightaway is vital, even more important than the immediate transfer to medical facilities
- Follow specific first aid instructions found on the label of the chemical's container
- Refer to the chemical's Safety Data Sheet (SDS) for specific treatment (If available)
- For further advice, call the Poisons Information Centre on 13 11 26



Topic 15.4 – Burns: Chemical, Electrical

Chemical Burns – First Aid – Pt3

DO NOT:

- ☒ Do not apply hydrogel dressings or cling wrap plastic to chemical burns
- ☒ Do not try to neutralise either acid or alkali burns, as this will increase heat generation which may cause further damage



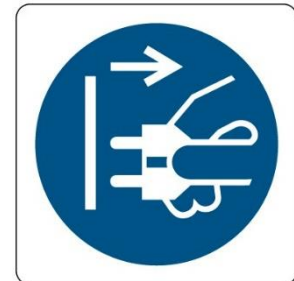
Topic 15.4 – Burns: Chemical, Electrical

Electrical Burns

Electrical burns, as well as lightning strikes, are regularly linked with other injuries including issues with the cardiac and respiratory systems, trauma and loss of consciousness.

First Aid

- Manage the hazard and control the risk. Safely isolate/turn off the power supply without touching the casualty
- Commence CPR if required, following DRS ABCD
 - **Note:** Lightning may cause cardiac arrest
- If safe to do so, cool burns with cool running water for 20 minutes
- Give oxygen, if available and trained to do so
- Call 000 for an ambulance



Topic 15.5 – Skin Injuries

As the outer covering of the body, the human skin is the largest organ. There are a number of types of skin injuries in which the skin has been broken, cut, torn etc., known as an open wound or a closed wound where the damage is beneath the skin. Irrespective of the type of skin injury, first aid treatment is required due to the risk of infection, bleeding or further damage.

Some of the types of skin injuries are: Abrasion, Avulsion, Bite, Burn, Chafing, Contusion, Incision, Laceration, Puncture, Scratch

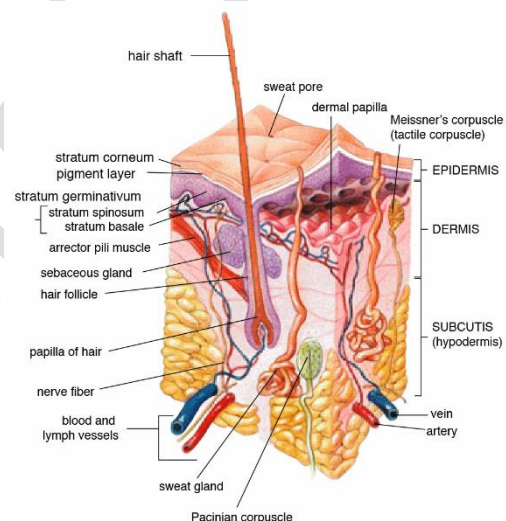


Image: Anatomy of the human skin

Topic 15.5 – Skin Injuries

Abrasion

Type: An abrasion is a type of wound in which the skin is scraped or rubbed off from contact with a rough surface. Also known as scrapes, grazes and carpet burns.

Skin Level: Abrasions are generally superficial wounds, with only the outer layers of skin being affected. A deep abrasion can leave a scar as it penetrates to the inner layers of skin. The knees and elbows have thin layers of skin and are most prone to abrasions (refer to image – elbow injury will leave a scar).

Image: Abrasion after 18 hours



First Aid: An abrasion should be thoroughly cleaned and any dirt or debris removed. Cover with a sterile dressing to prevent the wound from drying out.

Topic 15.5 – Skin Injuries

Skin Avulsion

Type: An avulsion is a type of wound similar to an abrasion but more severe. A tearing away of skin. Can range from skin flaps, degloving to amputations. Can include the loss of a finger nail from the nail bed.

Skin Level: A severe surface trauma where all layers of the skin have been ripped away, exposing what is underneath the skin (muscle, tendons, subcutaneous tissue or bone).



