

Australian Alpine Training Institute

Advanced Emergency Care

STUDY GUIDE





Advanced Emergency Care Program

Study Guide

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Advanced Emergency Care Program Outline 2011

Conducted by the Australian Ski Patrol Association (RTO Provider No 91180)

Objective

The ASPA Advanced Emergency Care Program is designed to give ski patrollers and trainee ski patrollers the necessary theoretical knowledge and practical skills to be able to perform the role of advanced emergency first aid provider in an outdoor setting.

Certification

The certification for the course is nationally recognised and industry approved. Competency across all areas of the course gives the participant a time-expiring three year validated certification in the following modules:

NTISID: HLTA301B	Apply First Aid (24 hours)
NTISID: SRXEMR003A	Administer oxygen in an emergency situation (4 hrs)
NTISID: SRSSPT003A	Implement sports first aid procedures and apply sports first aid (12 hrs)
NTISID: HLTA402B	Apply Advanced First Aid (24 hrs)
NTISID: PUAOPE010A	Operate a semi-automatic defibrillator in an emergency (4 hours)
NTISID: SRXFAD005A	Manage casualty in a remote and/or isolated area (20 hrs)

This is an 88 hour integrated program which relies heavily on previous industry experience to achieve the required standards within the course timeframe.

Course Content

1. The Australian Ski Patrol Association
2. The role of the ski patroller
3. Medico legal issues
4. Anatomy and Physiology
Cells, Systems of the Body, Musculoskeletal System, Bones, Types of Bones, Structure, Joints, The Skeleton, Skull, Spine, Shoulder Girdle, Rib Cage, Upper Extremities, Pelvis, Lower Extremities, Muscles, Connective Tissue, Respiratory System, Circulatory System, The Nervous System, Digestive System, Urinary System, Endocrine System, Reproductive System, Integumentary System (Skin)
5. Approach to the casualty
6. Basic Life Support
7. Respiratory System Emergency Management
8. Circulatory System Management
9. Injuries to the Nervous System
10. Management of medical conditions
11. Fractures, dislocations and sprains
12. Management of upper limb injuries
13. Management of lower limb injuries
14. Other injuries due to trauma
15. Injury due to temperature extremes
16. Poisoning, bites and stings
17. Pain and inhalational pain relief



18. Childbirth
19. Practical applications of knots, slings and splints
20. Infection control
21. Application of the Automated External Defibrillator
22. Use of medical oxygen
23. Multi-casualty and Scene Management

Prerequisites

To attend this course candidates must:

- be over 18 years of age (or be a junior patroller endorsed by an Australian Ski Patrol)
- hold a current nationally recognised first aid certificate
- be a ski patroller in Australia, intending to pursue this vocation or be a member of ASPA
- have approval from the ASPA executive to attend the course, if not currently or intending to be, a ski patroller

Resources

All resources are supplied by ASPA. Equipment, assessments, CDs, handouts, student guides, lectures, demonstrations and administrative equipment are part of the course.

Program

Times for the program vary; however, this is considered a four day attendance program with individual study, pre-course preparation, mid-course seminars and workshops, and on-course and end-of-course assessment requirements.

Students should allow sufficient time to read through the Advanced Emergency Care Manual and be conversant with medical terms and specialist equipment. Students are advised to join a patrol prior to attempting this course and should have at least 10 days on-snow experience with a patrol.

Assessment

All assessment is competency based and involves a range of written and scenario-based assessment strategies. If deemed 'not yet competent', a candidate may attempt one re-sit of each practical assessment on the day of the exam. After that, arrangements will need to be made on an individual basis for assessment. The subsequent assessment may be resort-based after further training and experience, and must be conducted by a suitably qualified, ASPA approved assessor.

Philosophy

All first aid courses are nationally recognised as part of the Australian Qualifications Framework (AQF) system. Our other programs have been created from nationally authorised competencies. Each individual program has a statement of its recognition and students should check the individual statements.

Your expertise is a valuable asset and ASPA recognises the skills and knowledge that you may have gained. This is called ***recognition***.



You may be entitled to gain recognition that will exempt you from attending one or more modules, or maybe all of an ASPA course. Alternatively, your qualifications and skills may gain you entry to ASPA courses.

Recognition allows a person to receive recognition and credit for the knowledge and skills they have, no matter how and where they were attained, including overseas. This can include skills from: previous study (including courses at school or college, through adult education classes or training programs at work); life experience (for example leisure pursuits or voluntary work) and work experience (including both work that is paid and unpaid).

Recognition is a broad term that covers:

- Pre-arranged recognition of prior learning
- Recognition of prior learning
- Training organisation credit transfer
- Mutual recognition

What matters in obtaining recognition is that the knowledge and skills you have gained help to meet the learning outcomes and assessment criteria of the qualification for which you are seeking credit.

Equally, recognition can assess your overseas qualifications relative to Australian skills and qualifications. To apply for recognition you will need to provide evidence of your previous study or experience such as original result notices, certificates or references that give details of your work experience or you must be able to demonstrate your skills.

Vision Statement

ASPA is the peak industry body for alpine safety in Australia. It's training organisation is a leading partner in ski safety and rescue training, advanced first aid training, skiing and the outdoor recreation qualifications. ASPA trainers and assessors provide an adaptable resource of valuable individuals benefiting the general community.

Mission and Strategic Intent

ASPA's training organisations are member driven to deliver specific high quality training and certification for ski patrollers and other alpine vocations. We provide public training in our areas of expertise. We surpass member and student expectations in support of, participation in, and service to the ski community. We do this through:

- An esprit de corps that inspires involvement;
- Exceptional educational and training programs;
- Dynamic communication;
- Outstanding membership support services;
- Energetic interagency and stakeholder relations; and
- A strong financial position and management.

Statement of Purpose

The purposes of the Australian Ski Patrol Association's training organisations are to provide high quality training for alpine vocations:



- to enable the rescue and first aid treatment of injured skiers and other visitors to alpine areas;
- to promote awareness of the need for high standards of safety in Australian alpine areas and, without limiting the generality of this object, to standardise the training of alpine rescue workers and first-aid providers;
- to establish and promote alpine management and recreational safety standards in Australian alpine areas;
- establish and maintain uniform rescue, risk management, skiing, first aid training for and on behalf of its members and students;

And to:

- To act as a repository of expertise and knowledge available to the alpine rescue community.

Values

We value:

- Our clients and students
- Our people (including our volunteers and specialist trainers)
- Innovation and creativity
- Ethical practice
- Cultural and social diversity
- Continuous improvement

Components of the Course

Private study and pre-course assessment
Course work, including extensive use of role play and scenarios
Group work out of scheduled course time is expected

PowerPoint

PowerPoint slides are provided for course content.

Study Guides

Study guides are provided for course content, and practical assessment sheets are designed to allow students to use them for preparation as well as feedback.

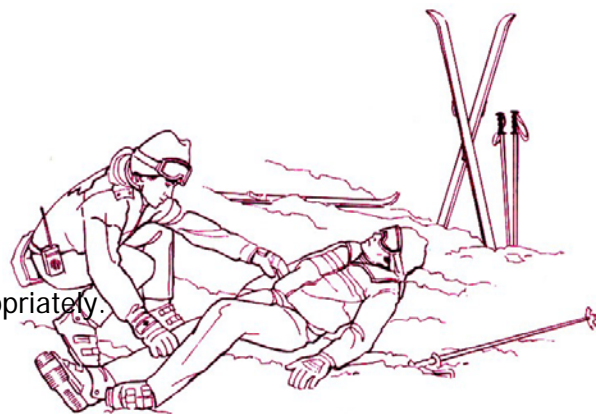


Approach to the Casualty

Objectives

At the end of this module the participant will be able to:

- Categorise safety hazards and manage them appropriately.
- Assess a casualty for injuries.
- Perform a primary survey.
- State the principles of examination.
- Assess and manage a casualty using a trauma management model.
- Manage several casualties with injuries, through a triage process.
- State the signs of injury to the head, spinal column, chest, abdomen and pelvis.
- Use a 'Pass or Fail' rapid assessment method called TOTAPS.
- Identify a casualty placed in the Lateral Recovery Position.
- Obtain information and history using the SAMPLE method.



