First in First Aid

St John

Skills Maintenance Program 2002

ST JOHN AMBULANCE AUSTRALIA
NATIONAL CARDIAC ARREST DATA COLLECTION
UTSTEIN STYLE

Division or State/Territory
Duty.....

Location of Duty.....Location of Casualty Inside ❒ Outside ❒
Tick appropriate box

Date: Day - Month - Year.....

Weather at time.....

Age of Casualty.....years	Accurate ❒	Guess ❒
Sex of Casualty	Male ❒	Female ❒
Pre-existing cardiac disorder (if known)	Yes ❒	No ❒
Drugs taken (e.g. Anginine)	Yes ❒	No ❒
Smoker	Yes ❒	No ❒
Alcoholic odour	Yes ❒	No ❒

Pre-arrest symptom (e.g. chest pain, pallor)

.....

Witnessed cardiac arrest	Yes ❒	No ❒
Arrest after St John first aider arrived	Yes ❒	No ❒
Arrest after Ambulance arrived	Yes ❒	No ❒
Arrest after medical support arrived	Yes ❒	No ❒

CALL RESPONSE INTERVAL.....minutes
(Period of time between receipt of call and arrival of St John first aider at casualty)

ASSESSMENT INTERVAL.....seconds
(Period from arrival of St John first aider till arrest assessed i.e. unresponsive, breathless, pulseless casualty)

TYPE of expired air resuscitation e.g. mouth to mask.....

.....

Time CPR commenced.....hours and minutes (24 hour clock)

Time IF CIRCULATION restored.....hours and minutes (24 hour clock)

Time IF BREATHING restored... .....hours and minutes (24 hour clock)

Time AMBULANCE CALLED.....hours and minutes (24 hour clock)

Time AMBULANCE ARRIVED.....hours and minutes (24 hour clock)

Time if CPR ABANDONED.....hours and minutes (24 hour clock)

Time AMBULANCE DEPARTS WITH CASUALTY.....hours and minutes (24 hour clock)

Defibrillation Yes ❒ No ❒

Destination of Casualty (e.g. name of hospital and address if known).....

.....

Complete as accurately as information available permits

TYPE OF ARREST

1. PRESUMED CARDIAC
(e.g. coronary occlusion; myocardial infarction; cardiac arrhythmia) Yes ☐ No ☐

2. NON-CARDIAC e.g. Sudden Infant Death Syndrome..... Yes ☐ No ☐
Drug overdose..... Yes ☐ No ☐
Suicide..... Yes ☐ No ☐
Drowning..... Yes ☐ No ☐
Severe bleeding..... Yes ☐ No ☐

Or presumed cause

.....

If defibrillation used, what was the number of defibrillation shocks?.....

Who performed the defibrillation?.....

Were there any problems with the defibrillator?.....

What was the type of defibrillator used (e.g. brand name).....

Comments by first aider or duty officer to cover items not covered above or on the previous page

.....

.....

.....

.....

Signature of person completing proforma.....Grade.....

Printed name of person completing proforma.....

Current address.....Postcode.....

Age:.....years Sex: Male ☐ Female ☐ Years in St John:..... years

Current level of first aid accreditation: Senior ☐ Advanced ☐ Other.....

Add names, addresses and phone numbers of contacts—to assist in following up the casualty:

.....

.....

Please return this form, together with a **copy of the OB12 Casualty Report form** completed for the casualty with the suspected or confirmed cardiac arrest, as soon as possible, to:

Dr F.H.G.Bridgewater
C/o Manager, Volunteer Services
St John Ambulance Australia
P.O. Box 3895, MANUKA, ACT 2603

First in First Aid

St John

Skills Maintenance Program 2002

Name .....

Signature .....

Division .....

Date received .....

St John Ambulance Australia
Canberra Avenue
Forrest Act 2603

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Contents

Note: *'AFA'* refers to *Australian First Aid*. Third edition, 1998.

Introduction to Skills Maintenance Program 2002

To my esteemed fellow workers around Australia,

Another year is about to start, bringing with it a new set of challenges and requirements. In some ways the requirements remain as they were. It is important that we maintain the standard in care that is hallmark of Operations Branch. You will be required to demonstrate your skills in the classroom so that when the time comes for you to perform in real-life you will be self-confident and skilled. You will be required to fulfil certain obligations to maintain efficiency. You will be required to adhere to certain specific standards. In the emergency situation, St John will support those of us with professional skills in medicine, nursing and ambulance care exercising skills that are not covered by particular St John training or protocols. Such an action however must be in accord with that person's particular training, be in accord with a recognised protocol and if appropriate be related to proven current competency.

In the training arena, there is a great awareness that change can be confusing and if accepted, that change without basis is to be avoided. This will hint to you that there are impending changes in a number of critical areas of resuscitation practice. These changes are occurring at both national and international level and are being implemented because there is supporting evidence that a better outcome can be achieved by changing our practice. Those who attended Priory 2000 in Brisbane will have some greater insight to these impending changes.

It is being proposed that lay personnel should not be required to check the pulse during CPR! An incorrect assessment can mean that CPR is not started when it should be with a predictable bad outcome. Are our Operations Branch members more skilled than a lay-person? That is a good question that will have to be answered if the change is approved by the relevant national authorities.

Other changes may relate to the position in which we check the airway and the manner in which EAR is delivered—it is suggested that the ratio of 15:2 be the same for single and two-person rescuer situations. Such changes need to be coordinated so that all organisations in Australia, associated with CPR, have a common stance! That is not easy.

Within St John, it is possible to bring a greater consistency but State and Territory legislative requirements often frustrate the wish that we could all do the same thing around the country. This is highlighted when we consider the management of asthma.

In some areas it is true to say that there is no scientific base for some practices or decision making. Evidence can been ranked according to its basis. Level 1 evidence is associated with a prospective controlled trial with demonstration of a better outcome for a particular procedure. In pre-hospital medicine the level of evidence is often 7 or 8. These levels imply making deductions and conclusions without direct evidence. We find ourselves here when considering the role of a cervical collar in first aid.

Perhaps one common factor prevails in training—the need for rational cooperation. This is critical to the harmonious function of the division, the State and Territory, the Australian Office and those bodies with whom St John must join to benefit the Australian community.

Sincerely yours in St John service,

Franklin HG Bridgewater.
Chief Professional Officer

National Skills Maintenance Program Training Committee Members and Contributors

Stephen Baddeley	Territory Medical Officer (NT)
Kieran Brown	Chairman, Training Branch (Tasmania)
Jason Bendall	State Education Officer (NSW)
Raymond Cook	Territory Medical Officer (ACT)
Barbara Davis RN	State Officer (Victoria)
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Nadine Fisher	Divisional Medical Officer (Victoria)
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Gerry Meijer	State Medical Officer (Queensland)
Stephen Miller	Chief Ambulance Officer
R Thompson	Regional Superintendent (SA)
Jeffrey Williams	State Nursing Officer (WA)

Procedure

A. St John Members

1. All members, on receiving their own copies of the Program, should sign and date the title page.
2. The Program is divided into modules, with theory and practical skills components.
3. All the skills must be practised and, when mastery is obtained, be signed by the appropriate person as indicated in the Record of Skill Mastery on page 129.
4. Members who hold an Advanced Resuscitation Certificate, issued by their State/Territory, must sit the re-examination of that State/Territory every year to retain this qualification.

B. Officers/Training Personnel

1. The term 'training personnel' refers to all St John officers/members with a designated training function. If professional training personnel are unavailable within a division, the officer-in-charge should communicate the name and qualifications of a nominee to fill the role to the State/Territory Medical Officer for consideration. All such requests will receive written advice.
2. All officers and/or Training Branch accredited trainers are responsible and accountable for the modules of the training program they have signed as being satisfactorily completed.
3. Practical skills items pertaining to the module being under taken must be signed as satisfactory by one of the designated persons.
4. 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.
5. On satisfactory completion of the module by the member, the Record of Skill Mastery on page 128. is to be signed and dated.

The Program belongs to all officers and members of St John and its success depends on all working as a team. Your assistance and comments are always appreciated. Comments may be sent, in the first instance, to Manager, Volunteer Services, St John Ambulance Australia, Box 3895, Manuka, A.C.T. 2603. They will then be forwarded to the Training Committee.

Resuscitation

OBJECTIVE

On successful completion of this module the member will be able to:

1.1 Describe the concept Chain of Survival;

1.2 State the principles of the DRABC Action Plan;

1.3 Demonstrate the recovery and alternative recovery positions;

1.4 Demonstrate an understanding of the resuscitation algorithm for a collapsed/unconscious casualty; and

1.5 Demonstrate EAR and CPR for an infant casualty.

PRACTICAL SKILL

To be demonstrated by the member:

1.1 Perform effective resuscitation for an infant;

1.2 Semi Automatic External Defibrillation (SAED) Heartstart FR operation; RESTRICTED TO MEMBERS TRAINING IN THIS SKILL; and

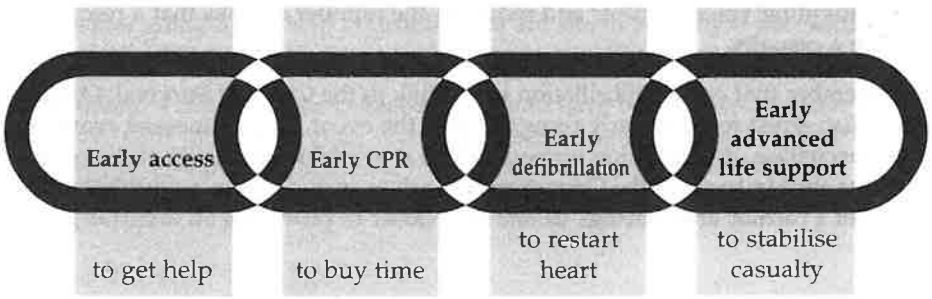
1.3 Perform effective resuscitation for an adult.

Introduction

Resuscitation is the term given for activities used to re-establish heart and lung function sufficiently to preserve brain function until more advanced life support is available.

To ensure that the casualty has the best possible chance of survival a descriptive and linked process termed the Chain of Survival has been adopted to emphasise the importance of each step in the management of cardiac and respiratory arrests. The Chain of Survival is made up of four links that must be followed in sequence to ensure the casualty has the best possible chance of survival from cardiac and respiratory arrests.

CHAIN OF SURVIVAL



1 Early access to the emergency response system

It is imperative to the potential survival of the casualty that an ambulance is called as a matter of priority so that early defibrillation and advanced life support can be commenced as soon as possible.

2 Early CPR

To ensure that oxygenation is maintained to the vital organs of the body such as the brain cardiopulmonary resuscitation (CPR) must be commenced within 4 minutes of the heart stopping.

3 Early defibrillation

If CPR is commenced within 4 minutes and defibrillation is initiated within 8-12 minutes of a cardiac arrest, chances of the casualty surviving are greatly enhanced.

4 Early advanced life support

Increased oxygenation, airway support and the administration of cardiac drugs by ambulance personnel will increase the likelihood of the casualty surviving.

The goal of the Operations Branch member in situations where a casualty has suffered a cardiac arrest is to ensure that the length of time to action each link of the Chain is kept to a minimum. **A reduction in time equates directly to a corresponding increase in the survival rate of the casualty.**

Ventricular fibrillation (VF)

In Australia, cardiovascular (heart) disease is the single largest cause of death. Each year 52,000 people suffer a heart attack, with 25,000 people dying from heart related conditions. It has been estimated that 10,000 people suffer a pre-hospital cardiac arrest, with only 800 people surviving the event (*St John Ambulance Australia, 1998*). In the Australian Aboriginal population, heart disease is responsible for 74% of all circulatory disease deaths, which is 31% of all deaths in this population (*Australian Bureau of Statistics, 2000*).

It has been well recognised for some time that the initial cardiac rhythm in the arrested heart is ventricular fibrillation. Typically, ventricular fibrillation begins as coarse, chaotic electrical activity that, within minutes, decays away to nothing (asystole). Therefore, opportunity to defibrillate the heart is limited to a brief window of opportunity during the initial minutes following cardiac arrest. If the first monitoring of a casualty is delayed until ambulance arrival, typically only one third of casualties will have ventricular fibrillation as the first recorded rhythm. In comparison, if first response personnel already at the scene perform monitoring, ventricular fibrillation is found in virtually all casualties. It has also clearly been demonstrated that successful restoration of a perfusing rhythm is related to the duration of ventricular fibrillation, i.e. defibrillation within one minute of the onset of VF is much more likely to produce a perfusing rhythm than defibrillation occurring five minutes after the onset of VF. Increasing experience with early defibrillation, by laypersons, using semi automatic external defibrillators (SAEDs) has demonstrated substantial improvements in survival rates from cardiac arrest. This improvement has been broadly estimated at 10% per minute for the first 10 minutes following cardiac arrest.

Semi Automatic External Defibrillators (SAEDs)

Defibrillators are portable and lightweight and are extremely easy to use. Further advances in these devices have been made by providing voice prompts and reducing the number of tasks that a rescuer must perform in order to defibrillate a casualty.

It is important to remember that early defibrillation is one link in the Chain of Survival. Optimal survival from unexpected cardiac arrest requires early recognition of the event, i.e. a witnessed event, early cardiopulmonary resuscitation, defibrillation immediately it is available, and early access to advanced cardiac care. The major shift in focus of the Operations Branch to include early defibrillation in the routine management of a cardiac arrest brings us one step closer to providing all links (*St John Ambulance Australia, 1998*).

The DRABC Action Plan

The DRABC Action Plan provides the Operations Branch member with a direction for first aid management, ensuring that definitive care is delivered to the casualty with competence, confidence and compassion.

What are the components of the DRABC Action Plan?

(Discuss as a group activity or role-play)

Danger:

To yourself:

- the person you should least want to get injured at any time is yourself—if you are injured, you cannot help others

To bystanders:

- if bystanders are injured, you suddenly have extra casualties to deal with and fewer people to help you

To the casualty:

- remove the danger from the casualty or if this cannot be done remove the casualty from the danger being careful not to aggravate injuries

Response:

- kneel beside the casualty placing your hands on his/her shoulders and gently shake and shout loudly 'Can you hear me? Open your eyes'
- always be on guard for the violent casualty and protect yourself as much as possible
- a response indicates that the casualty is conscious—do not move the casualty unless there is a possibility of further danger or airway obstruction

Attend to the following immediately:

- CALL for help
- manage any life threatening injuries
- manage other injuries
- calm and reassure the casualty

If there is **No** response, roll the casualty onto side while ensuring not to aggravate injuries (e.g. spinal injuries).

Group activity

Demonstrate the recovery position and alternative recovery position (*refer AFA, 1998, p. 31 & 39-40*).

Send for help or consider going to get help yourself if you are alone, but only if the casualty is in the recovery position and the airway is clear.

If the casualty is an infant, a child or if the collapse is likely to have been caused by near drowning or an injury, commence EAR/CPR (if necessary) for one minute before seeking help. Place the casualty in recovery position. If the casualty is an infant or child, take the casualty with you if possible.

Airway:

A casualty's airway is of utmost importance:

- open casualty's mouth and clear any foreign objects with your fingers
- dislodged teeth and loose dentures should be removed but well-fitting dentures should be left in place
- open casualty's airway by tilting the head back gently and slightly down
- at the same time lift the chin to open the airway
- **avoid neck movement if trauma (injury) to the neck is suspected**

Breathing:

Keeping the airway open, look, listen and feel for breathing (**more than an occasional gasp**) up to 10 seconds before deciding that breathing is absent:

- look for a rise and fall of the chest
- listen for breathing sounds from the casualty's mouth
- feel for air on your cheek

If the casualty is breathing—other than an occasional gasp:

- leave the casualty in the recovery position
- call for immediate assistance
- check circulation and perform an assessment of the casualty
- manage any injuries
- check for continued breathing

If breathing is absent:

- turn casualty onto back
- ensure head tilt and chin lift
- start Expired Air Resuscitation (EAR) by giving 2 effective ventilations—you can give up to 5 breaths to achieve 2 effective breaths

Procedure:

- open the airway
- place your hand on the casualty's forehead and pinch the soft part of the nose closed with the index finger and thumb or seal nose with your cheek
- open the casualty's mouth and maintain chin lift
- take a breath and place your lips on the casualty's mouth ensuring a good seal
- blow slowly into the casualty's mouth for about 1.5-2 seconds watching for the chest to rise
- maintain head tilt and chin lift
- turn your mouth away from the casualty watching for the chest to fall and to listen and feel for signs of air being expelled
- take another breath and repeat the sequence to give at least two effective breaths—2 breaths in which the chest of the casualty both rises and falls

If the chest does not rise and fall with every breath check for:

- airway obstruction—open casualty's mouth and remove any obstruction
- adequate head tilt and chin lift
- adequate seal around the casualty's mouth
- effective seal of the nose

If still unsuccessful move on to assessment of circulation.

Circulation:

Assess the casualty for signs of circulation:

- check if the carotid pulse is present
- look for any movement including swallowing or breathing—more than an occasional gasp
- observe colour of skin on face

Check for up to 10 seconds before deciding that the pulse is absent.

If you are confident that you can detect signs of circulation within 10 seconds:

- continue breathing at 1 breath every 4 seconds until the casualty starts breathing on their own
- about every minute recheck for signs of circulation—**take no more than ten seconds each time**
- if casualty starts to breathe sufficiently on their own place in the recovery position
- check casualty's pulse and breathing about every minute—be ready to turn the casualty on to back to restart EAR if breathing stops

If there are no signs of circulation or if you are unsure—commence Cardiopulmonary Resuscitation (CPR):

- locate the top of the sternum (breastbone), find the groove of the neck between the collarbones—leave a finger there
- find the lower end of the sternum by running a finger along the rib to the centre of the body—leave a finger there
- extend the thumb of each hand equal distances to meet in the middle of the sternum
- place heel of the lower hand on lower half of the sternum
- place the heel of your second hand on top of the first *(refer AFA, 1998, p. 36)*
- interlock fingers of both hands and raise the fingers to ensure that pressure is not applied over the casualty's ribs
- do not apply any pressure over the upper abdomen or bottom tip of the sternum
- position yourself vertically above the casualty's chest and with your arms straight press down on the sternum to depress it about 5cm (about 2 inches)
- release the pressure then repeat at a rate of about 100 times a minute—a little less than 2 compressions per second—compression and release should take an equal amount of time
- after 15 compressions tilt the head, lift the chin and give two effective breaths
- combine EAR and compression
- return your hands immediately to the correct position on the sternum and give 15 further compressions continuing compressions and breaths in a ratio of 15 compressions plus 2 breaths
- check pulse about every minute

Review question

1. What additional strategies would you adopt if the casualty was a woman suffering a cardiac arrest and in an advanced stage of pregnancy? *(refer AFA, p. 38)*

Cardiopulmonary Resuscitation must be continued until:

- the casualty shows signs of life
- medical help arrives
- continuing resuscitation becomes dangerous to the Operations Branch member—exhaustion, weather extremes

If cardiopulmonary resuscitation is discontinued:

- note the time it was ceased
- the length of time it was performed on the casualty, and
- document on an OB12 Casualty Report Form

If the casualty regains a carotid pulse the Operations Branch member should:

- continue to support respirations through Expired Air Resuscitation (EAR) or Bag-Valve-Mask with oxygen

When both breathing and circulation have been restored:

- place casualty in the recovery position
- call for urgent medical assistance—if not already sought
- assess the casualty
- manage any life threatening injury
- continue to closely monitor the casualty—use the DRABC Action Plan

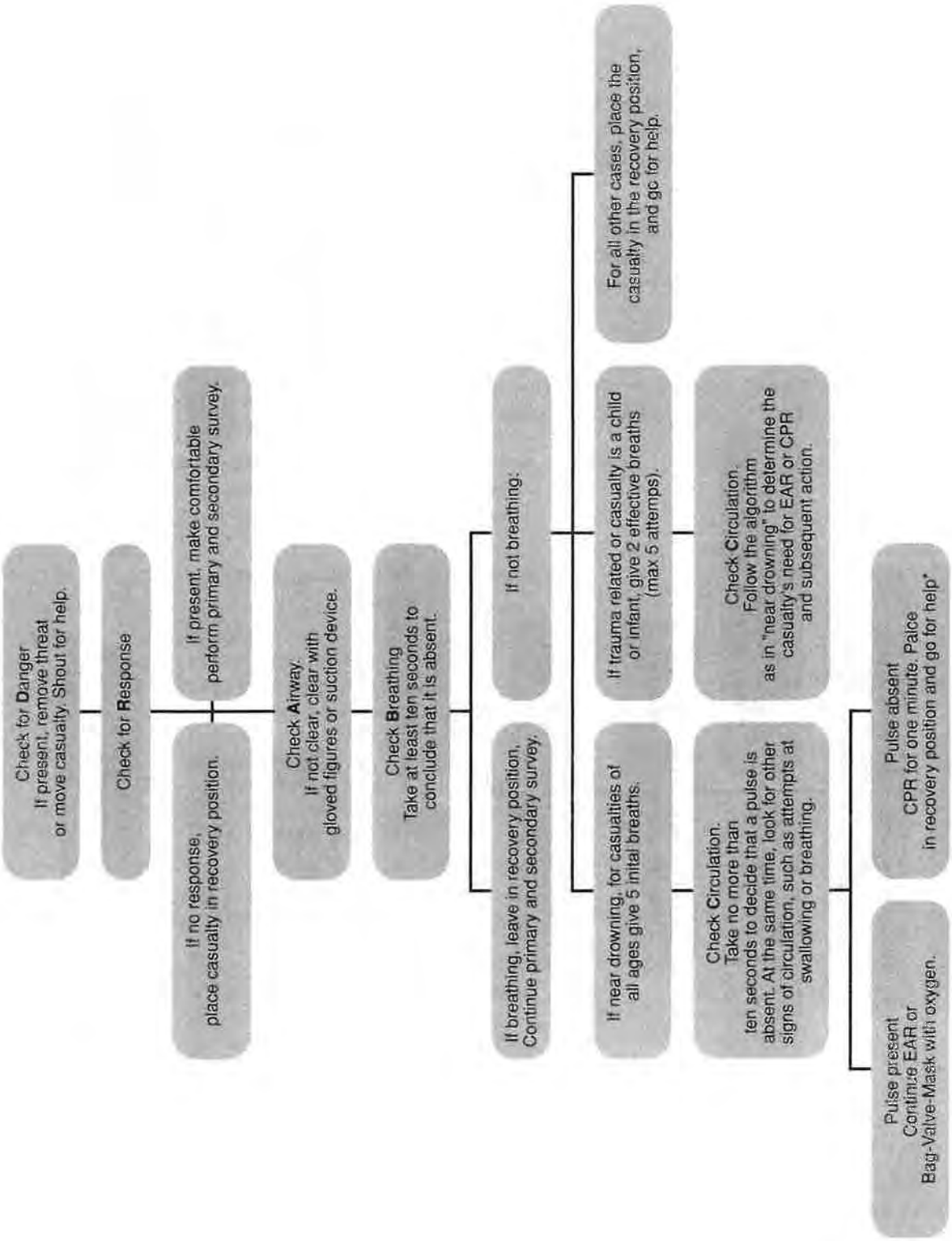
Resusitation Rates			
	9 years and older	**1-8 years**	**0-1 year old**
INITIAL VENTILATION IN NEAR DROWNINGS	Give five initial breaths in all age groups		
INITIAL VENTILATION IN OTHER EVENTS	2 effective* breaths at 1.5-2 seconds each—maximum of 5 attempts#		
EAR	1 breath every 4 seconds 15 breaths/min	1 breath every 3 seconds 20 breaths/min	1 breath every 3 seconds 20 breaths/min
COMPRESSION SITE	Lower half of sternum		
HOW	2 hands	1 hand	2 fingers
DEPTH	4-5cms	One third depth of chest	One third depth of chest
ONE OPERATOR	15 cardiac compressions to 2 breaths in 15 seconds— 4 cycles/min	5 cardiac compressions to 1 breath in 5 seconds— 12 cycles/min	5 cardiac compressions to 1 breath in 5 seconds— 12 cycles/min
TWO OPERATORS	5 compressions to 1 breath in 5 seconds— 12 cycles/min	5 compressions to 1 breath in 5 seconds— 12 cycles/min	Not recommended
REVIVAL CHECKS	Pulse and breathing at end of first minute, then about every minute.		

* 'effective' means that the chest is seen to rise and fall.

If after five ventilations, two 'effective breaths' have not been achieved, the next step in the resuscitation algorithm must be taken.

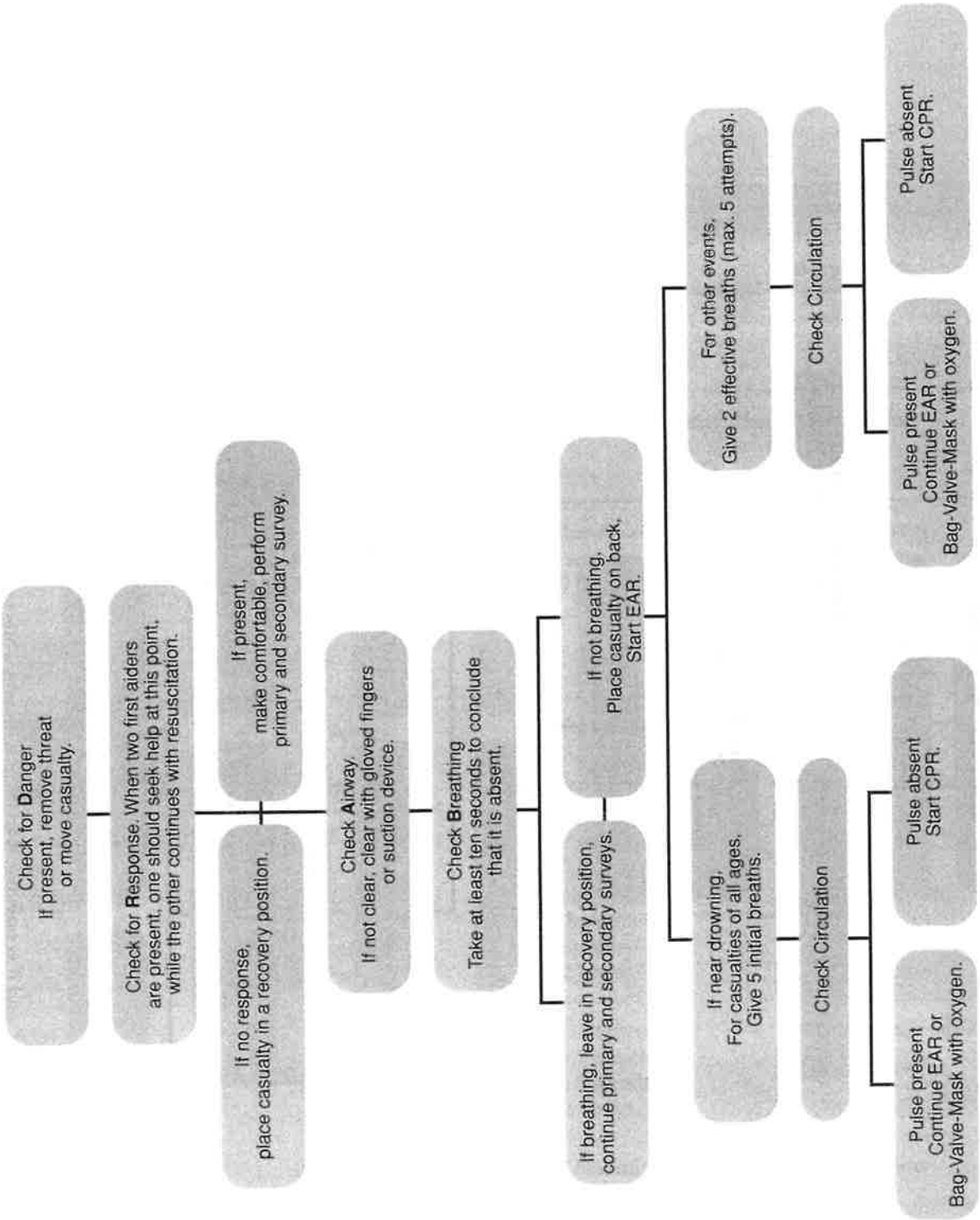
BLS Resuscitation algorithms for a collapsed/unconscious patient

Single operator



* If the casualty is an infant or child, and it is possible, take them with you while you seek help and continue resuscitation.