Image: Avulsion of the left index finger by Sadeq Rahimi

First Aid: An avulsion should be thoroughly cleaned. Apply RID to stop the bleeding. Seek medical attention.

Topic 15.5 – Skin Injuries

Incision

Type: An incision is a cut to the skin caused by a sharp edged item such as a knife, broken glass, razor blade, sheet metal, scissors, etc. The cut edges of the skin are usually neat, straight or smooth.

Skin Level: Incisions can be shallow, only harming the surface skin, or quite deep, causing injury to the ligaments, muscles, tendons, blood vessels or nerves.

First Aid: All incisions should be thoroughly cleaned. Apply RID to stop the bleeding. Seek medical attention for deep incisions.



Image: Incision of the leg by ClockFace

Topic 15.5 – Skin Injuries

Laceration: Caused by a blunt like object, tearing open the skin. Lacerations can be shallow, only harming the surface skin, or quite deep, causing injury to the ligaments, muscles, tendons, blood vessels or nerves.

Puncture: When a sharp object pierces the skin. Common types of puncture wounds include stepping on a nail, getting a splinter, needle/pin prick or bites from animals

First Aid: Both types of wounds are prone to infection. Wounds should be thoroughly cleaned. Apply RID to stop the bleeding. Seek medical attention.



Image: Punctured foot by James Heilman, MD

Topic 15.6 – Spinal Injuries Using Immobilisation Principles

The **priorities of management** of a suspected neck/spinal injury are:

1. Calling for an ambulance
2. Management of airway, breathing and circulation
 - If unconscious, follow **DRS ABCD**. Management of the casualty's airways takes precedence over any suspected spinal injury
 - Remember, **DRS ABCD** and CPR should not be avoided when a spinal injury is suspected
3. Spinal care
 - If conscious but complaining of pain, weakness or altered sensation in the neck and/or limbs, instruct the casualty to remain as still as possible
 - Avoid moving the casualty unless necessary (if they are in immediate danger or become unconscious)
 - If movement is necessary, take additional steps to immobilise the neck and spine to avoid movement in any direction such as manually holding the head or neck

Topic 15.6 – Spinal Injuries Using Immobilisation Principles

The Log Roll

The unconscious casualty with a suspected spinal injury should be moved into the recovery position. This is possible by using the **Log Roll** technique.

Image: Log roll by Rama



Requires three to four people.

Position people as shown in the image. Lead person securely supports the head while directing the team to gently pull the casualty's torso and legs towards them. Done in a manner without any twisting while maintaining spinal alignment of the head and neck with the torso.

Note: If the casualty is bleeding from the head, move casualty so that the bleeding side is down

Topic 15.6 – Spinal Injuries Using Immobilisation Principles

Use of Cervical Collars by First Aiders

In Guideline 9.1.6, the ARC states that **the use of semi rigid cervical collars by first aiders is not recommended**. Consistent with the first aid principle of preventing further harm, the potential benefits of applying a cervical collar do not outweigh harms such as increased intracranial pressure, pressure injuries or pain and unnecessary movement that can occur with the fitting and application of a collar.

Image: Cervical Collar by James Heilman, MD

Note: Do not fit a cervical collar onto a casualty unless trained and approved to do so



Topic 15.6 – Spinal Injuries Using Immobilisation Principles

Manual In-Line Stabilisation

In Guideline 9.1.6, the ARC states that in suspected cervical spine injury, ANZCOR recommends that the initial management should be manual support of the head in a natural, neutral position, limiting angular movement (expert consensus opinion). In healthy adults, padding under the head (approximately 2cm) may optimise the neutral position.

This is best accomplished by kneeling above the head of the casualty. Using both hands, hold the casualty's head while stabilizing your arms and elbow on your thighs. This will aid in avoiding your arms from swaying as they become tired and fatigued. Hold head in place until paramedics take over.

