St John
Ambulance
Australia

Skills Maintenance and Re-examination Programme

1992

St John Ambulance Australia

OPERATIONS BRANCH

Skills Maintenance and Re-examination Programme

1992

Name .....

Signature .....

Division .....

Date .....

St John Ambulance Australia
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Contents

Preface

The 1992 programme restarts the 3 year cycle. I am delighted that all States have now adopted the Skills Maintenance programme. It is written generously by the National S.M.P. Training Committee, with input from interested persons or parties from other States. The continued success of the programme will be dependent on positive, as well as negative, feedback. Offers to write modules would be appreciated.

I wish you well with your planning, implementation and completion of this document.

J. Fred Leditschke

Dr J.F. Leditschke
Chief Surgeon

National Skills Maintenance Programme Training Committee Members

Sr Barbara Davis	Chief Nursing Officer
Mr Wayne Deakes	Corps Officer
Dr Nadine Fisher	Corps Surgeon
Mr John I'Anson	District Staff Officer
Mr Gavan Keane	Divisional Ambulance Officer
Sr Diana McErlain	Divisional Nursing Officer

Introduction

The 1992 Skills Maintenance and Re-Examination Programme adopts and expands the innovative training concepts developed in the previous programme.

The expanded approach relates to the combined application of patient care in the home and first aid theory and practical skills.

Distribution of the Programme including the training packages will be effected via:

Districts	– District Surgeons in each State
Corp	– Corps Superintendents for Corps Staff
Divisions	– Divisional Superintendents for Divisional members

Procedure

A. St John Members

1. Each member will receive his/her own copy of the Programme. The title page of the Programme will be signed and dated on receipt.
2. The programme is divided into modules, with theory and practical skills components.
3. All the practical skills must be practised and, when mastery is obtained, signed.

Note:
'A.F.A.' refers to *Australian First Aid*, Vol. 1 and 2, 1989.
'F.C.H.' refers to *Family Care at Home*, 1990.
'A.R.C.' refers to the Australian Resuscitation Council *Policy Statements*.

B. Officers/Training Personnel

1. Unless exempted under General Regulations, all officers/members of St John shall complete the Skills Maintenance and Re-Examination Programme to the standard prescribed.

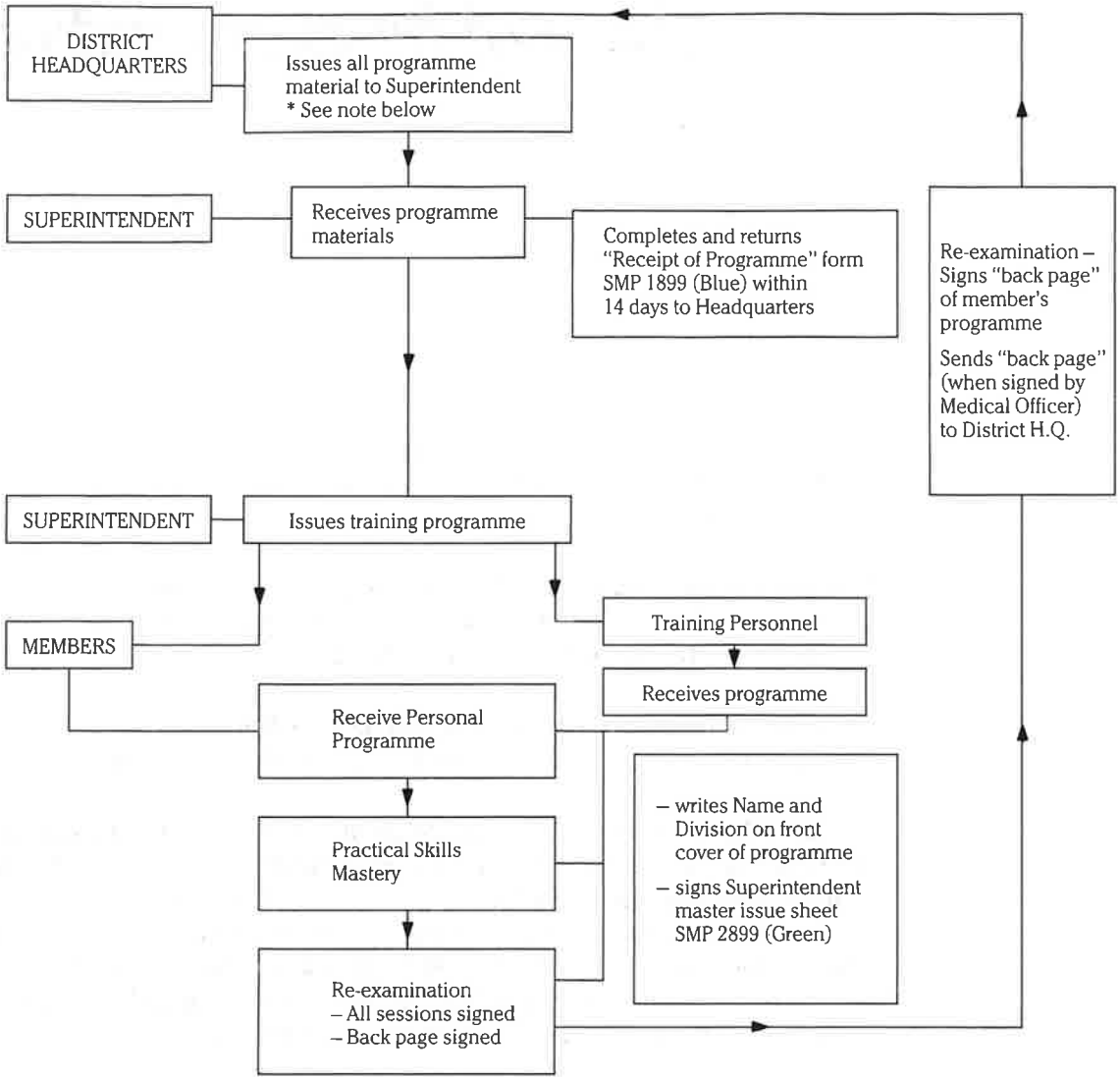
2. The term 'training personnel' refers to all officers and/or St John members so designated to a training function. If professional training personnel are unavailable within Divisions, then the Officer-in-Charge should communicate the name, qualifications, etc. of a nominee, to fill the role, to the District Surgeon for consideration. All such requests will receive written advice.
3. All officers and/or designated training personnel are responsible and accountable for the modules of the training programme they have signed as being satisfactorily completed.
4. Practical skills items pertaining to the module being undertaken must be signed as satisfactory.
5. If, on conclusion of the training module, the member is found to be unsatisfactory, then further training will be given, and another date and time for the assessment will be arranged.
6. On satisfactory completion of the module, the programme is to be signed and dated in the space provided at the end of the relevant section.

This programme belongs to all officers and members of St John and its success depends on all working as a team. Your help, assistance and valued comments are always appreciated.

Programme Application Summary for Training Personnel

ACTION	COMMENTS
1. Select one section of the programme.	– Can select/start any section.
2. Practical skills pertaining to section modules are taught and assessed.	– Spread evenly over the training period. – Sign and date each practical skills module pertaining to the section when members reach a satisfactory standard according to the programme.

Programme Administration Flow Diagram



Note: Diagram illustrates procedure for all **Divisional Superintendents** and **Corps Superintendents**. Please follow the same procedure for your respective staff.

Annual Re-examination

1. Re-examination based on this programme will be held to comply with General Regulations 9.9(i) and should NOT be conducted on the same night as Annual Inspection.

2. Your training programme, which you will keep in your possession and complete as the year progresses, must have all modules marked as satisfactory before the night of your re-examination.

3. The confirmation of completion of programme modules (back page) must be signed by you and your Superintendent prior to the re-examination.

4. On the night of your re-examination, the Medical Officer will firstly examine your training programme. If it is completed and satisfactory, you will then be asked to complete a practical incident incorporating skills selected at random from your training programme. C.P.R. should be included each year. This is a spot test to satisfy the Medical Officer that you have reached the required standard in practical skills application. Also, it is a check that those responsible for signing your programme have insisted on the appropriate standard being met.

5. The Medical Officer will then sign the confirmation of completion of re-examination section (back page) and this page will then be forwarded to District Headquarters by your Superintendent.

6. To meet the Operations Branch efficiency requirements for 1992 you must have your training programme completed before the night of the re-examination. Members on 'reserve', cadet officers and senior cadets must also meet these requirements.

7. This is the only method of re-examination acceptable for 1992. No other examination will be accepted, eg. St John Ambulance First Aid Class examinations.

Note: This programme covers January 1992 – December 1992.

Responsibility for Training Programme

It is each individual member's responsibility to keep his/her own programme up to date, have it signed as appropriate and present it at the annual re-examination.

A lost or misplaced programme will result in your having to re-start a new training programme.

DISTRICT SURGEONS – AUSTRALIA
JANUARY 1992

MODULE 1

Operations Branch Organisational Structure and Safety Management

PRESCRIBED REFERENCES: *Administration Manual,* General Regulations, 1990.

OBJECTIVE: On completion of the training period and after studying the material listed below, the St John member will be able to complete the questionnaire following and apply the knowledge to the section's mock practical incident.

1.1 Outline the 4 annual requirements for Operations Branch efficiency for members, as laid down in General Regulation 7.1(a).

1.2 Outline the first aid responsibilities of an Operations Branch member as laid down in General Regulation 8.8.

1.3 State the correct order of priorities of Basic Life Support for any emergency.

1.4 List 4 categories of emergency personnel likely to be encountered by the Operations Branch first aider at an accident scene.

1.5 List 3 categories of risk likely to be encountered by the Operations Branch first aider at an accident scene.

1.6 Outline action to be taken by the Operations Branch member should he/she sustain personal injury in the course of performing duty.

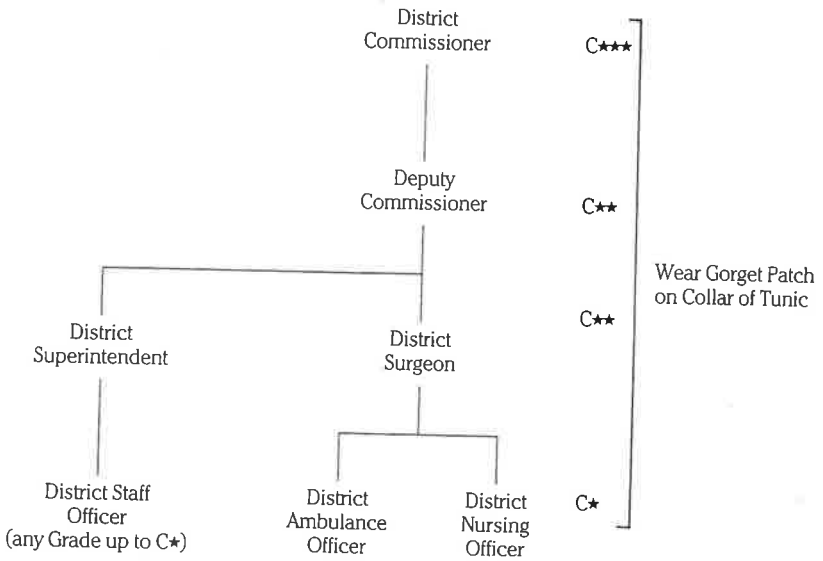
Operations Branch Organisation

Operations Branch members should, from time to time, re-acquaint themselves with the organisational structure under which they function. Keep in mind that we are an international organisation with a very long history of service to all people. To operate such an organisation, a large number of people is required and must work in an organised fashion. To do this we have a definite ranking structure. If this chain of command is used efficiently, the Operations Branch can operate with great benefit to the people who matter most – the casualties.

Revise this structure and write in the names of the officers who hold positions in your District, Corps, Division.

St John Ambulance Australia
Operations Branch Structure and Rank Markings

Rank Marking
C = Crown
★ = Star



Metropolitan and Country Corps		
Corps Superintendent	C	Wear Silver Bar on Shoulder
Corps Surgeon	C	
Corps Nursing Officer	★★★	
Corps Ambulance Officer	★★★	
Corps Staff Officer	★★★	

Divisions – Ambulance, Nursing and Combined	
Divisional Superintendent	★★★
Divisional Surgeon	★★★
Divisional Officer	★★
Divisional Ambulance Officer	★★
Divisional Nursing Officer	★★
Probationary Surgeon/Divisional Nurse	★
Sergeants	
Corporals	
Privates and Nursing Members	

General Regulation 7.1, Efficiency Requirements

(a) Efficiency Requirements for Active Members

In order to be returned efficient, active members of the Operations Branch must fulfil the following requirements during each year:

(i) successfully undertake the Skills Maintenance Programme as prescribed by the Chief Surgeon or pass a re-examination in First Aid at the discretion of the District Surgeon;

(ii) be present at an Annual Divisional Inspection;

(iii) carry out their duties to the satisfaction of their senior Officer;

(iv) attend, if a member of a Division, at least twelve Divisional instructional meetings (see Regulation 9.4). (Each day's attendance at an authorised training course or camp may count as one instructional meeting up to a maximum of six.)

(b) Efficiency Requirements for Members on Reserve

Those serving on the Reserve, other than Officers appointed by the Grand Prior, are required to:

(i) attend six Divisional instructional meetings a year;

(ii) comply with General Regulation 7.1(a)(i) (subject to Regulation 7.2).

Failure to comply with these requirements for two consecutive years will automatically entail discharge from the Operations Branch.

General Regulation 8.8, Rendering First Aid

It is the duty of members of the Operations Branch to render first aid, when necessary, irrespective of time, of place and whether in uniform or not. Membership of the Operations Branch does not, however, confer upon individuals the right to take up a position in the streets or elsewhere on public or other occasions for the purpose of rendering first aid, nor to force their services upon persons who may be injured or in need or assistance. Approved casualty report forms are to be used in respect of all casualties treated or advised in accordance with instructions issued from time to time by Chief Surgeon. Management of such casualties shall be undertaken using a first aid kit, the contents of which have been approved by the Chief Surgeon.

Members will report in writing to the Officer-in-Charge of their Division every instance of first aid rendered by them, whether on or off duty.