Two Operators



1.1 Perform effective resuscitation for an infant

PRACTICAL SKILL

Practical incident (non drowning)

You are called to an unconscious infant. When you arrive at the scene the mother is attempting CPR. You have non-sterile gloves. Manage the casualty as you would normally.

	Checklist	Needs Improvement Date	Proficient Date
Dangers	(No) you, others, infant.		
Response	(No) do not shake an infant: - place infant onto side in head down position ***Note: The most suitable recovery position is normally lying face down on an adult's forearm with the head supported by the hand.*** - send for help—use radio, use bystander		
Airway	(Vomitus): - digital clearance of mouth - wipe nose clear of mucous - tilt head back very slightly, providing there is no neck injury, to achieve an open airway - lift chin to bring tongue away from back of throat—avoid pressure on soft tissue under infant's chin		
Breathing	(Nil/Agonal gasps): - roll infant onto back—support (cradle) infant in arms - neutral head position - place your widely open mouth over the infant's mouth and nose - 2 effective breaths—gentle puffs of air from your cheeks, at 1.5-2 seconds each (maximum of 5 attempts) - watch rise/fall of chest		
Circulation	(Yes):		

Checklist	Needs Improvement Date	Proficient Date
Commence EAR: - 1 breath (gentle puffs) every 3 seconds (20 breaths/min) - good seal - watch rise/fall of chest		
Revival check at approx 1 minute: - breathing (Nil) - circulation (Nil)		
Commence 1 person CPR at ratio 5:1: - good seal - watch rise/fall of chest - use two fingers (index and middle) - lower half of sternum - compress chest approx. 1/3 depth of chest - 5 chest compressions - rate—12 cycles/minute		
Second member arrives: - check that an ambulance has been called—if not, call - ensure the infant is kept warm - provide support to mother		
Casualty vomits: - place infant onto side in head down position (*refer to Response*) - digital clearance of mouth - wipe nose clear of mucous - return infant onto back - continue CPR ratio of 5:1		
Ambulance: - hand over infant to ambulance crew		
Mother: - if possible, obtain history and complete OB12 Casualty Report form		
General: - calls for help at appropriate times - ambulance must be called immediately to ensure early intervention of advanced life support skills - use of Standard Precautions		

Review questions—activity

2. In determining which resuscitation technique to use on the casualty the first aider must assess the age of the infant/child. State the division of ages for:
   - infant
   - young child
   - older child
3. Where would you check the pulse on an infant?
4. Demonstrate the infant recovery position (*refer AFA, p. 50*)

Answer to questions

1. What additional strategies would you adopt if the casualty was a woman suffering a cardiac arrest and in an advanced stage of pregnancy?
   - position casualty on her back with shoulders flat to the ground
   - place padding under casualty's right buttock to tilt her pelvis to the left
   - if there is insufficient padding available a second person such as a bystander should be asked to hold the casualty's abdomen to the left side while CPR is being performed

Note: Tilting the person helps facilitate uterine circulation and venous return back to the heart. If the casualty's pelvis is not tilted to the left the pregnant uterus will compress major blood vessels impeding both arterial and venous circulation.

2. In determining which resuscitation technique to use on the casualty the first aider must assess the age of the infant/child. State the division of ages for:
   - infant — newborn – 1 year
   - young child — 1 – 8 years
   - older child — 9-14 years—for an older child the first aider adopts resuscitation techniques that are used for adult casualties
3. Where would you check the pulse on an infant?

The brachial pulse (inner aspect of upper arm) is used to check the pulse on an infant (*refer AFA, p. 53*).

1.2 Semi Automatic External Defibrillation (SAED) – Heartstart FR SAED operator (RESTRICTED TO MEMBERS TRAINED IN THIS SKILL)

PRACTICAL SKILL

	Checklist	Needs Improvement Date	Proficient Date
Dangers	(No) you, others, casualty.		
Response	(No): - recovery position - send bystander for help—use radio for ambulance		
Airway	(Vomitus): - digital clearance/suction, if available and trained to do so - insert oropharyngeal airway, if available and if trained		
Breathing	(Nil/Agonal gasps): - roll onto back - 2 effective breaths - good seal - watch rise/fall of chest		
Circulation	(No): - CPR to be commenced by second member of the team while SAED operator prepares equipment		
Operator:	- press the On/Off button to turn on the Heartstart FR - expose casualty's chest - remove any jewellery or medication patches - check for pace maker or internal defibrillator		

Checklist	Needs Improvement Date	Proficient Date
- ensure dry chest—wipe to remove moisture and clip excessive hair if the SAED voice prompt says 'check electrodes' after applying the first set of pads - use defibrillation pads before the expiration date - open pack containing defibrillation pads attached to cables and connector—retain packet - pull off protective backing from the defibrillation pads—do not use dried out defibrillation pads - place one defibrillation pad just below the casualty's right collarbone and press firmly—as indicated on back of package - place the other defibrillation pad over the ribs on the casualty's left side in line with the armpit, below the breast and press firmly—as indicated on back of pad - make sure defibrillator pads are completely adhered to the skin—if not, they may cause skin to burn or voice prompt will say check electrodes - direct to stop CPR - if oxygen is being used, direct that the oxygen mask be moved away from the casualty to safe distance - insert the defibrillation pads connector in the connector socket located by the flashing light on the defibrillator until you feel it clicks into place - ensure all transmitting devices—mobile phones and two way radios are at least 2 metres away from SAED - direct CPR rescuer and anyone else to stand clear and not touch the casualty while the SAED is analysing casualty ***Note: It is imperative to the casualty outcome that this skill is performed quickly and that time is not lost in the preparation process.*** If no shock advised—re-check carotid pulse: - if present continue EAR - if no pulse, perform CPR for one minute The Heartstart FR will continue to analyse the rhythm and will advise if any shocks are indicated. If shock advised: - voice and display prompts will indicate that a shock is advised and not to touch the casualty		

Checklist	Needs Improvement Date	Proficient Date
- Heartstart FR will then charge - operator calls to everyone 'stand clear' and checks that no one is touching the casualty - voice prompt directs you to deliver a shock - shock button will flash - press the shock button - screen prompt will tell you that the shock has been delivered - re-check carotid pulse - if present continue EAR—if breathing, place casualty on side - if no pulse, perform CPR for one minute The Heartstart FR will continue to analyse the rhythm and instruct you if additional shocks are indicated. Single member: - before CPR is commenced the Heartstart FR should be turned on and the pads connected to the casualty as a matter of priority *(refer to Operator outlined above)* - send for help or consider going to get help yourself if you are alone, but only if the casualty is in the recovery position and the airway is clear *(refer to above section on Resuscitation)*		

Agonal Respirations

The ILCOR Advisory Statements on Single-Rescuer Adult Basic Life Support use the phrase 'occasional gasp'. This is an accurate, lay description of agonal respirations. These are abnormal, ineffective, uncoordinated respiratory movements occurring for a while after cardiac arrest. 'Agonal respiration' is preferred to the term 'agonal breathing' as the latter may imply some effective breathing activity. Agonal respiration is common in the first minute after arrest and may persist for some minutes. The presence of agonal respiration may mislead an observer and delay the commencement of CPR. It is quite possible that no palpable pulse will be found in a casualty with agonal respiration.

Breathing is considered present, by ILCOR, if there is 'more than an occasional gasp'. The corollary arises when considering effectiveness of circulation. An 'occasional gasp' must not be thought to indicate vitality. CPR should be commenced.

1.3 Perform effective resuscitation for an adult

This skill may be demonstrated to meet the criteria relevant to the Declaration of Continued Fitness for Public First Aid Duties (*refer to back of SMP*).

PRACTICAL SKILL

You are called to an unconscious casualty. When you arrive, a member of the public is attempting CPR. You have a pocket mask and gloves. Manage the casualty as you normally would.

Checklist		Needs Improvement Date	Proficient Date
Dangers	(No) you, others, casualty		
Response	(No) - recovery position - send bystander for help—use radio for ambulance		
Airway	(Vomitus) - digital clearance/suction—if available and trained - insert oropharyngeal airway—if available and trained		
Breathing	(Nil/Agonal gasps) - roll onto back - 2 effective breaths - good seal - watch rise/fall of chest		
Circulation	(Yes)		
Commence EAR	- Rate: 1 breath/4 seconds - good seal - watch rise/fall of chest		
Revival check at approx. 1 minute	- breathing (Nil) - circulation (Nil)		
Commence 1 person CPR at ratio 15:2	- good seal - watch rise/fall of chest - 15 compressions - location—lower half of sternum - depth—4-5 cm - rate—4 cycles/minute		

Checklist	Needs Improvement Date	Proficient Date
Second member arrives with pocket mask - member being assessed to ventilate casualty - check that ambulance has been called—if not, call Commence 2 person CPR - ratio of 5:1 at 12-15 cycles/minute - good seal - watch rise/fall of chest Casualty vomits - turn casualty of side - digital clearance on side - return casualty to back - continue ratio of 5:1 Ambulance handover Relative arrives If possible, obtain history and complete OB 12 Casualty Report form. General - calls for help at appropriate times - the ambulance must be called immediately to ensure that early defibrillation and advanced life support can commence without delay - use of Standard Precautions		

References

Australian Bureau of Statistics 2000, *Australia Now – A Statistical Profile*. Health. Cardiovascular Health. Commonwealth of Australia.

St John Ambulance Australia 1998, *Australian First Aid*. Third Edition, reprinted annually, Chapter 2.

St John Ambulance Australia November, 1999, *Semi Automatic External Defibrillation (SAED) – Heartstart FR*.. Unit 208 Part B.

St John Ambulance Australia 2000, *Skills Maintenance Programme 2001*. Module 12, Semi-Automatic External Defibrillators.

Infection Control

OBJECTIVE

On successful completion of this module, the member will be able to:

2.1 Describe infection control;

2.2 Explain individual responsibilities in relation to infection control;

2.3 Define Standard and Additional Precautions;

2.4 Describe protective clothing/equipment;

2.5 Demonstrate a routine hand wash;

2.6 State a member's responsibility following exposure to blood, body fluids contaminated with blood or needle-stick/sharps injury; and

2.7 Prevent discrimination and reduce the stigma and isolation experienced by people affected by blood borne viruses.

PRACTICAL SKILL

To be demonstrated by the member:

2.1 Infection control

Introduction

Each member of the Operations Branch has a responsibility to continually improve the quality of care delivered to casualties.

A comprehensive and effective infection control strategy is based on the prevention of disease transmission between first aiders and casualties and other potential sources of infection.

The use of protective clothing/equipment by the first aider is necessary to help prevent transmission of infection.

What is infection control?

Definition

Infection Control can be defined as the use of strategies and procedures to prevent or minimise the spread of infection.

Spread of infection–three elements

1. Source of germs.
2. Susceptible host.
3. Means of transmission.

All people are potential sources and hosts for germs. Hosts may be people who are acutely ill, people who have no symptoms but who are in the incubation (or window) period of a disease (the time after infection has occurred but before symptoms appear), or people who are chronic carriers (have the organism but no symptoms). Other sources of germs are those found normally in and on the body and environmental sources, such as air, water, medications or medical equipment and devices that have become contaminated.

People have variable resistance to infection depending on their age, underlying disease, and other factors that may compromise their immune status, such as medical treatment. The risk of transmission of infection is higher for patients who stay in hospital for a long time and undergo invasive procedures. Indwelling devices, such as urethral catheters and intravenous cannulas can also increase the risk of infection, particularly when used over long periods.

Measures for infection control

The National Health and Medical Research Council (1996) recommends a two-tiered system of precautions based on the way a disease is transmitted. Two tiers are termed:

- Standard Precautions
- Additional Precautions

Standard Precautions are basic work practices that are essential to a comprehensive infection control program.

- personal hygiene practices that include careful washing and drying of hands before and after casualty contact
- use of protective barriers that may include gloves, eyewear, masks and plastic aprons
- suitable handling and disposal of 'sharps' and other infectious or contaminated waste
- use of aseptic/no touch techniques

Additional Precautions are used for patients known or suspected to be infected or colonised with epidemiologically important or highly transmissible pathogens that can cause infection.

Identifying and controlling risks

The Operations Branch member is frequently confronted with the need to prevent or minimise their exposure to blood and/or other body fluids. Risk control measures are:

- removing the risk
- modification of procedures, protocols and work practices
- applying principles of infection control for safe work practices
- monitoring Operations Branch members' compliance with infection control practices
- providing information/education and training to Operations Branch members
- correct use of protective clothing

Identifying who is at risk

Casualties may contract infection from:

- germs found normally on or in their body
- contact with other people
- using contaminated equipment
- using non aseptic technique prcedures
- the first aid environment

Casualties may transmit infection if they:

- have signs and symptoms or an infection
- are infectious but do not show any signs or symptoms that can be detected in a routine history and assessment

Responsibilities of members

Members of the Operations Branch have a responsibility to comply with safety standards and procedures of the St John organization and **to adopt safe work practices to minimise or prevent diseases transmitted through broken skin or mucous membrane as the result of infected blood or body fluids**. Infections possibly transmitted through broken skin or mucous membrane include blood-borne infectious agents, such as HIV/AIDS, Hepatitis B and Hepatitis C.

Body fluids potentially acting as a vehicle for transmission are:

- blood
- sputum
- vomit
- faeces
- urine
- airway secretions

The member must use protective clothing and work practices to minimise exposure to blood and body fluids.

In respect to casualties there is no requirement for them to declare their infectious status to members of the Operations Branch.

Confidentiality is always important.

Use of Protective Equipment

Personal protective equipment provides a barrier between the first aider and the casualty and includes:

- gloves
- eyewear
- masks
- plastic aprons

Their use is not intended to replace the need for safe methods of practice or the need for routine measures such as hand washing. The wearing of personal protective equipment should be used in accordance with the level of exposure anticipated.

In many situations the chances of being exposed to blood and bodily fluids can be judged in advance. In these instances the appropriate protective equipment should be put on prior to the performance of the procedure or task.

Gloves

Gloves provide a barrier for the wearer from possible exposure to germs and may protect the casualty from organisms on the hands of the member.

Gloves should be worn when there:

- is likely contact with blood, non-intact skin, wounds or mucous membranes
- is an aseptic procedure to be undertaken—if sterile gloves not available, ensure the technique used is no touch or minimum touch
- are emergency resuscitation procedures
- are casualty suctioning procedures
- is disposal of blood or body fluids
- is general purpose cleaning to be undertaken

Members should wash their hands prior to putting gloves on and after gloves are removed. Gloves that have been used for casualty management must be removed before handling pens, notepaper or other resources.

Sensitivity

Gloves are made of a variety of materials. The most commonly used is latex (natural rubber latex or NRL). Some people react to latex. The reactions vary from a minor skin change to a life threatening anaphylactic reaction and members should be aware of these possibilities. Nitrile gloves are an alternative (*Technical Advisory Committee, 1995*).

Hand care

Healthy, intact skin will resist the invasion by infectious agents, even if the hands become contaminated with blood or body fluids. Moisturising creams should be used regularly, at breaks and on completion of a duty, to avoid dryness and cracking.

Members who have any skin problem, such as ulcers or moist weeping areas, which may be a risk should seek medical advice to discuss changes in their role within the organisation until the condition resolves.

Prior to the commencement of daily activities, members should ensure any cuts or abrasions on their own hands are covered by an occlusive dressing—Opsite or Tegaderm (*South Australian Health Commission, 1992*).

Face protection

Protective eyewear and mask are to be worn to protect face and mucous membranes from contamination with blood splash or spray. Face protection should be worn in those situations where there is a likelihood of splash or spray e.g. facial injuries, using suction devices and emptying vessels containing blood or body fluids (*South Australian health Commission, 1992*).

Eyewear

The Personal and Divisional First Aid Kit lists promulgated on 24 August 1998 refer to protective eyewear 'of approved type'.

Operations Branch members will use face and eye protection when indicated. (Refer Infection Control Guidelines Sections 3.6–3.9)

In principle there will be three situations:

1 A member wishes to purchase, at own expense, safety spectacles for personal use—these safety spectacles must meet AS 1337 (Australian Standard). They may have lenses which are clear or lightly tinted, with a matt black frame. They may be worn while on duty or carried in a suitable pouch. Generally they will
not fit over prescription spectacles.

2. A member uses safety spectacles provided—these will meet AS 1337. They will generally fit over prescription lenses. While considered disposable, they can be appropriately cleaned and re-used. If optically or physically damaged they should be discarded.

3. A member will use a face shield of approved type Australian Standard 1337 is relevant to particularly the subject of impact. It also provides for the situation of splash with hot metal etc. and biological fluids.

In a situation confined solely to potential splash from biological fluids, there is no relevant Australian Standard. Never the less, it is expected that appropriate protective gear will be provided and worn.

At State level, a professional officer will evaluate the anticipated tasks and the type of exposure expected and select appropriate gear e.g. chin length face shield

Masks

- must be worn and fitted according to the manufacturer's instruction
- must not be touched by hand while being worn
- must be removed after 20 minutes of continuous exposure to aerosols or as soon as practicable after the mask becomes moist or visibly soiled
- must be removed by touching the strings and loops only
- must be removed and discarded as soon as practicable after use

Plastic aprons

These are worn to protect the wearer's clothing and skin when the risk of contamination is high from blood and body substances. High-risk situations include major haemorrhages, burns, incontinence and the disposal of vessels containing blood and body substances.

If the member's uniform becomes contaminated with blood or body substances it should be removed as soon as practicable and laundered separately at the earliest opportunity. If the skin of the member has been contaminated with blood or body substances the area involved should be washed with soap and water.

Management of exposure to body fluids

If a member is exposed to blood, body substances or has a needle-stick injury, they should adopt the following protocol:

1. Safety—needle, body fluid or blood considered to be the infecting agent should be safely contained.
2. First Aid—appropriate measures should be implemented, e.g. washing of skin with soap and water.
3. Reporting—report the incident to the Officer-in-Charge.
4. Evaluation and risk management—**the member must be examined and risk assessed by a medical officer or trained health care worker.**
5. Documentation—the member must document the incident.

Group activity

1. Identify policies and procedures held in your division that relate to infection control
2. Review individual first aid kits for:
   - cleanliness
   - emergency hand wash resources
   - protective eyewear
   - disposable gloves
   - sharps container (*Standards Australia AS 4031–1992*)
3. Review divisional first aid unit for:
   - cleanliness
   - hand wash and drying facilities
   - sharps container (*Standards Australia AS 4031–1992*)
   - written policy for the disposal of waste—general and contaminated
   - written policy for the management of blood and body substance spills
   - spills kit

2.1 Infection control

PRACTICAL SKILL

The member demonstrates a routine hand wash.

Checklist	Needs Improvement Date	Proficient Date
All skin surfaces are accessible; rings and watches are removed.		
Nails are clean, short and unvarnished.		
Hands are wet thoroughly.		
A neutral pH soap or skin cleanser is used: - hands are lathered and vigorously rubbed together for at least fifteen seconds paying attention to all areas of both hands, particularly the finger tips, area between fingers, thumbs and wrists		
Rinses hands under a moderate stream of water.		
Hands are dried thoroughly (patting) with a paper towel or disposable cloth: - if a cloth towel is used, a fresh towel should be used each time - if a roller towel is used, a fresh portion of the towel should be used		
If elbow operated taps are not being used, the member whilst holding the towel, uses it to turn off the tap (*South Australian Health Commission, 1992*).		

Discrimination and notifiable communicable diseases

Discrimination means treating someone unfairly because they happen to belong to a particular group of people. Prejudices may exist against groups of people who are 'different'. These feelings can easily lead to discrimination against these groups (*Lawlink NSW 2000*).

Exercise

Name 5 (five) notifiable communicable diseases.

Discuss anti-discrimination legislation and disability.

How do I know if the person I am treating has hepatitis?

How can I stop myself from discriminating against these people? (knowledge).

Evaluation

Role Play

Scenarios

1. A casualty presents with bleeding and informs you they have Hepatitis C.
2. You've heard your co-worker has Hepatitis C.
3. From history taking, you suspect that a casualty has hepatitis.

Critical elements:

- Standard Precautions implemented
- appropriate management provided
- no discriminatory behaviour demonstrated

References

Communicable Diseases Network Australia and New Zealand, 22 July 2000, *Infection Control in the Health Care Setting. Guidelines for the prevention of transmission of infectious diseases.* Draft for Public Consultation.

Lorimer, P.W. and Bridgewater, F.H.G. 1996, *Infection Control Guidelines*, St John Ambulance Australia SA Inc.

National Health and Medical Research Council, Australian National Council on Aids 1996, *Infection Control in the Health Care Setting. Guidelines for the prevention of transmission of infectious diseases*, Canberra, A.G.P.S.

South Australian Health Commission 1992, *Guidelines for Infection Control in Health Care Establishments*, Adelaide, South Australian Health Commission.

St John Ambulance Australia 1998, *Australian First Aid*, reprinted annually.

Hepatitis C Council of NSW, 2000. *New South Wales hepatitis C strategy 2000-2003*. NSW Health Department.

Lawlink NSW. 2000 *Infectious diseases discrimination: your rights*. NSW Law Society.

Abdominal Emergencies

OBJECTIVE

On successful completion of this module, the member will be able to:

3.1 Describe the components of the gastrointestinal system;

3.2 Describe the process of digestion within the gastrointestinal system;

3.3 Demonstrate an abdominal examination;

3.4 State the signs and symptoms of a casualty suffering an abdominal injury; and

3.5 Demonstrate the management of a casualty suffering an abdominal injury.

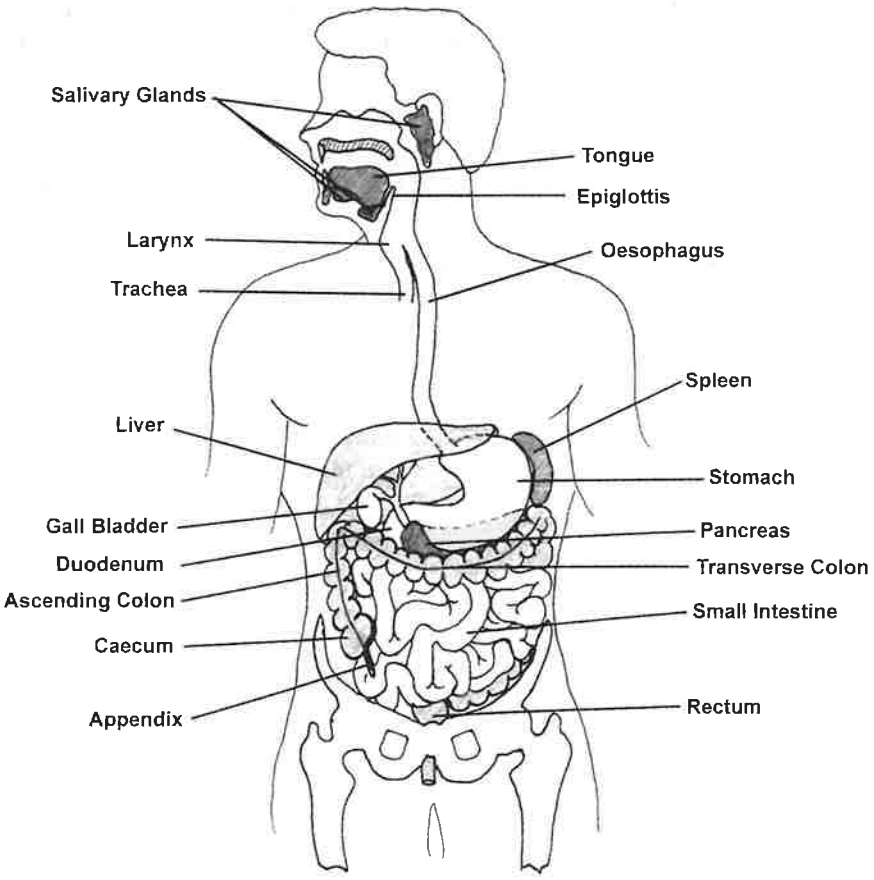
PRACTICAL SKILL

To be demonstrated by the member:

3.1 Manage an open wound to the abdomen.

Introduction

The gastrointestinal (GI) system is a complex system of organs that break down ingested food into simple nutrients, suitable for absorption into the body. These nutrients provide the energy to keep all cells in the body functioning, make new tissue and repair damaged tissue. The GI system, in association with the urinary system, removes waste products created by the body.



Structure of the gastrointestinal system

The main component of the gastrointestinal system is the **alimentary tract**, which is essentially a long hollow tube linking the mouth with the anus. The alimentary tract is made up of the mouth, pharynx, oesophagus, stomach, duodenum, small intestine, large intestine and rectum. The GI system also includes the salivary glands, pancreas, liver and gall bladder, which secrete digestive juices into the alimentary tract.