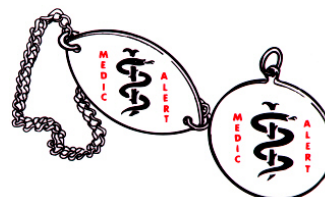
Study Guide

Incident Scene Evaluation

- Danger to self, bystanders and the casualty

Individual Casualty Incidents

- Ask permission
- Mechanism of injury
- Witnesses
- Establishing priorities



Medic-Alert Bracelets

Mass Casualty Incidents

- Triage
- Bystander assistance
- Scene Management

Casualty Assessment

- Primary Survey - Danger, Response, Send, Airway, Breathing, Circulation
- Vital Signs Survey - Level of Consciousness - Glasgow Coma Scale
- Secondary Survey
 - Principles of Examination - TOTAPS - talk, observe, touch, active movement, passive movement, Specific examination methods for head, eyes, spinal column, chest, abdomen, pelvis, limbs, one-sided weakness, medical alert identification

Lateral Recovery Position

- Application and reasons for use



Transport of the unconscious casualty

- Position of the casualty in relation to slope, airway maintenance, confirmation of condition

Assessment Flow - D R S A B C D E F G H I



Sample Questions

1. Which of the following conditions would be treated first?
 - a. Cessation of heart beat.
 - b. Severe spurting bleeding from the upper leg
 - c. Cessation of breathing
 - d. Unconsciousness

2. You are the first to arrive at the scene of motor vehicle accident where a bus has skidded off an icy road down an embankment. There are at least ten people that you can see in various states of injury. Do you:
 - a. Treat the first person you come to who has severe bleeding
 - b. Quickly assess the casualties, then treat the most severe injuries first
 - c. Call for assistance on your radio giving a report of the scale of the incident
 - d. Mark the road to stop further vehicles sliding off it

3. What are the elements of the primary survey? (How are they applied?)

4. Who is normally in charge of an incident? (Why?)

5. List 3 examples of medical information that could be found on a Medic-Alert bracelet.

6. When examining the abdomen, what signs would indicate intra-abdominal trauma?

7. How often should you recheck vital signs during the secondary survey?

8. What are the three elements of the Glasgow Coma Scale (GCS)? (What are the measures?)

9. What priority should be applied to issues of circulation, breathing, airway management and personal danger in treating a casualty?

10. Why should a casualty with a lowered level of consciousness be placed in a lateral recovery position for transport?

Summary Notes

T O T A P S

Talk to the patient: establish their response to person, place time and event; ask for symptoms

Observe the entire casualty: look for signs; lack of movement, swelling, deformity, bleeding

Touch after permission is given: feel for tenderness, change in contour, crepitus

Active movement: can the casualty move the affected body parts?

Passive movement: on gentle movement by the patroller of the body part; is there pain, guarding, apprehension?

Skill test: can the casualty perform skills test; stand up, move the limb, rotate joints

S A M P L E

When asking about the patient's history, include:

Symptoms, Allergies, Medications and when last taken, **Previous illnesses or injuries, Last meal time, Event related history**



O P Q R S T A

Onsset of the event

What the casualty was doing when it started (active, inactive, stressed), whether the casualty believes that activity prompted the pain, and whether the onset was sudden, gradual or part of an ongoing chronic problem.

Provocation or **P**alliation

Whether any movement, pressure (such as palpation) or other external factor makes the problem better or worse. This can also include whether the symptoms relieve with rest.

Quality of the pain

This is the casualty's description of the pain. Questions can be open ended ("Can you describe it for me?") or leading. Ideally, this will elicit descriptions of the casualty 's pain: whether it is sharp, dull, crushing, burning, tearing, or some other feeling, along with the pattern, such as intermittent, constant, or throbbing.

Region and **R**adiation

Where the pain is on the body and whether it radiates (extends) or moves to any other area. This can give indications for conditions such as a myocardial infarction, which can radiate through the jaw and arms. Other referred pains can provide clues to underlying medical causes.

Severity

The pain score (usually on a scale of 0 to 10). Zero is no pain and ten is the worst possible pain. This can be comparative (such as "... compared to the worst pain you have ever experienced") or imaginative ("... compared to having your arm ripped off by a bear"). If the pain is compared to a prior event, the nature of that event may be a follow-up question. The patroller must decide whether a score given is realistic within their experience - for instance, a pain score 10 for a stubbed toe is likely to be exaggerated. This may also be assessed for pain now, compared to pain at time of onset, or pain on movement. There are alternative assessment methods for pain, which can be used where a casualty is unable to vocalise a score.

Time (history)

How long the condition has been going on and how it has changed since onset (better, worse, different symptoms), whether it has ever happened before, whether and how it may have changed since onset, and when the pain stopped if it is no longer currently being felt.

Associated Signs and Symptoms

What are the associated signs and symptoms? (pulse, blood pressure, sweating, skin condition, speech, ability to move, shock, fearful, emotional, etc)



Child Birth

All senior first aid courses require awareness training on emergency childbirth. Immediate medical assistance should be sought.

At the end of this module the participant will be able to:

- Make an assessment of pregnancy and labour.
- Have a working understanding of the basic management of delivery.
- Recognize the importance of post natal care of mother and infant.

Study Guide

Pregnancy and Labour

- Understanding normal and premature gestation.
- Identifying signs of the onset of labour – the *show*, water break and contractions.

Management of Delivery

- Preparation of sterile environment.
- Basic resource needs.
- Labour and delivery procedure. The three (3) stages of labour:
 - i) Onset of contractions to full cervical dilatation.
 - ii) Transition from cervical dilatation to delivery.
 - iii) Delivery of placenta or afterbirth.

Post Natal Care

- The danger of hypothermia.
- Attending to groin tears.
- Medical aid.

Sample Questions

1. When the water break appears green or brown or stained with meconium it is a sign of:
 - a. Normal onset of labour.
 - b. A ruptured uterus.
 - c. A distressed foetus.
 - d. Placenta discharge, signalling a birth complication.
2. The following analgesics are effective during labour:
 - a. None. There is no analgesic that can be used by a patroller during pregnancy.
 - b. Both Penthrane and Entonox.
 - c. Entonox.
 - d. Penthrane.
3. List the three stages (in order) of labour?
4. When should a patroller perform a vaginal examination?



5. What is a normal gestation period?
6. What are the three signs of the onset of labour?
7. What position should the mother be placed in during labour?
8. What is the procedure of 'rubbing up' used for? Describe the procedure?
9. Describe the process for ligating the umbilical cord?
10. What is shoulder Dystocia? What should a patroller do when presented with this situation?

Summary

The first aid management described in this programme refers only to **normal, uncomplicated delivery**. Complicated births are common, but there is very little the patroller can do other than institute basic supportive care and get the mother to medical aid urgently.

The administration of oxygen and analgesia is also advisable, with the correct use of Entonox sanctioned for pregnancies. Entonox application is covered in ASPA's Pain and Pain Inhalation programme.

Post-delivery bleeding, known as *post-partum haemorrhage* is a common complication, evident by continued bleeding from the vagina after delivery.

First aid management includes 'rubbing up' the uterus through the abdomen (as previously described) to keep the uterus firm and contracted.

If this simple measure fails, **help must be sought urgently**, as it is possible for the mother to bleed to death.

Management for shock should be commenced.



Circulatory System Management

At the end of this module the participant will be able to:

- Identify the dangers to the casualty, of haemorrhaging and the need to control bleeding.
- Identify the body's responses to bleeding – internal and external bleeding.
- Be able to carry out the management of a casualty's internal and external bleeding, including specific types of bleeding.
- Define the causes and types of shock that result from haemorrhaging.
- Identify the Signs and Symptoms of shock and also the different types of shock.
- Be able to carry out the management of these different types of shock.
- Be able to take an accurate systolic blood pressure in the field.