Records: Casualty Report Forms, BF 45
Casualty Occurrence Book, BF 43

Priorities of Basic Life Support

Dangers	– Self – Casualty – Bystanders
Response	– Conscious Casualty – Unconscious Casualty
No Response	Turn Casualty to Stable Side Position
Airway	– Clear – Open
Breathing	Look, Feel, Listen
Circulation	– Pulse – Bleeding
Call an Ambulance:	Dial 000 (or Emergency Number in your State).
Tell Controller:	– What has happened – Where it has happened – House number, Street name, Suburb – How many casualties – Condition of casualty(ies)

- ☐ Ensure that no further danger exists for self or for casualty. If casualty has to be moved urgently, serious complications may be reduced by dragging the casualty rather than attempting to lift him/her.
- ☐ Ensure that all casualties are assessed and treated according to accepted system of priorities. Keep eyes and ears open for information, but avoid distress to the casualty through careless comments.
- ☐ The first aider should refrain from expressing his/her opinion on the severity or the outcome of the casualty's condition. This is the responsibility of the medical personnel.
- ☐ Ensure that appropriate medical aid is called at the earliest opportunity.
- ☐ Consider weather conditions, both heat and cold, and ensure that the casualty's body heat is maintained. Injuries should be exposed without unnecessary removal of clothing.
- ☐ Discuss and demonstrate methods of removing a coat or shirt, trousers, or skirt, shoes and socks etc. from an injured casualty.
- ☐ Discuss responsibility for any personal property, valuables, etc., including spectacles, dentures, briefcase, shopping, watch, jewellery and money. Personal belongings should be handed over to a known relative accompanying the casualty, or else entrusted to the ambulance crew.

If any personal belongings are found after the casualty has left the scene, hand them in at nearest police station.

- Before casualty leaves the scene, check whether a relative or friend should be notified. Write down relevant details and check with ambulance crew regarding destination of casualty so that this information can be given to relative. If contacting a relative or friend on behalf of casualty, be tactful and brief – avoid giving diagnosis or prognosis and stress that these details must be sought from hospital concerned. Suggest that the hospital be contacted by telephone, or else advise relative to go to the appropriate casualty/emergency department.

- Operations Branch members should give a written casualty report, BF 45, top copy, to the casualty and a pink copy to their Division concerning any first aid treatment or advice given, whether on duty officially or not. Report should contain details of date, time, place, name of casualty (if known) or 'unknown male/female, approx. 50 years' (if name unknown), and any treatment or advice given. BF 45 blue copy to be retained for 7 years by First Aider.

Interpersonal Relationships

Operations Branch members must be conscious of their responsibilities towards people other than the casualty that they may be in contact with. These include relatives, friends, bystanders etc.

Operations Branch members must at all times consider the information given to them by the casualty as confidential and only to be disclosed with the casualty's written consent.

Relatives and friends of casualties need to have a report on the casualty's condition as soon as possible. While being reassuring, try not to give too much information, and refrain from prognostic statements as this is the prerogative of the doctor.

Bystanders at the scene of any incident need to be made to feel useful. Try and use them. If a bystander becomes a hindrance, the police should be called to assist.

At the scene of a large incident, police, ambulance officers and fire officers may be present. Operations Branch members must obey the instructions of members of these services. If handing a casualty over to an ambulance officer, a history of the incident along with all details of the casualty's injuries and observations must be given, and top (white) copy of the BF45 Casualty Report form.

Safety Management

Hazards that may be identified in the environment whilst treating a casualty may be classified into the following three categories:

– Obvious hazards
– Potential hazards
– Hidden hazards.

Eliminate – cut off electricity, cut off gas supply, remove any obstructions, redirect traffic.

Guard – protect work area from danger source (eg. stop vehicles, bystanders, provide protection from sun), wear appropriate personal protective equipment.

Warn – tell others of danger, erect warning sign if appropriate.

Unless holding specific exemption, all Operations Branch members shall comply fully with statutory Acts, regulations and codes. In addition, Operations Branch members have responsibilities at Common Law. In brief, the Common Law is the law that has evolved over a period of time from case judgments made by the judiciary.

Specifically, the Operations Branch member in the performance of work has a duty to care for **all** persons. The level of duty owed to a casualty may be identified as that of 'Special Care'.

A claimant at Common Law must show **negligence**. The Operations Branch member must ensure that he/she does all that is **reasonable**, within the respective member's level of training, to safeguard the casualty and others from injury or aggravation of injury. The member must therefore keep his/her skills up to date.

It is emphasised that Operations Branch members' first aid equipment must be restricted to the approved list. Should any complications follow the use of unauthorised equipment, the Operations Branch member may be outside the normal protection of Operations Branch insurance policies.

An Operations Branch member if injured in the course of a duty must report that injury as soon as practicable, through the senior Operations Branch officer responsible for the duty.

Questionnaire

Operations Branch Organisational Structure and Safety Management

1 Write down the names of the person occupying the following positions in the St John Ambulance Operations Branch in your District.

(a) Commissioner .....

(b) District Superintendent .....

(c) District Surgeon .....

(d) Divisional Superintendent .....

(e) Divisional Surgeon .....

2 Whilst returning from a social function, you notice a passer-by who appears to be the victim of a sudden heart attack. Once you have handed the casualty over to the appropriate care, you must write a report on the incident for your Divisional Records. Using fictional names and your imagination, briefly write a report of your attendance at such an incident.

3 Indicate briefly the steps you would take in handling one of the following incidents:

(a) A four year old child is struck by a motor car.

(b) A disorientated 13 year old states that he has been consuming alcohol.

(c) A lone elderly lady falls in her garden and fractures her wrist.

4 List the three categories of hazards that might be encountered in the environment; and briefly indicate how you would control these hazards.

(a) .....

.....

(b) .....

.....

(c) .....

.....

Further Topics for Discussion

1 What emergency resources are available in your area?

2 What first aid/emergency equipment, if any, should you carry in your car?

MODULE 2

Anatomy and Physiology of the Circulatory System

PRESCRIBED REFERENCES: *Australian First Aid,* Vol. 1 and 2, *1989.*
Supplementary Training Notes.

OBJECTIVE: On completion of the training period, and after studying the material listed below, the St John member will be able to answer questions about the circulatory system.

Supplementary Training Notes

Circulatory System

The life of every tissue and organ in the body depends on its receiving an adequate supply of nourishment and oxygen, and the removal of the waste products which result from its activities. These functions are carried out by the blood, and the heart and blood vessels are the mechanisms by which a constant circulation of the blood throughout the body is maintained. The blood is pumped by the heart along the arteries to the capillaries and is returned by the veins.

The **Heart** is a hollow muscular organ lying in the centre of the chest between the lungs and above the upper surface of the diaphragm. It is situated behind the sternum (breast bone) and extends outwards to the left. Being conical in shape, it is described as having a base, directed upwards and to the right, and an apex, directed downwards and to the left. The heart is divided by a partition or septum into right and left halves which do not communicate with each other. Each half consists of two chambers, an upper thin-walled atrium and a lower thick-walled ventricle. The atria act as receiving chambers for the pump, and the ventricles as distributors.

Valves, which permit blood to flow only from the atrium to the ventricle and prevent any back flow of blood in the opposite direction, are situated in the wall of the atrium passing into the ventricle.

Blood returns to the heart from the body tissues through the veins, which join together to form two large vessels, one from the upper, and the other from the lower part of the body. Blood from these two major vessels flows into the right atrium. Blood then flows into the right ventricle, and is pumped via the pulmonary artery to the lungs.

In the lungs an exchange of gases takes place and the re-oxygenated blood flows back to the left atrium of the heart via the pulmonary veins. The blood then flows into the left ventricle and is pumped out of the heart into the aorta for distribution around the body. (See diagram below)

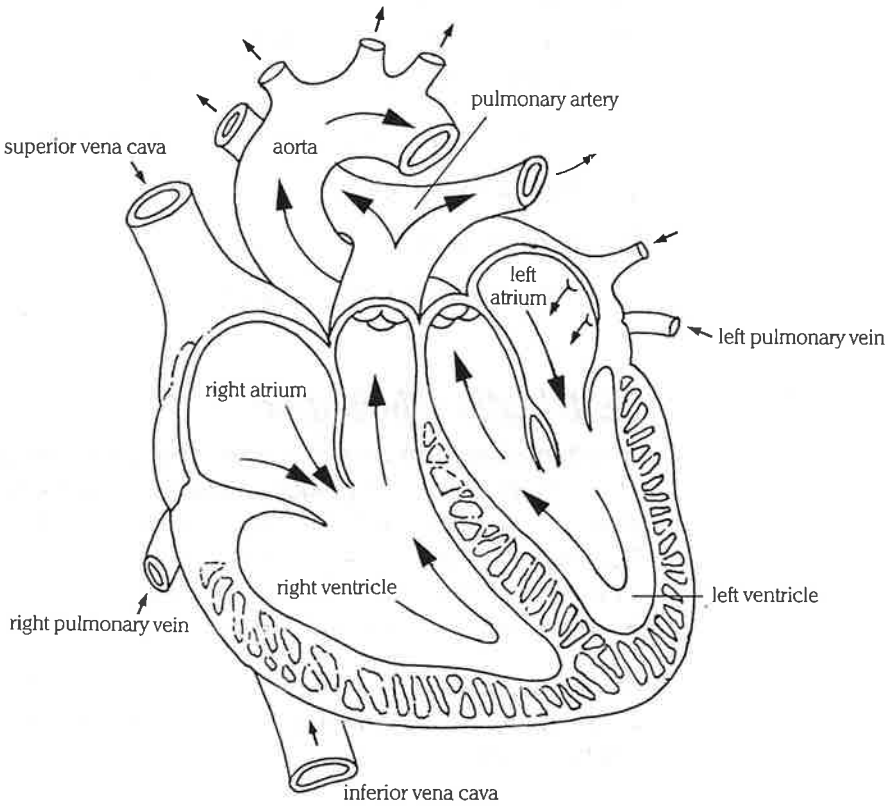


Fig. 1 The heart (showing the direction of blood circulation)

Arteries are thick-walled vessels which carry blood away from the heart. Each time the heart contracts or pumps, it propels blood along the arteries, causing them to expand, and it is this expansion of the artery which is felt as a pulse. Veins are thin-walled vessels in which blood flows back to the heart. Some veins have valves which prevent blood from flowing backwards.

The heart muscle itself requires a blood supply in order to function. This is supplied by the coronary arteries. These arteries are the first branches off the aorta, and arise just above the aortic valve. After passing through the capillaries in the myocardium (heart muscle) blood drains into the cardiac veins for return to the right atrium. These arteries also supply the conduction (or electrical) system of the heart with blood.

The **Conduction System** of the heart is the electrical system which activates the heart muscle and causes it to contract. The electrical current flows from the sino-atrial node (situated in the muscle of the right atrium) to the atrio-ventricular bundle (bundle of His) and is distributed via fibres, called the Purkinje fibres, to the left and right ventricle.

The sino-atrial node is normally the pacemaker, and sends off electrical impulses at the rate of 60-80 times per minute to the adult heart at rest. This causes the heart to contract and blood to flow. In exercise and disease, the impulses increase and the heart beats faster.

The heart is a double pump in which two parts (or sides) pump in unison. Both atria contract together. This is followed by simultaneous contraction of both ventricles.

Cardiac Arrest

The heart is said to have arrested (stopped) when a pulse cannot be felt at the carotid artery. That is, there is no output of blood from the left ventricle.

Main causes of this condition are:

1. failure of the electrical conduction system of the heart;
2. lack of adequate oxygen supply to the body;
3. mechanical malfunction of the heart.

Ventricular Fibrillation

Sometimes the heart muscle moves in an uncoordinated way and quivers. This quivering does not produce an output of blood from the left ventricle and, therefore, no pulse can be felt. This situation is termed Ventricular Fibrillation. If advanced life support facilities are available, a defibrillator can be used at the same time, to reset the electrical current in the heart muscle and so allow it to return to normal contraction and output.

Cardiac standstill or asystole is said to occur when the heart muscle ceases to move. Therefore, no contractions and no output of blood occur and no pulse will be detected.

MODULE 3

Cardio-pulmonary Resuscitation

PRESCRIBED REFERENCES: *Australian First Aid*, Vol. 1 and 2, 1989.
Australian Resuscitation Council *Policy Statements.*

OBJECTIVE: On completion of the training period, and after practising the practical skill listed below (to the satisfactory performance level as per the module points/ checklists) the St John member will be able to apply this skill to the section's practical incident.

Practical Skills

3.1 Perform effective cardio-pulmonary resuscitation for an adult.

Practical Incident

You are shopping at your local shopping centre when you see a middle aged person fall to the ground, apparently unconscious. Examine and manage the casualty; then hand over to the arriving ambulance officer.

3.1 Cardio-Pulmonary Resuscitation: Single Operator – Adult

Checklist	Tick
Dangers Look around and listen for hazards. If the casualty is in a hazardous location he/she should be moved or the hazard removed before continuing.	
(NO DANGERS) Yell for help – repeat at intervals.	
Response Assess Response to verbal command: eg. – can you hear me? – open your eyes? – what is your name? *A.F.A. Vol.1 p.30*	
Kneel beside casualty's shoulders, shake gently by grasping the casualty's shoulders as if trying to wake a friend from sleep.	
(NO RESPONSE) **Quickly turn the casualty away from you on to his/her side.** *A.F.A. Vol.1 p.31*	
Place the farside arm at right angles to the body.	
Place the other arm across the chest.	
Bend the nearest knee to bring the thigh at right angles to the body.	
Place your hand under the casualty's neck and support head.	
Roll the casualty onto his/her farther side, turn the face slightly downwards to ensure drainage of fluids, vomitus, saliva etc. *A.F.A. Vol.1 p.32*	
Airway *A.F.A. Vol.1 p.32* Check that airway is clear. Open casualty's mouth. Look inside the mouth for foreign matter. Scoop with fingers, being careful not to push matter further in.	
Remove dentures only if loose. If removed place in a container.	
(NOTHING APPARENT) Open the airway. *A.F.A. Vol.1 p.33*	
Backward head tilt.	
Place one hand on the forehead on top of the head. Other hand to support the jaw at the point of the chin. Tilt the head backwards **(not the neck)**. *A.F.A. Vol.1 p.33*	
Ensure face turned slightly downwards to enable fluids to drain from the mouth.	
Breathing *A.F.A. Vol.1 p.34* Check if the casualty is breathing by observing for signs of respirations. Look for movement of the lower chest and upper abdomen.	
(NO MOVEMENT) Listen and feel for the escape of air from the nose and mouth with your hand or cheek.	

