8 First Aid

8.1 FIRST AID OBJECTIVES

The objectives of First Aid at sea are to:

- **Preserve life**
- **Prevent further damage**
- **Relieve pain and distress**
- **Deliver a live casualty ashore**

With any casualty be calm, reassuring and methodical. Examine the whole casualty at the earliest opportunity.

Completion of a First Aid Course is strongly recommended. In the UK, RYA approved, one-day, basic training is available through sailing clubs and schools. The St Johns Ambulance and British Red Cross provide a variety of recognised courses.

8.2 MEDICAL CARE ABROAD

For cruising in European waters it is advisable for each crew member to carry the European Health Insurance Card (EHIC) which entitles you to reduced-cost, sometimes free, medical treatment that becomes necessary while you are in the EU, Iceland, Liechtenstein and Norway. It is free and is available by phone, by post or online; see: *www.dh.gov.uk/en/Policyandguidance/Healthadvicefortravellers/index.htm*.

A useful booklet *Health Advice for Travellers,* which gives details of how to claim in the 28 participating countries, is obtainable from Post Offices. A further 30+ countries have reciprocal health care agreements with the UK, but others, including Turkey, the Americas, Canada, Caribbean, India, Middle East, Africa, Asia, Thailand, Japan, Hong Kong and the Pacific region (except Australia and New Zealand), do not. Private health insurance is strongly advised in these areas.

Skippers should be aware of crew members' medical conditions and any ongoing medication, which may seriously alter the implications of an injury or change treatment. If cruising to distant destinations sufficient medication must be carried and additional sterile needles and syringes may be advisable, if you or a crewman are diabetic, for example. Seek advice from your doctor or local hospital before leaving. Syringes and needles are attractive to intravenous drug abusers so should be securely locked away.

Yachtsmen cruising abroad may naturally be concerned about the risk of being given infected blood. Normally it is not possible to carry blood or plasma in a yacht. If a blood transfusion is essential, try to ensure that the blood used has been screened against HIV and Hepatitis B.

8.3 MEDICAL ADVICE BY R/T

Medical advice can be obtained almost anywhere in European waters (and elsewhere) by making an all-stations 'PAN PAN' call or a DSC Urgency Alert to the Coastguard, or to a Coast Radio Station (CRS) in those countries where CRS still exist. You will be connected to a suitable medical authority – usually a doctor or the nearest hospital.

The Urgency signal 'PAN PAN' is always advised, especially abroad, because it is internationally understood and cuts through most language problems; see also 7.5.

Urgent help needed is shown in bold italic type against the more serious medical problems in the following pages and this implies a PAN PAN call. You should also recognise that as a layman you are not qualified to judge how serious the casualty's condition is – so get the best possible advice and/or help as quickly as possible.

Be ready to give a detailed summary of the patient's symptoms – pulse rate, breathing rate, temperature, skin colour, conscious state (with reference to pupil size, responses to verbal command and to firm pinching); site and description of any pain, site and type of injury, amount of blood lost etc. See the Observation Form at 8.34.

If medical help is needed by way of a doctor coming aboard, or if a serious casualty has to be landed, the arrangements will be made by the Coastguard.

If you are sure that the situation is not urgent, you may wish to forewarn the port authority so that a doctor or paramedic can meet you on arrival. Such a call could be made in adequate time on the harbour's working channel.

8.4 ABC – EMERGENCY RESUSCITATION

Advice is obtainable at: *www.resus.org.uk/pages/guide.htm*

The immediate procedure for any collapsed or apparently unconscious person is:

Assess whether or not the casualty is conscious. Carefully shake his shoulders and ask loudly 'What's happened?' or 'Are you all right?' or give a command such as 'Open your eyes'. An unconscious casualty will not respond.

A = Airway

Be aware of the risk of neck or spinal injury following a fall or head injury. If suspected, try to keep the head and neck still and in line, then lift the chin to maintain a clear airway rather than tilting the head. However, the priority must be to ensure the casualty is indeed breathing. Remove any visible obstruction from the casualty's mouth (leave well-fitting dentures in place). Listen at the mouth for breathing. Tilt the head backwards, using head tilt and chin lift to maintain a clear airway; Fig 8(1). Look, listen and feel for ***no more than 10 seconds*** to determine if the casualty is breathing normally. If in any doubt, act as if it is ***not*** normal.