Study Guide

Haemorrhage and control of bleeding

Bleeding (haemorrhage)

Response of the body to bleeding

External bleeding

Internal bleeding

Internal bleeding at fracture sites

Bleeding from specific areas

- Nose
- Scalp
- Lung

Shock

Causes of shock

- Hypovolaemic Shock
- Cardiogenic Shock
- Vascular Dilation

Clinical Features Of Shock

- Underlying Cause
- Severity of Shock
- Compensatory Mechanisms

General Signs And Symptoms Of Shock

- Management of Shock

Taking Systolic Blood Pressure In The Field



Sample Questions

1. Which of the following is NOT recommended in the management of bleeding?
 - a. Reassure the casualty
 - b. Direct pressure
 - c. Pressure points
 - d. Tourniquet
2. What percentage of a casualty's blood loss results in mild shock?
 - a. 0% - 15%
 - b. 15% - 30%
 - c. 30% - 45%
 - d. 45% - 60%
3. Identify the three classifications of external bleeding? Briefly describe each aspect?
4. What percentage of a casualty's blood loss results in mild shock? What percentage results in life threatening danger?
5. Define the haemostatic mechanism?
6. Define shock?
7. Identify and give examples of the four different types of stimuli that can lead to anaphylactic shock?
8. How is hypovolaemic shock different from cardiogenic shock?
9. Define vascular dilation shock and identify the three types of this shock?
10. Why should the patroller give nothing to eat or drink when managing shock?

Summary

Taking Systolic Blood Pressure In The Field

- A blood pressure cuff is needed to check the systolic blood pressure of the casualty.
- Diastolic blood pressure is not needed to allow monitoring of a casualty in shock. With wind and external noise, diastolic blood pressure measurement is very difficult in any case, with reported high levels of inaccuracy.
- It is not necessary to remove the casualty's parka or other clothing to obtain an acceptably accurate measurement. It must be noted however, that the reading obtained by taking blood pressure over several layers of clothing will be higher than if taken over a bare arm, and so may be falsely reassuring.
- A fall in systolic pressure over time is more significant than the actual pressure.



Step 1: Position the inflatable cuff around the upper arm of the casualty above the elbow and brachial artery. The centre of the bladder in the cuff should lie over the brachial artery in the upper arm.

Step 2: Find and monitor the radial pulse throughout.

Step 3: Inflate the cuff until you can no longer feel the pulse. This may be as high as 200mmHg, in people with high blood pressure, more normally about 140 to 160mmHg.

Step 4: Slowly deflate the cuff, reading off the Systolic blood pressure at the moment the radial pulse is felt returning.

Step 5: Repeat the procedure as a check measure.

NB. If the radial pulse cannot be found, the brachial pulse may be used. If neither pulse can be detected in the arm the casualty's blood pressure is dangerously low and urgent transport to medical aid is required.

You should practice applying a bandage and tourniquet using the assessment checklist.



Fractures, Dislocations And Sprains

At the end of this module the participant will be able to:

- Identify the three basic classifications of fractures and their differences
- Identify the signs and symptoms of fractures
- Apply fracture management protocols
- Understand the mechanism of dislocation
- Be able to identify the signs and symptoms of dislocations and effective management application
- Detail the difference between a sprain and a strain and the three different classification levels
- Have a working knowledge of the management of soft tissue injuries (RICE vs HARM)

Study Guide

Classification of fractures

- Major classification:
 - Closed or simple
 - Open or compound
 - Complicated

Fracture management

- Signs & symptoms – casualty response, auditory cues, physical appearance and other indicators
- Principles of management

Dislocation

- Definition of dislocation and subluxation
- Most commonly dislocated joints

Dislocation management

- Signs & symptoms – casualty response, auditory cues, physical appearance
- Pain management
- Below injury function
- Hypovolaemic shock

Sprains and strains (soft tissue injuries)

- Sprains vs strains
- Classifications

Sprains and strains management

- Signs & symptoms – casualty response, auditory cues, physical appearance
- R.I.C.E. vs. H.A.R.M



Sample Questions

1. Which fracture is most common in children (due to underdeveloped bones)?
 - b. Avulsion
 - c. Greenstick
 - a. Oblique
 - d. Comminuted
2. What does the acronym H.A.R.M. stand for?
 - a. Hunger Atrophy Rest Malnutrition
 - b. Heat Alcohol Running Massage
 - c. Hunger Alarm Running Medicine
 - d. Heat Altitude Reflex Medication
3. How many degree classifications are there for soft tissue injuries? Briefly describe each?
4. When should a patroller attempt to reduce a dislocation?
5. What does the acronym R.I.C.E. stand for?
6. When should a splint be immediately removed from a casualty?
7. What is a subluxation? (whilst the name is not important for our purposes a partial dislocation of bones or organs moved out of position needs particular treatment). What is the treatment?
8. What is the difference between a sprain and a strain?
9. A patroller should always treat a dislocation as what?
10. What could cause a spontaneous fracture?

Summary

More detailed classifications of the type of fracture describe the nature of the damage to the bone. These can only be made with the aid of X-ray equipment although a consideration of the mechanism of injury can assist with identifying types of fractures, comprising:

- Greenstick: where the bone kinks or bends without separating. This occurs mainly in children whose bones are not fully developed.
- Transverse: where the fracture is at right angles to the long axis of the bone.
- Oblique: where the fracture is not at right angles to the long axis of the bone.
- Comminuted: where there are more than two pieces of bone.
- Impacted: in which case the fractured bone ends are driven into each other.
- Spiral: where the fracture stretches along and around the bone (common in injuries involving a twisting force to a limb).
- Avulsion: where a ligament or tendon is pulled off the bone, detaching a bony protrusion at the normal point of attachment.



Infection Control

At the end of this module the participant will be able to:

- Identify the four major types of organisms and give the definition of a pathogen
- Identify the four major modes of transmission
- Understand the need and procedures associated with Universal Precautions
- Carry out the specific protocols for disposal or sterilisation of specific equipment
- Execute the specific steps for processing equipment - cleaning, disinfection and sterilisation
- Have knowledge of general cleaning concepts and dealing with blood spills
- Identify the need for patrols to have clear protocols and committees for infection control

Study Guide

Micro-Organisms:

- Viruses / Bacteria / Fungi / Parasites

Modes of Transmission:

- Contact of blood, body fluids, or substances with damaged skin, wounds or intact mucous membranes
- Direct Contact
- Inhalation of droplets
- Ingestion

Universal Precautions:

- Hand washing and hand care
- Protective barriers and apparel
- Safe handling and disposal of "sharps" and contaminated waste

Specific Equipment Situations:

- Entonox
- Penthrane
- Nitrous Oxide (in some States)
- Low Pressure Oxygen Therapy
- Resuscitation
- Core re-warmer
- Air splint

Processing Equipment:

- Cleaning, disinfection and sterilisation

Non-Clinical Aspects:

- Cleaning
- Blood spills

Protocols and Committees:

- Patrol responsibilities



Sample Questions

1. Which of the following temperature/time relationship is correct for thermal disinfection?
 - a. 10 minutes at 90 deg C.
 - b. 10 minutes at 80 deg C.
 - c. 10 minutes at 75 deg C.
 - d. 10 minutes at 60 deg C.
2. The practical use of an autoclave is during which process?
 - a. Chemical cleaning
 - b. Disinfection
 - c. Sterilisation
 - d. Decontamination
3. When would chemical disinfection be used? Briefly describe the requirements of this process.
4. What are the four major classifications of micro-organisms?
5. What are the four modes of transmission of micro-organisms?
6. Which pharmacological analgesic **must** be discarded and not re-used after every single use?
7. Which micro-organisms pose the least threat to the patroller? Why?
8. What is a pathogen?
9. Universal precautions are based on the principles of what?
10. What are the two types of disinfection?

Additional Notes

Infection Control Committee

Each patrol should have an infection control committee which continues to review all aspects of infection control relevant to the organisation. This would include quality control, possible improvements in any area and the education and assessment of the skills of all members. An infection control officer should be appointed to implement and manage these aspects.

Regulations for Health Care Workers

Laws have been passed outlining the procedures and standards of care to prevent the infection of health care workers, casualties and the public during casualty management. All health care facilities, employers and workers must comply or face penalties.

These procedures and standards are based largely on a set of procedures called Universal Precautions, intended to prevent the infection of health care workers by the blood borne viruses of human immunodeficiency (HIV), hepatitis B (HBV), and hepatitis C (HCV). Australia has broadened the definition of which fluids were considered infectious to include all blood, body fluids and body substances and to apply this principle to all casualties regardless of infectious status. All casualties must be considered potentially infectious and precautions must be adopted in all casualties regardless of perceived risk or lack thereof.