Process of digestion

The food that we eat contains three main elements—carbohydrates, protein and fat. Each of these complex elements require mechanical and chemical digestion to their respective components before absorption into the body can occur. Complex carbohydrates, such as starch, are digested into simple sugars, mainly glucose, while proteins are digested into amino acids, and fats are broken down to fatty acids, triglycerides and cholesterol. Once absorbed through the intestinal wall, these nutrients are conveyed to the liver, where they are repackaged and then stored or distributed to the rest of the body.

Digestion begins in the **mouth**, where chewing helps to grind solid food into a semi-solid state, and to mix the food with saliva from the salivary glands. Enzymes within the saliva also begin to break down the complex carbohydrates. When the food is ready to be swallowed, it is voluntarily pushed to the back of the mouth. Involuntary muscle contractions propel the portion of food or drink into the oesophagus, **while protecting the entrance to the larynx and thus preventing food from entering the airway to the lungs.**

Food is rapidly moved down the **oesophagus** towards the stomach by progressive waves of muscular contraction, known as peristalsis. No further digestion takes place before reaching the stomach. At the lower end of the oesophagus is a ring of muscle that is usually tightly contracted, and prevents regurgitation of the stomach contents into the oesophagus. Inappropriate relaxation of this muscle is often the cause of 'heartburn'. As the food approaches, the ring of muscle automatically relaxes and the food is admitted to the stomach.

Within the **stomach**, the food is mixed with gastric juices, which contain large amounts of acid, and enzymes that begin the breakdown of proteins. The stomach is a stretchy, muscular organ that can hold up to 1.5 litres of food and gastric juices. It continuously churns up the food to form a semi-fluid mixture, called chyme. The stomach contents empty slowly into the small intestine, controlled by the pyloric sphincter, the muscle around the outlet of the stomach.

The **duodenum** is a C-shaped tube, approximately 25cm in length, and is the first component of the small intestine. Within the duodenum, digestive juices from the pancreas and liver are added to the acidic chyme from the stomach.

The **pancreas** produces large amounts of pancreatic juices, which contain enzymes for the digestion of carbohydrates, fats and protein. Pancreatic fluid is also very alkaline, in order to neutralize the acidic components of the chyme. Significantly, the pancreas is also responsible for producing hormones such as insulin and glucagon, which are secreted directly into the bloodstream, and control blood sugar levels.

Just before emptying into the duodenum, pancreatic fluid is mixed with bile, from the gall bladder. Bile is initially produced in the liver, and contains detergent breaking down fats. Between meals bile is stored in the gall bladder where it is concentrated up to 10-fold. The presence of food in the duodenum causes the **gall bladder** to contract and empty its contents into the duodenum.

Once mixed with pancreatic fluid and bile, the chyme passes from the duodenum through the jejunum and ileum, which constitute the remainder of the **small intestine**. Taken together, the small intestine is 5-7 metres long, and is the location for most of the chemical digestion of food, and almost all of the absorption of nutrients. In the small intestine, short-chain sugars are broken down into simple sugar, mainly glucose, and absorbed through the intestinal wall. Simultaneously, proteins are broken down to short chains of amino acids, known as peptides, which are absorbed into the intestinal wall, and then broken down to individual amino acids. Large globules of insoluble fat are mixed with bile salts to form tiny balls (micelles) that can be absorbed directly into the lymphatic system of the gut. Along with the absorption of nutrients, large amounts of salt and water are also absorbed throughout the small intestine.

The remainder of the chyme is passed from the small intestine into the **large intestine**. The first segment of the large colon, the caecum, receives the chyme remnants and begins the process of extracting more salt and water. Opening onto the caecum is a short, blind and functionless tube called the appendix. The **appendix** is a remnant of the GI system and is only significant if it becomes inflamed, a serious condition known as appendicitis.

The large intestine is 1.5-2 metres long, and is comprised of the caecum, ascending colon, transverse colon, descending colon and sigmoid colon. Within the large intestine, 5-7 litres of fluid can be absorbed from the chyme each day, mainly in the ascending and transverse colon. Only 1–2 litres of fluid is drunk per day, so the rest of the fluid is secreted into the alimentary canal to aid digestion. Several vitamins are also absorbed within the large intestine. Food is reduced to a solid form, called faeces, and is passed through the sigmoid colon, into the **rectum**. Here, faeces are stored before defecation through the anus. The entire process takes an average of 24 hours, although this is highly variable, and can be very short in diseases causing diarrhoea, which in turn can cause rapid dehydration.

Review questions

1. Describe the passage of food through the body from ingestion to expulsion. How long does it take?
2. What are the three main constituents of food. What are their respective building blocks?
3. What is the function of the stomach?
4. What is the function of the small intestine?
5. What is the function of the large intestine?
6. What are the two functions of the pancreas?
7. Where is bile produced? Where is it stored?

The management of abdominal emergencies

Non-traumatic Abdominal Emergencies

The alimentary tract is a very long tube with many parts. Any part of the tube can block, twist, burst or become inflamed.

Thus the casualty with severe abdominal pain can have any one of a hundred conditions and it can be very hard to diagnose the problem without sophisticated xrays and blood tests. In the past, often the only way to find out what was actually wrong, was to operate.

Severe abdominal pain with collapse and shock can be due to other abdominal conditions.

Consider:

- ruptured ectopic pregnancy—lower abdominal pain with fainting or collapse in a woman under 45
- ruptured adominal aorta—a 'tearing' abdominal or back pain, with shock, usually in an older person with high blood pressure or heart disease
- kidney stones—very severe colicky, flank pain, at any age

Traumatic abdominal emergencies

There are a number of organs in the abdomen, which because of their anatomical structure and position, are easily injured and include the spleen, liver and stomach. If one of these organs is injured, the condition may be life threatening because of profuse bleeding.

Injury to the abdomen may be open or closed. Open abdominal injuries may result in abdominal organs such as the bowel protruding through a wound. Closed abdominal wounds such as ruptured spleen or liver result in concealed bleeding and shock. Both conditions are life threatening and require urgent medical intervention.

Signs and symptoms:

- severe pain
- external bleeding
- bruising and tenderness around the wound
- nausea and/or vomiting
- un-natural paleness
- blood in the urine
- protrusion of intestines through the abdominal wound
- shock

DRABC Action Plan

We start with **DRABC** as always, although the **DRAB** is usually under control and quite stable in most of these cases. The 'C' may be a problem. Thus the taking and recording of an accurate pulse and repeated observation at the start is important, and provides a simple history for the team taking over care of the casualty. Once it is clear that the casualty is stable and urgent help has been arranged if needed, a more thorough history should be taken. There are many important questions relating to abdominal pain, but one of the most important is 'how did this pain start?' The **AMPLE** method of history taking is also very useful in these cases:

A **Allergies**

M **Medications** currently used

P **Past** illnesses/**Pregnancy**

L **Last** meal

E **Events/Environment**

Abdominal examination should be done as gently as possible to avoid causing pain. It is also important to remember the observations outside of the abdomen:

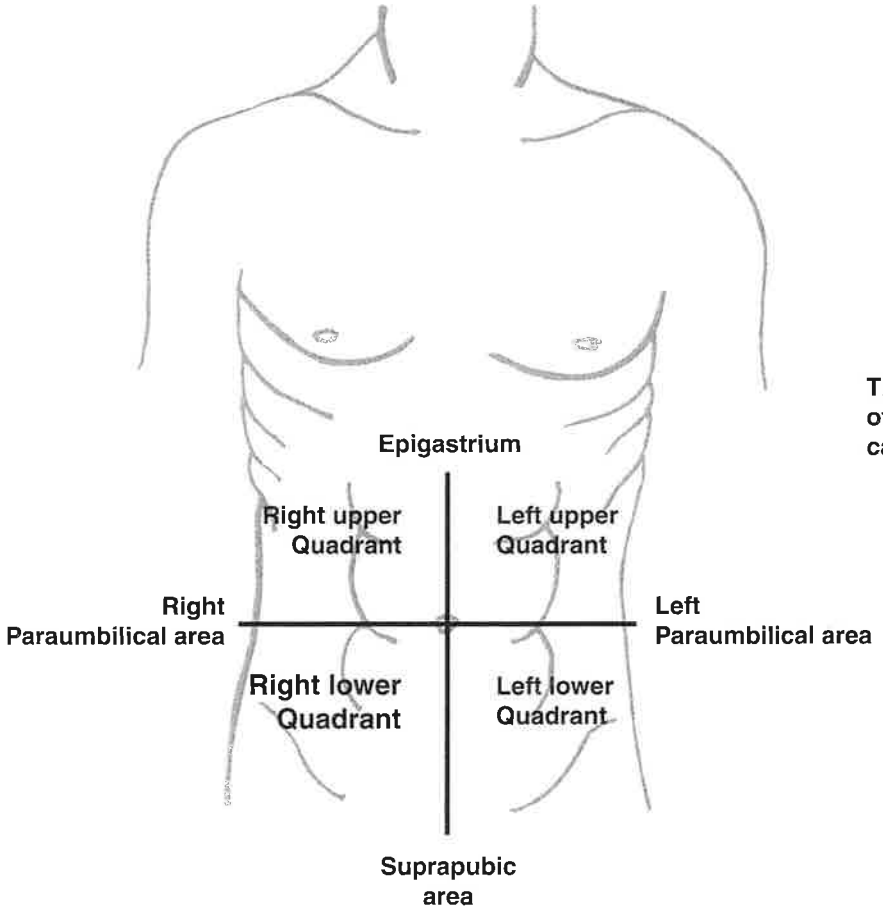
- take the pulse regularly and record it
- record skin temperature, colour and other signs of shock
- check vomitus—volume, colour, contents, timing

Examination of the abdomen should follow the order of inspection and palpation. Inspection of the whole abdomen should be performed if possible, but this is often difficult in the field. Exposure to the elements or public gaze limit this, as do cultural considerations and the ever present possibility of the perception of sexual impropriety. Thus the **casualty's consent** should be obtained for this examination—as with all examination and treatment. Do not continue unless the casualty consents. Also, it is better to undertake the examination with another St John member of the same sex as the casualty in the room as a witness if possible. Inspect the abdomen for:

- general shape—is it distended
- scars of previous surgery
- bruising, bleeding or wounds

After inspection, the palpation should be light and starting at the opposite point of the abdomen from the point of maximum pain. The examining hand should be flat on the abdomen. If there is no tenderness the abdomen is palpated more deeply in the same order. If there is a tender area, its extent is mapped out by gentle palpation and then recorded. The best way to record this is crosshatching on the diagram in the OB12 Casualty Report form. If a diagram is not available, draw one yourself. The diagram below shows the convention used in many hospitals and the conventional names for the site of pain and tenderness.

If the whole abdomen is rock hard, send for urgent medical aid. Never check for 'rebound tenderness' by pushing your hand in deeply and removing it suddenly.



The lateral (back) aspects of the abdomen is often called the flanks

Management

The casualty should be maintained in whichever position is most comfortable, although lying is usually best. Many prefer the head and shoulders slightly raised and the knees slightly flexed all of which can be done using pillows or rolled towels. This position often relaxes the abdominal wall and helps to relieve pain:

- watch for shock and manage as soon as possible
- if the casualty is shocked, give oxygen therapy if qualified to do so
- organise transport to hospital by a suitable method
- give Entonox if available and you are qualified to do so
- note any drug, dose and time on the Casualty Report form (OB12)
- give nothing by mouth—solid or liquid (casualty may rinse the mouth and spit the water out)

- manage any wounds on their merits, but do not replace abdominal organs or remove embedded objects
- if there are visible or protruding abdominal organs cover with damp sterile dressing, aluminium foil or plastic food wrap
- reassure casualty and record all observations on the Casualty Report form (OB12)

The three DO NOTs:

- DO NOT give anything to drink
- DO NOT try to push the organs back into the abdomen
- DO NOT apply direct pressure to the wound

Exercise 1

Divide into 2 equal groups. Each group should brainstorm the answers to questions following the two scenarios below.

Group 1 to present answers to scenario (1) question.

Group 2 to evaluate their answers.

and

Group 2 to present answers to scenario (2) question.

Group 1 to evaluate their answers.

Scenario 1

A 60 yr old man presents with sudden onset of left sided abdominal pain. He is pale, sweaty and restless.

What would you do after obtaining this information?	
What questions would you ask him?	
What would you examine and why?	

Scenario 2

A 20 year old woman presents with sudden onset of lower abdominal pain. She is pale, sweaty and lying still.

What would you do after obtaining this information?	
What questions would you ask her?	
What would you examine and why?	

Exercise 2

Split group into pairs.

Demonstrate general abdominal examination on your partner for this exercise. Your partner will be evaluating the thoroughness and gentleness of the examination. Then swap and have your partner examine you.

Please note: Use of Standard Precautions.

3.1 Manage an open wound to the abdomen

PRACTICAL SKILL

You are called to an incident where a casualty has been assaulted and stabbed in the abdomen with a knife.

Checklist	Needs Improvement Date	Proficient Date
Primary Assessment **Danger** On approaching the casualty, observe the scene for dangers: - to yourself (e.g. the knife) - to others - to the casualty (seek early police assistance if necessary)		

Checklist	Needs Improvement Date	Proficient Date
Response (Yes) - speak to the casualty - 'lie/stay still—don't move' (casualty to be kept in the most comfortable position) - 'I am a first aider and I can help you' - 'my name is …' - 'what is your name?' - clues for possible injuries		
Airway (Yes) - Visibly check airway (mouth) - Maintain a clear and open airway		
Breathing (Yes) - ask the casualty what happened 'Tell me what happened' - place the casualty in a position that eases their breathing—on back with head and shoulders slightly raised and a rolled blanket placed under the knees (if wound is vertical—along body do not raise knees) - alternatively, place the casualty in the recovery position if the casualty becomes unconscious - administer oxygen therapy via a face mask at 8 litres per minute—if qualified		
Circulation (Yes) - check for, and control haemorrhage - cover protruding organs with aluminium foil, plastic food wrap or a large non-stick sterile dressing soaked in sterile saline—clean water if saline not available - secure with a broad bandage—not tightly - manage shock		
Secondary Assessment Full examination of casualty (consent). - reassure the casualty - loosen tight clothing - obtain a history of events from the casualty:		

Checklist	Needs Improvement Date	Proficient Date
A Allergies **M Medications** currently used **P Past** illnesses/**Pregnancy** **L Last meal** **E Events/Environment** - check casualty for a Medic Alert Bracelet - exclude other injuries—look, listen and feel - check for wounds, fractures, etc. from head to toe - manage injuries - refer casualty urgently to medical aid - check: • pulse • respiration, rate, depth and effort • blood pressure; and • skin colour - check level of consciousness: **A Alert** **V** responds to **Vocal** stimuli **P** responds only to **Painful** stimuli **U Unresponsive** to all stimuli. - check pupil response and size - recheck pulse, respiration and blood pressure, level of consciousness, pupils and abdominal wound every 15 minutes		

General

Complete Casualty Report form (OB12).

Use of Standard Precautions.

Reassurance and support relatives and/or friends.

Ambulance handover.

References:

St John Ambulance Australia 1998, *Australian First Aid*, reprinted annually. Chapter 7, p. 150-151 and Chapter 27, p. 444-445.

Guyton, *Textbook of Medical Physiology*, 8th edition.

Young, Cook, Conigrave and Murphy, *Gastrointestinal Physiology*.

Asthma and Respiratory Distress

OBJECTIVE

On successful completion of this module, the member will be able to:

4.1 State the causes of respiratory distress;

4.2 Demonstrate an understanding of asthma and its triggers;

4.3 Outline the signs and symptoms of respiratory distress;

4.4 Demonstrate some familiarity with the treatment methods and medications used by people who suffer from asthma;

4.5 Demonstrate the first aid management of a person presenting in respiratory distress using a salbutamol puffer with spacer; and

4.6 Demonstrate how to take a peak flow meter reading (RESTRICTED TO MEMBERS TRAINED IN THIS SKILL).

PRACTICAL SKILL

To be demonstrated by the member:

4.1 Management of a person with respiratory distress.

Review of the respiratory system

The lungs are large organs in the chest cavity comprising:

- left and right side
- 300 million tiny air sacs (alveoli) each 1/3 mm in diameter, providing 85 square metres of surface area
- an air volume capacity of 4-5 litres
- small air passages (bronchioles) joining to form medium and large size bronchi
- trachea that lies two thirds in the thorax and one third outside continuing above to the larynx, pharynx and, finally, mouth and nose

Gas exchange (oxygen taken in and carbon dioxide diffusing out) occurs at the surface of the alveolar-capillary membrane that is a fine membrane of one cell width.

Lung tissue consists of countless blood vessels, nerve fibres and lymph vessels. Muscle which is not under voluntary control, lines the walls of the small airways in the lungs. This muscle is responsible for adjusting the width of airways and has no role in inspiration or expiration.

The respiratory system comprises four major parts.

Brain and spinal cord:

- controlling 'computer and the wires'

Chest wall and diaphragm:

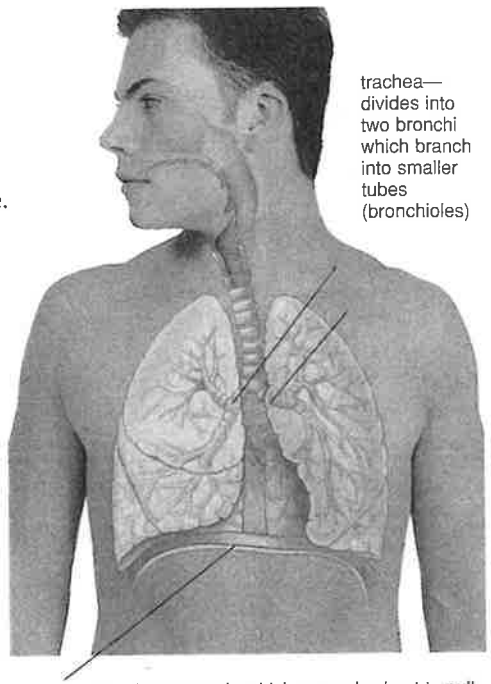
- components responsible for moving air in and out

Airways:

- beginning at the mouth/nose and gradually dividing and diminishing in size

Lung tissue:

- area at which the exchange of oxygen and carbon dioxide in the blood occurs



Respiratory compromise

Disease can affect any one of the main components described above.

Brain, nerves and spinal cord:

- trauma
- degenerative diseases

Chest wall:

- trauma

Airways:

- obstruction by foreign body
- obstructive airway disease—smokers
- blood
- swelling in the throat
- decreased conscious state
- asthma—in the small peripheral airways

Lung:

- pneumonia and similar diseases
- smoke inhalation, dust, damage from smoking

In most of these disease states, the body compensates for decreased respiratory function by:

- increasing respiratory effort—uses extra muscular effort (if possible)
- increasing respiratory rate and pulse rate

Asthma

Asthma is a very common disease in our community and for reasons we do not know, is becoming more common. Nationally over two million people have this chronic condition and the trend appears to be doubling every 15 years. Asthma affects 1 in 4 children, 1 in 7 adolescents and 1 in 10 adults. Asthma is the most common reason for childhood admission to hospital, and school and work absenteeism. Over 700 people die each year from asthma. Statistics indicate that 60% of those deaths are believed to be preventable through improved asthma management. Asthma may occur in an individual with or without a family history of asthma and allergy.

Despite much research, the cause of asthma is still unknown. We do know there is a strong tendency for asthma to run in families and that people with asthma have sensitive or 'twitchy' airways. This sensitivity of the airways is activated by triggers which cause the airways to narrow, become inflamed, and produce more and thicker mucus. A combination of these changes **reduces airspace** in the airways making **breathing difficult**.

Asthma can affect each person differently. Triggers can include allergies, infection and pharmacological, environmental and emotional factors. Exercise induced asthma can occur in 80% of people who suffer from asthma.

Air whistling through narrowed airways produces the characteristic wheeze of asthma. However, it should be noted that not all people who suffer from asthma wheeze. Other indicators that a person may have asthma are:

History:

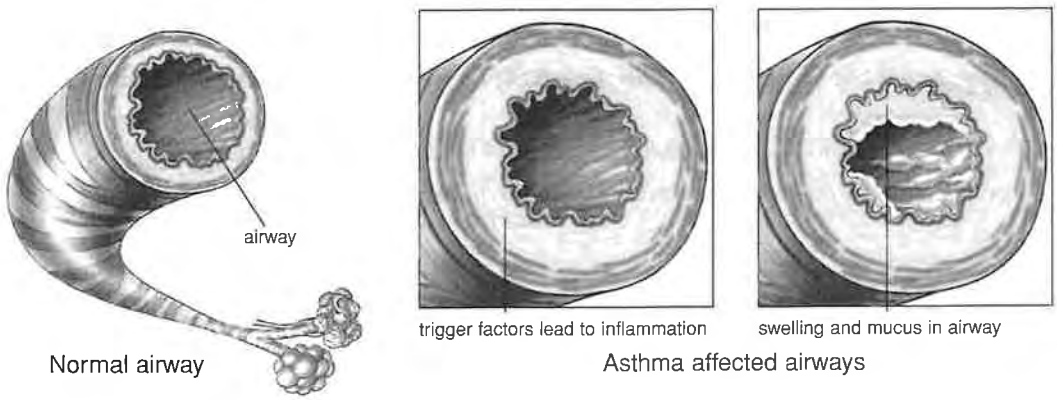
- previous asthma attacks
- any known triggers
- previous hospital admissions—especially if to an intensive care unit (ICU)

Symptoms:

- shortness of breath
- cough
- tight feeling in chest
- fear and anxiety

Signs:

- difficulty speaking
- audible wheeze
- increased respiratory effort
- increased respiratory rate and pulse rate
- in very severe asthma: cyanosis (blue tinge to lips and tongue) decreased conscious state, and minimal air movement



Normal airway

Asthma affected airways

Most people who present with asthma will know they have asthma and have a management plan instituted by their local doctor. It usually involves using preventers—drugs used to help prevent attacks, relievers—drugs used to help once an attack has begun, or symptom controllers—work like a reliever except have a longer duration of action.

Many of these medications are given by a puffer (a metered dose inhaler or MDI), a small pressure canister which releases the medication into the mouth when the plunger is pushed down. Sometimes this is used in conjunction with a spacer device (see Figures 4.1 and 4.2). Relievers, which are used in the attack, are coloured blue and include salbutamol (Ventolin, Asmol or Airomir) or terbutaline (Bricanyl).

Note: Only reliever medications should be used during an acute asthma attack!

Assessment of person suffering from asthma

A person's respiratory status can be assessed by considering the following features:

- position adopted
- appearance
- speech—ability and flow
- sounds of breath—wheeziness, cough
- respiratory rate and rhythm
- respiratory effort
- skin colour
- pulse
- conscious state

These features can be used as a guide to the severity of an asthma attack in an adult:

MILD	MODERATE	SEVERE
Should be reviewed by local doctor. • cough, soft wheeze • minor difficulty breathing • no difficulty in speaking in sentences • pulse rate <100 (Peak flow 60%–75%)	**Should be referred to hospital for assessment.** • persistent cough, loud wheeze • obvious difficulty breathing • pulse rate 100-120 able to speak in phrases (Peak flow 40%–60%)	**Should be referred to hospital for admission.** • very distressed and anxious • gasping for breath but wheeze may be quiet • unable to speak more than a few words in one breath • physically exhausted • pale and sweaty • pulse may be >120 • may have blue lips—cyanosis (Peak flow not done)

Management of person with asthma or respiratory distress

All casualties having a **SEVERE** attack will need **URGENT** medical assistance and an **AMBULANCE** should be called IMMEDIATELY.

Those suffering from a **MODERATE OR SEVERE** asthma attack will be lacking in oxygen (hypoxia) and will benefit from supplemental oxygen.

Only some people with asthma have appropriate medication with them.

Follow the St John Action Plan as in managing any person.

1. **D** Check for danger.
   R Determine the conscious state or response of the person.
   A Check, clear, and ensure airway is open.
   B Check breathing, and assess respiration—assist as needed.
   C Check the pulse and assess its rate, rhythm and strength.

2. Sit the person comfortably upright. Be calm and reassuring in your approach.
3. Record the respiratory status assessment. If the attack is assessed as **SEVERE**, call an ambulance immediately—telephone 000. If an oxygen driven nebuliser is available and you have been trained in its use, then this should be used in preference to a puffer.
4. Ensure adequate fresh air. In **MODERATE** or **SEVERE** cases where oxygen is available and you are trained in its administration, apply mask and deliver oxygen at 8 lpm (moderate) and 15 lpm (severe).
5. If State/Territory legislation permits and if available, assist with prompt administration of person's or supplied reliever medication by inhaler. Give 4 puffs initially *(see figure 4.2)*. A spacer should be used if available or if **using a salbutamol puffer provided by St John** *(see figure 4.1)*.
6. Re-assess after 4 minutes if:
   - the person's symptoms have settled, the person should be discharged **in accordance with their level of severity**
   - there has been no improvement repeat as above.
7. If there has been no or little improvement after 2 doses (8 puffs) and an ambulance has not yet been called, **with the casualty's permission**, call for an ambulance now.
8. While awaiting an ambulance:
   - if available and you have been trained in its use as per your State/Territory protocol, administer nebulised salbutamol

   or
   - give a further 4 puffs of reliever medication every 4 minutes.
     - **Children**: 4 puffs each time is a safe dose
     - **Adults**: up to 6-8 puffs every 5 minutes may be given for a severe attack.
9. If the person is, or becomes unconscious, follow the DRABC Action Plan and seek medical aid urgently.
10 Legislation varies between States/Territories. When permitted by legislation and if appropriately trained, an Operations Branch member may:
   - use a reliever obtained from an alternative legal source (another person or first aid kit).
   - if a person is exhibiting difficulty breathing and has not previously had an asthma attack, treat that person as if the condition was asthma.

Figure 4.1 With Spacer

1. Shake inhaler and insert mouthpiece into spacer.
2. Place spacer mouthpiece in person's mouth and fire 1 puff.
3. Ask the person to breathe in and out for 4 breaths.
4. Repeat in quick succession until 4 puffs have been given.