Checklist	Tick
(NO EXPIRATION) Feel if necessary, for movement of lower chest and upper abdomen. However, movement here does not mean the casualty has a clear airway.	
(IF CHECKED, NO MOVEMENT) It may be difficult to hear movement of air if there is background noise, so it is important to follow the sequence – Look, Listen, Feel.	
(NO BREATHING) **Quickly turn the casualty onto the back, and commence Expired Air Resuscitation (E.A.R.)**	
Kneel beside the casualty's head, open the airway.	
Backward head tilt – place the palm of one hand on the forehead. *A.F.A. Vol.1 p.35*	
Support the jaw using pistol-grip between the knuckle of the middle finger and the thumb.	
Firmly but gently tilt the head backwards (not the neck).	
Lift the jaw upwards and forwards at the same time. Avoid excessive force.	
The Airway always takes priority over any injury, including a spinal injury. SEAL THE NOSE — By pinching the nose with the thumb and index finger of the hand supporting the forehead or sealing by pressing your cheek against casualty's nostrils. *A.F.A. Vol.1 p.35*	
TAKE A DEEP BREATH APPLY YOUR MOUTH OVER THE CASUALTY'S SLIGHTLY OPEN MOUTH BLOW TO INFLATE LUNGS *A.R.C. booklet on C.P.R. p.10*	
Give FIVE (5) QUICK FULL EFFECTIVE VENTILATIONS with expired air WITHIN TEN SECONDS. CHEST SHOULD RISE indicating air has entered the lungs.	
QUICKLY REMOVE YOUR MOUTH TURN YOUR HEAD TO THE SIDE OBSERVE CHEST FALL without waiting for it to fall completely; at the same time LISTEN AND FEEL FOR AIR BEING EXHALED. A Laerdal Pocket face mask should be used if available and vinyl gloves donned prior to checking for foreign bodies in the mouth.	
Circulation CHECK FOR PRESENCE OF A PULSE while maintaining backward head tilt. With the hand on the forehead the other hand checks for the carotid pulse. USE THE FLAT PULPS rather than the fingertips as the fingertips are less sensitive. (The thumb is not used, as it is even less sensitive.)	

Checklist	Tick
USE TWO OR THREE FINGERS ALONG THE LINE OF THE CAROTID ARTERY between the adam's apple and the large muscle of the neck, ensuring not to press on the opposite carotid artery at the same time. (Check for 5 seconds.) (PULSE ABSENT) *A.F.A. Vol.1 p.37* ***Timing*** Must reach this stage: – in correct sequence – D.R.A.B.C. – within 30 seconds of start	
Recognition of Cardiac Arrest A collapsed victim has had a cardiac arrest if he/she is UNCONSCIOUS, NOT BREATHING, and has NO CAROTID PULSE. *A.R.C. 6.2 March 1988*	
COMMENCE CARDIO-PULMONARY RESUSCITATION (C.P.R.) Kneel beside casualty's chest. *A.F.A. Vol.1 pp.39-40*	
External Cardiac Compression (E.E.C.) ***Locate compression site:*** – IDENTIFY MIDLINE OF STERNUM	
– LOCATE UPPER BORDER by feeling groove between collar bones.	
– LOCATE LOWER BORDER by feeling the lower ribs at the rib junction.	
– IDENTIFY THE LOWER HALF OF THE STERNUM.	
OR USE THE CALIPER METHOD TO LOCATE AND MARK THE CENTRE OF THE STERNUM.	
– PLACE THE FIRST FINGER OF EACH HAND at the upper and lower borders of the sternum.	
– BRING BOTH HANDS DOWN so that the THUMBS REST ON THE CENTRE OF THE STERNUM. The position for the hands is between the thumb and finger of the lower hand.	
– PLACE THE HEEL OF ONE HAND CENTRALLY OVER THE LOWER HALF OF THE STERNUM AGAINST THE CENTRAL MARKER THUMB.	
KEEP PALM AND FINGERS OFF THE RIBS OF THE CHEST WALL COVER FIRST HAND WITH OTHER HAND; either grasp the wrist of the lower hand with the thumb of upper, or interlock the fingers of both hands.	
PRESS DOWNWARD THROUGH THE HEEL OF THE LOWER HAND.	
KEEP COMPRESSING ARM STRAIGHT AND VERTICAL so your body weight is the compressing force. Squeeze down firmly, keeping arms straight. Release quickly.	
PRESS FIRMLY (4-5 cm) for an adult casualty. (1.5″ to 2″)	

Checklist	Tick
PRESS RHYTHMICALLY. Do not use rocking movements, thumps, or quick jabs. The action is COMPRESSION rather than massage, hence the unacceptability of the term 'external cardiac massage'. PIVOT FROM THE HIPS and not the knees.	
RELEASE THE PRESSURE to allow proper expansion of the chest, but do not remove hands from the chest. Generate a pulse. Give 15 compressions immediately in 10 seconds.	
Compression Rate: One press every 3/4 seconds, ie. at least 80 compressions BUT not more than 90 compressions/ min. or 15 compressions in 10-12 seconds. *AF.A. Vol.1 p.41*	
Timing: To this stage in 60 seconds.	
Ratio: Interpose two (2) ventilations after every 15 compressions. *AF.A. Vol.1 p.64* After every 2 ventilations the hand that releases the jaw feels for the rib junction and keeps the place marked while the other hand which releases the head is on the lower half of the sternum against the marker fingers.	
Cycles per minute: 4 cycles of 15:2, ie. 60:8 per minute *AF.A. Vol.1 p.41*	
Achieve: At the end of each minute at least 60 compressions and 8 ventilations must be achieved. Instruct the member to continue for at least three minutes, during which the effectiveness skills sheet 'A' can be completed.	
Time Limits: *AF.A. Vol.1 p.41* 15 seconds maximum each C.P.R. cycle. 10-12 seconds for each 15 compressions. 3-5 seconds for position changes and 2 ventilations.	
Effective Standards: 8-10 ventilations/minute. 60 compressions/minute.	
Monitor Effectiveness: *AF.A. Vol.1 p.42* Regular Revival Check (A.B.C.). After one minute (ie. 4 cycles). After every two minutes thereafter, (ie. 8 cycles). Continue until medical aid arrives (pulse and respiration do not return with this incident).	
Note: If patient vomits, stop, turn casualty on side, clear airway and resume.	

The practical section on C.P.R. must be satisfactory to gain an overall pass.

All criteria, including the rates, should be evaluated by the observer. Dials, lights, print-outs, etc., should be used to supplement the observations of the observer, not replace them. At no time should evaluation be solely based on lights, dials, print-outs, etc.

Practical skill mastered

Signed.....

Date.....

The Outcome of Cardio-pulmonary Resuscitation

Having completed the section on cardio-pulmonary resuscitation, you have the knowledge, and have maintained your skill, to perform effective and competent cardiac resuscitation. It is important that you realise that every casualty you identify as needing cardio-pulmonary resuscitation may not be able to be salvaged back to normal life. In many cases you may be able to re-establish a pulse and, with artificial respiration, sustain the casualty until relieved by an ambulance crew. The ambulance officers may call upon you to assist during the transfer to hospital. It is not our place as First Aiders to assume death has occurred; hence our efforts to re-establish life. Provided you have maintained your knowledge of how to perform effective cardio-pulmonary resuscitation and regularly practise your skills on a manikin, you will be better able to accept the fact that, despite your competent efforts, the casualty died.

If you have been involved in the resuscitation of the casualty who subsequently dies or is declared dead, please remember not all cases of cardiac and respiratory arrest can be reversed and health restored. This may be due to the severity of the injury or the irreversible nature of the illness or disease which caused the respiratory depression or the cardiac arrest. If you are having trouble accepting your apparent failure or inadequacy in the case, please seek advice and help to enable you to cope. The feelings of helplessness, often manifested by irritability, failure of concentration, sleeplessness and depression, are not uncommon. No, it is not wrong to feel like this, or to wonder 'if only I had done this or that would the outcome have been different'.

It is a tremendous source of pleasure to be involved in the successful resuscitation of a person back to a full and active life. Thank you for being an active member of St John with its long tradition of service to mankind. Thank you for being prepared to volunteer to help those in need of your reassurance, comfort, care and lifesaving skills in delivering effective cardio-pulmonary resuscitation.

Management of Choking

The Director, Professor John Pearn, has asked that you be advised of an A.R.C. policy statement which differs from current teaching practices, ie. 4.3.6 Management of choking.

Management of Choking Victim

Conscious Victim

The choking victim who is conscious should be encouraged to relax and breathe deeply, and to remove the foreign material by coughing. If the conscious victim shows signs of partial airway obstruction, eg. wheezing or stridor and/or laboured breathing, transport to hospital without delay, preferably by ambulance.

Attempts to dislodge the foreign body may result in complete airway obstruction. The victim will then become unconscious, and breathing will cease.

Non-Breathing Victim

The non-breathing victim with an airway obstruction by foreign material may not be suspected until expired air resuscitation is attempted, eg. by resistance to inflation and failure of the chest to rise despite correct head tilt and jaw support.

In the non-breathing victim, where possible, position the victim with the head lower than the body to maximise the effect of gravity:

- generate an increase in your expired air pressure to the blocked airway that may result in either partial or complete dislodgement of foreign material;
- if still unable to inflate lungs, pause to cause jolting sufficient to dislodge foreign material, eg. Lateral Chest Thrusts. Apply sudden pressure over the chest wall close to both armpits. This will deliver a more sustained pressure to the blocked air passage and may assist in dislodging the foreign material. This method poses minimal risk to internal organs eg. heart and lungs. Then resume your resuscitation efforts.

Explanation

Various abdominal thrust techniques, using forcible pressure over the abdomen, should not be used because they:

- may damage internal organs, especially liver, spleen or stomach;
- may precipitate regurgitation of stomach contents;
- would be dangerous in a pregnant victim.

MODULE 4

Resuscitation for Special Circumstances

PRESCRIBED REFERENCES: *Australian First Aid,* Vol. 1 and 2, 1989.
Australian Resuscitation Council, *Policy Statements.*

OBJECTIVE: On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module check lists) the St John member will be able to apply one or more of these skills to the section's practical incident:

Practical Skills

4.1 Perform effective Expired Air Resuscitation (E.A.R.) for children and infants.

4.2 Perform effective Cardio-pulmonary Resuscitation for children and infants.

4.3 Perform effective E.A.R. for a simulated patient with a Laryngectomy Stoma.

4.1 Perform effective expired air resuscitation for children and infants

References: A.R.C. *Policy Statements* 5.4 and 7.1.2. *A.F.A.*.

Definitions:

A child is defined as one to eight years of age.
An infant is defined as younger than one year.

Children

Clear the airway

(this should take no more than 3-4 seconds)
– Quickly turn the child on one side.
– Clear mouth and nostrils of foreign materials.

Check for breathing

With the child lying on one side, check for breathing by supporting the jaw with the head in the neutral position. A slight head tilt may be necessary to achieve an open airway. Look for movement of the lower chest and abdomen and listen for escape of air from the nose and slightly open mouth.

If breathing, leave the child lying on his/her side and support the jaw. Continue assessment of the casualty.

If not breathing, blow and look.
Quickly place the child on his/her back. Keep the head horizontal and support the jaw. The rescuer places his/her widely opened mouth over the child's slightly open mouth and puffs gently, using just enough pressure to cause the chest to rise.

If the chest does not rise, check for:
- obstruction in the airway (inadequate head tilt or jaw support, tongue or foreign material);
- not enough air being blown into the lungs;
- inadequate air seal or air leak.

Listen

Following inflation of the lungs, the rescuer lifts his/her mouth from the child's mouth and, with the rescuer's ear about 25 mm from the casualty's mouth and nose, listens for escape of air from the lungs.

At the same time the rescuer observes the fall of the chest and looks at the casualty's stomach to ensure that it has not been distended. If the stomach is distended, check for obstruction.

DO NOT APPLY PRESSURE TO THE STOMACH as this may cause vomiting.

Rate

Inflation of the lungs should be repeated 20 times per minute and the pulse should be checked every two minutes. When breathing recommences, the child should be placed on the side.

Note: The amount of head tilt required to create an open airway increases with the age of the child. Whether both mouth and nose need to be covered by your mouth will depend on the size of the child.

Infants

The technique is similar to that used for children.

The head is very unstable and must be supported continuously.

It is important to avoid pressure with the fingers on the soft tissues under the chin, as this may obstruct the airway.

During expired air resuscitation the rescuer places his/her slightly open mouth over the infant's mouth and nose.

During expired air resuscitation the gentle puffs may need to be from the rescuer's cheeks, using just enough pressure to cause the child's chest to rise. Too much pressure may distend the infant's stomach.

If vomiting occurs, turn on side, clear airway and resume.

4.1 Expired air resuscitation for children and infants

INCIDENT

You are attending a private function when you see a child about three years old being rescued from the swimming pool. The child is placed lying on the side, in a safe area adjacent to the pool. On approach you establish there is no response to shout and shake.

Checklist	Tick
Airway Check for clear airway Open the mouth. Look inside the mouth for foreign matter.	
(NOTHING APPARENT) Open the airway. Place one hand on the forehead or top of the head. Other hand to support the jaw at the point of the chin. Tilt the head back slightly (not the neck). Ensure face slightly down to enable fluids to drain from the mouth.	
Breathing Check if the casualty is breathing.	
(NO BREATHING) Quickly place the child onto the back. Tilt head back slightly and support jaw.	
Place your widely open mouth over the child's slightly open mouth. Puff gently with just enough pressure to cause the chest to rise. Look for fall of chest.	
Look to ensure stomach has not been distended. Listen with your ear about 25mm from the casualty's mouth and nose for the escaping air. Give initial 5 quick puffs.	
Circulation Check for pulse.	
(PULSE PRESENT) Continue E.A.R. at 20 times per minute.	