Injuries Due to Temperature Extremes

At the end of this module the participant will be able to:

- Identify the temperature survival requirements of the human body
- Estimate burn size and determine the presence of associated injuries
- Discuss initial resuscitation, treatment and stabilization of patients with burn, heat and cold injuries
- Classify the three types of burn injury
- Describe the characteristics of electrical, chemical and radiation burns
- Describe the illnesses and injuries caused by exposure to cold temperatures
- Assess and treat casualties of hypothermia

Study Guide

COLD INJURIES

Hypothermia

- Signs and symptoms
- Management

Frost Bite

- Signs and symptoms
- Management

Frost Nip

- Signs and symptoms
- Management

HEAT INJURIES

Hyperthermia

- Signs and symptoms
- Management

Burns

Signs and symptoms and the management of:

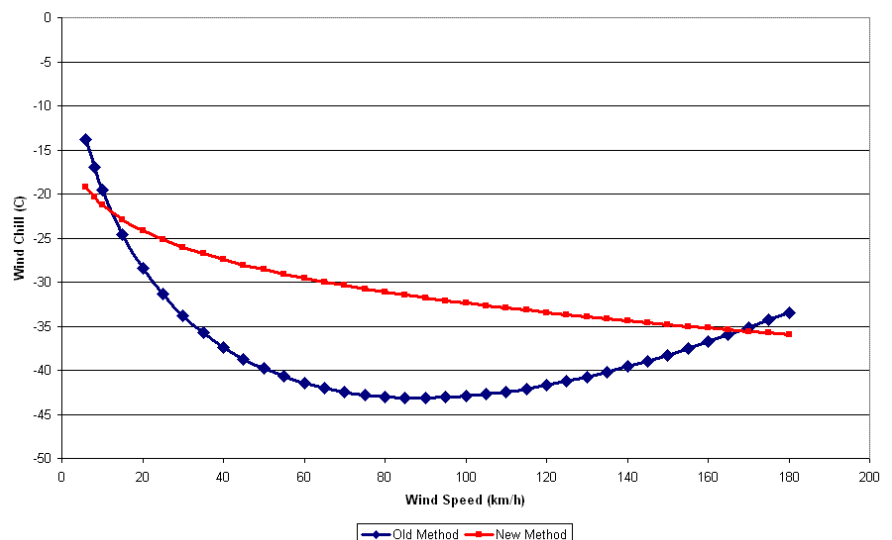
- Minor burns
- Chemical burns
- Electrical burns
- Respiratory burns
- Sunburn

OTHER INJURIES

Snow Glare

- Signs and symptoms
- Management

Comparison of Old and New Method for Predicting Wind Chill





Sample Questions

1. At what body temperature range can the casualty become unconscious and experience erratic heart function?
 - a. 35-33 Deg C
 - b. 32-30 Deg C
 - c. 29-27 Deg C
 - d. 27-26 Deg C

2. A casualty with frost bite of the feet can walk when:
 - a. The feet have thawed partially.
 - b. The feet have thawed completely.
 - c. The feet remain frozen.
 - d. With an air splint.

3. Explain the difference between frostnip and frostbite.

4. What are blisters (after re-warming) an indication of? What should a patroller do?

5. Which food group is the most effective in treating hypothermia? Why?

6. Define heat stroke.

7. Explain the difference between acute and chronic hypothermia.

8. Describe the main management techniques for snow glare.

9. Name the five different types of burn injuries most commonly faced by a patroller.

10. Which type of burn requires longer flushing of water to manage acid or alkaline?

Summary

Burn Classifications

Superficial - First degree

Superficial, red, pain, no blisters

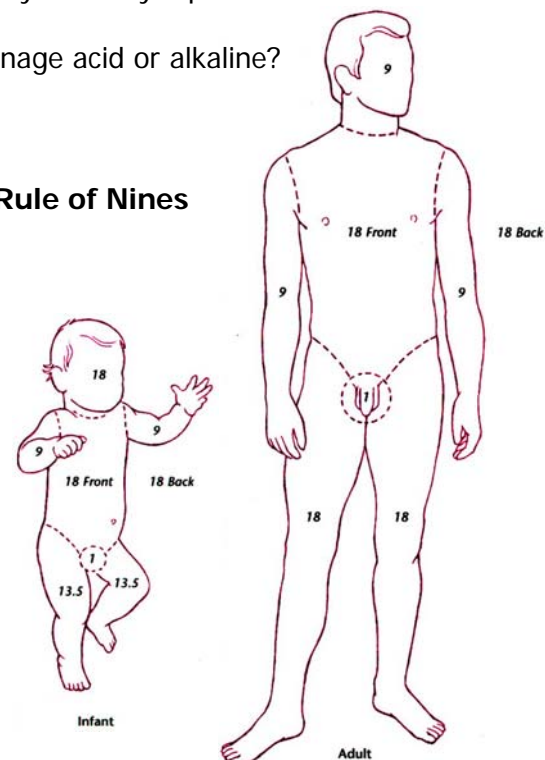
Partial Thickness - Second degree

Partial thickness, deeper, red / mottled, painful, wet, weeping with broken blisters, pale, oversensitive, generally heal well.

Full Thickness - Third degree

Full thickness, pale, white charred and leathery, fat exposed, shrunken, dry surface, broken skin, painless or insensitive, oedema.

Rule of Nines





Injuries to the Nervous System

At the end of this module the participant will be able to:

- Identify the different signs, symptoms and correct management for common brain and head injuries
- Identify other non traumatic conditions that affect brain and conscious states
- Choose and use the different methodologies to assess casualties conscious states
- Identify the different signs, symptoms and correct management for spinal injuries

Study Guide

HEAD AND BRAIN INJURIES

- Lacerated scalp
- Skull fractures
- Penetrating foreign objects
- General signs and symptoms of brain injuries
- General principles of management of brain injuries
- Concussion
- Contusion
- Intracranial haematoma

OTHER CONDITIONS AFFECTING THE BRAIN AND CONSCIOUS STATE

- Stroke
- Seizures
- Diabetes
- Drug overdose
- Exposure to temperature extremes
- Mental disorders

PRINCIPLES OF FIRST AID MANAGEMENT OF THE HEAD INJURED AND UNCONSCIOUS

ASSESSING LEVEL OF CONSCIOUSNESS

- Brief neurological assessment
- Glasgow coma score
- One-sided weakness
- Spinal Injuries

SIGNS AND SYMPTOMS OF THE FRACTURE OF THE SPINE

- Management

Sample Questions

1. Which of the following is not a valid test for the Glasgow Coma Score?
 - a. M score, for best motor response
 - b. V score, for verbal response
 - c. U Score, for unresponsive
 - d. E score, for eye opening



2. Which of the following skull fractures' warning sign presents with a CSF leak from the nose or ear?
 - a. Linear
 - b. Comminuted
 - c. Depressed
 - d. Basal
3. What does the acronym AVPU Stand for in assessing levels of consciousness? Briefly describe each aspect.
4. When would the AVPU method be more effective for the patroller than the Glasgow Coma Score?
5. Define paraesthesiae and indicate what type of nervous system injury this is associated with.
6. During DRABC of a spinal injury which takes priority?
7. What should a patroller do with a foreign object that is penetrating the head? Why?
8. What is a significant warning sign of a comminuted skull fracture?
9. What is the relationship between an extradural haematoma and a subdural haematoma?
10. Explain the difference between a neurotic and psychotic casualty.

Summary

Examples of some typical **Glasgow Coma Scores** (GCS) that might be encountered are:

Casualty description	E =	V =	M =	Total
Minor bump without head injury	4	5	6	15
Drug or alcohol affected	2	3	4	9
6 month only baby without injury	4	5	6	15
Healthy adult, severely hearing impaired, unable to speak.	4	3	5	12
Coma	1	1	1	3

A broad GCS guideline for the patroller is:

Casualty description	GCS
Severe head injury (coma)	GCS 8 or less
Moderate head injury with impaired abilities	GCS 9 to 13
Minor head injury	GCS 14 to 15

NB. Never assume that alterations in level of consciousness are solely due to alcohol or drug intoxication.