Figure 4.2 Without Spacer

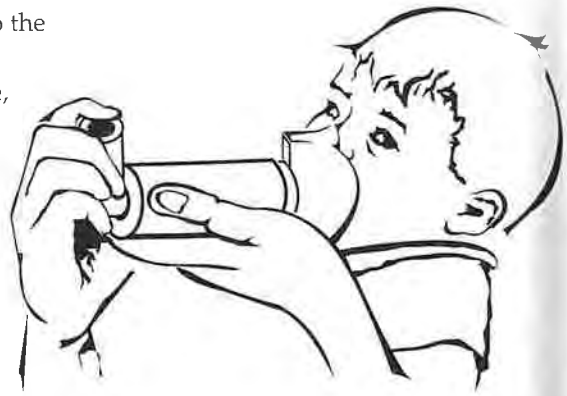
1. Shake inhaler.
2. Place mouthpiece in the person's mouth. Fire 1 puff as the person inhales slowly and steadily.
3. Ask the person to hold that breath for 4 seconds, then take 4 breaths.
4. Repeat until 4 puffs have been given.

The benefits of using a spacer

A spacer is a device which helps to deliver medication more effectively. It is a holding chamber. The type of spacer and technique to be used is dependent on the casualty's age, development, and understanding.

Using a spacer:

- assists in coordination when pressing the puffer and breathing in
- traps large particles inside the spacer, by stopping them going into the casualty's mouth
- allows for evaporation of the medication reducing the particle size, so that more medication reaches the lungs
- decreases unwanted side effects by reducing the amount of medication swallowed and the amount of propellant delivered to the casualty



Note: Eight (8) puffs of Salbutamol via spacer is equivalent to one (1) Nebule.

Children under 5 years may need to use a different spacer which has a mask attached if they are not able to use the adult spacer. It is recommended that St John supply both types for members to use at major events.

Cleaning a spacer

Because of electrostatic charge, leading to adherence of drug particles to the walls of the spacer, spacers should be washed in warm water with kitchen detergent and left to drain **(without rinsing)** and air dry before initial use, and at least monthly thereafter. **Do not use a cloth** to dry the spacer—this can produce more static electricity.

In an emergency

Wipe mouth piece of the spacer over with an alcohol swab. The likelihood of passing on an infection is minimal.

Peak Flows

Measurements of peak expiratory flow (PEF) are reduced in diseases causing airway obstruction. Peak flow monitoring is particularly useful for gauging response to treatment and identifying trigger factors in asthma.

*Peak flow meters are to be operated **only** by members who have been trained to use them and/or by Professional Officers.

Note: Peak flow measurements are not to be done if the asthma attack is severe or on children under 7 years.

Taking a peak flow meter reading: (RESTRICTED—see above *)

- peak flows can be taken standing or sitting—same position needs to be used every time
- insert cardboard mouthpiece—ensure marker is on zero
- ask the casualty to take a slow, deep breath in until the lungs are full
- place mouthpiece into casualty's mouth
- ask casualty to blow as hard as possible
- take note of number where marker reaches
- repeat peak flow
- record the higher of the two readings

Testing volume in a canister

Floating an inhaler canister in water has been used as a method of assessing the amount of medication left in an MDI (metered dose inhaler). Its accuracy is now doubted. Glaxo Wellcome does not recommend immersing aerosol canisters in water as water may enter the valve stem mechanism and the subsequent accuracy of metered-doses may be compromised. The humidity introduced may encourage colonisation of the valve system by bacteria.

It is recommended that the number of doses used, be recorded and kept by the first aider. Each inhaler has a minimum of 200 metered doses and each treatment would reduce this by 4 doses which equals 50 treatments per inhaler. It is also recommended that a spare inhaler be kept at all times.

4.1 Management of a person with respiratory distress

Scenario

A 38 year old man presents to you complaining of feeling tight in the chest for the past 20 minutes. He has a dry persistent cough and feels tired. He tells you he suffers from asthma but has left his reliever medication at home.

Equipment Required:

- reliever inhaler
- spacer
- oxygen and oxygen administration equipment.

If required for relevant level of training:

- salbutamol and nebuliser
- peak flow meter (**RESTRICTED**) *(see p. 46*)*

Checklist		Needs Improvement Date	Proficient Date
Primary Assessment			
Dangers	(No) you, others, casualty		
Response	(Yes) • speak to the casualty • casualty to be kept in the most comfortable position • 'I am a first aider' and 'I can help you' • 'my name is .....' • 'what is your name?' • clues for possible injuries		

Checklist	Needs Improvement Date	Proficient Date
Airway • visibly check airway—mouth • maintain a clear and open airway **Breathing** (No) *(see Module 1—Resuscitation)* (Yes) Assess respiratory status: • position adopted • appearance • speech—ability and flow • sounds of breath—wheeziness, cough • respiratory rate and rhythm • respiratory effort • skin colour • pulse • conscious state • peak flow measurement—if appropriate (**RESTRICTED**) *(see p. 46*)* Assist in giving 4 puffs using person's inhaler and spacer. Re-assess at 4 minutes. If no improvement, give another 4 puffs. Repeat peak flow measurement—if appropriate (**RESTRICTED**) *(see p. 46*)* If there has been no or little improvement after 2 doses (8 puffs), and an ambulance has not yet been called, **get the casualty's permission** and do so. While waiting for ambulance: • if available and you have been trained in its use as per your State/Territory protocol, administer nebulised salbutamol or, if nebulised salbutamol is not available, • administer 4 puffs of salbutamol every 4 minutes until ambulance arrives If symptoms improved and assessed as mild, direct casualty to local doctor. As appropriate: • administer nebulised salbutamol by protocol • administer oxygen at 8 lpm If the casualty becomes unconscious, place in the recovery position.		

Checklist	Needs Improvement Date	Proficient Date
Circulation (Yes) (No) *(see Module 1—Resuscitation)* **Secondary Assessment** • full assessment of casualty • reassure the casualty • loosen tight clothing • obtain a history of events from the casualty/relative/friend **A Allergies** **M Medications** currently used **P Past** illnesses/**Pregnancy** **L Last** meal **E Events/Environment** • check casualty for a Medic Alert bracelet • exclude other injuries—look, listen and feel • manage any injury • check: • pulse • respiration rate, depth and effort • blood pressure • skin colour • check level of consciousness: **A Alert** **V** responds to **Vocal** stimuli **P** responds only to **Painful** stimuli **U Unresponsive** to all stimuli • check pupil response and size **Recheck pulse, respirations, blood pressure, level of consciousness and pupils every 15 minutes.**		

General

Complete OB12 Casualty Report form.

Use Standard Precautions.

Reassure and obtain support of relatives and/or friends.

Handover to ambulance.

REFERENCES

National Asthma Campaign 12/2000, *First Aid for Asthma.*

St John Ambulance Australia 1999, *Skill Maintenance Program*, Module 7: Asthma and Respiratory Distress.

St John Ambulance Australia 1998, *Australian First Aid*, reprinted annually Ch. 10 and 19.

St John Ambulance Australia SA Inc, Asthma SA & Living Health 1999, *Asthma First Aid Management.*

Oxygen Therapy - Advanced Resuscitation

OBJECTIVE

On successful completion of this module, the member will be able to:

5.1 State when oxygen therapy is required;

5.2 State the equipment required to administer oxygen;

5.3 Demonstrate the use of oxygen equipment;

5.4 Demonstrate safety procedures when using oxygen;

5.5 Administer oxygen to a spontaneously breathing casualty;

5.6 Apply the following oxygen masks

- low concentration mask
- high concentration mask
- rigid facemask;

5.7 State when suction is required;

5.8 Demonstrate the effective use of suction devices; and

5.9 Insert an oropharyngeal airway;

PRACTICAL SKILL

To be demonstrated by the member:

5.1 Change/assemble/test 'C' size oxygen equipment;

5.2 Administer oxygen with standard face mask;

5.3 Use of Yankauer sucker;

5.4 Use of an oropharyngeal 'Y' suction catheter;

5.5 Insert an oropharyngeal airway; and

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

What is medical oxygen?

Oxygen is a naturally occurring gas. It is colourless, tasteless and odourless and is present in the atmosphere. The percentage of oxygen in atmospheric air is 21%.

Medical oxygen is stored under high pressure in steel or aluminium cylinders. In Australia, the cylinders are black in colour with a white collar around the top of the cylinder. On the collar of the cylinder is a label identifying the contents.

There are several different sizes of oxygen cylinders. In the field, two are mainly used: the 'C' and 'D' sizes. The 'C' size cylinder is the smallest, containing 480 litres, and the 'D' size contains 1500 litres of medical oxygen. The 'C' size cylinder is small enough to be portable and the 'D' size cylinder is often used in first aid centres and vehicles.

A regulator attached to the cylinder controls the pressure of oxygen from the cylinder. A flow meter fixed to the regulator controls the flow of oxygen from the cylinder to the casualty in litres per minute.

Indication for use

A person who is healthy can function on oxygen from the atmosphere. First aiders usually encounter casualties who are sick or injured. These casualties will benefit from the administration of oxygen.

Oxygen should be administered to any casualty who is suspected of being hypoxic (suffering from a lack of oxygen) for any reason. When oxygen is administered it is absorbed by the respiratory system. It is transported to body cells by haemoglobin in red blood cells. Its onset of action is extremely rapid.

Conditions for which a casualty may require oxygen include:

- unconsciousness for any reason
- shock
- head injuries and cerebro-vascular accident
- heart attack and heart conditions
- severe injury of any type
- hyperthermia
- hypothermia
- respiratory distress—shortness of breath
- poisoning
- gas or smoke inhalation
- chest injury or condition
- eye injuries—deterioration can occur quickly without oxygen
- abdominal injuries
- seizures
- fractures
- haemorrhage
- all other injuries, as it helps reduce the extent of tissue injury as a result of insufficient oxygen

Note: Casualties with Chronic Obstructive Airways Disease may suffer some respiratory depression from the administration of oxygen. Oxygen should not be withheld from these casualties but they should be monitored continuously.

Precautions

- smoking is prohibited where oxygen is stored or in use. Although oxygen is not explosive, it will fuel a fire
- when cylinders are standing, they should be secured. If a cylinder falls and is ruptured or has the stem fractured, the cylinder may explode and become a projectile, potentially causing injury or death
- cylinders must be restrained during transport
- combustible material should not be stored with oxygen
- no oil or grease is to come into contact with any oxygen cylinder or fittings
- only approved oxygen regulators and flow meters are to be used
- cylinders should be turned off when not in use and the flow meter turned on to release any oxygen from the regulator
- always position yourself to the side of oxygen cylinders and fittings—loose fittings can rupture causing injury
- cylinders should not be emptied completely; the regulator should indicate a positive pressure remaining in them
- there should always be enough oxygen remaining in a cylinder to treat a casualty in an emergency.

Changing an oxygen cylinder

- turn off the used cylinder and turn on the flow meter, allowing the oxygen in the regulator to be released
- place the cylinder in the upright position and remove the gauge from the cylinder
- ensure that the empty cylinder is marked with the letters MT, secured and stored appropriately
- check the stem of the cylinder and safety-tag OK
- remove the plastic seal from the full cylinder
- briefly open or crack the cylinder with the oxygen key wheel or spanner—this allows any dirt or other matter to be expelled from the cylinder outlet. Advise people in the vicinity what you are going to do, as there is a loud noise when the cylinder is temporarily opened then closed
- inspect the regulator for damage—with 'C' size cylinders, inspect the O-ring (Bodok seal), for damage to the rubber. The O-ring (Bodok seal) is fitted to the gauge and creates a seal between the oxygen regulator and the oxygen cylinder
- ensure the flow meter is attached securely to the regulator
- turn on the cylinder by turning the key wheel at least three turns
- check the contents of the cylinder—if adequate, the unit is ready for use, if not required, turn off the cylinder and release the oxygen in the regulator by turning on the flow meter—then turn off the flow meter.

Equipment checks

Before going on duty members should check oxygen equipment to ensure that:

- the oxygen cylinder has a regulator and flow meter
- an O-ring (Bodok seal) is fitted to the gauge
- there is enough oxygen in the cylinder to treat a casualty
- there is a sufficient number of disposable oxygen masks

If the equipment is a portable resuscitator, check that there are adequate consumables—airways, suction tubing, suction catheters, disposable suction bottle or liner, masks and oxygen tubing.

Note: Oxygen powered suction devices, if used, will rapidly reduce the amount of oxygen available. Avoid these devices wherever possible.

Types of oxygen masks

In the pre-hospital environment, there are two main types of oxygen masks used. These are the standard plastic disposable mask and the high concentration plastic disposable non-rebreathing mask. The standard mask can deliver up to 60% oxygen, depending on the oxygen flow rate. These masks require a flow rate of 8–15 litres per minute to work efficiently. Exhaled gas is vented through holes in each side of the mask.

The high concentration, non-rebreathing oxygen mask can deliver up to 90% oxygen, again depending on the oxygen flow rate and the condition of the casualty. Flow rates of 10–15 litres per minute are required to achieve the higher levels of oxygen delivery.

Note: All these masks are single use and disposable.

Administering oxygen to a casualty

- turn the cylinder on by turning the oxygen key wheel in an anti-clockwise direction
- turn on the flow meter to the desired level, expressed in litres/minute
- explain to the casualty what you are going to do—he/she may already be anxious
- fit the oxygen mask to the casualty's face and ask if it is comfortable

Removing oxygen from a casualty:

- explain to the casualty what you are going to do
- remove the mask from the casualty
- turn the flow meter off
- check the gauge to see how much oxygen is left in the cylinder
- turn the cylinder off by turning the oxygen key wheel in a clockwise direction
- turn the flow meter on to release the remaining oxygen and then turn it off again

Application of a disposable oxygen mask:

- explain to the casualty what you are going to do
- position the casualty in an appropriate position considering his/her condition
- select an appropriate size and type of mask, connect a length of oxygen tubing, if not already attached
- connect oxygen tubing to the flow meter. Turn the cylinder on, adjust flow meter to the desired flow rate, inflate the non-rebreathing bag if one is attached
- loosen the elastic strap and if the mask has a malleable nose clip ensure it is open
- hold the front of the mask in one hand and the elastic strap in the other
- while explaining to the casualty, place the mask over the mouth and nose—place the elastic strap behind the head but above the ears
- clamp nose clip and adjust the elastic strap if necessary—ensure a good seal around the mask
- ask the casualty if the mask is comfortable

Application of a rigid face mask:

- if appropriate, explain to the casualty what you are going to do—some conscious casualties may require intermittent positive pressure ventilation (IPPV)
- select the appropriate size mask and ensure the air cushion around the edge of the mask is inflated
- kneel at the top of the casualty's head, looking down at the casualty's chest
- place the mask over the casualty's mouth and nose
- hold the mask in place by placing your thumb on the area of the mask that would be covering the nose. Place your index finger on the mask where the mouth would be. Place your middle, ring and little finger under the lower jaw

Note: Too much pressure on the mask or under the jaw can cause soft tissue damage.

Warning: If a correct seal around the mask cannot be achieved and there are sufficient members present, this application can be a two-handed person procedure. Often a poor seal can be due to poor position or over pressing on the mask.

The use of suction

The casualty's airway must be kept clear at all times of foreign bodies that may cause obstruction to the airway. Obstruction to the airway may be caused by:

- vomitus
- food
- blood
- saliva

Foreign bodies that are allowed to remain in the airway may be forced or inhaled into the airway, to a point where they cannot be retrieved. They will eventually be lodged in the lungs. Foreign bodies that find their way to the lungs will cause unwanted and sometimes fatal infections. Suction is used to remove foreign bodies from the airway.

A suction unit consists of the suction power, a collection container or receptacle, suction tubing and a suction catheter. There are many types and they are either powered by electricity (battery or AC power), oxygen or manually operated.

There are several different types of suction devices: included are the Y suction catheter and the Yankauer sucker. The Y suction catheter, which varies in length and diameter, is a flexible plastic tube and is operated by placing a finger over an opening to create a seal of the mouth and nose. The Yankauer sucker is a solid plastic tube and is best used to clear the mouth. These devices are all disposable items.

When using suction do not exceed five seconds. Remember, while suction is being performed, the casualty is not being oxygenated. Suction units that are oxygen-powered will decrease the amount of oxygen available to the casualty.

It is essential to use Standard Precautions when using suction devices. Gloves and protective eyewear are used to protect the first aider from oral secretions or spray from the casualty's mouth. It may be necessary in some cases to remove large items from the casualty's mouth with your gloved fingers.

Oropharyngeal airway

An oropharyngeal airway is a device used to assist in establishing and maintaining an adequate airway. It may be used in conjunction with a mechanical resuscitator on an unconscious, breathing casualty when difficulty is experienced in maintaining an open airway. It should always be inserted with care.

Note: Only use on an unconscious casualty (it can irritate the back of the throat and cause vomiting, coughing and spasm of larynx). If casualty shows any sign of retching, remove airway device immediately.

5.1 Change/assemble/test 'C' size oxygen equipment

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
Remove gauges from used cylinder: - ensure cylinder is turned off and pressure is released from the gauge unscrew securing bolt on gauge yolk—turn anti-clockwise - remove gauges and place carefully in a secure position		
Identify and prepare a cylinder: - identify cylinder as a Medical Oxygen Cylinder - remove plastic neck seal - ensure that the oxygen outlet on the cylinder is pointed away from people - turn cylinder on and off again—cracking the cylinder (cleans any contaminates from outlet—dust)		
Apply regulator to new cylinder neck apply gauges to cylinder: - check Bodok seal (O-ring) in place		

Checklist	Needs Improvement Date	Proficient Date
- locate pins to correspond with appropriate holes in cylinder neck—depending on cylinder size - secure gauges by tightening securing bolt (finger tight) on gauge yolk—clockwise direction Checking content and flow: - open cylinder valve slowly and check for leaking oxygen - confirm cylinder volume from contents gaugeturn flow meter knob through range of oxygen flow settings to confirm flow meter is serviceable Restoring cylinder after use: - close main cylinder valve - release oxygen from flow meter - close flow control knob ***Note: All oxygen safety procedures to be observed at all times.***		

5.2 Administer oxygen with standard face mask

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
Prepare casualty: - use Standard Precautions - explain the procedure - place casualty in position of comfort - reassure the casualty Inflate the non-rebreathing bag if fitted: - select appropriate size oxygen mask - connect mask to tubing - connect tubing to oxygen nipple - position unit near to casualty		

Checklist	Needs Improvement Date	Proficient Date
Adjust oxygen: - open main cylinder supply valve adjust flow meter control until gauge registers appropriate flow rate—8–15 lpm Apply face mask to face of casualty: - eassure casualty - apply mask to cover casualty's mouth and nose - pass elastic strap over head and position above the ears - tension strap until firm and mask is snug on casualty's face - shape metal strip on mask to ensure snug fit to shape of nose Monitor casualty: - ensure casualty is comfortable and tolerating therapy - document on Casualty Report form (OB12) ***Note: All oxygen safety procedures must be observed at all times.***		

5.3 Use of Yankauer sucker

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
Prepare Yankauer sucker: - use Standard Precautions . hand washing/emergency hand wash . protective eye wear . gloves - remove from wrapping - connect the Yankauer sucker to the end of suction tubing Turn suction source on: - portable unit - vehicle suction unit		

Checklist	Needs Improvement Date	Proficient Date
Open casualty's mouth: - use index finger and thumb of one hand—pistol grip Insert Yankauer sucker: - Insert Yankauer sucker into casualty's mouth moving suction around to remove any fluid. Be aware of loose teeth or dentures - **tip of sucker must remain visible at all times** ***Note: Depending on the manufacturer, it may be necessary to place finger over a hole on the device to create the suction.*** - withdraw Yankauer sucker slowly while taking finger off the hole in sucker - suction for no longer than 15 seconds Maintain suction line: - flush line at regular intervals with water to keep suction catheter clear - dispose of suction device in general refuse. - **ensure that suction collection line jar does not fill beyond 2/3 capacity** - document amount and type of secretions on Casualty Report form (OB12)		

5.4 Use of an oropharyngeal 'Y' suction catheter

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
Prepare 'Y' suction catheter: - use Standard Precautions *(see p. 24)* - select appropriately sized catheter - remove from wrapping - connect the suction catheter to end of suction tubing Turn suction source on: - portable unit - vehicle unit		

Checklist	Needs Improvement Date	Proficient Date
Open casualty's mouth: - use index finger and thumb of one hand - pistol grip Insert catheter: - insert catheter into casualty's mouth—tip of catheter must remain visible at all times - 'Y'-piece **not** to be occluded during insertion Aspirate: - aspirate by blocking 'Y' piece of the catheter with thumb of one hand ***Note: Aspirate for 15 seconds only, as prolonged aspiration may lead to hypoxia.*** Maintain: - flush line at regular intervals with water to keep the sucker clear - dispose of suction device in general refuse - ensure that aspiration jar does not fill beyond 2/3 capacity - document amount and type of secretions on the Casualty Report form (OB12)		

5.5 Insert an oropharyngeal airway

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- use Standard Precautions *(see p. 24)* - check the airway is clear - place oropharyngeal airway on the casualty's face to check the correct size - the oropharyngeal airway should extend from the corner of the casualty's mouth to the lobe of the ear - insert the airway by opening the casualty's mouth with your index finger and thumb if the same hand is used and hold the mouth open *(refer AFA p. 350)* - point the tip of the airway toward the roof of the mouth		

Checklist	Needs Improvement Date	Proficient Date
- insert it one third of its length into the casualty's mouth - rotate the airway over the tongue until the airway points to the side of the casualty's mouth - insert the airway two thirds of its length into the casualty's mouth and rotate the tip pointing towards the casualty's pharynx - gently press the airway into the casualty's mouth until the flange is touching the lips - hyper-extend the casualty's head—provided there is no suspected spinal injury and, if necessary, apply a jaw thrust to assist in settling the oropharyngeal airway into the correct position and maintaining the casualty's airway *Warning: If the casualty shows any signs of rejecting the airway, remove it immediately.* *Note: If a spinal injury is suspected, care should be taken with any movement of the head.*		

5.6 Use of a soft bag resuscitator on a non-breathing casualty

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- kneel at head of the casualty - use Standard Precautions - check, clear and open the airway - insert an oropharyngeal airway - choose appropriate size face mask—adult or child - squeeze soft bag to check relief valve and exhalation valve - place mask over casualty's face—narrow part over bridge of nose - check mask is firmly applied and that head tilt is maintained		

Checklist	Needs Improvement Date	Proficient Date
- hold mask with one hand; squeeze bag with other hand and watch for chest to rise; then release bag - squeeze bag every 4 seconds (adult) or every 3 seconds (child) - check constantly that equipment is functioning and your technique is correct		

REFERENCES

St John Ambulance Australia 1998, *Australian First Aid*. Third edition, reprinted annually.

St John Ambulance Australia 1997, *Skills Maintenance Program 1998.*

Grant, H.D., Murray, R.H. & Bergeron, J.D. 1994, *Emergency Care,* Prentice Hall International, sixth edition.

Harrison FA. (ed) 1996 *A manual of skills for the use of devices for oxygen administration and/or ventilation of the lungs in emergencies (including competency statements and training guideline)* Australian Resuscitation Council. Melbourne.

Fractures

OBJECTIVE

On successful completion of this module the member will be able to:

6.1 Describe how fractures are classified;

6.2 State two types of 'open' fractures;

6.3 State the complications of a fracture; and

6.4 Demonstrate the management of a casualty with a fracture.

PRACTICAL SKILL

To be demonstrated by the member:

6.1 Management of a fracture.

Fractures

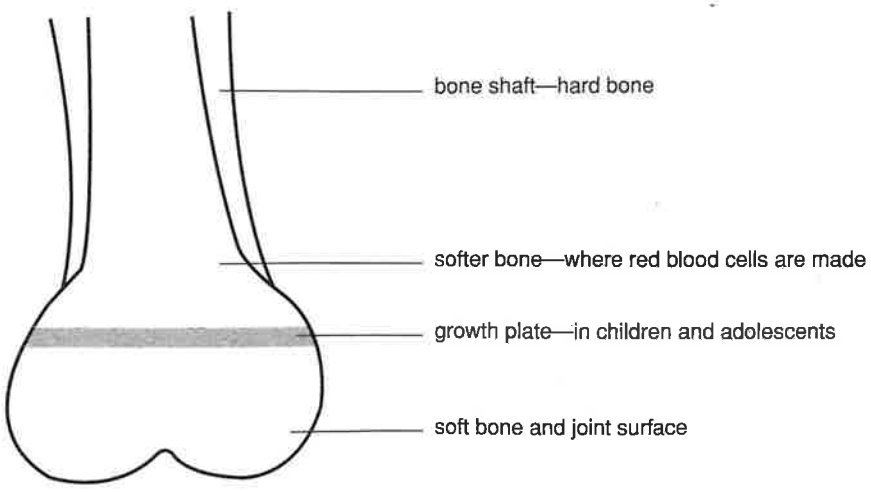
A fracture is a break in the continuity of a bone. It may be a complete break or an incomplete break—or crack.

Classifications

Fractures may be classified according to:

1. Part of bone affected.
2. Bone/force balance.
3. Fracture pattern.
4. Mechanism of fracture.
5. Closed or open.

1. Part of bone affected



2. Bone/force balance

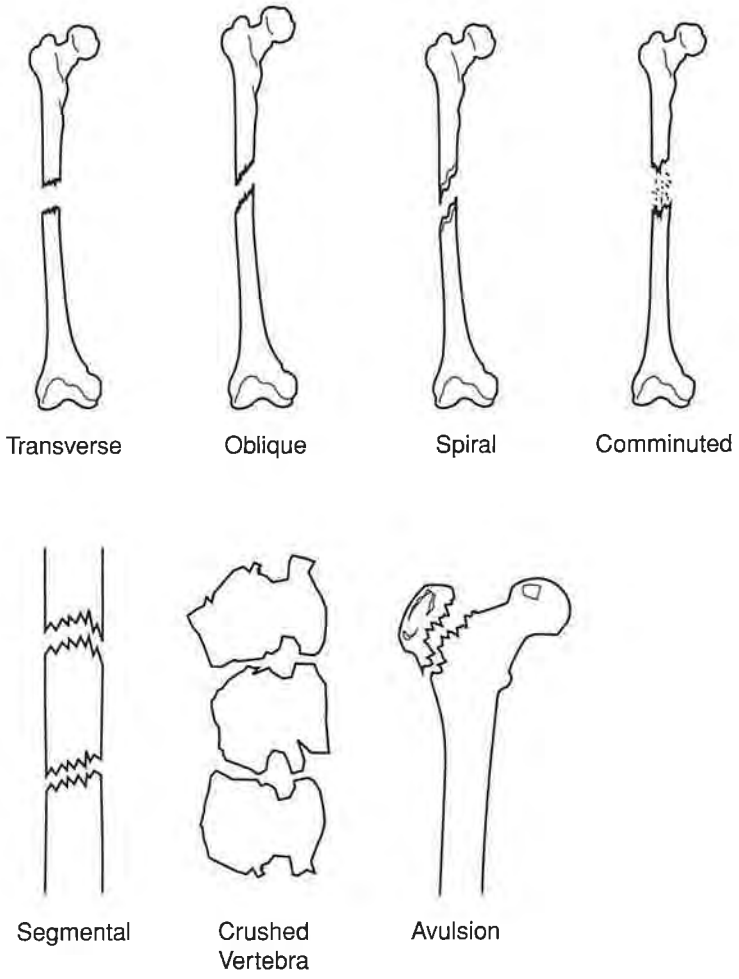
2.1 An abnormally strong force on normal bone—98% of all fractures.