Practical skill mastered

Signed .....

Date .....

4.2 Perform single rescuer effective cardio-pulmonary resuscitation in children and infants

INCIDENT

In the scenario for practical skill 4.1, during E.A.R., when a vital sign check is made after one minute, the pulse is absent. Continue from that point.

Checklist	Tick
Circulation Check for presence of pulse.	
(ABSENT) Locate midpoint of sternum using caliper method.	
Children (to eight years) *A.R.C. 7.1.2 and A.F.A. Vol.1 pp.51-52* Because of the variability in size of children of the same age, the specification of eight years should be interpreted as a working guideline only for determination of the site of compression. Place heel of one hand over lower half of sternum. Depress 25mm (1″).	
Single rescuer: Give 15 compressions in 10 seconds. Give 2 inflations. Achieve 12 inflations and 90-100 compressions per minute (6 cycles).	
Infants (to one year) The above criteria should be modified for infants as follows: Place 2 fingers over the sternum – lower half. Depress 15mm. Continue using rates and ratios for children. Too little compression of chest will be ineffective.	
Recovery Check after one minute and at least every two minutes. For return of pulse and respiration.	

Practical skill mastered

Signed .....

Date .....

4.3 Perform effective expired air resuscitation (E.A.R.) mouth to stoma method

Reference: A.R.C. Policy Statement 5.3.4.

A **laryngectomee** is a person who has had the larynx (voice box) removed. This may be part of the treatment of cancer, burns, injury or infection. Removal of the larynx, total or partial, results in the person breathing through a hole in the front of the neck (stoma). These people are known as neck breathers and require special care in an emergency. Some breathe only through the stoma (total neck breathers); others through stoma, mouth and nose (partial neck breathers).

A cravat, scarf or other fabric filter over the neck should alert the rescuer to the possible presence of a stoma. A stoma will be more obvious when the victim is on his/her back for Expired Air Resuscitation and the head is put into backward tilt. If a tube is seen in the stoma, always leave it in place to keep the hole open for breathing and resuscitation.

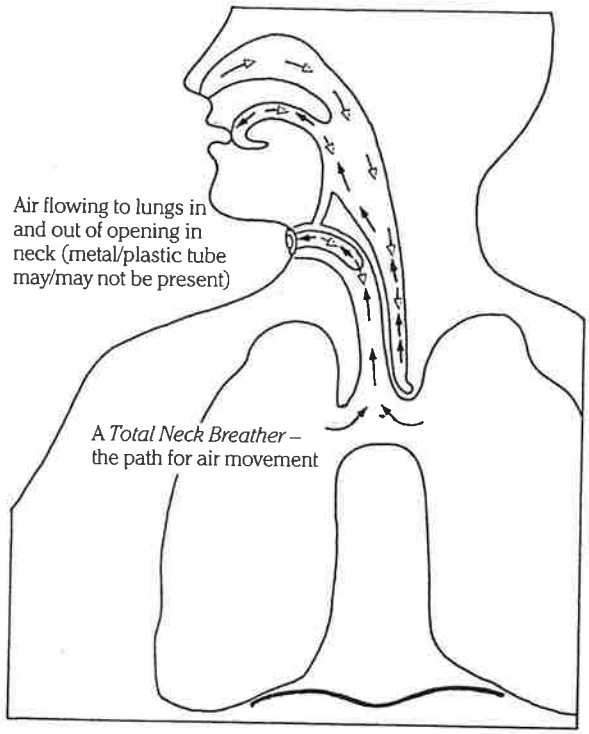


Fig 1 Total Neck Breather

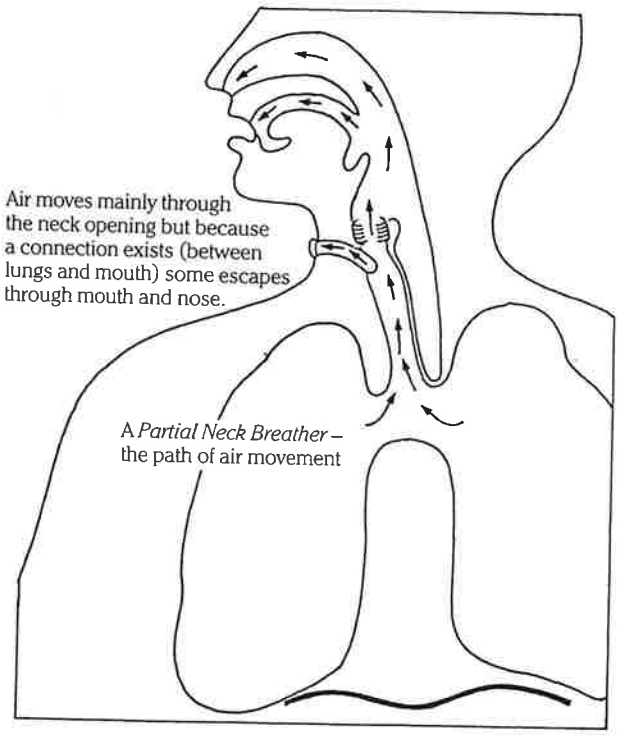


Fig 2 Partial Neck Breather

Expired Air Resuscitation

Supporting the jaw with the head in backward tilt will make it easier for the rescuer to seal his/her mouth over the stoma.

If the chest fails to rise, this may be due to:
- a poor seal over the stoma;
- the victim being a partial neck breather and air is escaping from mouth and nose;
- a blocked stoma or tube. Do not remove the blocked tube;
- use lateral upper chest thrust in an attempt to dislodge the obstruction.

Partial neck breathers

For a partial neck breather, the rescuer should place the palm of one hand over the victim's cheek, sealing the nostrils with index and middle fingers, using the thumb to press the chin upwards and backwards sealing the lips. When the chest rises, lift the fingers sealing the nose and mouth and listen for the escape of air from nostrils and stoma.

You are strongly advised to contact the State association:

– the Laryngectomy Association in N.S.W.;
– the Lost Chord Club in Queensland, Tasmania and N.T.;
– the New Chord Association in Victoria, S.A. and W.A.

Ask for copies of their booklet, *Could you help a laryngectomee?*, and request that a stomatee attend a meeting so that members may meet him/her and be aware of what the stoma looks like and the appliances used for speaking. Such a meeting will reduce the stress for a first aider when suddenly confronted with someone whose neck is covered with a scarf or has a gaping hole or a silicone tube with a one-way valve.

4.3 Expired air resuscitation – mouth to stoma method

INCIDENT

You are attending a private function when you see a middle aged person collapse. Examine the casualty and treat accordingly. There are no obvious dangers and the patient did not respond to shake and shout.

Checklist	Tick
Quickly turn the patient away from you onto the side.	
Place the farther arm at right angles to the body.	
Place the nearer arm across the chest.	
Bend the nearer knee to bring thigh at right angles to the body	
Place your hand under casualty's neck and support head.	
Roll the patient onto the farther side.	
Turn the face slightly downwards to ensure drainage of fluids.	
Airway Check for clear airway.	
Open the mouth. Look inside the mouth for foreign matter.	
Feel inside the mouth, scooping with fingers, being careful not to push matter further in. Remove dentures only if loose.	
Wipe away any mucus or vomit from the tube or stoma using a finger or piece of cloth. (NOTHING APPARENT)	
Open the airway Backward head tilt. Place one hand on the forehead or top of the head.	
Other hand to support the jaw at the joint of the chin. Tilt the head backwards (not the neck).	
Ensure face turned slightly downwards to enable fluids to drain from the mouth.	
Breathing Check if the casualty is breathing by: – Observing for signs of respiration. – Looking for movement of the lower chest and upper abdomen.	
(NO MOVEMENT) Listen and feel for the escape of air from the nose, mouth and stoma with your hand or cheek.	

Checklist	Tick
(NO EXPIRATION) Feel, if necessary, for movement of lower chest and upper abdomen; however, movement here does not mean the casualty has a clear airway.	
(IF CHECKED, NO MOVEMENT) (NO BREATHING) Quickly turn the casualty onto the back and commence expired air resuscitation. Kneel beside the casualty's head.	
Open the airway Backward head tilt. Support the jaw using hand nearest the head. Take a deep breath.	
Place your open mouth over the stoma or tube. Breathe out firmly until the chest rises.	
GIVE FIVE QUICK, EFFECTIVE VENTILATIONS (FULL BREATHS) WITH EXPIRED AIR WITHIN TEN (10) SECONDS	
REMOVE YOUR MOUTH TURN YOUR HEAD TO THE SIDE OBSERVE CHEST FALL LISTEN AND FEEL FOR AIR BEING EXHALED.	
Circulation Check for presence of pulse.	
(PULSE PRESENT) Continue E.A.R. at 15 times per minute.	

Practical skill mastered

Signed .....

Date .....

MODULE 5

Advanced Resuscitation Equipment

OBJECTIVE: On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module points/ checklists) the Operations Branch member will be able to apply one or more of these skills to the section's mock practical incident.

Practical Skills

5.1 Use suction equipment.

5.2 Insert oropharyngeal airway.

5.3 Use a soft bag resuscitator on a non-breathing casualty.

Note: If Division does not have equipment, contact Divisional Surgeon or District Surgeon to arrange suitable venue for training.

Stores Required:

– suction apparatus (eg. Oxyviva)
– container of water
– soft bag resuscitator (eg. Airviva)
– oropharyngeal airways
– manikin

5.1 Use of suction equipment

Checklist	Tick
Check suction tubing is connected to suction bottle.	
Connect suction tubing to 'Y' suction tube or Yankauer suction tube.	
Measure distance from the top of the casualty's chin to the ear lobe. This is the furthest that you should insert the tube.	
Turn on the suction valve.	
'Y' suction tube Place 'Y' suction tube in the casualty's mouth and place your thumb over the short arm of the 'Y'. This will create suction.	
Move the 'Y' suction tube around all parts of the casualty's mouth for a maximum of 5 seconds. **Note:** If there is an artificial airway in position you may be able to pass the 'Y' suction tube down the centre of the airway.	
Yankauer Suction Tube Place Yankauer suction tube in the patient's mouth and you may aspirate by blocking the hole adjacent to the suction handle with your thumb.	
Withdraw the Yankauer suction tube over a maximum of 5 seconds – till airway clear.	
Flush through with water to clear tubing.	
Turn off the suction valve.	
Repeat if necessary.	

Practical skill mastered

Signed .....

Date .....

5.2 Insert an Oropharyngeal Airway *(Manikin to be used)*

Checklist	Tick
Select appropriate size airway.	
Check that casualty has a clear airway.	
Moisten end of airway with water, casualty's saliva or lubricant.	
Open casualty's airway by head tilt/jaw support method.	
Maintain head tilt and keep patient's mouth open.	
Pick up the airway by the flanged end and position it so that the convex curve is against the casualty's bottom lip.	
Insert the airway between the tongue and roof of the mouth until half the airway is in the mouth	
Rotate the airway 180° and slide into the mouth fully	
Check that the bottom lip is not curled.	
Check that the lumen (hole) of the airway is clear. Use suction if it is blocked.	
Check that air is moving freely through the airway.	

Practical skill mastered

Signed .....

Date .....

Oropharyngeal Airway

An oropharyngeal airway is a device used to assist in establishing and maintaining an adequate airway.

Indications for use

Use on any unconscious, breathing casualty when difficulty is experienced in maintaining an open airway. Use in association with a mechanical resuscitator.

Be careful when inserting an oropharyngeal airway. Do not use on a semi-conscious casualty as it can irritate the back of the throat and cause vomiting, coughing or spasm of the larynx. If the casualty shows any signs of rejecting the airway or retching, remove the airway at once.

Ensure that the casualty's airway is clear.

Obtain correct size oropharyngeal airway by placing it on the casualty's face so it measures from the centre of the lips to the angle of the jaw.

Reference: *Occupational First Aid.*

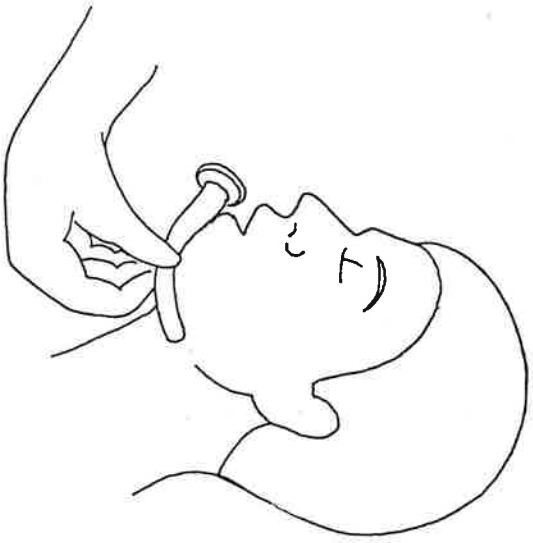


Fig. 1 Obtain correct size airway.

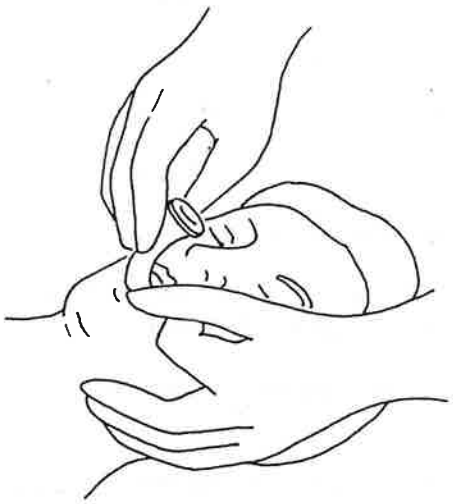


Fig. 2. Using cross-finger technique to hold mouth open, insert airway to one-third of its length.