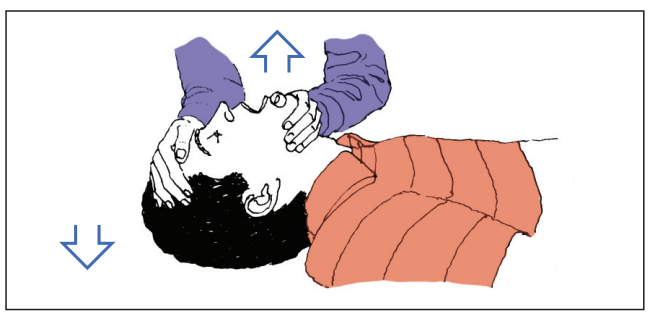

Fig 8(1) Ensuring a clear airway

If breathing, place casualty in recovery position; Fig 8(2). Check the area is clear of danger.

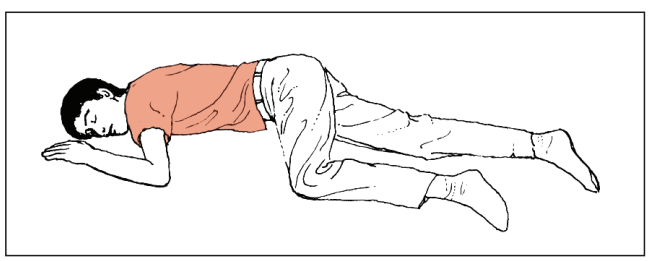

Fig 8(2) Recovery position

B = Breathing and C = Circulation

If not breathing and the airway is clear, start chest compressions; Fig 8(3). This situation is called **cardiac arrest**.

The casualty will be unconscious and may appear very pale, grey or bluish in colour. An artificial circulation will have to be provided by chest compression. If the circulation stops, the breathing will also stop. Casualties with cardiac arrest will need both rescue breaths and chest compression, a combination known as Cardio Pulmonary Resuscitation (**CPR**).

Chest compressions

To start external chest compression, lay the casualty on a hard, flat surface if possible. Kneel beside casualty. The point at which pressure will be applied is the centre of the chest. (It is now considered a waste of valuable time for an amateur first aider to search for the point of pressure by the 'rib margin' method.)

Place the heel of your first hand on top of the other hand and interlock your fingers. Depress breastbone 5–6cm (2–2½in) then release 100–120 times per minute; Fig 8(3).

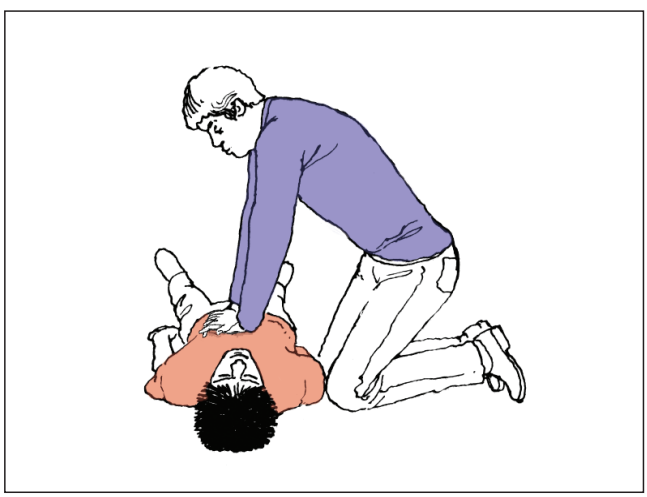

Fig 8(3) Chest compression

With either one or two operators give 30 chest compressions and continue cycles of 2 breaths to 30 compressions; see Fig 8(5) and Fig 8(6). Use a compression rate of 100 per minute. If trained, chest compression should be combined with rescue breaths; after 30 compressions, give 2 effective rescue breaths (2 breaths should not take more than 5 secs). *Do not stop.*

Rescue breaths

Kneel beside the casualty, maintain head tilt and chin lift, and pinch the nostrils. Take a deep breath and blow two full breaths into patient's mouth, each breath should be 1 second in duration. Watch for rise and fall of chest; Fig 8(4).