2.2 A normal force on an abnormally weak bone. This is a pathological fracture—1% of all fractures.

2.3 A normal force applied frequently to normal bone. This is a stress fracture—1% of all fractures.

The # sign is medical shorthand for fracture. So '# radius' means fractured radius

3. Fracture pattern



4. Mechanism of fracture

4.1 A direct blow produces a transverse fracture.

4.2 An angled force produces an oblique fracture.

4.3 A rotational force produces a spiral fracture

4.4 Force along the line of the bone produces crush fractures.

4.5 Muscular forces pull bones apart, producing avulsion fractures.

4.6 High energy and complex forces produce comminuted and segmental fractures.

5. Closed or open

Fractures may be 'closed' (skin intact over the fracture) or 'open' (skin broken over the fracture).

'Open' fractures are described as four types:

Type 1—where a spike of bone punctures the skin.

Type 2—where an external object punctures the skin.

Type 3 and Type 4 involve loss of soft tissue and loss of bone.

If bone fragments are found at the site of an accident they should be placed in a clean container and transported to the hospital with the casualty.

Complications of fractures

Complications of fractures may be classified as 'local' or 'generalised' and 'early' or 'late'.

	LOCAL	GENERALISED
EARLY	Bleeding from # site Injury to blood vessels and nerves Damage to internal organs eg. ruptured spleen Joint injury	Shock Fat Embolism Syndrome
LATE	Poor union of the fracture Bone infection Death of the fractured bone	Permanent weakness of the whole limb Psychological problems

Bones have a very rich blood supply and major closed fractures of the pelvis, shoulder or long bones may cause sufficient blood loss to produce **shock**. Major vessel damage and/or organ damage will add to the risk of shock. In the presence of fractures, shock may precipitate the development of *'Fat Embolism Syndrome'* (FES). In this situation fatty tissue from the fractured bone marrow is released into the blood stream. This causes swelling and haemorrhage in the lungs, and multiple small haemorrhages in the brain and other organs. FES usually develops on the day after injury. Good first aid with haemorrhage management, maintenance of the airway, administration of oxygen, when available and the adequate splinting of fractures has done much to decrease the incidence of FES over the past two decades.

First aid management of fractures

It is the responsibility of the first aider to manage the airway and casualty oxygenation, to initiate shock management and to immobilise possible fractures so that they produce minimal pain and do no further harm to the casualty whilst en-route to hospital.

1. **DRABC**
2. Control gross haemorrhage. Place sterile dressings over wounds and apply adequate compression, usually by bandaging, until haemorrhaging stops.
3. General assessment for other major injuries. Multiple fractures and especially open fractures are often spectacular and grotesque. This may draw the attention of the First Aider away from less obvious but more dangerous injuries. The most common cause of preventable death of the casualty with a fracture is an unrecognised head, chest or abdominal injury.

4. Assessment of injured area.
   4.1 Deformity is likely to indicate an underlying fracture or dislocation.
   4.2 Wounds may indicate open fractures.
   4.3 Local swelling may indicate haemorrhage from a fracture.
   4.4 Nerve injuries are common with fractures and can cause severe and lifelong disability.
   4.5 Check for muscle activity and feeling in the arm or leg below the level of the injury.
   4.6 Some of the problems are:
      - fractured humerus—just below the shoulder, or just above the elbow, can cut the radial nerve so the casualty cannot straighten their fingers
      - fractures around the elbow—especially in children, producing variable weakness and numbness in the hand
      - dislocations around the hip may injure the sciatic nerve producing paralysis of the ankle and toes and loss of sensation on the sole of the foot
      - fractures on the outer aspect of the knee and upper fibula, may injure the common peroneal nerve resulting in a foot-drop—an accurate and early record of neurological loss is very helpful to the treating doctor.
   4.7 Blood supply—colour, pulse and peripheral return, below the level of the injury should be assessed and recorded. **If there is any loss of circulation arrange medical aid immediately.**

Management

Splinting of fractures

General guidelines:

- assess feeling and circulation before and after splinting
- remove or cut away clothing
- dress any wounds
- if severe deformity exists or feeling and circulation is significantly affected align the limb gently before splinting
- **DO NOT** intentionally replace protruding bones
- splint the joint above and the joint below the injury
- pad splints where possible to prevent pressure and discomfort
- use of the opposite limb in lower limb fractures is often helpful
- if the casualty shows signs and symptoms of shock, transport immediately.

General

Use of Standard Precautions.

Complete a Casualty Report form (OB12).

Exercises

Stage the following scenarios. Assess and manage the situation. Document the management on an Casualty Report form (OB12).

1. A sixteen year old girl whilst playing netball falls on an outstretched hand fracturing her right collarbone. She is pale, distressed and complaining of pain over her right collarbone.
2. An elderly woman trips and falls at a local community fete`, sustaining a fracture to her right neck of femur. There is gross swelling of the right thigh with shortening of the right leg. She is pale, distressed and complaining of severe pain in her right hip. The pain is worse on movement.
3. A male teenager is assaulted at the local show with a baseball bat and has sustained a fracture to his left upper arm and right lower arm. He is pale, distressed and complaining of intense pain at the site of both fractures. On examination of the left upper arm and right lower arm you find gross swelling, deformity and bruising.
4. A teenager whilst playing football sustains an open fracture to his right lower leg. The casualty complains of severe pain at the site of the fracture. On examination of the casualty you find an open wound, bleeding, swelling and deformity at the site of the fracture.

6.1 Management of a fracture

PRACTICAL SKILL

The format below refers to Scenario 4 above. The format can be varied to reflect the remaining three scenarios.

Checklist	Needs Improvement Date	Proficient Date
Primary Assessment **Danger** On approaching the casualty, observe the scene for dangers: - to yourself - to others - to the casualty **Response** (Yes) - speak to casualty - 'lie/stay still—don't move' (casualty to be kept at rest) - 'I am a first aider and I can help you' - 'my name is ...' - 'what is your name?' - clue for possible injuries		

Checklist	Needs Improvement Date	Proficient Date
Airway - visibly checks airway (mouth) - maintain a clear and open airway **Breathing** (Yes) - ask the casualty what happened—'Tell me what happened' - place the casualty in the recovery position - if breathing is difficult, vomiting is likely or if the casualty becomes unconscious: • administer oxygen therapy via a facemask at 8 litres per minute (if appropriate) **Circulation** Explain to the casualty that you are going to make an examination. Check for haemorrhage (if appropriate): - remove or cut clothing to expose the wound - control of bleeding by applying direct pressure around the edge of the wound or protruding bone - cover all wounds - check distal circulation - call for further aid or ambulance Secondary Assessment Full examination of casualty: - reassure the casualty - loosen tight clothing - position the casualty in the most comfortable position - instruct the casualty not to move the injured part		

Checklist	Needs Improvement Date	Proficient Date
- obtain a history of events from the casualty: **A Allergies** **M Medications** currently used **P Past** illnesses/**Pregnancy** **L Last** meal **E Events/Environment** - check casualty for a Medic Alert bracelet - exclude other injuries: look, listen and feel checking for wounds, fractures etc - immobilise any fractures Specific: - immobilise fracture with broad bandages where possible, to prevent movement at the joints above and below the fracture - support the limb, carefully passing bandages under the natural hollows of the body - place a padded splint along the injured limb - place padding between the splint and the natural contours of the body and secure tightly - watch for signs of loss of circulation - check distal circulation every fifteen minutes - immobilise feet and ankles with figure of eight bandage - handle gently - observe casualty carefully - dress any wounds or burns - maintain body warmth but do not heat casualty - if the casualty complains of thirst, moisten lips, but do not give anything to eat or drink - refer casualty to medical aid		

Checklist	Needs Improvement Date	Proficient Date
Check: - pulse - respiration - blood pressure - skin colour Check level of consciousness: **A Alert** **V** Responds to **Vocal** stimuli **P** Responds only to **Painful** stimuli **U Unresponsive** to all stimuli - check pupil response and size - recheck pulse, respirations, blood pressure - level of consciousness, pupils - haemorrhage control and distal circulation every 15 minutes **General** Complete Casualty Report form (OB12). Use of Standard Precautions. Reassurance and support of relatives and/or fellow co-workers. Ambulance handover. Adopt advanced skills and protocols to include: - Entonox™ - methoxyflurane—if trained and authorised in their use		

REFERENCES:

St John Ambulance Australia 1998, *Australian First Aid*. Third edition, reprinted annually. Chapter 6.

St John Ambulance Australia 1996, *Science of First Aid*, Chapter 19.

Neck and Spinal Injuries

OBJECTIVE

On successful completion of this module, the member will be able to:

7.1 Describe the anatomy and physiology of the spinal cord;

7.2 State the mechanisms of injuries that are significant in causing spinal cord injuries;

7.3 Demonstrate an assessment of a person with a spinal injury; and

7.4 Demonstrate the first aid management of neck and spinal injuries.

PRACTICAL SKILL

To be demonstrated by the member:

7.1 Prepare and apply an improvised cervical collar;

7.2 Apply a soft collar; and

7.3 Apply a semi-rigid collar to a casualty (RESTRICTED TO MEMBERS TRAINED IN THIS SKILL).

Introduction

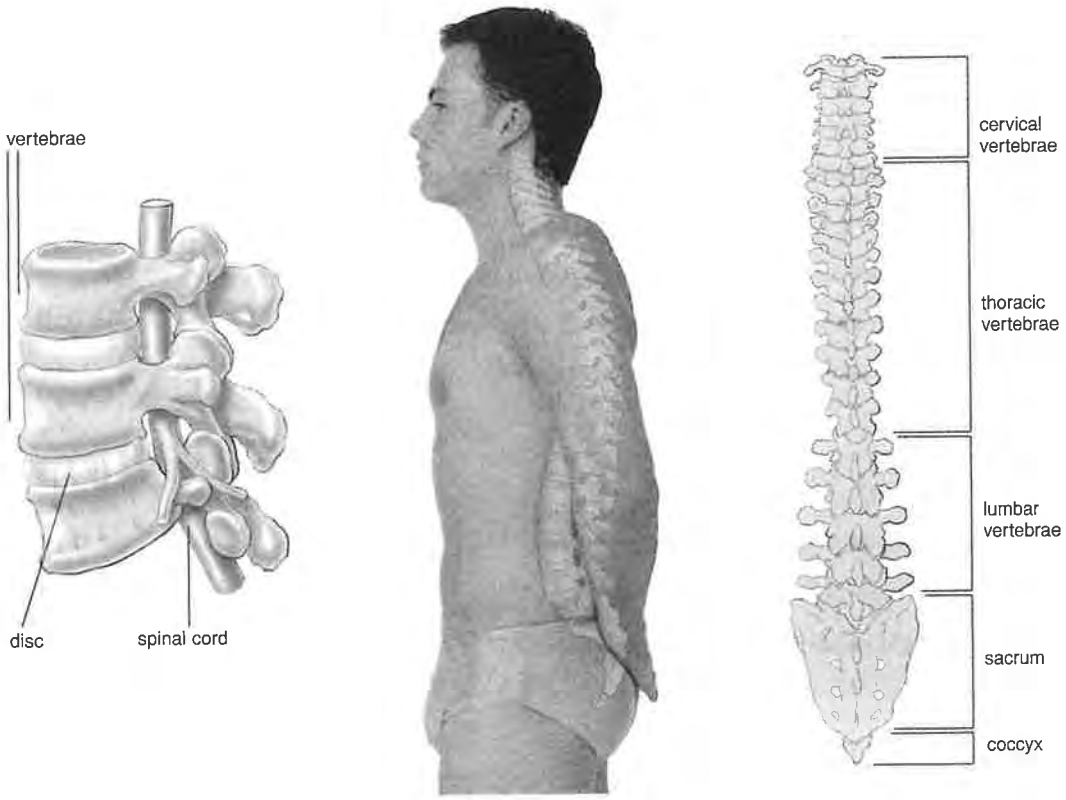
A spinal cord injury is one of the most disabling traumatic conditions affecting individuals. Besides the physical injury, it causes immense psychological damage to the casualty, plus the casualty's family and friends. Adolescents and young adults are the main casualties. Their lifestyle predisposes them to the types of situations, occupationally and domestically, that cause spinal cord injuries.

In Australia, approximately 50% of spinal cord injuries result from road traffic accidents. Diving accidents are responsible for a further 10-12 per cent. The remainder occur in the sporting, occupational and domestic environments. Alcohol has been associated with approximately 50% of spinal injuries.

The vertebral column

The spine consists of the vertebral column (vertebrae), the spinal cord and the supporting ligaments which hold and support the vertebrae in place. Between the vertebrae are discs made of cartilage, which act as shock absorbers and stop the bones from rubbing against each other. These discs deteriorate with age, so that older people are more likely to suffer chronic back pain and are more vulnerable to back injury.

The vertebral column consists of 33 vertebrae altogether; 7 cervical (neck, most cannot be felt by the first aider), 12 thoracic (chest), 5 lumbar (lower back), sacrum (5 bones fused together in the pelvic area), and the coccyx (4 bones fused together as the tail bone).



Most of the vertebrae have a hole through the centre (the spinal canal) and this is where the spinal cord passes. The vertebrae thus afford protection for the spinal cord. On each side of each vertebral arch, just behind each vertebral body, the nerves to the body emerge.

The spinal cord

The spinal cord is continuous with the brain, extending from the brain stem to the upper lumbar region of the spinal. The spinal cord can be likened to a series or collection of electrical cables in which nervous impulses are transmitted in cables from the body to the brain and vice versa. These impulses either continue to be transmitted uninterrupted in their cables or are tapped by 'modulating mechanisms' or 'electrical sub-stations' and directed out to the body in order to cause or change a function. Sensory impulses are also received by each 'sub-station' and transmitted up the spinal cord to the brain for interpretation.

The transmission cables from the cord to the body are the nerves. These nerves radiate out from each spinal vertebra in pairs to all parts of the body. The nerves carry motor, sensory and autonomic messages from the spinal cord to the extremities and vice versa. Motor nerves cause movements by initiating muscular contraction. Sensory nerves transmit sensations such as pain, temperature and touch from the extremities to the spinal cord. Special autonomic nerves modify the intensity of autonomic (or automatic) functions such as the heartbeat, sweating, respiration and digestion, depending upon the needs of the body at any time.

Simply, impulses from the brain transmit commands to muscles and organs. Sensory impulses from the periphery take information to the brain on touch, temperature, pain and position of limbs. Therefore, any temporary or permanent loss of a bodily function may be due to damage of the spinal cord.

Vertebral (bony) injury

The types of injury that affect the vertebrae include:

- fractures

- dislocations
- subluxations—partial dislocations, or
- any combination of the above

These injuries can be classified as stable or unstable. However, x-ray evaluation is required for their classification. All suspected injuries to the spine must be considered to be unstable.

Spinal cord injury

Following an injury which causes impaired spinal cord function, a wide spectrum of damage from minor bruising or swelling to total division of the spinal cord may result. However, it is impossible to predict the quantity and permanency of any cord damage from the signs at the time of the accident. The fact that a casualty has no feeling of movement does not mean the spinal cord is necessarily torn and beyond recovery. All casualties with spinal cord injury signs must be managed as though the injury will recover. Twisting or bending an injured spinal column may increase spinal cord damage, or damage a spinal cord which was not initially damaged.

An injury to the spinal cord may produce the following signs below the injured level:

- total or partial muscular weakness (paralysis)
- absent, decreased or altered sensation
- altered autonomic control.

Types of spinal cord injury

Quadriplegia

Quadriplegia is produced by a neck injury involving damage to the spinal cord. It involves paralysis of the upper limbs, lower limbs and trunk muscles. Muscles of respiration may be affected to varying degrees.

Paraplegia

Paraplegia is paralysis involving the lower limbs and some or all of the trunk muscles. It is the result of an injury involving any part of the vertebral column and the spinal cord below the neck.

Causes of spinal cord injury

Specific mechanisms that cause spinal cord injury include:

Hyper-flexion—the vertebral column is forced forwards with the chin being forced onto the chest beyond the normal range. The ligaments may rupture and allow spinal cord injury. This injury often occurs with little or no bony damage.

Hyper-extension—the vertebral column is forced backwards, beyond the normal range, causing fractures to the vertebrae and damage to the spinal cord. This injury is commonly seen when a person dives into shallow water.

Compression—a force is transmitted directly along the vertebral column and causes the vertebra to burst. In some situations fragments (spicules) of bone intrude into the spinal canal causing spinal cord injury. This is seen where a person has fallen and landed on their feet or buttocks with the force transmitted directly upwards.

Rotation—the neck is subjected to a twisting force.

More specifically, the situations which most likely result in spinal cord injuries are:

- casualties falling from a height >5 metres
- direct blow to the spine including penetrating injury such as gun shot or knife-like wounds
- jackknifing

- diving or surfing accidents
- vehicular accidents where overall impact speed is >60 kph with or without major vehicular damage
- sudden acceleration or deceleration—a sudden blow to the head of an athlete whilst running
- where a person becomes a projectile—bumped off bicycle, ejected from a car, or comes off a moving motorcycle
- pedestrian hit by a moving vehicle travelling >30 kph
- casualties from vehicle that has rolled over
- casualties from vehicle involved in an accident where a death has occurred
- casualties hit by a falling object from a height >5-6 metres—object dependent
- any injured casualty who has been trapped for >30 minutes

From the Operations Branch perspective, we are more likely to see spinal cord injuries at events such as:

- contact sport being played e.g. Rugby or Australian Rules Football
- concerts where there is crowd surfing or stage diving
- motor sports

The first aider must maintain a high level of suspicion and be acutely aware of a potential spinal injury. Spinal cord injury must be considered in all persons who are unconscious or with any head injury.

History

The casualty and any observers must be questioned as to what happened. Ask about the mechanism and consider the magnitude of the forces involved. The First Aider must appreciate and recognise the various types of situations that potentially cause spinal cord injury.

Presenting features

1. The conscious casualty

Symptoms:

- pain at or below the level of injury
- absent or altered sensation below the injury, e.g. pins and needles
- absent muscular power weakness below the injury

Signs of bony injury:

- tenderness/pain over the injured area of the spinal column
- deformity of the spine is relatively uncommon and should not be looked for if it cannot easily be felt when assessing the tender area
- external swelling is usually minimal or absent at the time of the injury. Its absence does not exclude significant bony injury

VOLUNTEER FIRST AIDERS MUST NOT FEEL FOR BONY TENDERNESS IN THE NECK. IF THE CASUALTY SAYS THEIR NECK IS PAINFUL—'THEN IT IS PAINFUL'.

Signs of spinal cord injury:

Motor:

- reduced or absent muscle power, on asking the casualty to move upper and/or lower limbs
- poor cough may indicate weak chest and abdominal wall muscles
- in neck and upper thoracic spine injuries, paradoxical movement of the chest wall will be present—paradoxical breathing occurs when, instead of the chest expanding on inspiration, it moves inward and the reverse occurs as the casualty breathes out

Sensory:

- altered or absent sensation below the injury—remember that a neck injury may affect the upper limbs
- compare limbs and trunk sensation with that of the face. Sensation on the face will not be affected by spinal cord injuries and remains normal.

Autonomic:

In a casualty with a cause for shock, such as internal haemorrhage, the usual signs of shock may be absent as the nervous impulses that would produce these signs are interrupted. In neck and upper thoracic spine injuries, the following signs, in contrast to those of shock, may appear:

- pulse rate may be slow
- pulse strength may be either weak or normal
- skin remains dry but warmth and colour are variable—this is because blood vessels lose their ability—to constrict as their nerve supply is not functioning
- a male casualty may have an erection as the penile blood vessels become engorged with blood due to the dilation of these blood vessels
- following injury, the stomach and intestine will cease functioning, thus there is a potential hazard for the casualty to quietly regurgitate whilst lying flat on the back and obstruct the airway with or inhaling vomitus
- the casualty will be unable to evacuate or empty the bladder and bowel owing to paralysis of those associated muscles. This leads to retention of urine and the bladder may be palpable as a firm swelling in the middle of the lower abdomen.

2. The unconscious casualty

Spinal cord injury needs to be suspected in all persons unconscious as a result of an injury. It is unlikely that a first aider, who is not skilled in assessing spinal cord injuries, will be able confidently diagnose such an injury in an unconscious casualty however, the management does not alter. The approach is the same as for the conscious casualty. The dangers and life threatening problems need to be assessed and managed before considering whether the casualty has a spinal cord injury or not. Thus the unconscious but spontaneously breathing casualty will be turned on the side with control of the head and neck to ensure stability in a neutral alignment at the time of assessment for other injuries.

Signs:

The signs which may assist in making a diagnosis of a spinal cord injury in the unconscious casualty could be any or all of the following:

- a paraplegic will have loss of muscular tone in the lower limbs, with muscle tone in the upper limbs
- a quadriplegic may have no response to painful stimuli in the upper limbs, lower limbs or trunk yet a grimace is noted on testing for painful stimuli to the facial region
- dry skin in the presence of a slow, either weak or normal pulse strength
- paradoxical breathing
- the presence of an erection in a male casualty

Internal haemorrhage:

This must always be suspected in all casualties who have sustained a spinal cord injury. As described above, a rapid pulse rate (tachycardia), a common sign of blood loss, may not occur in high spinal cord injuries—those affecting the neck and upper thoracic area.

Assessment of the spinal injured person

General assessment and management principles

Follow the principles of casualty assessment and management.

Primary assessment:

- **Danger**
- **Response**
- **Airway**—clear and open
- **Breathing**—check and maintain
- **Circulation**
- control major bleeding—for example, on a limb using direct pressure and elevation immobilise the cervical spine

Secondary assessment:

- vital signs
- history—refer to **AMPLE** mnemonic *(see Module 3, p. 34)*

Management

- manage shock
- make plan of action
- manage other injuries in order of priority
- arrange for appropriate disposal of casualty

REMEMBER THE RULE
ASSESS – MANAGE – REASSESS – APPROPRIATE DISPOSAL

Specific management of spinal cord injury

The unconscious casualty:

- **DRABC**
- place in recovery position, supporting head and neck at all times
- maintain a clear and open airway
- administer oxygen by face mask at 8–10 litres per minute
- apply a cervical collar if available and you are trained in its correct application otherwise use a folded towel, newspaper or a bulky dressing around the neck
- continue the examination of the casualty whilst on the side

The conscious casualty:

- **DRABC**
- administer oxygen by face mask at 8-10 litres per minute

- reassure and calm the casualty—ask casualty not to move their head
- loosen tight clothing and, to prevent pressure sores in areas now lacking sensation, ensure no hard objects are left in pockets or underneath the casualty
- assessment should be brief and simple:
  - can the casualty feel one or more of the limbs? Sensory loss may be incomplete or involve only one side of the body
  - does the casualty have sensation in some, or all, of the trunk?
  - if not, where does the alteration in sensation occur?
  - ask the casualty to shrug the shoulders, bend the elbow, move the fingers and make a fist
  - ask the casualty to flex the hip, bend and straighten the knee, and bend the foot up and push in down again at the angle
  - do not move the casualty unless this is essential due to danger(s).

Note: If essential, where an appropriate lifting device is available and you are trained in its use, it should be used. Avoid bending (flexing) the spine. If lifting equipment is not available, drag the casualty by feet (preferred) or by under the armpits.

- give analgesia such as methoxyflurane according to state policy and protocols
- unless circumstances make it necessary, leave lifting, loading and transportation to a qualified person, such as an ambulance officer. It is preferable that the casualty be transferred onto a stretcher using a suitable lifting device
- stabilise and support the head and neck by hands until other support can be arranged; this is especially important if the casualty is found in a sitting position when trapped in a vehicle
- apply a cervical collar if available and you are trained in its correct application; otherwise use a folded towel, newspaper or a bulky dressing around the neck, or place sandbags either side of the head
- seek medical aid urgently

If a previously conscious casualty becomes unconscious, the main risk is the airway and the casualty must be placed in the recovery position. It is advisable, where possible, to apply an improvised collar prior to rolling the casualty.

Note: Prompt immobilisation is a high priority for all spinal injuries.

Diving accidents

When a diving accident has occurred:

- support the head and neck
- use a flotation device or surfboard if handy to support the casualty prior to removing from the water
- leave the casualty on the board until a doctor or other qualified person has examined the casualty and decided on the further management

A damaged spinal cord may sustain further injury through improper handling. A partially severed spinal cord may become completely cut. An undamaged spinal cord may become injured. **Consider every head injury as having an associated neck and spinal cord damage until proven otherwise.**

Note: Life threatening injuries always take precedence over possible spinal injuries.

The usual signs of shock may be obscured in the presence of a spinal cord injury. Always suspect and look for other injuries.

Prolonged or detailed evaluation of a spinal cord injury is inappropriate outside hospital, and is certainly not a first aid task.

Cervical collars

The cervical collar has an important role in the pre-hospital setting. Its main purposes are:

- temporary support of the head of a sitting or standing casualty until placed flat
- minimising movement of the spine during transport
- prevention of turning (rotation) and bending of the neck to the side (lateral flexion)
- to highlight to all carers that the casualty has a potential spinal cord injury

A cervical collar should always be used when there is a possibility of an injury to the cervical spine. Even when applied, the head and neck must still be protected from movement.

For all types of collars, it is intended that a neutral position will be achieved and maintained. A neutral position (alignment) is considered to be present when the casualty is looking straight ahead, i.e. the eyes should be in a gazing-forward position in a line at right angles to the line of the spine.

The cervical collar is NOT designed to provide traction to the head or totally immobilise the cervical spine—head and neck movement is restricted to about fifty percent by a semi-rigid or rigid collar.