Topic 15.7 – Responding to Major and Minor Accidents in the Workplace

Dangers

When responding to a workplace accident irrespective of the urgency or degree of the incident, you must take into consideration the situation that you face. Determine any dangers, check for risks and hazards. YOU are the most important person NOT the casualty. Ensure the safety for yourself (the first aider), bystanders and the casualty.



Checking for danger before approaching any situation is critical. Rushing into a situation without adequately assessing the situation can put yourself and others at needless risk

- The amount of dangers greatly depends on the situation; hence it is important to assess each scene for possible dangers
- Sometimes, danger can be avoided, or the casualty can be moved away from it

Topic 15.7 – Responding to Major and Minor Accidents in the Workplace

Steps to consider:

- Response to an incident involving chemicals or hazardous goods must be guided by the directions found in the Safety Data Sheet (SDS) for that substance
- Wear the appropriate PPE/C to safely handle the incident
- Ensure that someone has contacted emergency services and is waiting at the main entry point to direct them to the correct location of the accident
- Manage the team of first aiders in an effective manner to optimize the team size and skill level
- Automatically take along the first kit and AED to any incident
- Prevent onlookers from intruding into area of the incident
- Serious accidents must be reported to the employer and to the authorities



Module 16 – Safe Work Practices

In this lesson, you'll be learning about:

- 1) Risks and Hazards
- 2) Dangerous Goods / Chemicals / Safety Data Sheets
- 3) Medication – legal requirements

Estimated Completion Time: 15 minutes

Topic 16.1 – Risks and Hazards

The following information of this section in **green text** is an excerpt from: *Safe Work Australia – How to Manage Work Health and Safety Risks: Code of Practice – Dec 2011 Vs1*

A step-by-step process

A safe and healthy workplace does not happen by chance or guesswork. You have to think about what could go wrong at your workplace and what the consequences could be. Then you must do whatever you can (in other words, whatever is 'reasonably practicable') to eliminate or minimise health and safety risks arising from your business or undertaking.



This process is known as risk management and involves the four steps set out in this Code: **identify hazards** – find out what could cause harm

- **assess risks** if necessary – understand the nature of the harm that could be caused by the hazard, how serious the harm could be and the likelihood of it happening
- **control risks** – implement the most effective control measure that is reasonably practicable in the circumstances
- **review control measures** to ensure they are working as planned.

Topic 16.1 – Risks and Hazards

The Risk Management Process

Many hazards and their associated risks are well known and have well established and accepted control measures. In these situations, the second step to formally assess the risk is unnecessary. If, after identifying a hazard, you already know the risk and how to control it effectively, you may simply implement the controls.

Risk management is a proactive process that helps you respond to change and facilitate continuous improvement in your business. It should be planned, systematic and cover all reasonably foreseeable hazards and associated risks



Topic 16.1 – Risks and Hazards

Meaning of Key Terms

Hazard means a situation or thing that has the potential to harm a person. Hazards at work may include: noisy machinery, a moving forklift, chemicals, electricity, working at heights, a repetitive job, bullying and violence at the workplace.

Risk is the possibility that harm (death, injury or illness) might occur when exposed to a hazard.

Risk control means taking action to eliminate health and safety risks so far as is reasonably practicable, and if that is not possible, minimising the risks so far as is reasonably practicable. Eliminating a hazard will also eliminate any risks associated with that hazard.



Image: Fallen Mobile Crane - Manchester, England – March 2009 by Phillip Roberts

Topic 16.1 – Risks and Hazards

Severity of the Consequences

For each hazard, estimate the severity or consequence if something can or does transpire.

- **Catastrophic** - Cause death and/or major irreversible disability, and/or ill health
- **Serious** - Severe injury or long term illness
- **Moderate** - Injury or illness requiring medical treatment and days off work
- **Minor** - Minor injury requiring first aid treatment
- **Negligible** - No injury or health effect. Treatment is not required

You can rate the likelihood of harm occurring as one of the following:

- **Certain to occur** - Expected to occur in most circumstances
- **Very likely** - Will probably occur in most circumstances
- **Possible** - Might occur occasionally
- **Unlikely** - Could happen at some time
- **Rare** - May happen only in exceptional circumstances

The level of risk will increase as the likelihood of harm and its severity increases. Refer to the following table.