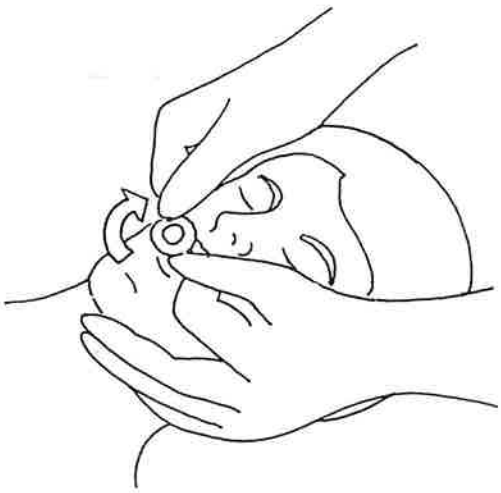


Fig. 3 Rotate airway 180° and gently push into casualty's mouth.

Fig. 4 Hyperextend casualty's head, and if necessary, apply jaw thrust.

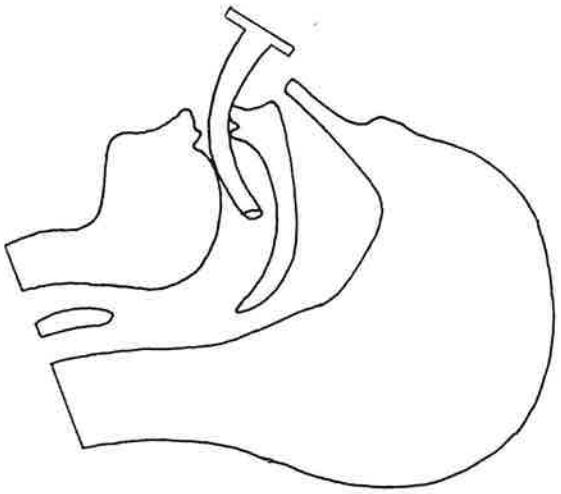


Fig. 5 Initial insertion.

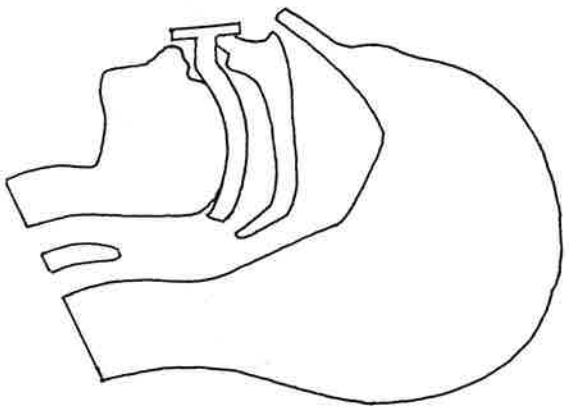


Fig. 6. Final position.

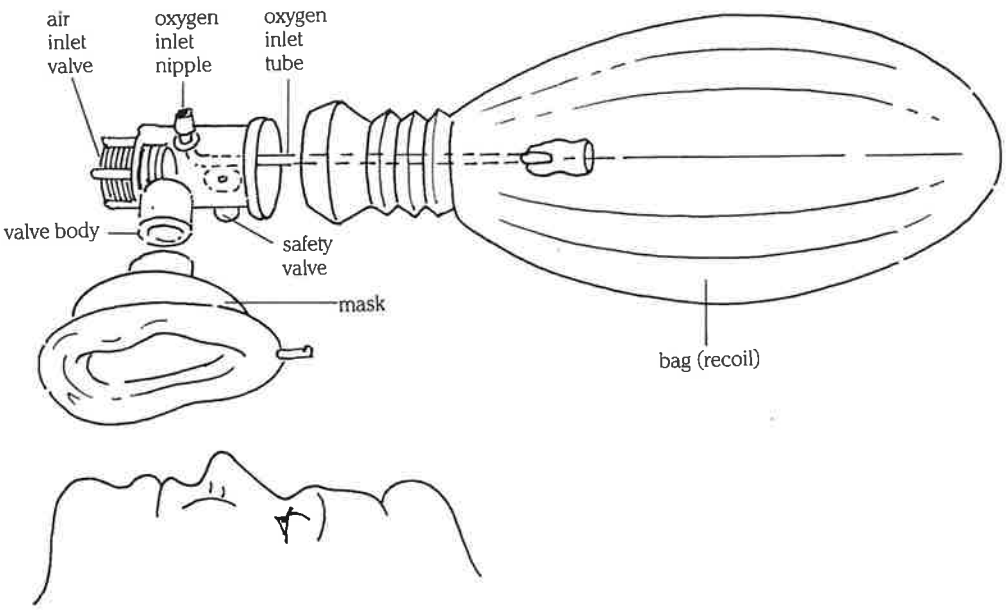


Fig. 7. Air-viva (one example of a Soft Bag Resuscitator)

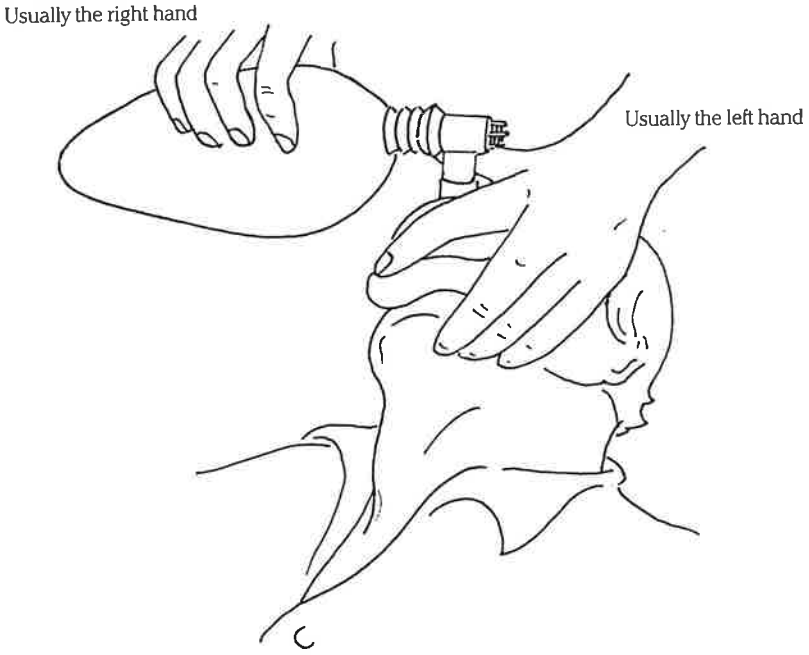


Fig. 8. Position of mask

MODULE 6

Burns

PRESCRIBED REFERENCES: *Australian First Aid,* Vol. 1, 1989.
Supplementary Training Material.

OBJECTIVES: After studying the training programme and the appropriate references, the St John member will be able to describe the various types and causes of burns, estimate the area affected and state the treatment that would be applied in given situations.

Practical Skills

6.1 Give examples of how different types of burns may be caused and state the difference between the effects of each type.

6.2 Using suitably-prepared diagrams, estimate the different percentages of surface area burned (rule of nines) and using the 'casualty's hand' technique, estimate the total percentage area of scattered burns. The casualty's hand (palm and extended fingers) equals approximately 1% of his/her body surface area.

6.3 Describe the differences between partial thickness and full thickness burns.

6.4 State the dangers associated with burns, ie.:
– the risk of infection
– fluid loss and resultant shock
– inhalation injury.

6.5 Describe how to treat:
– small thermal burns
– large-area thermal burns.

6.6 Describe the particular dangers to the airway associated with facial burns and burns sustained from fires in closed spaces.

6.7 Demonstrate the treatment of a burns casualty. Use the 'three B's and three C's' checklist.

Supplementary Training Material

A **burn** is damage to skin and underlying tissue by heat.

Types:

1. **Flame** with dry heat, eg. fire.
2. **Scalds:** contact with moist heat, eg. hot liquids, steam.
3. **Chemical burns:** contact with corrosive acids, alkalis, combustible chemical powders, eg. sulphuric acid, caustic soda, phosphorus.
4. **Electrical burns:** contact with live electrical power points or high voltage cables, eg. faulty socket or plug, faulty electrical appliance.
5. **Electrical flash burns and explosions:** contact with flash from high-voltage electrical apparatus or cables.
6. **Friction:** caused by two skin surfaces rubbing together or by clothing/shoes/ object rubbing against skin.
7. **Radiation:** sunburn.
8. **Contact:** contact with heat conducting material eg hot metal of exhaust pipe.

Complications

Infection — Shock

Burning injuries have an effect on skin and circulation. In burns, the risk of infection to the body is greater and one reason for this is the loss of plasma (blister fluid) from the circulating system. If sufficient plasma is lost, shock will develop. To estimate the severity of a burn, two important factors must be taken into account.

1. The **depth of the burn:**

   (a) *Superficial – partial thickness*

   The skin is damaged to a varying depth from sunburn to almost full skin thickness.

   Sign: skin is pink to dark red and blistering
   Symptoms: severe pain

   If burn heals within 14 days no scarring. Deep partial may take several weeks to heal.

   (b) *Deep – full thickness*

   The full thickness of skin is destroyed; there is also possible damage to underlying muscle and tissue in varying depths.

   Sign: dead white or area brownish-black in colour, scarring of the deeper part like over-cooked joint of meat, possible exposure and scarring of underlying bone. Wound often black around edges.
   Symptoms: little or no pain is felt due to nerve endings in tissue being damaged or destroyed.

Healing is slow and often produces scarring – if a limb is involved, partial loss of function or deformity may result.

2. The **area of the wound** is important as there is risk of infection to the exposed wound. Also, the larger the area of the wound, the more circulating fluid is lost, producing a greater degree of shock. Shock from loss of plasma is aggravated by pain. Much fluid is lost in full thickness burns into the tissues beneath the dry parchment like burned skin.

   To estimate the area of the burn apply the rule of nines. Burns estimated to be more than 10% (or 5% in children, the elderly or the very ill) should be treated as serious and urgent medical treatment sought. This also applies with full thickness burns irrespective of area involved.

Burns are assessed as serious by five points:

1. life threatening associated injuries eg head injury, fractures
2. respiratory or inhalation injury and carbon monoxide poisoning;
3. depth – how deep the burn is;
4. area – how large the area of the body is burnt (apply the rule of nines);
5. Special sites – face, fingers, toes, genitals, anus.

The special sites are classed as serious because the skin and tissue in these areas are so loose that scarring and contraction of healing could result in additional complications, ie. partial or complete loss of movement in burns around joints, and deformity due to contraction in burns to the toes and fingers.

In the case of burns to the face, the patient may inhale irritant gases, smoke or steam causing an obstruction in the airway with noisy croupy sound and require surgical treatment to assist in the patient's breathing. Also, with facial burns the eyelids swell greatly, causing virtual blindness for several days even though eyes are not damaged.

Treatment

The aim of treatment of burns is to prevent infection, combat shock and get the patient to medical aid as soon as possible.

Note: All persons who have been rescued from a 'confined space' burning area should be assumed to have an inhalation or respiratory burn injury. Administer 100% oxygen if available and transport to medical aid.

At the Incident:

1. D.R.A.B.C..
2. Check for other injuries.
3. Cool the burns with cold water for 10-15 minutes – eg. from the tap.
4. Remove smouldering clothes or hot liquid soaked clothes.
5. Cover the wound with a sterile non-stick dressing.
6. Secure with bandage.

If area is large:

7. Use a sterile freshly-laundered sheet or pillow case to envelope the area, or garbage bag or plastic cling wrap.
8. Soaked clothing, which has not stuck to the skin, should be removed but try not to remove clothes unnecessarily.
9. Dressings should be applied over burnt clothing which has stuck to the burn area.
10. Make sure the casualty's airway is kept clear and breathing, circulation and depth of consciousness continually monitored. If casualty is unconscious then transport in the stable side position.

Special Circumstances

In cases where there is damage to the eyes, nose and mouth, special care should be taken.

In cases of electrical burns, ensure that the electricity is **off** and that there is adequate protection for the rescuer. If the electricity supply cannot be shut off then removal of the casualty, or that part of the casualty in contact, should be done by using a dry wooden object. The rescuer should stand on a dry surface.

Note: This should only be attempted if you are absolutely sure that the article you are using and the surface you are standing on are absolutely dry and non-conductive.

Note that in the case of electric burns, the casualty may have other conditions due to electric shock such as breathing stopped or fractures of bones due to being thrown by the electric force.

Treat Priorities First

In cases of chemical burns, the source of heat should be removed. Corrosive acids and alkalis should be treated by immersion or flushing with water for a minimum of 10 minutes, up to 20 minutes.

Note that in the case of burns from chemical powders, eg. phosphorus and lime, special attention should be paid to the powder's reaction.

Phosphorus ignites when exposed to air. Immersion in water as for normal burns is adequate. In the dressing of phosphorus burns, the dressing and area of the burn should be kept wet due to the combustible reaction of air and phosphorus. Transport covered in wet towels.

Lime when dissolved in water gives off heat; it should be removed from the wound before immersion in water.

1. Observation of the casualty is essential, ensuring the maintenance of clear airway and monitoring of breathing, circulation and depth of consciousness.
2. Most burns are painful. The more superficial the burn the greater the pain. Large area full thickness burns may be virtually pain free.
3. Do not lower body temperature too far by excessive cooling. If patient complains of cold or shivers or is blue from cold — cease cooling. Cover with a sterile burn sheet or non-stick dressing or plastic.
4. Remember that burn casualties require urgent removal to hospital.

Surface Area (Adults)

The body surface that is burnt is very important in determining the seriousness of the burn. An approximate but reasonably accurate estimate of the amount of body surface burnt is determined by the rule of nines. This rule, which applies especially in adults and older children, divides the body into sections each of which constitutes 9% of the total area.

Surface Area (Infants and Younger Children)

In infants and younger children, a considerably greater portion of the body is taken up by the head and the smaller portion by the lower extremities; accordingly, the rule is modified for these casualties. In each case the rule gives a useful approximation of the body surface.