REMOVAL OF COLLARS

OPERATIONS BRANCH PERSONNEL MUST NEVER REMOVE A CERVICAL COLLAR UNDER ANY CIRCUMSTANCES WITHIN THE FIELD. REMOVAL OF COLLARS IS THE RESPONSIBILITY OF EXPERIENCED PERSONNEL IN A CONTROLLED SETTING AFTER CAREFUL AND THOROUGH ASSESSMENT

Types of cervical collars

Cervical collars may be classified as improvised, soft, semi-rigid/rigid. There is confusion about which category some collars should fit into.

Improvised collar

An improvised collar will be used when a purpose-made collar is not available and will be devised by a first aider from material immediately available. Its efficacy will depend on the ingenuity of the first aider and the skill with which it is applied. The principles of 'doing no harm' and 'effective immobilisation' are paramount.

Soft collar

A 'soft collar' is usually made of foam rubber or equivalent. St John Supplies currently stock soft collars in small, medium and large sizes and provides a medium size for Divisional First Aid kits. The collar is comfortable, if applied to an average adult and provides a degree of support. It must not be regarded as being very effective in suspected spinal injuries and must be supplemented with continuing concern about the protection of the casualty's spine. It is generally better than no collar or an improvised collar. This type of collar has not been associated with the pressure sores that have been reported with the more rigid styles and is often used for situations when the neck needs support and significant injury has been excluded.

Semi-rigid/rigid

Collars of the variety of the Laerdal 'Stifneck' type and the Jobst 'Vertebrace' have been classed as either 'semi-rigid' or 'rigid'. This type of collar is frequently preferred by ambulance services. The need to carry a set of collars has been a drawback but recently a style with one model being capable of modification to fit a wide range of casualties has been developed. Its role is still being considered. Close liaison with the ambulance service in each State/Territory will ensure the best care for casualties with suspected spinal injury.

The use of any cervical collar requires that the member has participated in the relevant training programme approved by the Director of Training. Utilisation of the same type of collar by Operations Branch and the local Ambulance Service is ideal. This requires organisation, close cooperation and specific training at regional level.

In the absence of any collar, head and neck movement may be minimised by placing sand bags or padded objects on each side of the head. The possibility that these may move and allow sudden and unexpected movements must not be overlooked.

Preparation and application of an improvised cervical collar

The application of any collar requires at least two first aiders, one to hold the head in a neutral position and one to apply the collar.

Preparation of an improvised collar:

- use a firm object—folded newspaper or cardboard, as the core of the collar
- wrap an absorbent or soft material—a towel, around the core item
- ensure that the collar is correctly sized before application. The distance from the sternal notch to jaw should be such that the neck is in a neutral position. The collar should be long enough to circle the neck.

Application of an improvised collar to an adult casualty:

- explain to casualty what you are going to do
- steady head and neck in neutral alignment
- check that the collar is of appropriate size
- pass the collar around back of neck without movement of spine
- secure collar ensuring that any knots are to the front or to the side
- continue with manual in-line stabilisation until full spinal immobilisation is achieved

Application of a soft cervical collar to an adult casualty

- explain to casualty what you are going to do
- steady head and neck in neutral alignment
- check that the collar is of appropriate size
- pass collar around back of neck without movement of spine
- ensure Velcro closure is secure
- continue with manual in-line stabilisation until full spinal immobilisation is achieved

Application of semi-rigid/rigid cervical collar

This is only accepted as a formal part of an Operations Branch member's training when it is part of an approved training program. Even if not trained, it is still of significant value for a member to have an awareness of the technique but it is not to be implemented by an untrained member.

The Training Officer can:

- contact the local ambulance service
- find out the type of cervical collar used
- arrange a demonstration of the application of the collar

7.1 Prepare and apply an improvised cervical collar

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- check **DRABC** - assess symptoms and signs suggesting spinal injury - apply manual head/neck alignment from behind if possible; use a second person if available - prepare improvised collar ***Note: Without a firm core there is added possibility of pressure on the trachea.*** - check size suitability - inform casualty of intended procedure - remove obstructing items (ties, necklaces etc) - pass collar around back of neck, keeping spine still - mould collar to neck - tie collar in place with bandage or suitable item—tie, pantyhose - ensure that there is no airway interference - ensure that there is support and stability - check on the casualty's impression of collar, to ensure effectiveness and adequate support, some discomfort is inevitable - re-assess signs and symptoms of spinal injury - maintain manual in-line stabilisation until full spinal immobilisation is achieved - re-check **DRABC** General Use of Standard precautions. Complete a Casualty Report form (OB12).		

7.2 Apply a soft collar

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- check **DRABC** - assess symptoms and signs suggesting spinal injury - apply manual head/neck alignment from behind if possible; use a second person if available - check collar suitability and size - inform casualty of intended procedure - remove obstructing items—ties, necklaces - pass collar around back of neck, keeping spine still - mould collar to neck - secure Velcro fastener - ensure that there is no airway interference - ensure that there is support and stability - check on the casualty's impression of collar, to ensure effectiveness and adequate support, some discomfort is inevitable - re-assess signs and symptoms of spinal injury - maintain manual in-line stabilisation until full spinal immobilisation is achieved - re-check **DRABC** **General** Use of Standard precautions. Complete a Casualty Report form (OB12).		

7.3 Apply a semi-rigid/rigid collar (RESTRICTED TO MEMBERS TRAINED IN THIS SKILL)

PRACTICAL SKILL

This is only accepted as a formal part of an Operations Branch member's training when it is part of an approved training program. If this is not the case, it is still of significant value to a member to have an awareness of the technique but it is not to be implemented by an untrained member.

Checklist	
Specify type of collar used:	
Has the member been trained in an approved program?	Yes ☐ No ☐
If 'Yes', has the member demonstrated proficiency in its use?	Yes ☐ No ☐

Record status of assessing officer.
Medical Officer / Nursing Officer / Ambulance Officer / Approved Training Officer

Record source for assessment criteria:
St John approved syllabus / Ambulance Service protocol

REFERENCES:

St John Ambulance Australia 1998, *Australian First Aid*, reprinted annually. Third edition.

St John Ambulance Australia 1994, *Rationale of First Aid*.

Assessment of the Conscious Casualty

OBJECTIVE

On successful completion of this module, the member will be able to:

8.1 Demonstrate primary assessment methods to identify life-threatening conditions;

8.2 Demonstrate procedures to perform a secondary assessment to identify non-life-threatening conditions; and

8.3 List the priorities of emergency care for a conscious casualty.

PRACTICAL SKILL

To be demonstrated by the member:

8.1 Assess a conscious casualty.

Introduction

Assessment of the conscious casualty is mainly a practical skill but to be of value it must be done systematically.

The assessment of any casualty includes:

1. Observation and **DRABC** look for life-threatening conditions;
2. History of the event;
3. Look again, to check for all injuries and medical problems; and
4. Further history—can be taken while performing the secondary assessment.

DRABC

DANGER—the first stage of assessment is OBSERVATION of the casualty and the immediate environment—Consider:

The weather

Is it very hot or very cold?

Could the temperature cause complications for the casualty?

Could the casualty have hypothermia, dehydration or heat-stroke as a complication of their illness or injury?

Is it dusty or windy? Asthma is more likely in such conditions.

The crowd

What is the profile of the crowd?

Are they young or elderly and what activity is occurring?

Are there mainly excited young people in the crowd?

Is there a lot of alcohol or other drug use evident?

Is it a meeting of the Diabetic Society or another such group?

Are there a lot of elderly people who may have pre-existing

medical conditions?

Resources available

Your treatment of a conscious casualty may be affected by:

- qualifications of the first aiders present
- radio communications available
- distance from medical aid

OBSERVE the casualty as you approach or as he/she walks into your first aid post.

Is the casualty in pain?

Is the casualty limping, unsteady on the feet, crying or panicky?

Is the casualty pale, flushed, puffing or sweaty?

Are there other clues?

- a bandage already applied?
- an obvious injury?
- the chain saw still going?

Are there bystanders, friends or relatives present? Ask them not to leave until you have questioned them.

If the casualty or the first-aider is in danger from the environment—remove the danger or remove the casualty if you can't do either, wait for expert help.

The following elements of **DRABC** make up a **Systematic Primary Assessment**. The purpose of this assessment is to detect **life-threatening conditions** so they can be managed at once.

The **DRABC Action Plan** is the ideal method of doing this:

RESPONSE:

This module is concerned with conscious casualties only.

Is the response normal or not?

Is speech slurred, mumbled, whispered or hoarse?

A stroke casualty may only respond by squeezing your hand.

AIRWAY

Is the casualty breathing noisily?

Check the casualty's mouth and ask him/her to remove items such as chewing gum which could cause problems later. Look for dislodged teeth, deformity and bleeding.

A casualty who is bleeding in the mouth, or unable to swallow, may need to sit forward to keep the airway clear or may prefer to lie on their side to allow drainage.

BREATHING

A conscious casualty will usually be breathing!

Assess chest movement and respiratory rate.

Check the nature of breathing:

Is it laboured—with obvious effort?

Is it very fast?

Is there wheezing?

Does the casualty need oxygen straight away, while you are completing your assessment?

CIRCULATION

Control obvious bleeding.

Check the pulse for rate, rhythm and strength.

RE-CHECK pulse rate, respiratory rate and level of consciousness.

History of the event

Taking a history

History gathering occurs from the very first time you hear of an injury or an accident, from talking to the casualty and bystanders initially and to closer questioning of the casualty once the **DRABC** has been completed.

Introduce yourself—ask the casualty's name and use it.

Ask 'What Happened?' and listen to the answer.

Injury

Manage obvious severe injuries as you talk—control bleeding, cool the burn etc.

How did it happen?

When did it happen?

What part/s of your body is/are injured?

Does it hurt anywhere else?

Did you lose consciousness?

Illness

What symptoms do you have?

Are you in pain?

How did it start?

Where?

How severe?

Is it constant or does it come and go?

Is it dull or sharp?

Does the pain spread anywhere else (called 'radiation') or is it just in the one spot?

Do you have any other symptoms?

- cough
- vomiting, nausea or diarrhoea
- shortness of breath

Has this happened before?

Secondary Assessment

The secondary assessment should reveal the extent of injuries the casualty has suffered. While carrying out, or after the secondary assessment, a GENERAL HISTORY should be obtained.

If you are able to take a good history, you will rarely be surprised by what you find on carrying out a systematic secondary assessment for both injury and illness.

Do you have any other medical problems?

- diabetes
- epilepsy
- heart condition
- bleeding disorder

Are you taking any medications?

Are you allergic to anything or any medications?

Why do we need to ask about medication?

- some medications can make the pulse faster or slower
- some medications e.g. aspirin, warfarin, make the blood thinner and cause increased bleeding and bruising

The assessment may be a limited or full assessment.

Limited assessment

If the casualty has had a minor accident and only one part of the body is injured, it is reasonable to only assess **that part**:

- steam burn to the arm
- sprained wrist
- grazes on the knee

Full assessment

If the casualty has had for example:

- loss of consciousness
- major injury—an obvious fracture
- minor injuries to several body areas—grazes to forehead, both knees and hands
- heavy fall from a tree or fast-moving bike
- severe pain—chest pain

They will need a full assessment, including head and neck, chest, spine, abdomen and limbs.

During the systematic assessment, the first aider should **check DRABC** again, including pulse and respiration and the results of any life-saving first aid. The level of consciousness should also be re-assessed.

Priorities of emergency care for a conscious casualty

The priorities of care for a conscious casualty are outlined in the **DRABC Action Plan**:

- remove dangers
- response
- clear airway
- check breathing
- check pulse
- control haemorrhage
- continue observations
- manage illness or injuries found

REMEMBER THE RULE—ASSESS, MANAGE, REASSESS, APPROPRIATE DISPOSAL.
(Refer to AFA Ch. 1 & 5)

Documentation

It is imperative for the provision of a high standard of first aid delivery that all findings and First Aid interventions are recorded on a Casualty Report form (OB12).

8.1 Assess a conscious casualty

PRACTICAL SKILL

Practical skill assessment to be performed on a duty if possible.

Checklist	Needs Improvement Date	Proficient Date
Primary Assessment D **DANGER** On approaching the casualty, observe the scene for dangers: - to yourself - to others - to the casualty Look for clues for possible injuries.		

Checklist	Needs Improvement Date	Proficient Date
R RESPONSE (Yes) Speak to the casualty: - 'lie/stay still—don't move' - 'I am a first aider and I can help you' - 'my name is .....' - 'what is your name'? **A AIRWAY** - visibly check airway (mouth) - maintain a clear and open airway **B BREATHING** (Yes) - check for chest movement - ask the casualty what happened—'Tell me what happened' - place the casualty in the most comfortable position that supports breathing - administer oxygen therapy (if appropriate) **C CIRCULATION** - explain to the casualty that you are going to conduct an assessment - check for haemorrhage Secondary Assessment - full assessment of the casualty - reassure the casualty - loosen tight clothing - ask where the pain is 'Where are you hurt?'—assess these painful areas - ask the casualty to explain to you in detail what he/she remembers about the incident—'tell me exactly what happened'—this may lead you to further possible injuries ***Note: If the casualty has only a vague recollection, suspect a period of loss of consciousness.***		

Checklist	Needs Improvement Date	Proficient Date
Refer to **AVPU** mnemonic *(see Module 3, p. 39)* - check pupil response and size - check the casualty for injuries consistent with the story - ask the casualty for previous medical history—this may provide further clues to the casualty's condition or may influence later treatment Refer to **AMPLE** mnemonic *(see Module 3, p. 34).* - check the casualty for Medic Alert bracelet - check the remaining areas of the body from head to toe for function, unusual appearance or feel which may indicate further injuries - exclude other injuries—look, listen and feel, checking for wounds, fractures - treat injuries according to order of severity - maintain body warmth but do not heat casualty - check: ■ pulse ■ respirations ■ blood pressure ■ skin colour **General** Use Standard Precautions. Reassure and support relatives/friends. Arrange for the casualty's disposal—medical aid, home or back to work, as appropriate.		

REFERENCE:

St John Ambulance Australia 1998, *Australian First Aid*, Third edition, reprinted annually. Chapters 1 and 5.

Emotional Distress

OBJECTIVE

On successful completion of this module, the member will be able to:

9.1 State the relationship between emotional distress and injury or illness;

9.2 State the classification of emotional distress and psychological disorders;

9.3 State the sign and symptoms of emotional distress;

9.4 Demonstrate the first aid management of a casualty with an emotional disorder;

9.5 State the mechanism, signs and symptoms of hyperventilation; and

9.6 Demonstrate the management of a casualty with hyperventilation.

PRACTICAL SKILL

To be demonstrated by the member:

9.1 Manage a hyperventilating casualty.

Introduction

The emphasis on the management of casualties with emotional distress is important and complementary to the more traditional aspects of first aid management and may be associated with any illness or injury.

Emotional distress

- accompanies all injuries, to a large or small degree
- is not easily remedied by treatment—it takes people time to cope
- requires tact and professionalism by the first aider
- may be an outward sign or symptom of an underlying medical disorder
- is the cause of the 'after shock' reaction leading to the post traumatic stress disorder
- can disturb decision making whilst adding difficulty to crowd and observer control or treatment routines
- may be an outward sign/symptom of a more serious underlying psychological disorder

The degree of emotional stress is influenced by the casualty's perception and interpretation of the events in addition to the nature of the event itself. It is dependent on the personality variables and life's experiences of the casualty.

Emotional distress and psychological disorders may be classified as:

Anxiety states—acute or chronic, includes panic states, generalised anxiety, obsessive-compulsive disorders, post traumatic stress.

Phobic states—fearful states, associated with panic, irrational fears.

Personality disorders—when unusual behaviour patterns can affect the casualty—first aider relationship, e.g. suspicion, indifference, melodrama, dependency, aggression.

Depression—can be mild to severe with suicidal thoughts.

Manic disorders—restlessness, racing thoughts, increased talkativeness, easily distracted.

Schizophrenia—bizarre ideas, delusions, hallucinations, irrational illogical thinking.

Symptoms include:

- fearful feeling
- hopelessness
- unhappiness
- confusion
- irrational/illogical thoughts
- unwillingness to cooperate
- headaches
- nausea/vomiting
- palpitations

Signs may be evident as:

- uncooperative behaviour
- irrational behaviour
- disturbance of consciousness
- restlessness
- rapid pulse, respiration
- Abnormal movements

The approach to a casualty with known or suspected emotional distress

DRABC—avoid confrontation associated with a violent casualty. Depending upon the emotional state of the casualty, it may be necessary to seek early police assistance.

Observe the casualty's behaviour—make some notes describing behaviour when time permits, along with the other observations that includes pulse and respirations on an Casualty Report form (OB12).

Take a history—where possible from others as well as casualty e.g. family, bystanders.

Warning: Remain aware that the emotional/psychological distress may be a presenting feature of: hypoxia, respiratory difficulty, shock, alcohol or substance abuse, drug/medication overdose (accidentally or intentionally), diabetes, head injury, serious brain injury, severe infections e.g. meningitis, dementia.

Obtain other first aid and appropriate professional assistance. Where possible, locate and have any medication available for identification.

During history taking, these specific signs and symptoms should be noted to help in the diagnosis:

- **fever**—an infection?
- **alcohol intake**—abuse or overdose
- **headache**—internal damage or disease?
- **abdominal pain**—infection, metabolic condition, diabetes?
- **sweating**—fever, hypoglycaemia?
- **changes in heart rate, respiratory rate, palpitations**—metabolic condition?

Core management strategies to be considered by the first aider include demonstrating to the casualty:

- dignity and personal respect
- compassionate and caring approach
- competence and a willingness to help
- calmness and control, and
- positive approach to the situation to effect the desired outcome/s.

Guidelines for management after the initial first aider approach:

Confirm with the casualty that being upset is a normal reaction and that it is transitory.

Offer assistance and intervention where it may be seen to be beneficial or necessary.

Show compassion, empathy and a willingness to listen. Provide comfort and companionship.

Where the casualty cannot express feelings, provide support.

Help find friends and families, especially when there is apparent confusion.

Be aware that unpleasant emotional feelings may have been precipitated by an incident. All people involved in the incident will be stressed.

Be prepared for extremes of responses—confusional states, fearful images, anger, violent outbursts, guilt, shame, anti-social behaviour or distrust. **As a first aider, try not to take these sentiments personally.**

Organise timely support and referral as an integral part of crisis management.

If possible, ask the person if and where they have received treatment in the past. If family members are present, ask for their assistance to gather more information about the casualty and to provide comfort. People with emotional disorders are likely to be cared for by a general practitioner or a community mental health centre, rather than a psychiatric hospital. Contact the relevant agencies or your local ambulance service for assistance.

On leaving the scene of an incident—perhaps going home, the casualty must have responsible support with them and at their destination.

To be a good listener:

Maintain eye contact; don't allow interruptions.

Question slowly and allow a mutual understanding.

Don't be judgemental.

Don't give instructions on how the casualty should be feeling.

Answer questions honestly and directly.

Be mindful of your body language to show a relaxed, attentive pose.

After the crisis or traumatic event

Later emotional support is necessary—the emotional phases are:

FIRST—time of disbelief, denial, relief where it could have been worse.

SECOND—time of guilt, shame 'Why did this happen'? 'Something should have been done'?

THIRD—anger, bitterness 'Who was to blame'? 'The authorities should have known better'.

FINALLY—post traumatic stress where behavioural changes can change the social pattern for the sufferer e.g. alcohol, nightmares, addictions.

The way in which the initial emotional crisis/distress is managed has significant effect on the severity and outcomes for both the casualty and the first aider.

Note: If a person with a psychological disorder is aggressive or potentially violent and it is assessed that he/she and/or the first aider may be at risk of harm, the police should be called to assist in the management of the casualty. It is not the role of the first aider to restrain casualties or prevent them from leaving a first aid facility. Such restraint could be unlawful.

Group activity—no: 1

Hyperventilation

What is hyperventilation?

What are the signs and symptoms of hyperventilation?

Refer to answers at the end of the module.

Additional Reading: *(refer to Module 13, Communication).*

Group activity—no: 2

Role-play and/or individual scenarios if considered appropriate.

Select and discuss emotional issues related to an incident attended by local members.

Outline the types of emotional issues confronting the casualty (if appropriate) and first aider when attending:

- an emotionally disturbed casualty with a long history of mental illness
- hysterical (female) casualty
- an elderly casualty who has died following a cardiac arrest
- a St John member who has sustained a needle-stick injury
- a teenage football player who is unable to move his arms or legs following a neck (spinal) injury

9.1 Manage a hyperventilating casualty

PRACTICAL SKILL

You are called to an incident where a casualty is hyperventilating as the result of an acute emotional state.

Checklist	Needs Improvement Date	Proficient Date
Primary assessment **Danger** On approaching the casualty, observe the scene for dangers: - to yourself - to others - to the casualty **Response** (Yes) - Speak to the casualty - 'lie/stay still—don't move' (casualty to be kept in the most comfortable position) - 'I am a first aider and I can help you' - 'my name is … ' - 'what is your name'? - clues for possible injuries		

Checklist	Needs Improvement Date	Proficient Date
Airway (Yes) - visibly check airway—mouth - maintain a clear and open airway		
Breathing (Yes) - ask the casualty what happened—'Tell me what happened' - place the casualty in a position that facilitates breathing, usually sitting in the upright position - calm casualty—remove casualty to a quiet and private place if necessary encourage slow, regular breathing—count breaths aloud if appropriate		
Circulation (Yes) - check for and control haemorrhage		
Secondary assessment Full examination of casualty (consent): - reassure the casualty - loosen tight clothing		
Obtain a history of events from the casualty: **A** **Allergies** **M** **Medications** currently used **P** **Past** illnesses/**Pregnancy** **L** **Last** meal **E** **Events/Environment** - check casualty for Medic Alert Bracelet - exclude other injuries—look, listen and feel - check for wounds, fractures—from head to toe - manage injuries - refer casualty urgently to medical aid		
Check: - pulse - respiration, rate, depth and effort		

Checklist	Needs Improvement Date	Proficient Date
- blood pressure, and - skin colour Check level of consciousness: **A** **Alert** **V** Responds only to **Vocal** stimuli **P** Responds only to **Painful** stimuli **U** **Unresponsive** to all stimuli - check pupil response and size - recheck pulse, respiration and blood pressure, level of consciousness, pupils and abdominal wound every 15 minutes General Complete Casualty Report form (OB12). Use of Standard Precautions. Reassurance and support of relatives and or friends. Ambulance handover if necessary.		

Answer to Questions

What is hyperventilation?

Hyperventilation is described as abnormally prolonged and deep breathing or over breathing caused by acute anxiety or emotional tension.

A transient, respiratory alkalosis commonly results from hyperventilation with the fall of carbon dioxide in the blood.

What are the signs and symptoms of hyperventilation?

The signs and symptoms of hyperventilation are:

- shallow rapid breathing
- rapid pulse
- dizziness
- feeling of suffocating—pins and needles
- tingling or spasms of hands and feet—tetany spasms

REFERENCES

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Pons, P.T. 1999, *Emergency Secrets*, Hanley and Belfus, Philadelphia.

Smith, R.E. 1993, *Psychology*, West Pub Co, St Paul, USA.

St John Ambulance Australia 1998, *Australian First Aid*, reprinted annually. pp 326 and 385–93.

Tintinalli, J.E., et al 1996, *Emergency Medicine*, McGraw Hill, USA.

Casualty Handover

OBJECTIVE

On successful completion of this module, the member will be able to:

10.1 Identify health care professionals who require this casualty care information;

10.2 State why this information is essential for the ongoing care of the casualty;

10.3 Demonstrate an oral handover;

10.4 Demonstrate an understanding of the medico-legal implications of documentation; and

10.5 Demonstrate competency in completing a Casualty Report form (OB12).

What is a Handover?

A handover is the transfer of information of the casualty's condition from one person to another.

A detailed handover may be given to:

Health care professionals:

- doctors
- nurses
- ambulance officers

St John members:

- other first aiders
- health care professionals
- Duty Officer

Brief information relating to the casualty's condition may be given to:

- relatives and friends
- officials—police, event organisers, statutory bodies
- media—by the Duty Officer

Confidentiality

Information regarding the casualty's condition can be made available to:

- persons involved in ongoing care of the casualty
- statutory authorities who have rights by law
- those to whom the casualty has given written permission

Note: There is an obligation by members of the Operations Branch to ensure confidentiality of information is not breached whether in written or oral form.

Handover to medical and first aid personnel

Essential information:

- past history
- name of casualty, address and age

- presenting problem and history including eyewitness accounts
- observations including vital signs
- brief results of casualty assessment
- treatment
- response to treatment
- ongoing advice given

Note: All this information should be documented on an Casualty Report form (OB12).

A detailed handover is required for the following specific conditions.

ALTERED CONSCIOUS STATE

The AVPU system is used to record a casualty's conscious state.

A **Alert**

V Responds to **Vocal** stimuli

P Responds only to **Painful** stimuli

U **Unresponsive** to all stimuli

Alternatively, the Glasgow Coma Scale may be used to determine the casualty's level of consciousness. The scoring grid is outlined on the cover of the Casualty Report form (OB12) pad.

RESPIRATORY DISTRESS

PASSRESPS

P Position **A** Appearance **S** Speech **S** Sounds **R** Respiration

E Effort **S** Skin **P** Pulse **S** State of consciousness

PAIN

DOLOR

D Description **O** Onset **L** Location **O** Other signs and symptoms **R** Relieving factors

FRACTURES

PILSDUCT

P Pain **I** Irregularity **L** Loss of movement **S** Swelling

D Deformity **U** Unnatural movement **C** Circulation **T** Tenderness

Example of a Verbal Handover

To an Ambulance Officer

The casualty is Mrs Henrietta Brown, a 56 year old female who presented to the first aid room with chest discomfort of 2 hours duration whilst sitting watching a croquet match.

She is complaining of central chest pain with a score of eight out of ten. She is alert and orientated. Her pulse is 105 and regular and her respirations are 24 per minute.

Mrs Brown has a history of heart disease and angina. She currently takes 25mg of metoprolol (Betaloc or Lopresor) twice daily for her blood pressure. She carries a spray for her angina. She is allergic to penicillin.

Mrs Brown was placed on 8 litres of oxygen per minute by face mask. Her pain score is now four out of ten. The casualty's own medication has not been administered at this stage.