Lower Limb Management

At the end of this module the participant will be able to:

- Identify the signs of the 12 most common lower limb fracture/dislocation injuries
- Demonstrate the effective management of the 12 most common lower limb fracture/dislocation injuries
- Anticipate the relevant complications associated with these types of injuries

Study Guide

Signs, Management and Complications of:

- Pelvic fractures
- Fractured hip
- Dislocated hip
- Fractured shaft of femur
- Ligamentous knee injuries
- Dislocated knee
- Dislocated patella
- Fractures about the knee
- Fractured tibia and fibula
- Fractured fibula alone
- Fractured ankle
- Compartment syndrome

Use of special splinting devices

Bandaging and taping techniques

Sample Questions

1. Which of the following is most likely to have hypovolaemic shock as a complication?
 - a. Pelvic fractures
 - b. Fractured hip
 - c. Dislocated hip
 - d. Fractured shaft of femur
2. Weakness or paraesthesiae (pins and needles) in the affected limb is a sign of?
 - a. Fractured tibia and fibula
 - b. Fractured fibula alone
 - c. Fractured ankle
 - d. Compartment syndrome
3. When managing an ankle fracture should the casualty's boot be left on or taken off? Why?



4. What is haemarthrosis (bleeding into joint spaces - in skiers, mainly of the knee) and what do you do about it?
5. When would a patroller use padding and vacuum splints (full body or 'redbed') to immobilize the casualty?
6. What type of splint would a patroller use on a ligamentous knee injury?
7. A patroller would use a Hare or Donway traction splint and/or a scoop stretcher to immobilize the femur. True or false?
8. Define compartment syndrome.
9. What is the main anatomy change a patroller would expect to see in a fractured hip?
10. What is one of the main complications of a pelvic fracture?

Summary

In all cases where it is necessary to use a splint, the patroller should consider the use of:

- Pain relief to assist in the management of the injury unless contraindicated
- Oxygen therapy and other means of managing shock in the casualty

Examples of Lower Limb injuries

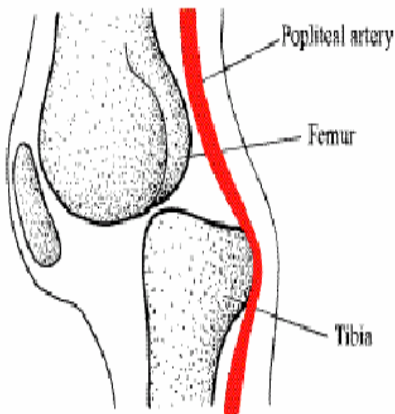


Fig 1. Dislocated Knee

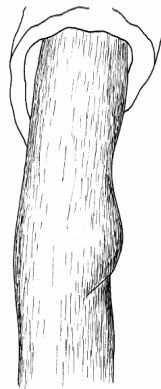


Fig 2. Dislocated Patella

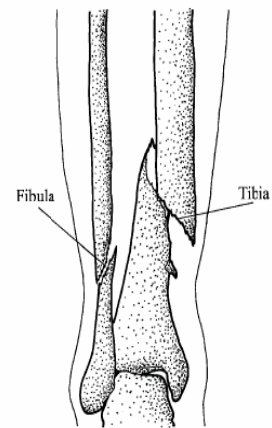


Fig 3. Tibia/Fibula Fracture



Medical Conditions

At the end of this module the participant will be able to:

- Have a basic understanding of the conditions:
 - Diabetes as well as ketoacidosis and hyper/hypoglycaemia
 - Epilepsy and the different type of seizures
 - Heart Disease as well as coronary artery disease, angina, myocardial infarction, congestive cardiac failure and cardiac arrest
- Identify the signs and symptoms of these conditions
- Outline the management of each of these conditions

Study Guide

Diabetes.

- Definition and classifications
 - Hyperglycaemia vs hypoglycaemia
 - IDDM vs NIDDM
- Signs and symptoms
 - Ketoacidosis and insulin shock
- Managing casualties
 - Conscious vs unconscious

Epilepsy.

- Defining epilepsy
- Seizure types
 - Tonic-Clonic - '*Grand Mal*'
 - Partial - '*Focal*'
 - Absence - '*Petit Mal*'
- Signs and Symptoms
 - Undiagnosed vs diagnosed epilepsy
- Management
 - Facilitating a safe environment during seizure

Heart Disease.

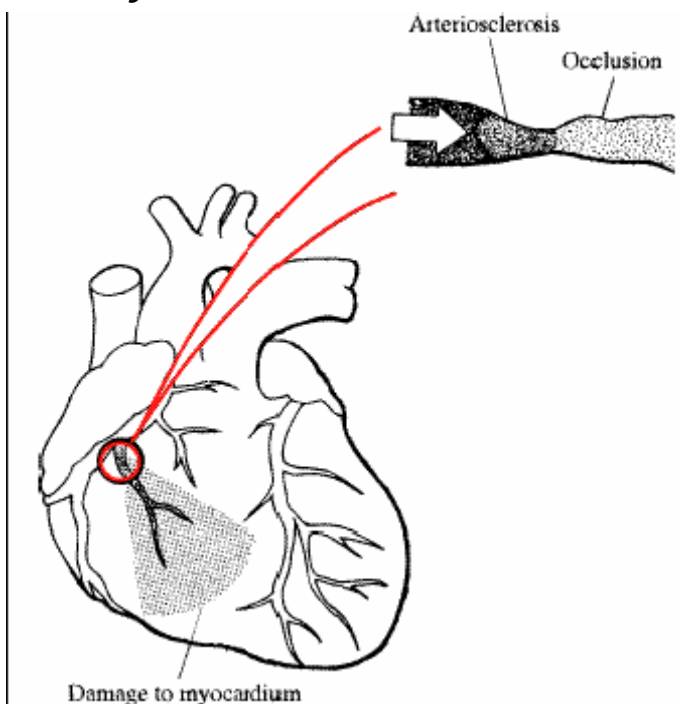
- Defining Coronary Artery Disease (CAD)
- Signs and symptoms of:
 - Angina
 - Heart failure (Congestive Cardiac Failure)
 - Heart attack (Myocardial Infarction)
 - Cardiac arrest
- Management



Sample Questions

1. The condition when the blood sugar level has been high for a period of time is:
 - a. IDDM
 - b. Insulin shock
 - c. Ketoacidosis
 - d. NIDDM
2. The condition where the heart is unable to pump blood effectively and a build up occurs in the venous circulation is:
 - a. Angina
 - b. Acute Myocardial Infarction
 - c. Congestive Cardiac Failure (CCF)
 - d. Cardiac arrest
3. Define the condition of epilepsy.
4. Describe the Tonic phase of a Tonic/Clonic Seizure.
5. Name the two classifications of diabetes and describe their differences.
6. Define the condition of hyperglycemia.
7. Define the condition of hypoglycaemia.
8. Coronary Artery Disease can lead to four other heart conditions. What are they?
9. What two pharmacological pain treatments may be administered for Acute Myocardial Infarction?

Summary



When an area of heart muscle is permanently deprived of oxygen the muscle cells die.

This usually occurs when a coronary artery (or one of its branches) previously narrowed by atheroma or spasm becomes suddenly blocked by a blood clot.

The damaged muscle is replaced by scar tissue and the consequences for the casualty depend on the size of the damaged area.