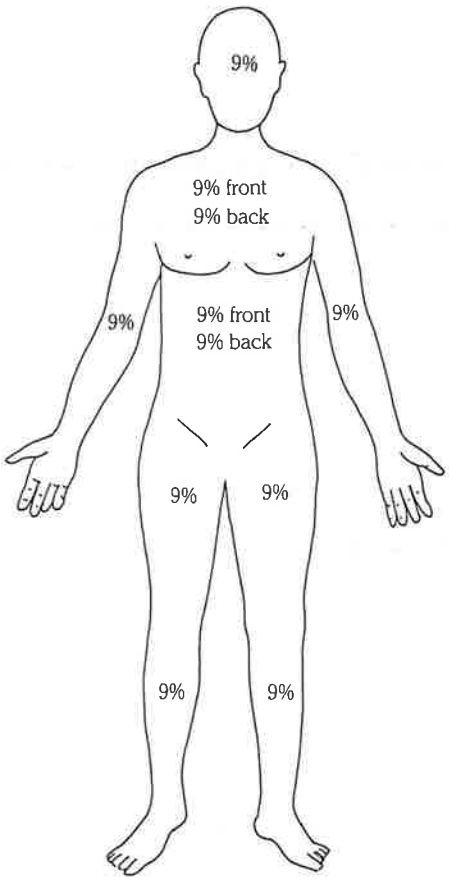


Fig. 1 Rule of Nines (Adult)

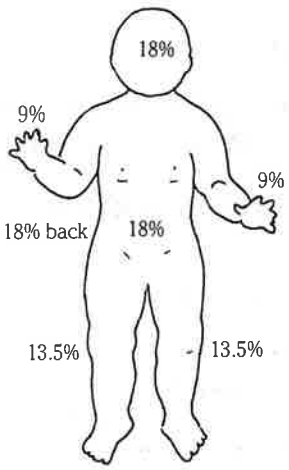


Fig. 2 Rule of Nines (Infants and younger children)

6.7 Demonstrate the treatment of a burns casualty

INCIDENT

Whilst attending a barbecue you hear a person's cry for help. On investigation you find a person's clothing ablaze. Treat the casualty accordingly.

Equipment Required:

– C.P.R. manikin or similar doll
– 1 blanket
– 1 sheet
– quantity of water in containers

Checklist	Tick
Burning stopped Remove casualty from heat/heat from casualty.	
Place casualty on ground.	
Extinguish fire on patient using blankets to smother flames.	
Remove blanket after flame extinguished.	
If no blanket, roll casualty from side to side to extinguish flames	
Breathing maintained Open airway and clear.	
Check breathing – look, listen, feel.	
Check pulse – feel carotid.	
Give E.A.R. or C.P.R.: Oxygen as needed if available in all suspected respiratory and inhalation injuries	
Body examined Haemorrhage check.	
Level of consciousness Command: Touch: Pain	
Fractures: injuries.	
Estimate type of burn, partial thickness/ full and estimate surface area.	
Treatment of Burn **Cool** Apply cool running water to burnt area	
Remove burnt clothing. Cut around clothing that is adhered to skin. Do not over-cool casualty.	
Cover Apply sterile non-stick or clean dressing to area.	

Checklist	Tick
Carry Obtain medical aid urgently. **Note:** Burn deaths are usually due to the inhalation of smoke and fumes and carbon monoxide poisoning. **DO NOT:** – Delay medical aid – Break blisters – Use cream, ointments etc. – Over-cool or over-heat – Overlook other injuries, which may be more life threatening.	

Practical skill mastered

Signed .....

Date .....

MODULE 7

Wounds and Haemorrhage

PRESCRIBED REFERENCES:

Australian First Aid, Vol. 1, 1989.
Family Care at Home, 1990. Pamphlet 10, Skills Book No. 25.

OBJECTIVES:

On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module points/ checklists), the Operations Branch member will be able to apply one or more of these skills to the section's mock practical incident.

Practical Skills

7.1 Manage a casualty with a wound:
(a) Minor
(b) Major.

7.2 Manage a casualty with external bleeding.

7.3 Manage a casualty with bleeding from special sites:
(a) Nose
(b) Tooth Socket
(c) Ear.

7.4 Manage an unconscious casualty with external bleeding.

7.5 Manage a patient with internal bleeding.

Wounds

A **wound** is a break in continuity of any tissue of the body caused by injury or operation or illness.

Types

1. **Abrasion:** Superficial grazing, usually dirty, raw oozing area.
2. **Incision:** Caused by sharp object, clean edges, often bleed a lot.
3. **Laceration:** Caused by blunt or jagged objects, edges torn.
4. **Contusion:** Bruising caused by a fall or severe blow, bleeding into tissue.
5. **Penetrating stab:** Small entrance may have damage to deep structures. Large exit wound.
6. **Gunshot:** Entry wound and often larger exit wound.
7. **Amputation:** A severed part/or limb.
8. **Bites:** Jagged, penetrating, high risk of infection, eg. animal, human.
9. **Burns**
10. **Fractures**

Aims of Wound Treatment

1. Control haemorrhage.
2. Prevent further damage to area.
3. Prevent or minimise infection.
4. Seek medical aid if necessary.
5. Give ongoing advice.

Wounds – General Rules of Treatment

1. Wear gloves or use forceps (non-touch technique).
2. Control haemorrhage.
3. Explain procedure to casualty and reassure.
4. Put casualty and injured part at rest.
5. Cleanse wounds with:
   (a) normal saline;
   (b) antiseptic (as approved by your State);
   (c) water (sterile if available).

   Note: Depending on type of wound, this procedure may be omitted.

   DO NOT USE COTTON WOOL ON OPEN WOUNDS.
6. Apply a dressing, eg.:
   (a) dry dressing;
   (b) non-stick (if open or weeping wound);
   (c) dressing must be large enough to extend at least 2.5cm beyond wound edges.

7. Bandage or tape.
8. Immobilise and elevate if necessary.
9. Handle all wounds gently to prevent further damage.
10. Always remove rings, watches etc. from injured limbs.
11. Use good nursing procedure to prevent infection.
12. Watch for signs of shock.
13. When assessing a wound take into account:
    (a) size of wound;
    (b) how it happened;
    (c) what area it is on, eg. face, over wrist etc.;
    (d) what structures are underneath this wound;
    (e) what is this casualty's medical history, eg. diabetic.
14. Enter record of treatment: BF45, BF43.
    Give ongoing advice and reassurance.
    Advise further medical care.

Major Wounds

As a general rule any large or deep incised or lacerated wounds, stab or gunshot wounds, etc. need prompt referral to medical aid after basic first aid. Such wounds may involve damage to underlying structures such as tendons or nerves, and may be associated with fractures. Prompt control of bleeding is important and such wounds should not be cleaned or painted by the first aider as this may complicate medical assessment procedures later.

Major Wound Care for Operations Branch Field Duties

1. Member should wear gloves.
2. Control any bleeding with direct pressure and elevation.
3. Secure padding in place with firm, even pressure bandage.
4. Immobilise any fractures and cover minor injuries.
5. Arrange for transfer of casualty to medical aid by most appropriate means.

Haemorrhage

What is haemorrhage? Haemorrhage is bleeding.

Classification of bleeding

1. External – discharging via a wound.
2. Internal – into tissues/organs which can be concealed or revealed.

Types of Bleeding

1. **Arterial** (systemic artery): bleeding occurs in spurts; bright red in colour
2. **Venous** (systemic vein): bleeding with a steady flow; dark red in colour.
3. **Capillary:** bleeding is small in volume, oozes from a wound; bright red in colour.

Note: Regardless of where the blood is coming from, in a baby/child **all** bleeding can be serious or fatal because of the relatively low blood volume compared to his/her body weight.

eg. Newborn weight – 3.5 kg; 80 mls/kg of blood gives a blood volume of approximately 280 mls.

Adult – 70 kg; total blood volume – approximately 6 litres (6000 mls).

This knowledge is important when having to triage, assess and treat at accidents.

How does our body help control bleeding?

1. Constriction and retraction of vessels.
2. Coagulation (clotting).
3. Reduction in blood pressure.

Signs and symptoms of blood loss

– obvious bleeding
– weak, feeble, rapid pulse
– faintness and dizziness
– restlessness, apprehension
– nausea
– thirst
– pale, face and lips
– cold and clammy skin
– rapid breathing
– air hunger or sighing respirations
– coughed up blood
– vomited up blood
– pass from rectum
– loss from vagina
– mixed with urine

Look for evidence of disease or injury.

Types of haemorrhage

1. **Concealed:** eg. tearing force
   – ruptured liver
   – spleen
   – kidney
   – ectopic pregnancy

   These bleeds may remain in the abdominal cavity
   – extremely dangerous
   – often fatal.

Recognition:
– very important, obtain history (if possible).
– look for:
  • evidence of a blow to the area
  • redness, bruising, swelling
  • guarding (rigidity of abdominal muscles)
  • general signs of reaction to blood loss.

2. **Revealed:** Blood from any body opening is an indication of possible internal bleeding (except normal menstruation) eg.

lungs:	blood is coughed up and is bright red and frothy
stomach:	blood is vomited. It often has the colour of coffee grounds, but bright if severe
small intestines:	the blood is mixed with the motions and due to digestive juices a black tarry appearance can be noticed about the bowel actions and very offensive odour (melaena stools)
large intestines:	motions may be red (no digestive juices)
kidneys/bladder:	blood in the urine gives it a brown red or smoky appearance

7.1 (a) Manage a casualty with a minor wound

Checklist	Tick
Ensure privacy if possible.	
Patient Care Reassure casualty. Sit casualty down (lie down if pale). Explain what you are going to do.	
Take history of injury.	
Wound Examination Look at wound. Note: – type – size	
Check for foreign bodies in wound.	
Position injured limb, eg. support arm or leg etc.	
Equipment Collect equipment needed: – swabs – sticking plaster – solution – bandage, etc. – dressing – scissors	
Procedure Method (a) – wear gloves. Method (b) – wash hands. Use non-touch technique.	
Protect casualty's clothing.	
Clean wound using: – water (sterile if available); – normal saline or antiseptic (approved by your State); or – rinse under tap.	
Clean wound thoroughly: – swab from top to bottom – swab from centre out. Use each swab for one wipe, then discard.	
Dry with gauze.	
Apply suitable dressing.	
Fix dressing in position with: – sticking plaster; – tape; or – bandage etc. (Dressing needs to be safe if casualty returning to work.)	
Check casualty's comfort.	

Checklist	Tick
Records Fill out correct Operations Branch forms.	
Ongoing advice Keep dressing dry. Remove in 24 hours. Re-apply if necessary. If wound becomes very: – red; – swollen; – painful to use; – throbs; – red line appears up arm or leg; – casualty has an elevated temperature; – feeling generally unwell; **See a doctor.** Get a tetanus injection or booster if needed.	

Practical skill mastered

Signed .....

Date .....

7.1 (b) Manage a casualty with a major wound

Checklist	Tick
Ensure privacy if possible.	
Patient Care Reassure casualty. Lie casualty down, Explain what you are going to do.	
Ask how it happened: – when – where	
Wound Examination Quickly assess wound: – type; – size; – position of injury.	

Checklist	Tick
Immediately control bleeding as per Checklist *A.F.A. Vol. 1 7.2.*	
If no bleeding present, continue with this procedure.	
Position of injured limb or casualty.	
Protection of Wound Cover with sterile non-stick dressing: (a) to help minimise infection; (b) to prevent further injury. **Note:** If protruding abdominal organs, cover with a wet sterile non-stick dressing.	
Check medical history. **Check if casualty has any allergies.**	
Equipment Collect equipment needed: – forceps – sticking plaster – swabs – bandage – solution – scissors – dressings – slings etc. If sterile dressing trays available these should be used.	
Procedure Method (a) – wear gloves. Method (b) – wash hands. Use non-touch technique.	
Protect casualty's clothing.	
Remove covering dressing.	
Clean wound with swabs using: – sterile water; – normal saline or antiseptic (approved by your State).	
Swab wound: – from top to bottom; – from centre out. Use each swab for one wipe, then discard. Continue using as many swabs as necessary to clean wound.	
Dry with gauze swabs.	
Apply a suitable dressing, eg.: – non-stick dressing; – burn dressing etc.	
Apply suitable padding if wound is likely to weep.	
Fix dressing in position with: – sticking plaster; – tape; – bandage etc.	

Checklist	Tick
Check casualty's comfort.	
Give nothing by mouth if you suspect casualty may need: – sutures as wound gaping; – tendon repair as unable to move part or all of limb; – anaesthetic; – or is drowsy or unconscious.	
Check if casualty needs a tetanus injection or booster etc.	
Records Fill out correct Operations Branch forms. A Casualty Report form or BF45 must accompany casualty to hospital or medical facility.	

Practical skill mastered

Signed .....

Date .....

7.2 Management of a casualty with bleeding

Checklist	Tick
Member to wear gloves.	
Look at wound Check for foreign object, eg. glass. (NO GLASS)	
Direct Digital Pressure *A.F.A. Vol.1 p.94* Thumbs along edges, parallel to wound with fingers outstretched around limb or part.	
Timing Must reach this stage within 10 seconds of start. Bleeding controlled – 5 minutes pressure by the clock	
Elevate the part Limb elevated, whilst maintaining digital pressure.	
Rest the Patient Sit or lie the patient down (which ever applicable to the injury). Maintain elevation and digital pressure.	

Checklist	Tick
Bandage affected area Dressing in place if available, otherwise a pad for pressure. Roller or triangular bandage to cover pad. Improvise if necessary if no prepared equipment available.	
Immobilisation Rest the injured part: – Arm: St John sling – Leg: instruct the casualty not to move. REASSURANCE is given from the moment of contact with the casualty.	
Check affected area Has bleeding been controlled? If not, apply another pressure pad/bandage. Check area below part bandaged: – colour; – pulse; – sensation • pins and needles, suggesting bandage too tight • numbness, suggesting nerves injured in accident	
Ask casualty if he/she is comfortable.	
Note: UNCONTROLLED BLEEDING– If severe bleeding cannot be controlled by direct pressure, it may be necessary to apply pressure to the **pressure points.** *A.F.A. Vol.1 p.64* Alternatively, apply **Constrictive Bandage.** *A.F.A. Vol.1 p.65*	

Practical skill mastered

Signed .....

Date .....

7.3 (a) Control of bleeding from special sites – Nose

Checklist	Tick
Sit casualty down on chair or ground, with head slightly forward.	
Pinch off soft part of nose with finger and thumb for 5-10 minutes by the clock.	
Instruct casualty to breathe through mouth slowly, and gently spit any blood out into a bowl.	