Topic 16.1 – Risks and Hazards

Risk Rating Matrix

E	Extreme	Consequence				
		Catastrophic	Serious	Moderate	Minor	Negligible
H	High					
M	Medium					
L	Low					
Likelihood	Certain to Occur	E	H	H	M	M
	Very Likely	H	H	M	M	M
	Possible	H	M	M	M	L
	Unlikely	H	M	M	L	L
	Rare	M	M	M	L	L

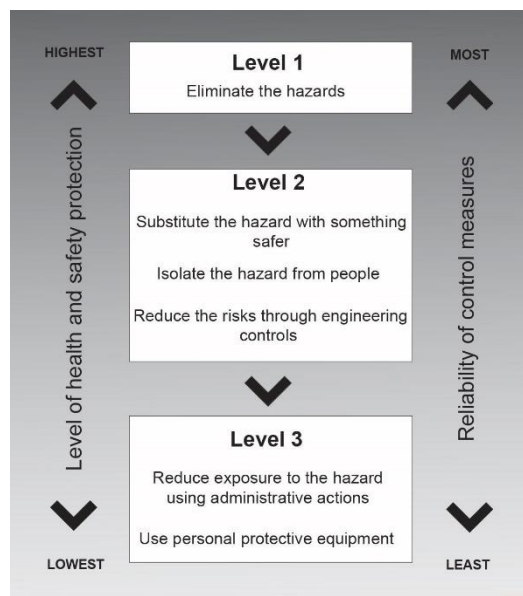
Topic 16.1 – Risks and Hazards

How to Control Risks

The most important step in managing risks involves eliminating them so far as is reasonably practicable, or if that is not possible, minimising the risks so far as is reasonably practicable.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest as shown in the image (*The hierarchy of risk control*). This ranking is known as the hierarchy of risk control. The WHS Regulations require duty holders to work through this hierarchy when managing risk under the WHS Regulations

You must always aim to eliminate a hazard, which is the most effective control. If this is not reasonably practicable, you must minimise the risk by working through the other alternatives in the hierarchy.



Topic 16.2 – Dangerous Goods / Chemicals / Safety Data Sheets

Dangerous Goods and Hazardous Substances

The following information of this section in green text is an excerpt from: *Safe Work Australia – Managing Risks of Hazardous Chemicals in the Workplace: Code of Practice – July 2012*

The “Globally Harmonised System of Classification and Labelling of Chemicals” (GHS) applies to all chemicals, hazard classes and categories under the GHS, however, it also applies to workplace hazardous substances and dangerous goods classified under the NOHSC Approved Criteria and the ADG Code, respectively. Most substances and mixtures that are dangerous goods under the ADG Code are also hazardous chemicals.

Any person conducting a business or undertaking has a responsibility under WHS laws to manage the risks from all hazardous chemicals, including those that are dangerous goods.



Image: Chemical labelling by Pishrol12

Topic 16.2 – Dangerous Goods / Chemicals / Safety Data Sheets

When managing the risks, regard must be had to the following factors:

- The hazardous properties of the hazardous chemical
- Any potentially hazardous reaction (chemical or physical) between the hazardous chemical and another substance or mixture, including a substance that may be generated by the reaction
- The nature of the work to be carried out with the hazardous chemical
- Any structure, plant or system of work that:
 - Is used in the use, handling, generation or storage of the hazardous chemical
 - Could interact with the hazardous chemical at the workplace



The first step in managing risks involves identifying all the chemicals that are used, handled, stored or generated at your workplace in consultation with workers. The identity of chemicals in the workplace can usually be determined by looking at the label and the SDS, and reading what ingredients are in each chemical or product.

Topic 16.2 – Dangerous Goods / Chemicals / Safety Data Sheets

The following information of this section in green text is an excerpt from: *Safe Work Australia – Preparation of Safety Data Sheets for Hazardous Chemicals: Code of Practice – Feb 2016*

What is a safety data sheet (SDS)?