Pain and Inhalation Pain Relief

At the end of this module the participant will be able to:

- Explain the mechanism of pain
- Identify and describe the three methods of effective analgesic pain control
- Classify two pharmacological analgesics, including advantages and disadvantages of each
- Identify the need and correct administration of these pharmacological inhalation agents
- Identify contraindications of the two inhalers

Study Guide

Mechanism of Pain

- The physiological pathology of pain

Control of Pain

- Step 1 – Psychological pain control – reassurance and confidence
- Step 2 – Physiological pain control - physical and mechanical means
- Step 3 – Pharmacological pain control - Penthrane and Entonox

Pharmacological Inhalation Pain Relief - PENTHRANE

- Agent properties
- Advantages and disadvantages
- Contraindications - a factor that renders the administration of a drug or the carrying out of a medical procedure inadvisable
- Activity 1 - application and administration of Penthrane

Pharmacological Inhalation Pain Relief - ENTONOX

- Agent properties
- Advantages and disadvantages
- Contraindications - a factor that renders the administration of a drug or the carrying out of a medical procedure inadvisable
- Activity 2 - application and administration of Entonox



Sample Questions

1. You are able to identify the difference between a Penthrane inhaler and a Pentrox inhaler because:
 - a. The Penthrane inhaler is green and the Pentrox inhaler is white/clear.
 - b. The Penthrane inhaler is white/clear and the Pentrox inhaler is green.
 - c. The Penthrane inhaler is yellow and the Pentrox inhaler is white/clear.
 - d. The Penthrane inhaler is white/clear and the Pentrox inhaler is yellow.
2. The contraindications of Entonox are:
 - a. Back injuries, lower limb and extremities.
 - b. Head or spinal injuries, lowered level of consciousness, chest injuries.
 - c. Long term casualties.
 - d. Head or spinal injuries, pregnancy, preeclampsia.
3. List the three stages (in order) of effective pain control that a patroller would engage with a casualty.
4. As part of reassurance, what should the patroller attempt the casualty to control? In what way?
5. How long does the onset and offset of Penthrane take?
6. How long does the onset and offset of Entonox take?
7. Which of the two analgesics, Penthrane and Entonox, is odourless?
8. In what environment should Entonox **NOT** be used?
9. What mental state has a direct correlation with pain?
10. Give two disadvantages each of Penthrane and Entonox?

Summary

Questions the patroller can ask to find out about the casualty's pain:

- O** Onset? What caused it (exercise, chronic, stress)
- P** What provokes the pain? what makes it worse? (pressure, movement)
- Q** What is the quality of the pain? (sharp, dull, intense, stinging, radiating)
- R** Where is the pain? (Region that is painful and does the pain radiate to other areas? (point, wide area)
- S** What is the severity of the pain? (Scale of 1 to 10)
- T** What was the timing of onset? (and how long has it gone on?)
- A** What are the associated signs and symptoms?

Annual recertification for the use of analgesic gases is required. It is the responsibility of an appropriately qualified assessor at each resort to carry out this re-certification.



Activity 1 - Penthrane

Aim:

- To demonstrate the correct application of Penthrane (Methoxyfluorane) for a casualty.

Apparatus:

- Penthrane inhaler / Pentrox inhaler / Role play partner

Instructions:

- Read the procedure below and then, with minimal referral to this sheet, demonstrate the step by step activities required for effective administration of Penthrane, with one person as the casualty and the other as the patroller. Once complete swap roles with your partner.

1. Obtain consent to use the drug from the casualty. (In the case of minors, consent should be obtained where possible from a responsible adult carer).
2. Psychological pain control - Reassure the casualty. Control casualty breathing rate. Explain clearly the effects: taste, pain relief, dysphoria (altered mood), light-headedness, the time needed for the drug to work (2-3 minutes) and the time for offset after last inhalation (2-3 minutes).
3. Physiological pain control – In a real life situation the patroller would assess the physical pain control needs. Addressing physical injuries is beyond the scope of this exercise.
4. Pharmacological pain control - Open a vial of Methoxyfluorane and pour its contents into the round end of the analgiser. This will flow down into a felt-like sponge that acts as a reservoir whilst the liquid is vaporising. Wipe any excess liquid off the end of the analgiser. Up to two vials (3ml each) only may be used in a day. The second vial should only be used after the first one has been used up (approximately half an hour).

NB. The 'Penthrane' analgiser is a white or clear plastic inhaler which administers Penthrane only. 'Pentrox' is a green inhaler which is also used to administer Methoxyfluorane with the additional facility, via a plastic nipple, to directly administer oxygen therapy in conjunction with Methoxyfluorane.

5. Give the analgiser to the casualty and place the strap around the wrist. *Methoxyfluorane must be self-administered by the casualty.*
6. Direct the casualty to place the whistle-shaped end into the mouth, seal with the lips, and breathe slowly and deeply through the mouth. If possible, do not allow the casualty to breathe through the nose.
7. Warn the casualty that it may take a few breaths to become accustomed to the odour.
8. Tell the casualty to control the level of pain by removing the analgiser when the pain is relieved but to return to it immediately the pain begins to reassert itself.
9. Also, indicate the diluter vent and encourage its use, if pain is severe.

NB. In a real life situation upon arrival at the medical centre, inform the staff that Penthrane (Methoxyfluorane) has been used and how much was administered.



Activity 2 - Entonox

Aim:

- To role play the correct application of Entonox to a casualty

Apparatus:

- Entonox inhaler
- Role play partner

Instructions:

- Read the procedure below and then, with minimal referral to this sheet, act out the step by step activities required for effective administration of Entonox, with one person as the casualty and the other as the patroller. Once complete swap roles with your partner.

1. Obtain consent to use the drug from the casualty. In the case of minors, consent should be obtained where possible from a responsible adult carer.
2. Psychological pain control - Reassure the casualty. Control casualty breathing rate. Explain clearly the effects: odourless taste, pain relief, dysphoria (altered mood) and potential euphoria, possible nausea and or drowsiness, the time needed for the drug to work (1-2 minutes) and the time for offset after last inhalation (1-2 minutes).
3. Physiological pain control – In a real life situation, the patroller would assess the physical pain control needs. Addressing physical injuries is beyond the scope of this exercise.
4. Shake the cylinder and turn on the gas supply after obtaining consent from the casualty to assist the casualty to administer Entonox.

NB. At temperatures below 0°C, the oxygen and nitrous oxide components of Entonox separate; consequently the Entonox cylinder must be stored in a warm place. When in use on the snowfield, it must be laid on its side and well insulated from the cold eg in a backpack inside foam padding. The separation of its components can also be prevented from occurring by shaking the cylinder before use.

5. Fit a clean disposable mouthpiece and one-way valve assembly to the flexible hose.
6. Instruct the casualty to place the mouthpiece into the mouth, and suck on the mouthpiece.
7. Encourage the casualty to breathe gently and slowly, without holding the breath. Warn the casualty that it may take some effort to initially open the inlet valve.
8. Insist on self administration, so that administration will cease if the casualty becomes unconscious. Ensure that the casualty holds the mouthpiece, so that if the hand or arm relaxes it will naturally fall away from the mouth. In any case you should be monitoring the casualty.

NB. In a real life situation upon arrival at the medical centre, inform the staff that Entonox has been used.



Poisons, Bites and Stings

At the end of this module the participant will be able to:

- Identify the four methods that poisoning can occur
- Safety measures for the patroller
- Identify the signs and symptoms of poisoning
- Effective management of poisons dependant upon the method of occurrence
- Be able to identify the signs and symptoms of common bites and effective management application
- Identify bee stings and stings in general
- Manage and treat stings in order to prevent anaphylactic shock

Study Guide

Poison

- Four methods:
 - Inhalation
 - Ingestion
 - Injection
 - Absorption

Poison Management

- Patroller safety – avoiding contamination
- Signs and symptoms: casualty response and physical symptoms
- General principles of management vs management specifics for inhalation, ingestion injection and absorption

Bites

- Snakes, spiders, ticks and other biting insects
- Signs and symptoms – specific indicators of each
- Specific management of each type, appropriate use of constrictive bandaging

Stings

- Signs and symptoms – allergic response
- Anaphylactic shock

The Poisons Information Centre can be contacted on:

13 11 26

When speaking to the Poisons Information Centre, be ready to provide this information:

- Details of the poison container (if available, have the container of the poison at the phone, but do not come into contact with the contents)
- The amount that was in the container, and is in it now
- When the poison was taken
- What symptoms the casualty is showing



Sample Questions

1. When managing a red back spider bite the patroller should:
 - b. Treat as for a snake bite, applying firm pressure broad bandage.
 - c. Treat bite area using methylated spirits, kerosene or turpentine.
 - a. Apply a cold pack over bite area and seek medical assistance immediately.
 - d. Seek medical advice from MSDS.
2. What is anaphylactic shock?
 - a. Shock due to internal haemorrhage.
 - b. Shock due to loss of oxygen.
 - c. Shock due to allergy.
 - d. Shock due to low glucose levels.
3. What are the four methods of poisoning? Briefly describe each?
4. Paralysis is a late sign of which condition?
5. What are the only two potentially lethal spiders found in Australia?
6. Why would the patroller not wash the bite area?
7. When would Ipecac (vomit inducing) syrup be used by the patroller?
8. True or false: Poisoning can lead to respiratory or cardiac arrest?
9. Why would the patroller not suck the bite area?
10. In which type of poisoning method would a patroller administer oxygen?