To a friend

Mrs Brown's chest pain is improved but unrelieved. An ambulance has been called as she needs medical assessment.

Exercise

Develop verbal handovers to a responding ambulance crew for the following scenarios:

1 A young female casualty by the name of Susan Davis who has taken an overdose of Paracetamol tablets.

2 A young male casualty by the name of Alfred Deakin who is having breathing difficulties as the result of a fall.

3 A middle age female casualty, Miss Christine Shadbolt with an intellectual disability who has had a seizure.

Scenarios are to be adapted to the knowledge base, level of experience and other qualifications of individual participants to provide role modelling for less experienced members of the Operations Branch.

Consider utilising the following to guide the members through the handover process.

Description of casualty—age, sex and method of presentation.

Primary assessment/description of presenting problem:

- airway
- breathing
- circulation
- priority interventions and treatment
- vital signs

Secondary assessment

History of event—AMPLE method:

A **Allergies**

M **Medications** currently used

P **Past** illnesses/**Pregnancy**

L **Last** meal

E **Events/Environment**

Identified injuries/illness, level of consciousness by AVPU system or Glasgow Coma Scale. (see page 100)

Relatives and/or friends aware of casualty's condition or transfer for further care.

General standards for documentation

There are a number of mandatory requirements for completing a Casualty Report form.

The requirements relate to the following areas:

- accuracy
- completeness
- legibility

- objectivity
- timeliness
- use of abbreviations and symbols
- errors
- signing the record

Accuracy

Accuracy is an essential requirement of documentation. Members must distinguish between what they observe and what is stated by the casualty.

For example, a casualty may state that they had been assaulted by three youths. This should be reported as 'Casualty stated that they were assaulted by three youths', not 'Casualty assaulted by three youths'. Unless the member actually witnessed the assault, the casualty's complaint of assault is alleged and should therefore be reported as such. Here-say is generally not admissible in court, as such.

Completeness

Entries should be a concise and complete account of the interaction that occurred between the member and the casualty.

If any aspect of assessment, if treatment or other details does not appear on the Casualty Report form, the interpretation by Australian courts is—it did not occur, unless further evidence is available to suggest otherwise.

Legibility

The need for accuracy and legibility is paramount. Illegible reports can easily be misinterpreted. All entries must be made in ink (preferably black) so that copies may be made if necessary and must be made using a ball-point pen pressing firmly so as to ensure that all copies of the form are legible.

Objectivity

Written reports should be objective and should not include the opinions or value judgements of the member. For example, the statement that the casualty 'appears to be intoxicated' or 'under the influence of a substance' could be recorded in the following manner:

- casualty's gait unsteady (manner of walking)
- casualty's speech slurred
- casualty's breath smells strongly of alcohol

Note: Any 'opinion' that is not supported by fact should be avoided.

Timeliness

The Casualty Report form should be completed in a timely manner and as close to the event as practical. Recordings that are not completed soon after the event may lack accuracy due to difficulties in recall.

Use of abbreviations and symbols

Abbreviations and symbols should not be used in the report unless they are an accepted medical abbreviation. If unsure, it is better not to use them.

Errors

Errors made during the completion of the Casualty Report form should be dealt with as follows:

- cross through the incorrect entry with one line only
- record 'written in error' beside the incorrect entry
- initial the correction

Note: Do not obliterate the error. Do not use block-out or liquid paper. The original mistake must remain legible.

Signing the report

The area at the bottom of the Casualty Report form is for the recording of such details as the name of the members involved in the case, their signature and their position within the Operations Branch.

The designated member who treated the casualty must complete and sign the record in the appropriate space.

Instructions for completing an Casualty Report form (OB12)

1. Casualty and situation

1.1 The area at the top of the Casualty Report is for the recording of situational information such as the date, the duty at which the member is attending, the time the casualty was first seen, and all casualty details.

1.2 Details such as name, home address and date of birth should be recorded. It is most important that names and addresses are spelt correctly.

CONFIDENTIAL **OB12**

Casualty Report

St John Ambulance Australia

Date	Duty		Member No.	Time in	
Casualty Name	Surname	Given Names		Sex	D.O.B.
Casualty Address			Postcode	Telephone	Category

2. History

2.1 The assessment phase of casualty management is essential as it provides the basis upon which other health care professionals can plan and initiate appropriate care.

2.2 Casualty assessment and recording a history are the two major elements of assessment. This section of the report form is for recording information gathered during the history taking.

2.3 The history section of the Casualty Report form should be completed as follows:

- **History**—insert information in relation to the description of the event, how the event occurred and when it occurred.
- **Past Medical History**—mark the appropriate box with a tick should the casualty indicate that he/she has previously experienced the condition.

Note: If not listed, tick 'other' and insert the name of the stated condition. The name of any prescribed or non-prescribed medications the casualty is currently taking is recorded in the 'medication' section. If the names are not known, then enter 'unknown'. Attach a separate list if there is insufficient space.

2.4 Details of any known sensitivity to medications or environmental allergies are recorded on the top line of this section.

History	**Allergies** (list, if any)		☐ English speaking	☐ Non-English speaking
What is the problem?				
How did it happen/develop?				
When did it happen/develop?				
Where did it happen/develop?				
Past Medical History:	☐ Not known	☐ Diabetes	☐ Epilepsy	☐ Medic Alert
	☐ Nil	☐ Asthma	☐ Loss of Consciousness	☐ Hypertension
	☐ Other:	☐ Cardiac	☐ Medication.....	

3. Assessment and observations

3.1 At the earliest practical time after arrival of the casualty, a full set of observations is to be recorded.

3.2 The frequency with which observations are recorded thereafter is dependent upon the condition of the casualty and is therefore, at the discretion of the member, in conjunction with the accepted casualty care regime.

3.3 Enter the appropriate number in the small shaded boxes (1 to 4) under the headings of Breathing, Skin, Pulse and Consciousness. Valid options are displayed in tabular form under each heading.

3.4 Enter any other signs and symptoms in the space provided. This includes relevant information obtained from examining the casualty, such as pain level assessments.

3.5 Based on the information already available, enter the casualty's overall assessment or present complaint in the appropriate space provided.

3.6 Above the body diagram on the report, there is a table for the recording of up to four sets of casualty observations. Time is recorded in 24 hour format—enter:

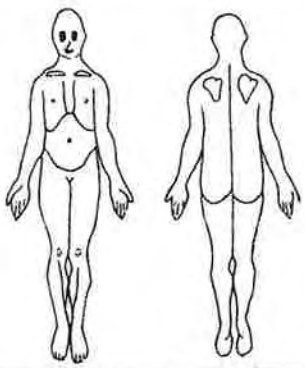
- pulse rate—per minute
- respiratory rate—per minute
- temperature—if taken
- conscious state—either AVPU system or Glasgow Coma Scale as printed on the back cover of the OB12 casualty report form pad
- pupil size—left and right,
- pupil reaction to light-left and right
- any other observations are to be recorded in the space provided

3.7 The final section relating to casualty assessment is the diagram and its associated legend. Points and/or areas affected by any injury or discomfort are shaded or pinpointed on the diagram. Each one of these is then allocated a letter according to the legend as given. Finally, the area on the body affected by injury or discomfort is selected from the 'location' table and the appropriate figure is entered in the small shaded box.

Casualty Assessment

Breathing [1]	Skin [2]	Pulse [3]	Conscious [4]	Other Signs & Symptoms
1. Normal	1. Normal	1. Normal	1. Alert	
2. Deep	2. Pale	2. Slow	2. Responds to	
3. Shallow	3. Flushed	3. Rapid	voice	
4. Absent	4. Moist/clammy	4. Strong	3. Responds to	
5. Wheeze	5. Dry	5. Weak	pain	
6. Gasping	6. Sweaty	6. Can't be felt	4. Unresponsive	
7. Rapid	7. Cool/Cold	7. Regular		**Overall Assessment:**
8. Slow	8. Warm/Hot	8. Irregular		

Time	Pulse	Resp.	Temp.	Glasgow Coma Scale E V M TOTAL	Pupils' size R L	Pupils' reaction R L	Other Observations



A - Abrasion
Bl - Bleeding
Bu - Burns
C - Contusion
D - Deformity
F - ? Fracture
L - Laceration
P - Pain
S - Swelling
T - Tenderness

Location [5]
1. Head
2. Facial
3. Chest
4. Abdomen
5. Limb
6. Spinal
7. Multiple
8. Back

4. Treatment

All interventions or treatments by the Operations Branch member must be accurately and legibly recorded at the time of such treatment, and in the sequence they were initiated.

4.1 The shaded check boxes (6–11) are completed according to the basic treatment undertaken. If the type of treatment indicated in a particular area is not required for that casualty, then 'N/A' will be entered in the appropriate shaded box.

4.2 The free-entry area under the treatment heading is to contain a legible explanation of treatments given or recommended to complement the check-boxes 6–11. Approved abbreviations may be used if required in this section. If no treatment is given, then this area is to be completed with the word 'nil'.

4.3 The free-entry area under the 'medication given' heading is to record any medication administered (or 'nil'), the dosage given (or 'N/A'), the time given and route administered (or 'N/A').

4.4 The check boxes at the bottom of this section indicate whether the casualty had his/her own medication or not; and whether they refused treatment against advice. If the casualty has refused treatment, then a witness should be asked to verify such refusal by signing in the space provided.

5. Verification

The section at the bottom of the Casualty Report form will contain the particulars of the Operations Branch member. In the case where another member acts as recorder and completes the report form while the treatment is being administered, it is the treating member's responsibility to read the completed document, and once satisfied that all is correct, to complete the verification details—including the time when the casualty left their care.

6. Submission of the completed report

6.1 The **white** (top) copy of the completed form is to be filed with the senior officer of the unit—whether Division, Region, State/Territory or other. The filing of this form along with the tendering of any empty restricted medication containers will facilitate the replenishment of any used medications. Where medications have been administered, a copy of this form will be forwarded to the professional review committee.

6.2 The **pink** duplicate copy of the report form will be handed to the receiving health-care professional on handover, or the casualty, if referred to ongoing care by private means.

6.3 The **yellow** duplicate copy of the report form will be filed by the member.

6.4 The **blue** copy of the report (if applicable in your state for a particular event) may be submitted to the event organiser

Exercise

Role play if considered appropriate.

Provide the appropriate first aid management to the casualty for the scenario as outlined below:

1 Prepare a verbal handover to the responding ambulance crew.

2 Complete an Casualty Report form (OB12)

Scenario

A middle aged (56 years of age) male casualty of Vietnamese origin is found collapsed in a toilet. You are summoned to the location by a police officer who arranges a Vietnamese interpreter to be present on your arrival as the casualty does not speak English.

On arrival you assess the male casualty who is conscious and has a Glasgow Coma Score of 15. He is observed to be rubbing his chest, appears clammy, with pale skin, and his breathing effort is rapid and shallow.

His vital signs are:

Pulse	88 irregular/weak
Respirations	28 shallow
Blood pressure	105/85
Skin colour	pale
Peripheries	clammy

On assessment:

Medic Alert bracelet:	1. Diabetes
	2. Angina

History through interpreter:

The casualty had the desire to go to the toilet when he had a sudden episode of central chest pain (crushing in nature) radiating down his left arm and into his back. The pain is unrelenting and is associated with nausea, clamminess and difficulty in breathing. It is not relieved by Anginine spray and appears to the casualty to be getting worse. He has a fear of impending death.

A short time after your arrival to the casualty his distraught partner arrives on the scene.

Assessor actions:

Other information relating to the scenario and to reflect local conditions can be provided by the assessor.

Manage the casualty as you consider appropriate.

REFERENCE:

Hart I. St John Ambulance Australia 1999, Casualty Report form lesson plan. OB12 Instruction Package.

Skin Physiology, Burns and Scalds

OBJECTIVE

On successful completion of this module, the member will be able to:

11.1 Describe the functions of the skin;

11.2 State the causes of burns;

11.3 List the types of burns;

11.4 State the severity of burns; and

11.5 Manage a casualty who has suffered a burn.

Anatomy and physiology

The skin, also known as integument (meaning covering) is the largest organ in the body. The skin has many functions that include providing a barrier between the external and internal environment of the body, thereby decreasing the risk of infection, regulating body temperature and preventing fluid loss. Many of these functions are lost when the skin is injured and the speed at which they are lost depends on how much skin is injured. Burns form a special example because large areas of skin can be affected leading to rapid changes in these functions and threat to the life of our casualties.

Functions of the skin

Protection against:

- mechanical damage—injury
- chemical damage—acids and alkalis
- Infection—bacteria
- ultraviolet radiation—sun
- drying out—desiccation

Temperature regulation:

- increases or decreases blood flow to skin

Excretion of wastes:

- urea and uric acid secreted in sweat

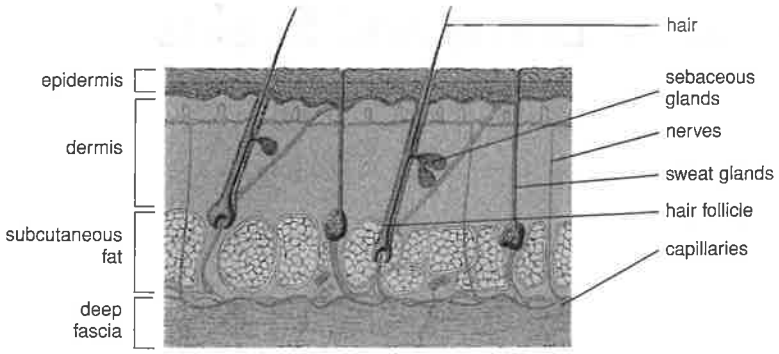
Vitamin D synthesis:

- Vitamin D is produced from cholesterol as the result of action of the sun on the skin

The skin comprises of two tissue layers, the epidermis and dermis. The skin lies on the hypodermis (subcutaneous tissue) that is attached to the underlying muscle or bone.

The epidermis is the outermost layer made up of epithelial cells. The epidermis does not contain any blood vessels or nerve fibres.

The dermis—which underlies the epidermis is comprised of connective tissue. The dermis provides the structural strength of skin and contains blood vessels, nerve endings, sebaceous glands and sweat glands.



The hypodermis contains fibrous and connective tissue as well as fat. The hypodermis attaches the epidermis and the dermis to the underlying bone and muscle and supplies the above layers with blood vessels and nerves. Approximately 50% of the body's stored fat lies in the hypodermis and as such acts to insulate the body and assist in temperature regulation.

Burns

Burns are a major cause of death from trauma. A burn is tissue damage and cell death caused by heat, electricity, radiation or chemicals.

Skin is very sensitive to heat, however it is usually not damaged unless temperatures are above 50°C. Above this temperature, severe burns may result. The severity of a burn is generally dependent on the intensity and duration of the exposure to the source.

Two major consequences arise from burns, namely fluid and electrolyte loss and infection. Both pose a considerable threat to life.

Types Of Burns

Burns may be classified as thermal, electrical, radiation and chemical. In addition, they may be external or in the airway (inhalation).

Thermal

Thermal burns are caused by exposure to heat. This may be in the form of flames, hot liquids or hot solid objects. Water at 60°C can cause a serious burn in approximately 5 seconds whereas water at 49°C would take approximately 5 minutes. Thermal burns are the most common type of burn, especially in young children and the elderly.

Inhalation burns are caused by inhalation of hot gases, steam, smoke or toxic fumes. These burns may result in damage to the airways and lung tissue. Complications of inhalation burns include airway swelling and obstruction, carbon monoxide poisoning, accumulation of fluid in the lungs (pulmonary oedema), local irritation and systemic poisoning.

Electrical

Electrical burns may occur from both low and high voltage. The extent of electrical burns is difficult to see because most of the damage occurs below the surface; therefore, **significant deep tissue damage may have occurred despite only an apparently minor superficial burn to the skin**. The degree of tissue damage is related to the current level and the duration of exposure. Electrical burns may also be complicated by cardiac arrhythmias.

Radiation

Radiation burns occur as a result of either UV or ionising radiation. The sun is the most common form of UV radiation and burns may occur after prolonged exposure to the sun. Burns from ionising radiation (alpha, beta, gamma and neutron rays) can occur from medical devices or from accidents involving radioactive materials.

Chemical

Chemical burns can occur when the skin comes in contact with chemical substances that are caustic, in particular, acids, alkalis and corrosive substances.

Assessment of burns

Depth

Clinical examination of a burn will give an approximation of the depth of the burn. Some authorities have divided burns into four major categories and it is useful to know these as well:

Superficial burns involve damage to only the epidermis. If severe, some fluid may leak into the epidermis causing swelling and blistering.

Superficial partial thickness burns occur when the upper layers of the dermis are injured resulting in leakage of fluid into the tissues, producing blistering. The burns are commonly caused by brief exposure to flame or spill scalds 50–70°C. The area is red or mottled red and white, very painful and blistered with copious tissue fluids.

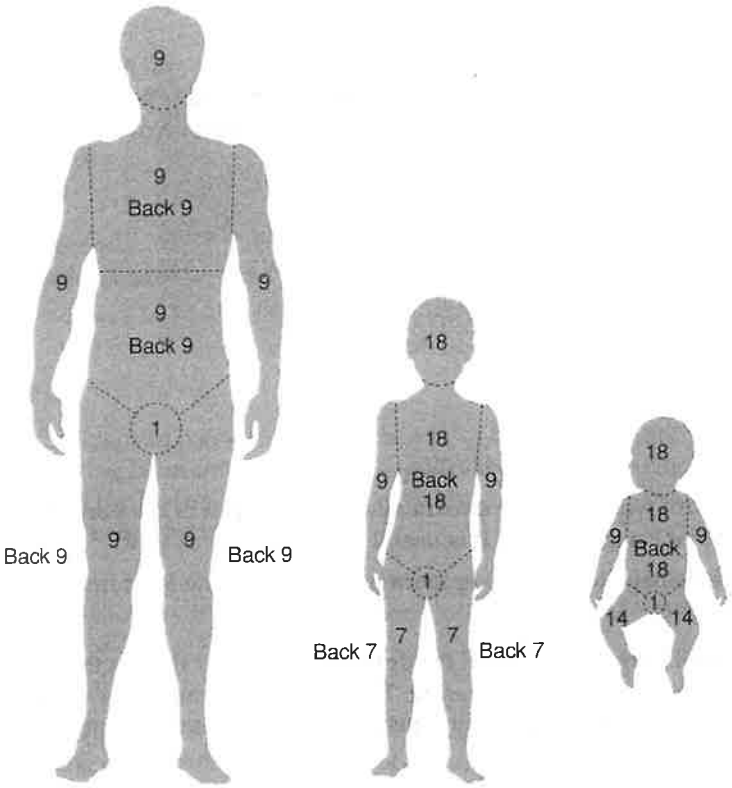
Deep partial thickness burns involve the epidermis and much of the dermis. They are caused by scalds of longer duration or temperature of more than 70%, or exposure to flame. The area is dark red or pale yellow, denuded of epidermis, with a moist surface.

Full thickness burns involve damage to the epidermis, dermis and hypodermis and possibly deeper structural damage. The area may appear charred or like leather. Full thickness burns are not usually painful however surrounding superficial or partial thickness burns will cause pain if present.

Area

The burnt area should be estimated as a percentage of total body surface area using the 'Rule of Nines'. Eleven areas of the body are allocated a nominal value of 9% and one area, the perineum, a nominal value of 1%. The area differs between adults, children and babies.

Burns involving the face are especially hazardous as the airway may also be involved. Airway swelling and obstruction are potentially life threatening complications. Other areas of concern include the hands, feet and genitals. Although the relative percentage is small, they are associated with more complications.



Rule of nines for adult, child and baby

Age

All burns are potentially serious. However, young children and the elderly have many more complications associated with burns.

Associated injuries

Associated injuries include shock, smoke inhalation, restricted circulation to a limb, pulmonary injury and airway burns. These should always be considered, especially in burns involving the face and upper torso.

Burns requiring specialist care include:

burns greater than 20% of body surface area;

- burns with respiratory tract involvement
- burns involving the face
- superficial burns larger than a 20 cent piece
- chemical burns
- electrical burns
- burns associated with other injuries
- burns in children and the elderly
- burns involving hands, feet and genitalia

Management of Burns

DRABC

Danger

Do not become a casualty yourself—only proceed if safe to do so.

If the casualty is on fire, have the casualty stop and drop to the ground (if conscious) and roll, 'Stop—Drop—Roll'. A blanket may also be useful to assist with this process.

If electricity is involved, the electrical source **must** be turned off or the casualty removed if this is safe to do.

If chemicals are involved, ensure that you do not become exposed yourself.

Response

Determine the casualty's level of consciousness. The AVPU scale is useful *(see Module 3, p. 39)*. If the casualty is unconscious, place on side in recovery position.

Airway, Breathing and Circulation

Remember that the airway may be involved. Be alert for airway involvement including soot in and around the mouth and nose, hoarse voice, facial swelling and burns. Airway burns are a medical emergency and medical aid should be sought immediately. Smoke inhalation, carbon monoxide poisoning and pulmonary damage are common and high flow oxygen should be administered if available. Shock may also be present and should be managed, with the casualty lying with legs elevated if appropriate.

Stop the burning process

The severity of a burn is related to the duration of exposure, thus the burning process must be stopped as soon as possible.

1. Extinguish any flames as mentioned above.
2. Clothing should be removed if possible as it often retains heat and may mask burns. If clothing is stuck to the burned area, cut around the stuck clothing.
3. Jewellery should be removed as the tissue swells and may occlude circulation.
4. Cooling should begin immediately with water or saline, sufficient to cool the burned area—be careful, not to overcool the casualty

Pain relief

Pain associated with burns may be severe. Cooling will assist in decreasing pain. Inhaled analgesics such as Entonox or methoxyflurane are often effective, but should not be used if an airway burn is sustained—avoid further irritation of the airway. Stronger analgesia may be used by the Ambulance Service or Health Care Professionals *(refer OFA, p. 73–74)*.

Wound care

Small burns should be covered with a sterile non-adherent dressing with **no creams or lotions applied**. For large burns, the casualty should be covered with a sterile burns sheet, clean bed sheet or plastic wrap to minimise the risk of infection.

Secondary assessment

- determine the severity of the burns
- manage other injuries
- monitor vital signs

Note: Urgent medical aid should be sought as soon as possible if the burns are assessed as severe.

Exercises

1. Manage a 10 x 5 cm burn caused by hot water (55°C) on the forearm which is red and feels like it is burning intensely. There are no other injuries.
2. Manage a 20 cm circular burn of the lower abdomen, caused by boiling water. The burn is now white and not hurting much.
3. Manage a burn of most of the face caused by a 'flash' from a barbeque which flared. The casualty also has a broken wrist.
4. Manage a 12 month old child who has been exposed to the sun all day at the beach and has redness and blistering over most of the body. The child is listless but still conscious and crying.

References:

Prehospital Trauma Life Support Committee of the National Association of Emergency Medical Technicians in cooperation with the Committee on Trauma of the American College of Surgeons. PHTLS Basic and Advanced Prehospital Trauma Life Support.4th ed. St Louis: Mosby; (1999) p.248-56

Leditschke JF. Burns and scalds. In: Pearn J, Leditschke JF, Marshall V, Williamson J, Bowler P. (eds) Theoretical and experimental basis of modern first aid practice. St John Ambulance Australia, Canberra, 1996 p.117-24

Lifting and Moving Casualties

OBJECTIVE

On successful completion of this module, the member will be able to:

12.1 Perform a risk analysis—to move or not to move;

12.2 Describe and demonstrate safe lifting techniques;

12.3 Demonstrate:

- cradle lift
- two and four handed seat lift
- blanket lift;

12.4 Demonstrate the use of a:

- Patslide
- Scoop Stretcher
- Jordon/Donway lifting frame
- trolley stretcher;

12.5 Prepare a stretcher for use; and

12.6 Securing casualty to a stretcher.

PRACTICAL SKILL

To be demonstrated by the member:

12.1 Two and four handed seat lift;

12.2 Scoop stretcher;

12.3 Jordon/Donway lifting frame (RESTRICTED TO MEMBERS TRAINED IN THIS SKILL);

12.4 Lifting and carrying a stretcher; and

12.5 Lifting and carrying a trolley stretcher (RESTRICTED).

Why lift or carry a casualty?

Some casualties cannot move themselves and therefore need to be lifted and carried. Any casualty whose condition or injuries will be made worse by standing or moving should be instructed to remain still. The decision is then made whether the casualty is to be moved. **If the casualty is in danger, then he/she is moved immediately.**

The casualty is treated that is, any haemorrhage is controlled, pain relief given if required, fractures immobilised, and oxygen administered if appropriate. Prior to being moved and handed over to Ambulance Officers, **the casualty's injuries or condition always dictate whether they should be lifted and carried.**

To lift or not to lift?

There are dangers involved to Operations Branch members when lifting or carrying casualties. The member's own health and safety should always be considered before attempting to lift or carry a casualty or equipment. In fact, it may be necessary on some occasions to treat and leave the casualty where he/she is, rather than risk

injury to yourself. Lifting equipment such as material stretchers (lifting sheets etc), lifting frames or scoop stretchers should be given preference when lifting, as they allow for many people to assist with the lift or carry. If you injure yourself, you cannot assist the casualty any further.

1. If the casualty does not need to be lifted or carried, then do not carry out this function.
2. If the casualty appears to be too heavy, do not attempt to lift; send for assistance.
3. Use a lifting device if available or send for one.
4. If the ambulance is fifteen to thirty minutes away, make the casualty comfortable, treat wait and monitor.
5. If the casualty's condition allows, let him/her move around. Assist the casualty but allow him/her to weight bear if able to do so without causing further injury.
6. When lifting or carrying, always ask for assistance from other members or members of emergency services.
7. Take equipment to the casualty, not the casualty to the equipment.
8. Record the weight of first aid resources on the lifting equipment, so members will know how much it weighs before they lift it. The total weight to be lifted is the combined weight of the casualty, the lifting device and any other equipment attached to the casualty.

Lifting technique

1. Lift with your legs.
2. Keep your back straight while bending your hips and knees, tuck your chin to your chest and tighten your abdominal muscles.
3. Hold weight as close as possible to your body.
4. Lift with a smooth even movement.
5. Do not twist your back.
6. When preparing to move off, point your feet in the direction you wish to travel.
7. Use commands 'lift on the count of three', 'one, two, three' to ensure a smooth and even lift when lifting with 2 people or more.