A safety data sheet (SDS), previously called a Material Safety Data Sheet (MSDS), is a document that provides information on the properties of hazardous chemicals, how they affect health and safety in the workplace and on how to manage the hazardous chemicals in the workplace. For example, it includes information on the identity, health and physicochemical hazards, safe handling and storage, emergency procedures and disposal considerations.



An SDS is an important tool for eliminating or minimising the risks associated with the use of hazardous chemicals in workplaces.

Image" SDS Storage by Gina Randall

The SDS should be kept in a location near the work area where the substance is used.

Topic 16.2 – Dangerous Goods / Chemicals / Safety Data Sheets

A SDS for a hazardous chemical states the following information about the chemical:

Section 1 - Identification: Product identifier and chemical identity	Section 8 - Exposure controls and personal protection
Section 2 – Hazard(s) identification	Section 9 - Physical and chemical properties
Section 3 - Composition and information on ingredients	Section 10 - Stability and reactivity
Section 4 - First-aid measures	Section 11 - Toxicological information
Section 5 - Fire-fighting measures	Section 12 - Ecological information
Section 6 - Accidental release measures	Section 13 - Disposal considerations
Section 7 - Handling and storage, including how the chemical may be safely used	Section 14 - Transport information
	Section 15 - Regulatory information
	Section 16 - Any other relevant information

Topic 16.2 – Dangerous Goods / Chemicals / Safety Data Sheets

SDS – First Aid Measures

The SDS provides information about the initial care that does not involve the use of sophisticated equipment or access to a wide selection of medications to be given to a person affected by a hazardous chemical. It should state whether medical attention is required for a chemical, including the urgency of treatment required. Information included may cover:

- Immediate medical attention is required
- Known antidotes should be available for administration by persons trained in their use (and, where relevant, authorised by law) as part of the recommended first aid procedure
- Delayed effects can be expected after exposure
- Movement of the exposed individual to fresh air is recommended
- Removal of clothing and shoes from the individual is recommended
- Personal protective equipment (PPE) for first aiders is recommended
- There is a risk that first aiders may be exposed to risks from individuals who have ingested hazardous chemicals (for example, organophosphates).



Topic 16.3 – Medication – Legal Requirements

Medication Schedules

In Australia, all medicines and poisons are classified into Schedules deeming the level of access and control over each item. This system determines at what levels medications are accessible and available to the Australia public.

There are nine scheduled levels but the five listed below are the ones that may be seen at the workplace.

Schedule		Type	Access
N/A	N/A	Over-the-Counter (OTC)	No limitations – Supermarket shelf, etc.
S2	Schedule 2	Pharmacy Medicine	Pharmacy only – Front shelves
S3	Schedule 3	Pharmacist Only Medicine	Pharmacy only – Behind counter
S4	Schedule 4	Prescription Only Medicine	Pharmacy only – Pharmacist section
S8	Schedule 8	Controlled Drug	Pharmacy only – Locked item

Topic 16.3 – Medication – Legal Requirements

Medication Schedules

Unscheduled products that are listed by the Therapeutic Goods Administration (TGA) are classified as over-the-counter (OTC) medicines. These are readily available in supermarkets, pharmacies, health food stores, etc. and anyone can walk in and purchase the products. This includes some pain relief medications.

Currently pain relief medications such as paracetamol (500mg), ibuprofen (200mg) and aspirin (300mg) are available in small pack sizes being OTC products, while larger pack sizes are classified as Schedule 2 /Pharmacy Medicine items.



Image: Example of Pharmacy Medicine – Large packet of paracetamol

Topic 16.3 – Medication – Legal Requirements

Analgesics in First Aid Kits?

The following information in **green text** is an excerpt from: *Safe Work Australia – First Aid in the Workplace: Code of Practice – Feb 2016 Vs3*

Medication, including analgesics such as paracetamol and aspirin, should not be included in first aid kits because of their potential to cause adverse health effects in some people including asthmatics, pregnant women and people with medical conditions. This is irrespective of packet size or schedule level.