Material Safety Data Sheets

Employers are now obliged to ensure that all dangerous goods and hazardous substances are labelled and that a Material Safety Data Sheet (MSDS) is readily available to any employee using the substance.

The MSDS contains 4 major sections:

- Product Identification, which allows the correct identification of the substance which is causing harm
- Precautions for Use, including details of the hazards that may arise through contact
- Health Hazard Information, which details the hazards and the specific first aid measures for the substance in case of : ingestion, inhalation, absorption, or contact with the eyes or skin
- Safe Handling Information, providing information on the handling of spills, fire and explosion hazards, and storage and transport details

The MSDS is an alternate source of information to the Poisons Information Centre in the management of poisoned casualties.



Respiratory System Emergency Management

At the end of this module the participant will be able to:

- Understand the medical consequences of respiratory system emergencies
- Identify the different signs and symptoms between upper and lower airway organs
- Be able to manage airway obstructions and administer appropriately for adults and children
- Identify and manage asthma whilst also understanding the different treatments that may aid in management
- Identify the different signs and symptoms between open and closed chest injuries and their subsequent management
- Recognise the signs and symptoms of other respiratory problems such as carbon dioxide and hyperventilation syndrome along with their management

Study Guide

Respiratory System Management

- General principles of management

Airways Management

- Upper airway obstructions – signs and symptoms, management of children and adults
- Lower airways obstructions – Asthma and other signs and symptoms and management

Chest Injuries Management

- Open chest and closed chest injuries:
 - Rib fractures
 - Flail chest
 - Compound rib fractures
 - Penetrating chest injury.
 - Leaking (sucking) wound
 - Pneumothorax
 - Tension Pneumothorax
 - Haemothorax and Haemopneumothorax

Other respiratory problems – management

- Carbon Monoxide poisoning
- Hyperventilation Syndrome



Sample Questions

1. Which of the following is **NOT** a part of the upper airways?
 - a. Pharynx
 - b. Trachea
 - c. Epiglottis
 - d. Larynx
2. Which of the following is **NOT** an open chest injury?
 - a. Pneumothorax
 - b. Compound rib fracture
 - c. Flail chest
 - d. Tension Pneumothorax
3. What are the two types of asthma treatment? Briefly describe each.
4. When managing a respiratory casualty which is contraindicated: Methoxyfluorane or Entonox?
5. Explain the process for lateral chest thrusts? How does this differ for the process in children?
6. Asthma is still a cause of death in Australia. True or false?
7. Define pleuritic pain? What type of injury would this type of pain be described?
8. A laceration to the chest wall or lung is known as what type of injury?
9. What is the difference between a Haemothorax & Haemopneumothorax condition?
10. Give three signs and symptoms of carbon monoxide poisoning?

Summary

Equipment For Oxygen Delivery:



Hudson Mask



Bag-Valve-Mask Resuscitator

The Hudson Mask fits over the casualty's mouth and nose and is held in place by an elastic strap.



The Bag-Valve-Mask Resuscitator consists of a mask, a self-inflating bag, and a reservoir bag with a valve system that prevents re-breathing of exhaled gases. It is held in place by the operator.

Black "C" Style Medical Oxygen

The cylinder is black with white shoulders. The most commonly used size for ski patrolling is the C size, which holds 440 litres of O₂. The oxygen regulator is a separate equipment item, shown in the connected position in this image.



BOC Inhalo style cylinder

The BOC Inhalo cylinder is a lightweight aluminium cylinder with Kevlar encasement. The cylinder comes complete with integral open/close valve, regulator for therapy and suction, therapy flow control, and contents gauge.

The Inhalo cylinder is white, with "Oxygen" printed in large type down the side. The Inhalo cylinder holds 630 litres.





Upper Limb Injury Management

At the end of this module the participant will be able to:

- Identify the signs of the 14 most common upper limb fracture injuries
- Demonstrate the effective management of the 14 most common upper limb fracture injuries
- Anticipate the relevant complications associated with these types of injuries

Study Guide

Signs, management and complications of:

- Fractured clavicle
- Fractured scapula
- Disrupted Acromio-Clavicular Joint
- Dislocated shoulder
- Fractured neck of humerus
- Fractured greater tuberosity of the humerus
- Fractured shaft of humerus
- Fractures at the elbow
- Dislocated elbow
- Fractured forearm
- Fractures at the wrist
- Thumb fracture
- Skier's (Gamekeeper's) thumb
- Fractures of the hand

Sample Questions

1. Which of the following should a patroller NEVER do to an amputated body part?
 - a. Place amputated part in a watertight bag
 - b. Place in a second container filled with cold water
 - c. Place in a second container filled with ice or snow
 - d. Transport body part with casualty
2. The use of a collar and cuff sling to stabilise the casualty would not be used to manage which injury?
 - a. Fractured clavicle
 - b. Fractured scapula
 - c. Fractured neck of humerus
 - d. Dislocated shoulder
3. What is the possible complication when over-flexion of a broken elbow occurs?
4. What is the number one patroller management priority of a shoulder dislocation?



5. Which injury improperly managed may result in the casualty not recovering their full pinch grip?
6. Why is the fractured neck of humerus often clinically missed?
7. The classic 'dinner fork' deformity is found in which type of fracture?
8. Describe the signs of Skier's or Gamekeeper's thumb? What simple test would you use?
9. Describe the basic management of a fractured hand?
10. What type of upper limb injury/s would a patroller splint using an arm sling and an air splint, SAM, wire, or vacuum splint?



Basic Life Support - (CPR and AED 2011)

At the end of this module the participant will be able to:

- perform CPR on a casualty (adult, child or infant) with no signs of life
- assess the conditions for performing CPR and defibrillation
- correctly connect and operate an automated external defibrillator
- operate with one rescuer performing CPR and defibrillation
- operate with two people performing CPR and defibrillation

Study Guide

Students should practice using the checklists for CPR and AED Use. An integrated demonstration of CPR and defibrillation is required to be graded competent in this module.

Students should review the Australian Resuscitation Council Guidelines.

Notes

Cardiopulmonary resuscitation is the technique of chest compressions combined with rescue breathing. The purpose of cardiopulmonary resuscitation is to temporarily maintain a circulation sufficient to preserve brain function until specialised treatment is available.

Rescuers should start CPR if the casualty has no signs of life (unconscious, unresponsive, not moving, and not breathing normally). Even if the victim takes occasional gasps, rescuers should start CPR. CPR should commence with chest compressions. Interruptions to chest compressions must be minimised.

Compression Ventilation Ratio

No human evidence has identified an optimal compression - ventilation ratio for CPR in victims of any age. Interruptions to compressions should be avoided with evidence suggesting that previous compression-ventilation ratios resulted in too much "hands off time". Evidence also demonstrates that over ventilation occurs even by trained responders.

A universal compression - ventilation ratio of 30:2 (30 compressions followed by 2 ventilations) is recommended for all ages regardless of the numbers of rescuers present.

Compressions must be paused to allow for ventilations. Ventilations follow compressions.

This compression ventilation ratio has been selected to:

- Increase the number of compressions;
- Minimise interruptions to compressions;
- Prevent excessive ventilation;
- Simplify teaching;
- Maximise skill retention;
- Maintain international consistency.



Steps Of Resuscitation

Initial steps of resuscitation are:

- DRS ABCD
- Check for danger (hazards/risks/safety)
- Check for response (unresponsive/unconscious); call for help
- Send for Help
- Open the airway (look for signs of life)
- Give 30 chest compressions (almost 2 compressions/second) followed by 2 breaths
- Deliver rescue breaths (give two rescue breaths, if not breathing normally)
- Attach an AED (Automated External Defibrillator), if available and follow the prompts

When providing 30 compressions (at approximately 100/min) and giving 2 breaths (each given over 1 second per inspiration), this should result in the delivery of 5 cycles in approximately 2 minutes.

Defibrillation

The Australian Resuscitation Council recommends the use of an AED, if available.