Checklist	Tick
Loosen tight clothing.	
Instruct casualty not to blow nose.	
Place cold wet towels on neck and forehead.	
Reassure casualty continually.	
Maintain a peaceful environment, with supply of fresh air.	
Seek medical aid if bleeding continues for more than 20 minutes.	
Check casualty's medical history.	

Practical skill mastered

Signed .....

Date .....

7.3 (b) Control of Bleeding from special sites – Tooth socket

Causes: 1. Tooth extraction 2. Injury

Checklist	Tick
Reassure.	
Instruct casualty to keep tongue clear of socket.	
Do not remove clot in the socket by rinsing.	
Place a firm pad of gauze over the socket and instruct the casualty to bite firmly on it.	
Instruct casualty to keep pad in place for 1 hour.	
Instruct casualty to seek medical aid if bleeding continues.	
If permanent tooth is dislodged, rinse gently in milk or saline, preferably not water, and replace in socket. Advise to seek immediate dental aid. If can't replace tooth, rinse gently, wrap in plastic cling wrap or place in milk and send with patient to dental aid.	

Practical skill mastered

Signed .....

Date .....

7.3 (c) Control of bleeding from special sites – Ear

Causes: 1. A blow to the head 2. A fall

Checklist	Tick
D.R.A.B.C.	
Do not plug ear canal.	
Do not put drops in of any kind.	
Allow fluid to drain freely.	
Place the casualty on the side with the affected ear downwards, even if the casualty is conscious.	
Place a clean pad between the ear and the ground. Seek medical aid urgently.	

Practical skill mastered

Signed .....

Date .....

7.4 Control an external bleed in an unconscious casualty

Checklist	Tick
Casualty Approach D.R.A.B.C. *A.F.A. Vol.1 pp.30-43* **Note:** An unconscious casualty is always rolled on the side for A.B.C. and thus remains in that position for the rest of the examination if breathing and circulation are present.	
Check for External Bleeding A quick systematic approach is used to check for external blood loss. Look and feel.	
Discovery of Blood Loss Examine area.	
Remove or cut clothing in that area to assess site of bleeding accurately.	
If no foreign object, apply direct pressure. Elevate the part carefully.	

Checklist	Tick
Control Bleeding Apply firm pad and bandage (improvise if necessary).	
Check below part bandaged for circulation, colour and sensation.	
Regular Checks A.B.C. every 2 minutes as well as observe site bandaged for further blood loss.	
Continuing Care Monitor unconscious casualty whilst on his/her side.	
Take pulse, respirations and record, noting time.	
Observe colour and any altered conscious state.	
Record observations accurately.	
Check bleeding site – if bleeding noticed re-bandage with another pad and bandage over the top.	
Do not remove dressing over the wound. **Note:** As long as the casualty is unconscious he/she stays on the side to ensure a clear airway is maintained.	

Practical skill mastered

Signed .....

Date .....

7.5 Management of a casualty with suspected internal bleeding

Checklist	Tick
Note: As no pressure can be applied to the bleeding part, manage as follows: Reassure the casualty.	
Lay the casualty down.	
Maintain absolute rest for the casualty.	
Raise the legs or bend the knees.	
Loosen tight clothing.	

Checklist	Tick
Give nothing by mouth.	
Make casualty comfortable.	
Give oxygen if available.	
Seek medical aid **urgently**.	
Record vital signs, eg. pulse, respiration, altered conscious state, noting time every 15 minutes.	

Practical skill mastered

Signed .....

Date .....

MODULE 8

Observation of the Patient and Documentation

PRESCRIBED REFERENCES:	*Family Care at Home*, Pamphlet 7. Skill sheets 18, 19, 20. *Australian First Aid*, Vol.2, pp110-119. Supplementary Training Material.
AIM:	To make the members more aware of what they observe.
OBJECTIVE:	At the conclusion of a period of instruction the members will be able to accurately and precisely note what they observe of a sick or injured casualty.

Supplementary Training Material

Introduction

When we first set eyes on an injured or sick person, our powers of observation come into play. All our senses are used in observation, touch, taste, smell, sound and sight. Part of being a good first aider is becoming aware of and noting what we casually observe and using this awareness to help determine the problem and then treat accordingly.

This section is written to make you more conscious of what your eyes see and enable you to accurately and precisely record what you see, on the Casualty Report form (BF45).

General Observations Made

1. **Ambulatory**
   - assisted
   - unassisted
   - gait normal/abnormal

   On stretcher/carried
   In a bed
   In a chair

2. **Posture**
   - normal upright
   - stooped
   - crouched
   - lying
   - sitting

3. **Facial Expressions**
   - pained
   - apprehensive
   - fatigued
   - alert

4. **Weight**
   - overweight
   - underweight
   - normal weight

5. **Deformities/Blemishes**
   - scars
   - bone deformities
   - prostheses

6. **Skin**
   - colour (red, pale etc)
   - temperature
   - moist/dry
   - smooth/rough
   - rashes
   - discolourations (bruising)

7. **Eyes**
   - puffiness
   - discolouration of conjunctiva
   - pupils
     - equal/unequal size
     - symmetrically round
     - react evenly to light
   - discharge/weeping

8. **Body Temperature**

9. **Pulse**
   - rate
   - rhythm
   - volume

10. **Breathing**
    - rate
    - rhythm
    - depth

All of these observations may be made quite readily of an injured or ill person and are usually made without thought or notation. It is necessary for you to become aware of all that you see and note it down even if at the time you think it unimportant.

The Casualty Record has space for all appropriate observations and should be used to the full extent.

Any information record should be precise and accurate and never be excessive. An accurate initial picture passed on to someone will assist in further diagnosis and treatment.

Operations Branch members **must** at all times consider the information given to them by the casualty as confidential and only to be disclosed with the casualty's written consent.

CASUALTY REPORT

St. John Ambulance Australia

LOCATION OF DUTY		TIME	DATE	
SURNAME OF CASUALTY	GIVEN NAMES	TITLE	D.O.B.	SEX
ADDRESS OF CASUALTY			POSTCODE	

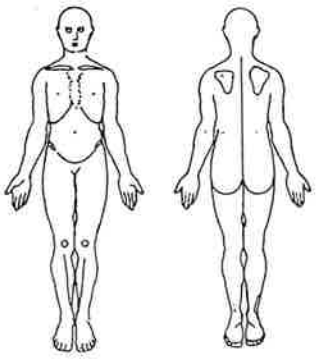
FIRST AID ASSESSMENT AND OBSERVATIONS

LEVEL OF CONSCIOUSNESS

TIME	FULLY CONSCIOUS	CONFUSED DROWSY	UNCONSCIOUS

TIME	PULSE	RESP.	L PUPILS	R

KEY TO CODING
A—ABRASION
B—BURN
C—CONTUSION
D—DISCOLOURATION
F—FRACTURE
H—HAEMORRHAGE
L—LACERATION
P—PAIN
R—RIGIDITY
S—SWELLING
T—TENDERNESS



COMPLAINTS/SYMPTOMS/HISTORY

GENERAL OBSERVATIONS

FIRST AID MANAGEMENT

REFERRAL FOR MEDICAL ADVICE

HOSPITAL (BY AMBULANCE) ☐ HOSPITAL (BY CAR) ☐ OWN DOCTOR ☐

SIGNATURE OF ST. JOHN MEMBER	DIVISION	DISTRICT

White: to CASUALTY for DOCTOR **Pink: to DIVISION** **Blue: Retained by MEMBER**

OBJECTIVE: On completion of the training period and after practising the practical skills listed below (to the satisfactory performance level as per the module points/ checklists) the member will be able to apply one or more of these skills to the section's mock practical incident.

Practical Skills

8.1 How to use a thermometer to obtain a patient's temperature.

8.2 How to take an oral temperature.

8.3 How to take a pulse – radially.

8.4 How to count a patient's respiratory rate.

Stores Required:

– thermometer
– jar of cold water
– antiseptic solution and jar of cotton wool (or medi wipes)
– watch with sweeping second hand
– paper bag

8.1 How to use a thermometer to obtain a patient's temperature

Prerequisite: Explanation about the parts of a thermometer.
Note: Wash hands before and after all procedures.

Checklist	Tick
Pick up thermometer By non-bulbous end. Hold between thumb and first finger.	
Observe markings Heavy lines are degrees, eg. 37°C. Light lines are parts of a degree, eg. 37.1°C.	
Observe mercury Note the level of mercury: If not below 35°C or 95°F shake thermometer, by a flick of the wrist action. Recheck level of mercury.	

Practical skills mastered

Signed .....

Date .....

8.2 How to take an oral temperature

Checklist	Tick
Sit or lie patient down and explain procedure.	
Ensure patient has not had anything that could influence temperature recording, eg. hot/cold drinks/food etc.	
Observe postion of mercury Must be below 35°C or 95°F.	
Wipe antiseptic off thermometer With a water moistened swab. Swab from non-bulbous end to bulbous end.	
Position thermometer Under tongue. Mouth closed (close lips not teeth). Do not talk. For at least 2 minutes.	
Read thermometer Observe level of mercury and note nearest marking, eg. 38°C.	
Swab thermometer With a disinfectant solution.	
Record details eg. Mrs Smith temperature 36°C at 1000 hrs.	

Practical skill mastered

Signed .....

Date .....

8.3 How to take a pulse – radially

Prerequisite: Know location of the radial artery.

Checklist	Tick
Explain procedure to patient. Rest the patient and the arm.	
Locate radial artery Thumb side of arm, wrist area. Place the tips of two/three fingers along line of artery. Gentle but firm pressure.	

Checklist	Tick
Taking pulse Count rate, eg. 96 per min. Count rate for 1 minute. Note: rhythm, eg. regular volume, eg. bounding	
Record information eg. Mrs Smith rate 96 regular and bounding. Time taken.	

Practical skill mastered

Signed .....

Date .....

8.4 How to count a patient's respiratory rate

Note: This procedure is performed so patient is not consciously aware that respirations are being counted, eg. count respiration rate whilst fingers are still in position after counting pulse rate.

Checklist	Tick
Observe lower chest, upper abdominal area Breathing in (inspiration) and breathing out (expiration) = 1 respiration.	
Count respirations Note rate, eg. 16 per minute.	
Note pattern, eg. regular.	
Note character, eg. noisy.	
Note depth.	
Record eg. Mrs Smith has a respiratory rate of 16 regular and noisy. Time taken.	

Practical skill mastered

Signed .....

Date .....

MODULE 9

The Nervous System and Unconsciousness

OBJECTIVES: At the conclusion of the period of instruction, the adult member will be able to:

1. Describe the organs and structures of the nervous system.
2. List the causes of altered consciousness in a casualty.
3. Describe the method of assessing the level of consciousness in a sick or injured casualty.
4. Explain the significance of differences in pupillary size and response to light stimulus, and record these obervations using appropriate symbols.
5. Demonstrate the systematic examination of an unconscious but breathing casualty.
6. Describe the general first aid management of an unconscious but breathing casualty.

Practical Skills

9.1 Examination of a casualty's pupils.

9.2 Examination of an unconscious casualty.

9.3 Position a casualty into the stable side position.

Stores required:

– torch
– pencil and paper
– blanket

Organs and Structure

The nervous system co-ordinates **all** body activities.

The **central nervous system** consists of the brain and the spinal cord, which travels down the vertebral column. It processes information and sends out instructions.

The **peripheral nervous system** receives information and sends out instructions to the rest of body.

There are three kinds of **peripheral nerves:**

1. **Motor nerves** move muscles. If the nerve is damaged, paralysis results and the part cannot be moved.
2. **Sensory nerves** collect information from the outside world, eg. hearing, sight, pain, touch. Damage to sensory nerves result in blindness, deafness, numbness etc.
3. **Autonomic nerves** run the automatic body functions, eg. heart beat, digestion, skin temperature. Damage to these nerves results in altered function and impaired efficiency of body control, eg. loss of bladder control, heart beat irregularities, chilblains.

Peripheral nerves can be damaged by:

– direct trauma, eg. cut by knife, crush injury;
– lack of oxygen, eg. tourniquet;
– poisons, eg. alcohol abuse, drugs.

Causes of Altered Consciousness

1. Direct injury to or illness affecting the brain, eg.
   – head injury
   – strokes
   – fits
   – meningitis
2. Lack of oxygen to the brain, eg.
   – cardiac arrest
   – irregular heart beat
   – shock
   – severe respiratory problems
   – blocked airway
   – smoke inhalation
3. Poisons and toxic products in the blood, eg.
   – diabetes
   – kidney or liver failure
   – overdose of alcohol or other drug

In some situations, the altered conscious state is temporary. However, a casualty may be left permanently brain-damaged by any of these conditions.

Good first aid assessment and management of a casualty with an altered conscious state can make all the difference to the casualty's subsequent quality of life.

Assessing the Level of Consciousness

The casualty's level of consciousness indicates the amount of damage to the brain.

A person who is fully conscious is alert and oriented to time, place and person (ie. they know what day it is, where they are and who they are). A conscious casualty will respond appropriately to command and pain. Someone who is asleep will not answer questions – but as soon as they are awake they can answer.

A casualty with an altered conscious state is sick, and must be oberved in hospital. Until medical aid or transport arrives, the level of consciousness should be assessed every 15 minutes, preferably by the same first aider each time and recorded.

WHENEVER THE LEVEL OF CONSCIOUSNESS IS TESTED, THE TIME AND RESULT MUST BE **WRITTEN DOWN**. IF THE CASUALTY BECOMES LESS ALERT AND LESS RESPONSIVE, MEDICAL AID MUST BE SUMMONED **MOST URGENTLY!**

Any casualty who has lost consciousness – even if he/she appears quite well – should be watched in hospital for a minimum of 4 hours after the injury.

There are five levels of consciousness:

1. Casualty is alert, and answers questions sensibly, eg. where are you?
2. Casualty is drowsy, but responds to command, eg. squeeze my hand, open your eyes.
3. Casualty responds to touch, but not to command, eg. lightly touch the upper eyelashes, and the eyelid will flicker.
4. Casualty does not respond to touch, but responds only to pain, by groaning or moving limbs.
   Check by: – squeezing ear lobe
   – squeezing base of finger nail.
5. Casualty does not respond to pain.