Cradle lift

The cradle lift is only used to carry a **small, lightweight,** casualty—a child. Small children when unconscious are best carried with one arm under their knees and the other arm around and supporting neck. If the casualty appears too heavy, request assistance and use an alternative lift. Use lifting equipment if available.

- ensure your back is kept straight
- use your leg muscles to rise
- arch backwards slightly to counterbalance weight

Two and four handed seat lift

These two techniques are only used when lifting and carrying equipment is not available. A wheel chair or wheeled stretcher should be used if available. it is used for a conscious casualty who can be carried in a sitting position.

The two-handed seat is used for any conscious casualty who can be carried in a sitting position, but needs support from both first aiders. The four-handed seat is used when the casualty is able to use one or both arms to help.

Note: The higher the casualty is lifted, the easier carrying will be. The first aiders' arms should not be straight under the casualty's thighs as this makes carrying more difficult.

Blanket lift

The blanket lift should only be used when lifting equipment is not available. A stretcher should be used wherever possible in place of a blanket, as these are made from superior material and have numerous carry handles. A number of persons can assist in lifting and carrying.

Procedure:

- place the blanket on the ground in line with and against the casualty
- roll it lengthwise for half its width
- roll the casualty onto the uninjured side
- placed the rolled portion of the blanket close to the casualty's back
- roll the casualty over the rolled edge onto the back
- unroll the blanket
- to lift—roll up the edges of the blanket close to the casualty—at least two first aiders should kneel on either side of the casualty and grasp the rolled edges, arms well apart, ensuring that the casualty's head is fully supported
- while lifting the casualty, the first aiders should lean backward slightly and pull outward on the blanket to keep it firm
- keep your back straight and lift with your legs
- keep the weight as close to your body as possible
- keep your arms straight
- use commands to ensure a smooth even lift

Material carry stretcher/lifting sheet:

These are usually made from strong fabric or high quality PVC and used in preference to a blanket for lifting and carrying a casualty. Blankets may vary in quality and age and can be a potential hazard. A lifting sheet is fitted with loop handles in six to eight places around the perimeter so several people can lift and carry, reducing the risk of injury. The procedure for lifting is the same as for a blanket lift.

Patslide

This is used for moving a casualty from one stretcher or bed to another. Therefore, manual lifting is not required, reducing the risk of back injury.

Procedure:

- place the Patslide on the bed or stretcher to which the casualty is to be moved
- explain the procedure
- place the two beds next to each other so they are touching—if possible, raise or lower the beds so as they are at the same height; ensure brakes are locked
- undo the bottom sheet from the bed that the casualty is lying on
- using the bottom sheet, log roll the supine casualty onto the (uninjured) side and place the pat slide under the casualty
- return (roll) the casualty onto his/her back
- roll the sides of the sheet up close to the casualty to make handles
- slide the casualty across to the other bed
- holding the sheet, slide the pat slide out from the casualty's injured side

Scoop stretcher

The Scoop stretcher is used for casualties with suspected spinal injuries. However, it may be used for general lifting purposes. It may be used to lift any casualty who requires lifting from the ground or floor.

It is a lifting device that should be removed when the casualty is placed on a standard stretcher, trolley or bed.

Jordon/Donway lifting frame

This lifting frame is used to transfer casualties with suspected spinal injuries on to a stretcher. However, it may be used for general lifting purposes. The device consists of a rigid frame between which twelve plastic gliders or slats are secured after being slid underneath the casualty.

Lifting and carrying a trolley stretcher

There are at least three main types of trolley stretchers—two Ferno models and a DHS model. All three have different locking mechanisms for vehicle loading and different lowering, raising mechanisms and adjustment options.

Prepare a stretcher for use

Before preparing to place a casualty on a stretcher, it is important to ensure that the stretcher is safe to use:

- test stretcher for strength and security
- keep stretcher as level as possible
- keep movement to necessary minimum
- correctly position casualty on stretcher—depending on injuries and condition
- protect casualty from weather when necessary
- fasten casualty securely to stretcher

Securing casualty to a stretcher

Use the device recommended by the manufacturer for the stretcher. Velcro fasteners are easily fastened and unfastened. The device should be anchored at multiple points on a stretcher. They are necessary to prevent further injury to the casualty when moving and to avoid first aiders being put at risk, due to weight variations or movement.

Procedure:

Devices, when available or fitted, must be used whenever the equipment is used and secured when not in use so as not to cause accident or injury *(refer AFA 1998, p. 262).*

12.1 Two and four handed seat lift

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- hold each other's wrists firmly (left to right; right to left) - squat down to allow casualty to sit on hands - rise together to lift casualty - step off on inside foot together - use crossover step to walk		

12.2 Scoop stretcher

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- explain procedure - remove any debris from around the casualty - place the scoop stretcher next to the casualty and adjust its length to that of the casualty—lock length in position - unlock and separate the two halves of the scoop stretcher - position yourself at one end of the scoop stretcher and an assistant at the other end - gently and carefully slide each half under the casualty until the ends meet, and lock the two halves together - caution should be used when placing the scoop stretcher under the casualty as debris, clothing, hair or the casualty's skin may get caught in the scoop - the casualty should be secured onto the stretcher prior to lifting - request assistance when lifting		

12.3 Jordon / Donway lifting frame (RESTRICTED)

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- place the frame around the casualty, with the top lug in line with the casualty's ear - slide plastic slats underneath casualty—tapered end first - fasten slats to frame - adjust position and tension of each slat as necessary - use two or more first aiders to lift casualty		

12.4 Lifting and carrying a stretcher

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
- three or more people lift the stretcher—stand at each end of the stretcher, facing the direction they wish to travel - keep back straight and bend at the hips and knees - hold the stretcher carry handles with a firm grip - keep the weight close to your body - use commands to ensure a smooth, even lift—'prepare to lift', 'lift'. - keep your arms straight - when turning, move your feet in the direction you wish to travel—this ensures your back stays straight - person facing the casualty monitors their position on the stretcher - when moving over rough terrain or on steps, face the casualty in the direction which most suits their condition - wherever possible, the people lifting and carrying the stretcher should be the same height		

12.5 Lifting and carrying a trolley stretcher (RESTRICTED)

PRACTICAL SKILL

Checklist	Needs Improvement Date	Proficient Date
The generic functions of a trolley stretcher are to be demonstrated by the member in accordance with the manufacturer's operating guidelines: - release and unload from vehicle - secure and load into vehicle - raise and lower through all height positions - adjust head elevation\adjust foot elevation (if possible) - securing casualties to stretcher (straps or harness) - moving stretcher over flat ground - moving stretcher over uneven ground		

REFERENCE:

St John Ambulance Australia 1998, *Australian First Aid*, reprinted annually. Chapter 15.

Communication

(Optional module for assessment)

OBJECTIVE

On successful completion of this module, the member will be able to:

13.1 State the components of a supportive communication system;

13.2 State the importance of listening;

13.3 Consider the relative strengths of each communication method; and

13.4 State the importance of communicating effectively with external clients.

Communication within St John

First aiders are aware of a communication system within our own bodies—the nervous system. It is the nervous system which provides for the communication of outgoing messages from the brain to the muscles. Similarly our five senses take messages back to the brain. It is a complex communication system that normally operates with absolute efficiency and effectiveness. The central nervous system needs to 'understand' the messages coming in and prepares the instructions it wishes to send out to muscles. As a result, the body functions effectively and under maximum protection.

St John Ambulance—though a large organisation of several parts, also needs to operate as effectively as possible. The organisation relies upon its component parts to 'do their bit' in dealing properly with messages coming in and going out. Breaks in St John's outgoing and incoming 'nerves' will result in underperformance of the whole 'body'.

Exercise 1—Jiggling the nerves of communication

Here is an exercise for divisional members. You will need a large hall or outside area. Set up some 'labels' for each member. Give one person the 'Commissioner' label, another the 'State/Territory Superintendent' label. Three people should have 'Regional Superintendent' labels. Up to nine members should have the label 'Divisional Superintendent'. The rest of the members should each carry the label 'Divisional Member'. Have the members stand out in hierarchical formation; Commissioner at the top end, the State/Territory Superintendent next, then the Regional Superintendents standing in their row, then the Divisional Superintendents in their row, and finally the Divisional Members in their row.

Now introduce several lengths of red wool (about nine lengths will be needed) that stretch from the Commissioner, to the State/Territory Superintendent, to the Regional Officers, Divisional Superintendents and Members. The red wool represents the **messages going out** from the **centre** and ultimately to the divisional members. Lay the strands on the ground in their correct position.

Introduce the same number of blue lengths of wool and treat them similarly except that they represent the **messages going back** to the **centre**.

There should also be lengths of red and blue wool spanning across neighbouring Regional Superintendents and neighbouring Divisional Superintendents.

Now ask the members to jiggle the relevant strands of wool for each of the following examples of communication (some are outward and some are inward). Make sure they identify the right coloured strand. *For example if a Divisional Superintendent writes a letter which* ***recommends admission*** *to* ***the*** *Order for one of her members, the message will pass along the route of the blue strand: Regional Superintendent—State/Territory Superintendent—Commissioner. There would be no need to jiggle any other sections of the system.*

1. Commissioner issues a written instruction to the total membership—concerning for example, annual returns.
2. One of the Regional Superintendents issues an instruction to the members of her region only.
3. One of the Divisional Superintendents invites the Commissioner and State/Territory Superintendent to visit his/her division on the 10th anniversary of its formation as a division.
4. One of the Regional Officers invites a neighbouring Regional Officer to involve his region in a joint-regional field training day—incorporating a family picnic.
5. The Divisional Superintendent invites his neighbouring colleague for an end of year celebration at his next divisional meeting.

This exercise will raise a number of issues such as:

- Is it necessary to communicate through all of the intervening levels in all cases?
- Is each case an example of a formal or informal communication process?
- Were there glitches in the processes? If there were lapses, you might like to physically sever the relevant strand with a pair of scissors to demonstrate the break. It can be tied together again for the next example.
- Is the system under which our State/Territory operates any different in structure?

The supportive communication system

Consider a number of successful teams in the fields of sport, politics or business. A common characteristic of the successful team is the ability of its members to communicate freely and effectively with each other. Successful teams don't have meetings for the sake of meetings. They meet with a purpose in mind. Discussions are unimpeded—everyone has a chance to openly and freely express an opinion. Good team members are good listeners. A good listener will cast aside any pre-judgement and give another person's ideas a fair hearing. This is particularly important when there is a mix of longer serving and newer members in the division. The longer serving members can unwittingly have an intimidating and disempowering effect on new or younger members. In a successful unit, the younger members **and** their ideas will be welcomed. With well developed listening skills, the leaders in the division can gauge:

- the level of morale in the team;
- the priorities of the members;
- members' ideas about improving the effectiveness of the team;
- training needs of members; and
- the level of talent and leadership potential in individual members.

A 'pat on the back' is powerful affirmation for any team member. Affirming one another's efforts will lift the whole team into higher levels of achievement. Sometimes we fail to acknowledge the contributions of fellow members. Even routine, unspectacular efforts can be applauded—e.g. 'Peter did an excellent job cleaning our windows last week'.

St John members traditionally take a high level of interest in the welfare of one another and willingly lend a hand. Individual members will from time to time experience 'rough patches' in their lives. If there is not a caring environment, these members will find it difficult to continue with their voluntary service in times of personal pressure.

All members can be powerful **role models** of effective teamwork and communication. The 'rumour mill' can be harmful to good morale and honest communications. Behind the scenes 'grizzling' is a very poor substitute for open discussions. The member who chooses not to join the gossip or grizzle group becomes a conspicuous role model whom the rest of the team will admire and even emulate.

The manner in which we correct one another's behaviour is an important and sensitive aspect of the communication process. If a member is doing something the wrong way, he/she needs to be told. However, handling the issue in a clumsy and thoughtless way can lower self-esteem and can even result in resignation. An incorrect behaviour needs to be dealt with fairly and supportively. It is an opportunity for the member to

explain his/her actions and for the officer to provide supportive correction. Members will respond positively to criticism which is fair and supportive. Suppose you made a mistake on duty. Which of the following responses would you more appreciate from your supervisor?

'If I ever see you being so clumsy with your handling of the casualty again, I will see that you are out of my unit'!

'When you applied that bandage, you unfortunately cut off much of the peripheral blood supply to the hand. The hospital was concerned for the long term viability of the casualty's fingers. Next time, do all the same things but apply the bandage less firmly'.

Question:

Assuming that the first supervisor's response occurred, how many acts of clumsiness were there in that situation? (Clue: more than one!)

Exercise 2—The supportive communication system checklist

Make a 'secret ballot box' from a shoe-box or something similar. Each member is asked to indicate on his/her **checklist** the degree to which the division is achieving each of the listed **communication criteria**. If a member feels that a particular criterion is being achieved to the full, he/she shades in the criterion box fully. If he/she feels the criterion is only being say 'half' achieved, the criterion box is only half shaded in ... and so on. The divisional leaders can then open the 'secret ballot box' and share the results with the members. No doubt the results will lead to some healthy discussion on how to improve those areas in which deficiencies are evident. Anonymity is assured in such a process.

SUPPORTIVE COMMUNICATION CHECKLIST

- ☐ The views of new and younger members are welcomed and respected.
- ☐ All of our members show an interest in one another's welfare.
- ☐ Members often receive a 'pat on the back' for a job well done.
- ☐ Mistakes are corrected fairly and supportively.
- ☐ Our meetings are always purposeful—discussions are open and kept 'on track'.
- ☐ There is a strong feeling of team spirit in our division.

Modes of communication

Spend some time now listing as many modes of communication you can think of. The telephone and memo note are two to get you started. You should be able to list about ten before checking the list below:

Enohpelet, eton omem, xaf, ecaf ot ecaf, rettelswen, sgniteem, liame, liam, elibom, serutseg, oidar yaw owt, tnemesitrevda,

Exercise 3—Considering the strength of each mode of communication

Now consider each in terms of the following important criteria:

Certainty—will the intended receiver get the message?

Clarity—will the message be as clear and as simple as possible?

Availability—is the mode of communication always available to the sender?

Confirmation—can the receiver confirm that he/she has received the message?

Personability—the mode of communication is not cold and impersonal.

Economical—is the mode of communication reasonably cheap?

In the following table, score each of the modes against each criterion by allocating a mark out of ten. For example, face to face communication would have a very high Certainty score.

	Telephone	Memo	Fax	Face to Face	Newsletter	Meeting	Email	Gesture	Radio	Advertising
Certainty										
Clarity										
Availability										
Confirmation										
Personability										
Economical										
TOTALS										

Your discussions would have generated some interesting conclusions. One group who discussed the material made the following conclusions:

Face to face communication was a 'clear winner' in terms of the most preferred mode of communication; the implication being that leaders should maintain a presence and visit their members as frequently as possible, making themselves accessible for two way communications.

The **gesture** mode was of course the most informal mode.

Written forms of communication scored more highly on the **clarity** criterion.

The **telephone** was seen as an effective mode of communication.

There were some misgivings about the effectiveness of the **newsletter** when the communication of the issue was crucial.

Communication with outside parties

Communication with our casualties

Case Study 1—Intelligence on wheels
A wheelchair casualty had been injured while alighting from a wheelchair taxi. The first aiders were called. They found the wheelchair casualty conscious but with a suspected broken rib. The casualty's spouse was standing by the wheelchair. The first aider was asking questions to establish the events immediately leading up to the incident. The questions were being asked of the spouse rather than the casualty. The casualty interrupted: 'I'm not silly you know—I can answer any of these questions myself'.

Case Study 2—Wrong at first glance
The casualty who had suffered a diabetic episode was lapsing in and out of consciousness when the first aiders arrived. Finding the casualty unconscious, they placed her on her side and conducted their secondary assessment. Because the casualty was lapsing in and out of unconsciousness, she was able to hear some of the conversation between the first aiders. She even heard them say she was drunk when they first approached her.

Case Study 3—Proper protocols
Mary D'Souza is 28 years of age. She was trying to get onto a Ferris Wheel at the agricultural show when she fell two metres into the general framework of the Ride. First aiders were quickly on the scene. They found Mary conscious. Pulse rate was checked and limbs carefully examined for further injuries such as fractures. Mary became extremely distressed because the first aiders were touching her. They did not understand why her pulse rose sharply—owing more to the apprehension of being touched than medical shock. The first aiders had not explained why they were touching her and had not asked Mary permission to conduct the assessment of her injuries.

Case Study 4—Life made difficult for the Coroner
The first aiders who attended a fatal vehicle accident were subpoenaed as witnesses to the Coronial Inquiry into the deaths of the occupants. The Coroner was trying to establish whether one of the casualty's head injuries might have been sustained **after** the vehicle accident when a brawl ensued. He was hoping that the first aiders' documentation would show whether or not a head injury had been found and treated. To his disappointment, he found that the documents had not been completed with any real care—none of the injuries sustained by the occupant in question had been listed. Hence the need to subpoena the first aiders as witnesses to get their account of what really occurred when they were caring for the casualties.

Exercise 4—Identifying the issues
The following two columns are unmatched at this stage. Connect the inappropriate behaviour from the first aider with the relevant case study:

Not respecting the rights of the casualty.	Wrong at first glance.
Indiscretion with inter-member dialogue.	Life made difficult for the Coroner.
Prejudging the casualty.	Proper protocols.
Not completing the documentation with sufficient detail/accuracy.	Intelligence on wheels.

Communication with external clients—It's a pleasure to be of service

In recent years the Australian Office of St John has engaged an outside consultancy to determine the extent to which St John needs to improve its relationship with the rest of the community (1).

While the findings were encouraging in terms of St John's general image and nation-wide presence, there was a perception on the part of clients that improvement was needed in service delivery—particularly in our training and supplies activities.

Operations Branch members are in a strong position to promote St John as a leading national organisation of first aid volunteers. Simply wearing the uniform in public makes some kind of statement to all who see it. If the uniform is correct and neat, it will convey a good impression on the public. It is a statement of voluntary service, helpfulness, reassurance in a crisis, hope for a casualty. It is a statement of professionalism and teamwork and implies that the members have been trained to a base competency level for the administration of first aid. Members should be proud to wear the uniform of St John Ambulance. It flags the fact that St John provides a voluntary service to all. When in uniform, the member represents the whole of St John. The member is an ambassador for the organisation. This is how the public comes face to face with St John.

Members should wear their uniforms when asked to address community groups on the aims and operations of the organisation. Done properly, such occasions can be of enormous benefit to St John and can result in increased recruitment, financial or in-kind support, useful community networking and a general increase in awareness of St John as a major national organisation of first aid volunteers.

Exercise 5

The uniform is designed to lift the image of the organisation in the eyes of the public at large. Do you think there could be occasions when the wearing of the uniform could actually bring harm to St John's good reputation in the community? Discuss some instances and list them. Then check your group's responses against the checklist (in small print).

- .....
  .....
- .....
  .....
- .....
  .....
- .....
  .....

Checklist

- a "sloppy" or incomplete uniform does not reflect efficiency or pride
- members in uniform may be behaving poorly (consider examples)

(1) TNS Consultants, Qualitative Findings for External Customer Satisfaction, August 1999

RECORD OF SKILL MASTERY - 2002

Tick the box for 'Competent', 'Not yet competent' or 'Re-assess'. Please write the Assessor's family name in block letters. One of the following is to be entered under 'Position' below: MO—Medical Officer, NO—Nursing Officer, AO—Ambulance Officer, ADT—Divisional Trainer approved by State Medical Officer and TBAI—Training Branch Accredited Trainer.
*denotes **restricted** assessment checklist

Skill	Comp.	Not yet comp.	Re-assess	Date	
					Assessor's name
1.1	❐	❐	❐		
1.2*	❐	❐	❐		.....
1.3	❐	❐	❐		Assessor's Signature Position
					.....
2.1	❐	❐	❐		Assessor's name
					.....
					Assessor's Signature Position
					.....
3.1	❐	❐	❐		Assessor's name
					.....
					Assessor's Signature Position
					.....
4.1	❐	❐	❐		Assessor's name
					.....
					Assessor's Signature Position
					.....
5.1	❐	❐	❐		Assessor's name
5.2	❐	❐	❐		
5.3	❐	❐	❐		.....
5.4	❐	❐	❐		Assessor's Signature Position
5.5	❐	❐	❐		
5.6	❐	❐	❐		.....
6.1	❐	❐	❐		Assessor's name
					.....
					Assessor's Signature Position
					.....

Skill	Comp.	Not yet comp.	Re-assess	Date	
7.1	❒	❒	❒		Assessor's name
7.2	❒	❒	❒		.....
7.3*	❒	❒	❒		Assessor's Signature Position
					.....
8.1	❒	❒	❒		Assessor's name
					.....
					Assessor's Signature Position
					.....
9.1	❒	❒	❒		Assessor's name
					.....
					Assessor's Signature Position
					.....
12.1	❒	❒	❒		Assessor's name
12.2	❒	❒	❒		.....
12.3*	❒	❒	❒		
12.4	❒	❒	❒		Assessor's Signature Position
12.5*	❒	❒	❒		.....

Fitness Assessment

Assessment for all Operations Branch members to be able to wear the uniform - One Person CPR (Adult)

Notes for Assessor

1. Members do this assessment when they are prepared to demonstrate their ability in CPR and fitness.
2. A pocket mask may be used during this exercise.
3. Members may choose to stop at any time during this assessment.
4. Assessors are asked to stop any member who is experiencing undue physical distress during this assessment.
5. A member may present as many times as necessary to complete this assessment.
6. Members should aim to achieve a rate of 100 compressions per minute in a cycle of 15 compressions to 2 breaths.

Demonstration of ability and fitness

Tick box if task is performed

1. Check for danger ❒
2. Check for response ❒
3. Recovery position ❒
4. Call for help ❒
5. Airway clearance ❒
6. Breathing check (ten seconds) ❒
7. Supine position ❒
8. Two effective breaths ❒
9. Pulse check (ten seconds) ❒
10. Initiation of CPR ❒

Duration of CPR in minutes 1 ❒ 2 ❒ 3 ❒ 4 ❒ 5 ❒ 6 ❒ 7 ❒ 8 ❒ 9 ❒ 10 ❒

Call for ambulance ❒

Pulse and breathing checks ❒ ❒ ❒ ❒ ❒ ❒ ❒ ❒ ❒ ❒

Fitness Assessment ASSESSOR Please tick

The member has satisfactorily performed ten minutes of continuous one-person CPR on a manikin. Yes ❒ No ❒

Please sign and **print** name

Signed: .....Date ..... / ..... / 2002.

Name: .....Position: .....

DECLARATION OF CONTINUED FITNESS FOR PUBLIC FIRST AID DUTIES

The following Declaration of Fitness for Duty is in line with the policy issued in Chief Commissioner's Order 7/00 of 10 July 2000:

I understand that, as a member of St John Ambulance Australia Operations Branch, I may be required to perform a variety of tasks and duties and assume responsibilities including those listed below:

1. *To perform first aid duties in all circumstances including emergency and stressful situations which have been explained to me.*
2. *To work as part of a team and accept directions.*
3. *To communicate orally with casualties, fellow workers and the public in various environments and appropriately complete a Casualty Report form (OB12).*
4. *To perform 10 minutes of effective one person adult Cardiopulmonary Resuscitation. (This ability will be assessed annually)*
5. *To carry a first aid kit and other emergency apparatus, weighing up to twenty kilograms, a reasonable distance to a casualty and administer first aid in a timely manner in a variety of environments.*
6. *To assist in moving a casualty if needed and carry, with the assistance of one or more first aiders, a casualty on a stretcher a reasonable distance.*
7. *To lift a casualty as part of a team when required and manoeuvre and load a casualty, with or without assistance, onto a stretcher.*
8. *To undertake study programs, participate in gaining and developing the knowledge and skills relating to first aid and use the knowledge and skills acquired from such study programs.*
9. *To recognise limits of first aid and my abilities and to be ready to ask for help.*
10. *To take precautions for my safety and those for whom I am caring, including maintenance of personal immunisation status and carrying out of protective measures (e.g. wear protective gloves) consistent with the duties to be performed.*

I have read and understood the relevant St John policies and procedures.

I am able to fulfill the requirements for public first aid duties. If at any time I am no longer able to do so, I will advise the appropriate officer at the earliest practical moment.

I acknowledge that:

- *a false or misleading statement could lead to disciplinary action*
- *there are health risks associated with smoking, excess alcohol intake and the use of illicit drugs. These activities may also adversely affect my ability to effectively serve the community*
- *St John Ambulance Australia has a duty to ensure that members allocated to a duty are able to function safely and effectively*

If at any time, even at the time of this declaration, it becomes apparent, or there is reason to believe, that I am unable to safely and effectively perform the duties and requirements of my position, I may be invited to attend a medical assessment for a 'Review of Ability' by an Operations Branch medical officer. I may elect to have this assessment, at my expense, by a private practitioner of my choice.

Signature:..... Date: / /

The Superintendent/Officer-in-charge is to send the bottom section of this page to the State/Territory Medical Officer at the State/Territory Office.

CONFIRMATION OF COMPLETION OF SKILLS MAINTENANCE PROGRAM, 2002

Name (please print).....
Family name
Division.....Date joined St John ...../...../.....

Signed.....Date...../...../ 2002
Member to sign when Program completed.
The above member has completed the program to my satisfaction:

.....Date...../...../ 2002
Person responsible for training, print name and address and sign

.....Date...../...../ 2002
Divisional, Regional or State/Territory Professional Officer responsible for training, print name and address and sign

To be completed if the member needs a Training Branch First Aid Certificate issued.
The above member has satisfied the standards required by the Training Branch for an Advanced First Aid Certificate accreditation or re-accreditation.

.....Date...../...../ 2002
Training Branch Accredited Trainer, print name and address and sign

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The above copy is to be retained by the member

The Superintendent/Officer-in-charge is to send only the bottom section of this page to the State/Territory Medical Officer. **A record of receipt will be held at State/Territory Office.**

✂.....

ADVICE OF COMPLETION OF SKILLS MAINTENANCE PROGRAM, 2002
This is to advise that
Name (please print).....
Family name

of.....Division who joined St John ...../...../.....
has completed the Skills Maintenance Program for 2002. The confirmation of this fact in the member's manual has been duly and fully completed.

Name (please print).....
Person responsible for training, print name and sign

Position.....

Signed.....Date...../...../ 2002
To be completed if the member needs a Training Branch First Aid Certificate issued
The above member has satisfied the standards required by the Training Branch for Advanced First Aid Certificate accreditation or re-accreditation.

.....Date...../...../ 2002
Training Branch Accredited Trainer, print name and brief address and sign