Chest Compression Only

If rescuers are unwilling or unable to do rescue breathing they should do chest compressions only. If chest compressions only are given, they should be continuous at a rate of approximately 100/min.

Multiple Rescuers

When more than one rescuer is available ensure:

- That an ambulance (000) or Resort Doctor has been called;
- All available equipment has been obtained (e.g. Defibrillator);
- CPR may then be performed by two rescuers (one performing chest compressions and one performing rescue breaths), therefore less interruption to chest compressions.
- Frequent rotation of rescuers is undertaken (approximately every 2 minutes) to reduce fatigue, especially the rescuer performing chest compressions.

Duration Of CPR

The rescuer should continue cardiopulmonary resuscitation until:

- signs of life return,
- qualified help arrives,
- it is impossible to continue (e.g. exhaustion),
- if the dangers change,
- a health care professional directs that CPR be ceased.

Recovery Checks

Evidence has demonstrated that interruption of chest compressions is associated with poorer return of spontaneous circulation and lower survival rates and that both lay and health care professionals experience difficulty in determining presence or absence of pulse in collapsed victims. Therefore, rescuers should minimise interruptions of chest compressions and CPR should not be interrupted to check for signs of life.

Resuscitation In Late Pregnancy

In an obviously pregnant woman the pregnant uterus causes pressure on the major abdominal vessels when she lies flat, reducing venous return to the heart. The pregnant woman should be positioned on her back with her shoulders flat and sufficient padding under the right buttock to



give an obvious pelvic tilt to the left.

Additional Notes:

Distension of the stomach may occur when the rescuer either blows too hard or blows when the airway is partially obstructed so that air enters the stomach rather than the lungs. If the stomach is distended, **DO NOT APPLY PRESSURE TO THE STOMACH**. If air is forced into the stomach, some stomach contents can be forced up into the mouth and airway and thus into the lungs.

Regurgitation is the passive flow of stomach contents into the mouth and nose. Although this can occur in any person, regurgitation and inhalation of stomach contents is a major threat to an unconscious person. It is often unrecognised because it is silent and there is no obvious muscle activity. Vomiting is an active process during which muscular action causes the stomach to eject its contents. In resuscitation, regurgitation and vomiting are managed in the same way by prompt positioning of the victim on the side and manual clearance of the airway prior to continuing CPR.

Currency and Assessment of CPR Skills

CPR skills performance has been shown to decline rapidly following initial achievement of competency. The Australian Resuscitation Council recommends that CPR skills are reassessed at least annually.

The Australian Resuscitation Council recognises that training organisations are required to assess CPR competency. ARC recommends that assessors be cognisant to the intent of the resuscitation community that any attempt at resuscitation is better than no attempt. As such, assessment should focus on adequate CPR and not on the technicalities of achieving set figures or rates.

Further Reading

ARC Guideline 2 Priorities in an Emergency

ARC Guideline 3 Unconsciousness

ARC Guideline 4 Airway

ARC Guideline 5 Breathing

ARC Guideline 6 Compressions

ARC Guideline 7 External Automated Defibrillation (AED) in Basic Life Support (BLS)



Basic Life Support



D

Dangers?

R

Responsive?

S

Send for help

A

Open Airway

B

Normal Breathing?

C

Start CPR

30 compressions : 2 breaths

D

Attach Defibrillator (AED)

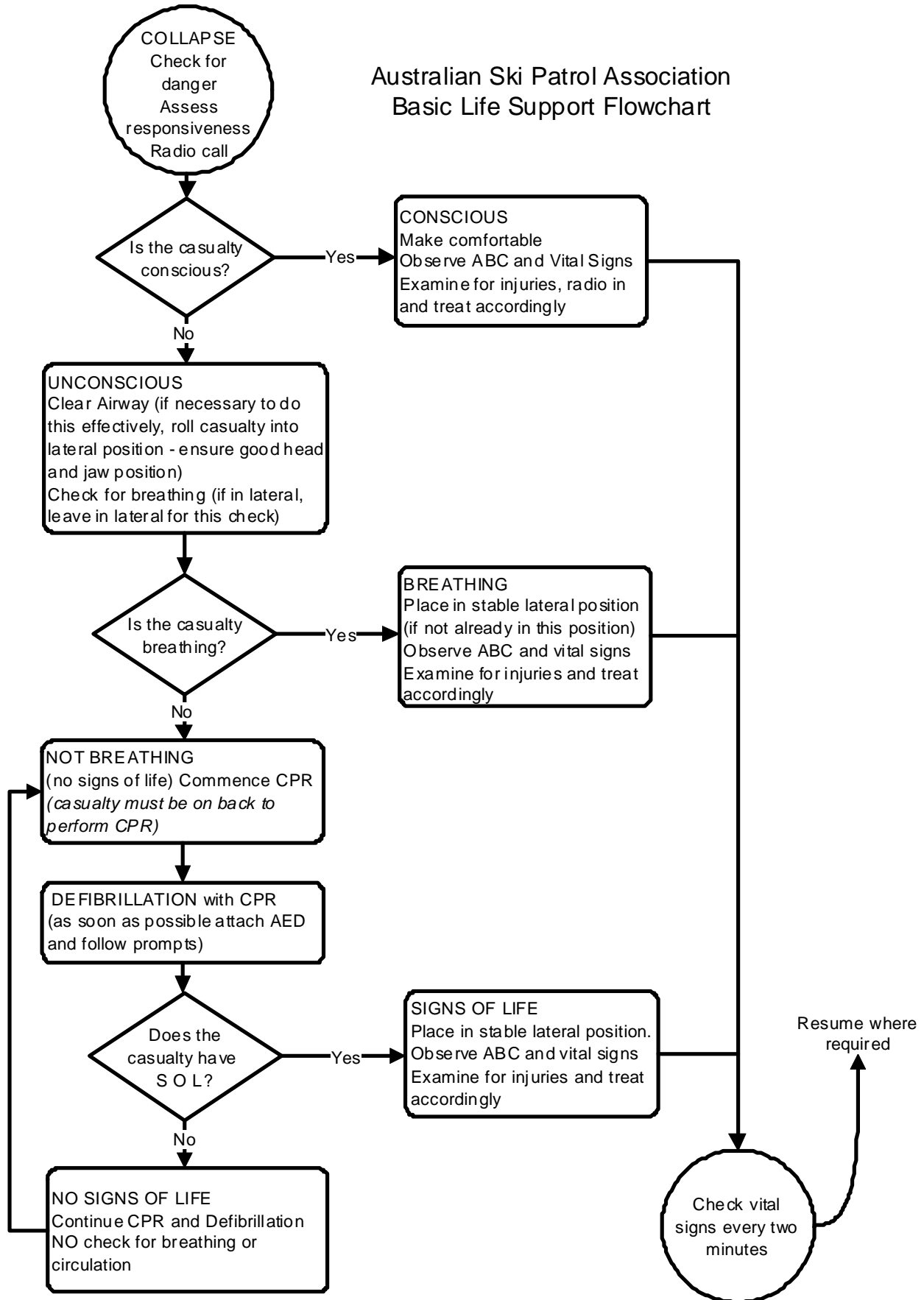
as soon as available and follow its prompts

Continue CPR until responsiveness or normal breathing return

December 2010



Australian Ski Patrol Association Basic Life Support Flowchart





ASPA CPR Rates - 2011

	Adult	Child	Infant
Compressions per minute	100 with a pause for two 1 second breaths	100 with a pause for two 1 second breaths	100 with a pause for two 1 second breaths
Cycles per 2 minute	5 cycles in 2 mins	5 cycles in 2 mins	5 cycles in 2 mins
Ratio (2 person)	30 compressions : 2 breaths	30 compressions : 2 breaths	30 compressions : 2 breaths
Ratio (1 person)	30 compressions : 2 breaths	30 compressions : 2 breaths	30 compressions : 2 breaths
Compression depth	1/3 depth of chest	1/3 depth of chest	1/3 depth of chest
Breath size	breath	½ to ¾ breath depending on size	puffs
Hand use	two hands	one hand	two fingers
Check for breathing or circulation?	no - "signs of life only"	no - "signs of life only"	no - "signs of life only"

(breaths after compressions)