Assessing the Reaction of the Pupils

The pupils are the black areas at the centre of the coloured part (iris) each eye. The pupils grow smaller (contract) when a light is shone into the eyes, and become larger (dilate) when it gets darker.

The pupil reactions are controlled by the oculomotor nerves, which run from the back of the eye to the brain. Any damage to, or pressure on, these nerves will affect the pupils' reaction to light. Therefore, checking the pupils is a very easy way to check the extent of any brain injury.

If there is a severe brain injury, the pupils become large and stay large when light is shone into them. With less severe injury, the pupils may react slowly to light.

If there is an injury to one side of the brain only, then only one pupil will react slowly to light, while the other may react normally.

IF ONE OR BOTH PUPILS ARE LARGE, AND DO NOT REACT TO LIGHT, THE CASUALTY NEEDS VERY URGENT HOSPITAL CARE.

Any casualty who is unconscious, or who has lost consciousness but now recovered, must have the pupil reactions tested. It is essential to write down your observations every time you check the pupils.

The pupils are tested by shining a light (pen torch) into the eyes.

1. **Dilated Pupils**

   Cause: – fright
   – drugs (eg. atropine or certain eye drops)
   – severe lack of oxygen supply (ischaemia) to the brain, usually due to brain swelling as a result of head injury. The casualty is unconscious.

2. **Constricted**

   Cause: – narcotic overdose (eg. heroin, morphine)
   – excessive alcohol
   – stroke or nervous system disorder
   – bright lights.

3. **Unequal Pupils**

   Cause: – may be normal (2-4% of population)
   – head injury or stroke
   – eye surgery on one side (eg. cataracts)
   – glass eye.

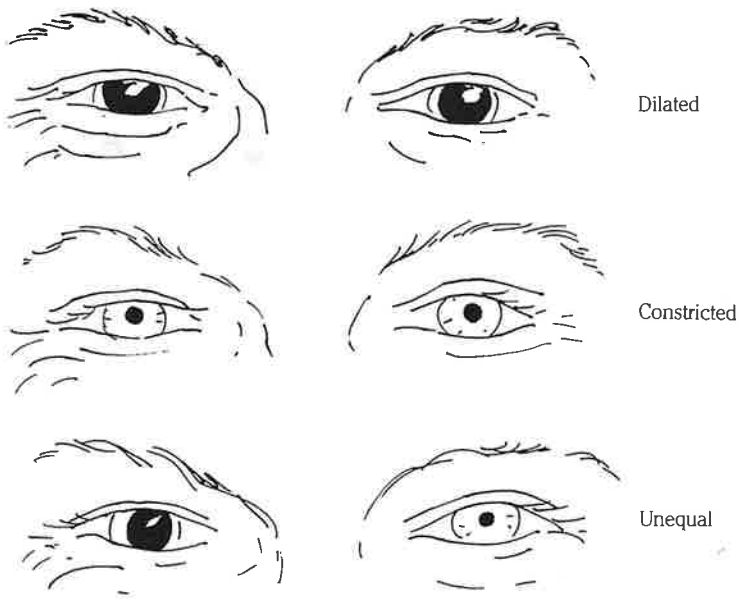


Fig.1

Examination of Unconscious but Breathing Casualty

Refer to Skills Sheet 9.1.

General First Aid Management of Unconscious, Breathing Casualty

Unconsciousness is very serious. It indicates that:

1. The casualty has significant brain damage (which may be only temporary, or may be permanent).
2. The casualty is at risk of further injury, as he/she cannot watch out for or avoid danger.

The general first aid management of an unconscious casualty is the same no matter what the cause of the unconsciousness.

The casualty needs:

1. **Protection from danger**, eg. oncoming traffic.
2. **A clear airway.** This is best achieved with the casualty on his/her side.
3. **Treatment of any other injuries**, eg. splint fractures, cover wounds. Remember that the casualty may have spinal injuries.
4. **Transfer to hospital**, with an adequate record of all observations you have made.

The observation chart for an unconscious casualty is usually referred to as a 'Head Injury Chart' in hospitals. It should include a record of vital signs, pupil reaction, and level of consciousness and the time.

Time	Pulse	Respiration	Pupil Size (R)	Pupil Size (L)	Pupil Reaction (R)	Pupil Reaction (L)	Level of Consciousness	Remarks
1400	120	20	●	●	√		√ drowsy	
1415	120	20	●	●			responds to touch	vomiting clear fluid; Ambulance called 1420
1430	100	61	●	●	slow		√ responds to pain	fit lasting 2 mins; Ambulance notified

Extra Material

Many hospitals use the **Glasgow Coma Scale** to assess casualties with head injuries.

This is a standardised check list, where 'points' are given at each examination.

1. **Eye Opening**
   – Spontaneous: eyes open spontaneously as the member approaches.

– To voice: the casualty is asked to open his/her eyes.

– To pain: the eyes open when a painful stimulus is applied.

– None: the eyes do not open to pain.

2. **Verbal Response**

– Orientated: casualty is orientated to time, place and person.

– Confused: casualty is disorientated to time, place or person.

– Inappropriate: speech is clear but makes no sense.

– Incomprehensible sounds: moans, or makes garbled sounds the examiner cannot understand.

– None: the casualty makes no sounds.

3. **Motor Response**

– Obeys: obeys simple commands.

– Localises: moves hands to painful area or tries to push the examiner away when the examiner applies a painful stimulus to the casualty.

– Withdrawal*: pulls part of the body away from painful stimuli.

– Flexion: flexes the body inappropriately to pain to form a Decorticate posture (see Fig.2.).

– Extension: body becomes rigid in an extended position to form a Decerebrate position (see Fig.3.) in response to a painful stimulus.

– None: no movement or response to a painful stimulus.

TIME							
Pulse							
Systolic B.P.							
Resp. Rate							
Resp. Effort							
Normal/Retractive							
Skin	Temp.						
	Colour						
	Moist						
Capillary Refill:							
< 2 sec: > 2 sec: 0							
Eye Opening	Spontaneous						
	To Voice						
C – closed	To Pain						
Swelling	None						
Best	Oriented						
Verbal	Confused						
Response	Inapprop.						
	Incomprehensible						
T = ETT	None						
Best	Obeys						
Motor	Localised						
Response	Withdrawal						
	Flexion						
	Extension						
	None						
Pupils	P; N; D						
	; X						
Score:							

Table 1 Glasgow Coma Scale

* Withdrawal is not included on all Glasgow Coma Scale Charts. Check chart *A.F.A.*, Vol.2, p.119.

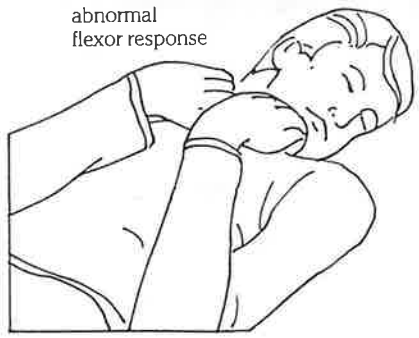


Fig. 2 Decorticate position – arms brought up towards the body indicates severe brain damage.

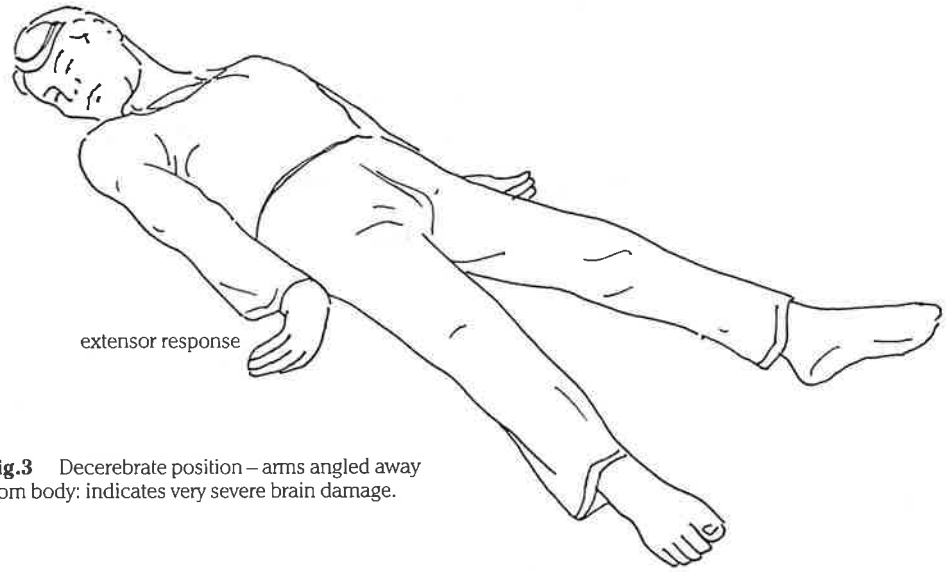


Fig.3 Decerebrate position – arms angled away from body: indicates very severe brain damage.

Topics for Discussion

1. How could you assess the level of consciousness in:
   (a) a deaf casualty?
   (b) a baby?
   (c) a very elderly person who **never** knows what day it is or where they are?

   Ask your Divisional/Corps Surgeon to explain what a 'Mental State Examination' is.

2. You are on duty and are called to assist an unconscious casualty. There is a young man lying on the ground, face down, with a graze to his temple. His friends say that he has been drinking all day and has tripped over and now will not get up. How do you tell if he is unconscious from a head injury or from alcohol?

3. How can head injuries be prevented? How many bike riders in your family **always** wear helmets?

4. There is a national organisation called 'Headway' which helps in the rehabilitation of brain-injured people. Ask if they can visit you, or you visit them.

9.1 Examination of an unconscious casualty

Checklist	Tick
DANGER PRESENT IN AREA? YES / NO	
Response to shake and shout – 'Are you all right?'.	
(NO RESPONSE) **Turn casualty on the side, facing away from you.** *A.F.A. Vol.1 pp.31, 53*	
Check and clear airway.	
Check for breathing.	
Check for circulation.	
Check for major external haemorrhage.	
Make sure that the casualty is lying securely on his/her side, with the face slightly downwards, and that he/she cannot roll out of position.	
Continue your examination with the casualty on the side.	
Send for medical aid (but do not leave casualty alone).	
Check: – pulse – respiration – skin colour.	
Check level of consciousness (response to command/touch/pain).	
Check pupil response and size.	
Exclude other injuries: look, feel and move all areas of the body in turn, checking for wounds, fractures etc.	
Treat any injury.	
Think of the possibility of spinal injury.	
Check casualty's pockets for identification, medication, 'Medic Alert' bracelets etc.	
Ask any bystanders about what happened. Record all observations.	
Recheck pulse, respiration, level of consciousness, and pupils at least every 15 minutes and record.	

Practical skill mastered

Signed .....

Date .....

9.2 *Examination of a casualty's pupils*

Checklist	Tick
Explain what you are going to do.	
Shade the casualty's forehead with one hand, and open one of his/her eyes.	
Note the size of the pupil. Holding the torch about 15cm (6″) above the face, let the light sweep across the eye, from the outer corner of the eye into the pupil. Observe the reaction.	
Note: You may need to repeat this several times to be certain of the response. If the pupil reaction seems abnormal, ask someone else to check it with you.	
Do the same for the other eye.	
Write down your observations, using a diagram to show the actual size of each pupil.	

Time	Pupil Size (R)	Pupil Size (L)	Reaction to Light (R)	Reaction to Light (L)
1100	●	●		
1115	●	> ●	slow	

Fig. 4 Example of Pupil Reaction Chart

Practical skill mastered

Signed .....

Date .....

9.3 Position a casualty into the stable side position

Checklist	Tick
Kneel near casualty's hips. Place casualty's far arm out straight from shoulder.	
Fold near arm across chest.	
Flex near leg at knee till thigh at right angle to body	
Support the casualty's shoulder, neck and head with one hand. Grasp the near knee with the other hand.	
Rotate casualty away from you, using the knee as a lever.	
Draw upper leg towards casualty's head so knee is flexed at right angles.	
Place nearer arm across farther arm at level of elbow.	
Tilt head and support jaw.	
Turn face slightly downwards.	
Check airway, breathing and circulation.	

Practical skill mastered

Signed .....

Date .....

9.4 Position a casualty into a stable side position, often called the 'coma position'

(For a casualty lying on the back)

Checklist	Tick
Kneel beside the casualty. Place the casualty's nearer arm, palm up, under the buttocks.	
Cross the farther leg over the near leg.	
Cross the casualty's farther arm across the chest, so that his/her hand rests on the nearer shoulder.	
Support the casualty's head and neck with your hand that is nearer the head. Grasp the farther hip with your other hand.	
Rotate the casualty towards you until he/she is lying on his/her side. Support the weight of the casualty in this position by resting him/her against your knees.	
Gently lower the head by allowing the casualty to roll slightly towards you, until the nearer elbow rests on the ground and supports the casualty.	
Remove the farther arm from under the body, starting at the shoulder.	
Tilt the head back to ensure an open airway.	
Place the hand of the casualty's upper arm palm downwards on the ground, with the fingers under the chin.	
Draw the upper leg up at a right angle to the body, allowing the bulk of the casualty's weight to be supported.	
Ensure the casualty's mouth is open.	

Practical skill mastered

Signed .....

Date .....

Confirmation of Completion of Skills Maintenance and Re-examination Programme 1992

Name *(Please print)* .....

Division .....

Date joined St John .....

Member to sign when programme completed .....

Date.....

The above member has completed the program to my satisfaction:

Signed .....
Person responsible for training

Signed .....
Divisional Superintendent
Corps Superintendent
Officer in Charge
} Delete as appropriate

To be completed on annual re-examination night:

The above member has completed the programme to my satisfaction and attended the re-examination night:

Signed .....

Dr *(Please print)* .....
Examining Surgeon, Divisional, Corps or District

Superintendent:
Please forward this page ONLY to the District Surgeon.

District Surgeon
1992 Training Programme
St John Headquarters
(in your State)