The supply of these medications may also be controlled by drugs and poisons laws. Workers requiring prescribed and over-the-counter medications should carry their own medication for their personal use as necessary.



Topic 16.3 – Medication – Legal Requirements

Examples of Medications that Should Not go into a First Aid Kit

Audits have been made over a number of years by authorities and have found that some businesses/organisations have had the following items in a first aid kit. Generally, people should not have direct access to items that are Schedule 2 or above.

Product	Purpose	Schedule
Analgesics: Paracetamol, aspirin, ibuprofen	Pain Relief	OTC or Schedule 2
Analgesics: Codeine based products	Pain Relief	Schedule 2
Eye Treatments	Welders flash, red eyes	Schedule 2 or above
Cold & Flu Products	Relief for cold & flu symptoms	Schedule 2 or above
Silvazine	Burn cream	Schedule 4

Topic 16.3 – Medication – Legal Requirements

Commonly Used Approved OTC Medications Found in a First Aid Kit

A first aider can use and apply these products on a casualty after receiving consent.

Product	Purpose	Administration Method	Schedule
Alcohol Swab	<ul style="list-style-type: none"> Cleaning of instruments Cleaning skin 	Topical	OTC
Hydrogel	Cooling of burns	Topical	OTC
Antiseptic gel, spray, or cream	Cleaning of the skin and wound	Topical	OTC
Saline / Sodium Chloride	<ul style="list-style-type: none"> Eye irrigation Wound wash 	Topical	OTC

Topical = medications applied directly to the skin as a gel, cream, spray, liquid, ointment

Topic 16.3 – Medication – Legal Requirements

Administration of Medication – Pt1

Generally, in a workplace situation, if a coworker has prescription medicine, you may assist them to take their medication but should not administer it for them.

At times, schools, child care centres, etc. may be required to administer medication to a child. This can be possible if the following has been arranged (Basic specifications mentioned as the list is quite detailed. Refer to your State Government for further details):

- The Child's GP has determined that it is necessary
- When there is no other alternative in relation to the treatment of a specific health need
- Have medical authorisation to administer any medication to students
- The safe and correct receipt, storage, administration and disposal of medications
- The student's health plan or action plan is followed

The image shows a sample 'ASTHMA ACTION PLAN' form. It is a structured document with several sections:

- Header:** 'ASTHMA ACTION PLAN' with a logo.
- Personal Information:** Fields for Name, Date, and Address.
- When Well:** A section for daily management, including a peak flow meter chart and medication instructions.
- When Not Well:** A section for managing mild to moderate symptoms, with a similar peak flow meter chart.
- If Symptoms Get Worse:** A section for managing severe symptoms, including instructions on when to seek medical help.
- Footer:** A red box with the text 'DIAL 000 FOR AMBULANCE' and a note about the form being a template.

Topic 16.3– Medication – Legal Requirements

Administration of Medication – Pt2

- Training of staff in how to administer medications for children with specialised health needs
- Have procedures and policies in place for the management of administering medications. All staff to be aware.
- Parents and school or centre to effectively work together



First aid Emergency Medication

- Adrenaline auto-injectors (EpiPen) for anaphylaxis = Schedule 3 item
- Asthma reliever (Puffer/inhaler e.g. Ventolin) for asthma = Schedule 3 item



First aiders trained to use the above two types of medications even though being schedule 3 items, can administer the medications in a first aid response to a casualty.

Note: For all medications, including first aid items: store correctly and check expiry dates

Note:

If you require the assessment questionnaire and the Assessment Answer sheet to record your answers, please contact us by phone, or send us an email.

Phone: 1300 642 427

Email: admin@cprfirstaid.com.au

Our telephone assistance is available on the following days:

Monday - Friday: 8:00am - 6:00pm

Saturday: 8:30am - 10:30am

Sunday: 8:30am - 10:30am

CPR First Aid