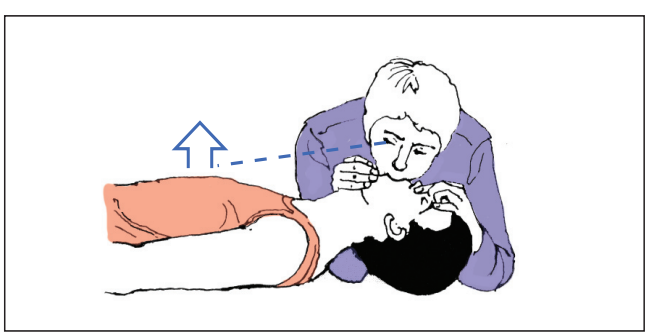

Fig 8(4) Rescue breaths

Action plan for the resuscitation of adults

Casualty is unconscious but is breathing normally:

- ***Urgent help needed***
- Turn casualty into the recovery position
- Check for continued breathing

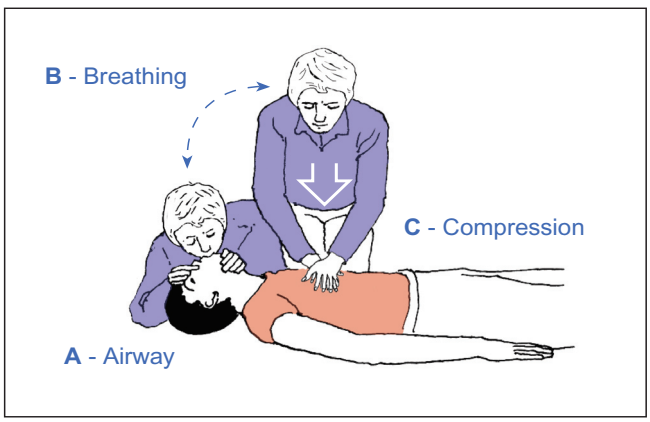

Fig 8(5) One operator

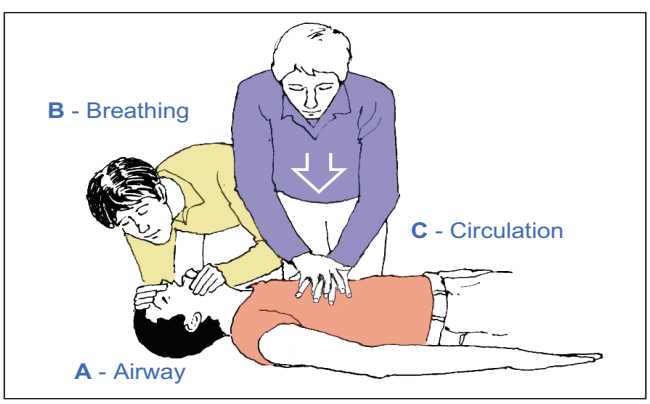

Fig 8(6) Two operators

Casualty is unconscious and not breathing:

- ***Urgent help needed***
- Start chest compressions
- After 30 chest compressions, give 2 rescue breaths

Continue with chest compressions and rescue breaths in a ratio of 30:2. If you are untrained, or are unwilling to give rescue breaths, give chest compressions only. Stop to re-check casualty only if he/she starts to show signs of regaining consciousness; coughing, opening eyes, speaking or moving purposefully ***and*** starts to breathe normally.

If breathing restarts, place casualty in the recovery position.

Otherwise, ***do not interrupt resuscitation***.

Action plan for the resuscitation of children

Blow into both mouth and nose if necessary, but resuscitate at same rate as an adult. For external chest compression use gentle compression with one hand only, or just fingers for a baby; use a compression rate of up to 100 per minute, one breath every 5 compressions. In the case of a baby give up to 5 initial rescue breaths. Use a faster breathing rate (one inflation every 3 seconds) and smaller breaths.

Problems during resuscitation

It is unlikely that the casualty's pulse will return spontaneously without other more advanced techniques (especially *defibrillation*) so do not waste time by stopping CPR to check the circulation. Only stop and re-check if the casualty shows signs of life (movement or breathing). Otherwise, carry on until either the emergency services arrive, another rescuer can take over, or you are too exhausted to keep going.

Drowning (8.6) and Hypothermia (8.7)

Drowning and hypothermia casualties may exhibit all the signs of apparent death, yet may totally recover. Only abandon resuscitation if really necessary, and after thorough and repeated attempts have been made to warm the victim.

8.5 CHOKING

If blockage by some object is suspected, turn the casualty on his/her side and give up to 5 sharp back slaps with the flat of the hand between the shoulder blades. Check mouth and remove any obstruction.

If unsuccessful, wrap both your arms around the victim's waist from behind, and give 5 sharp upward thrusts with both fists into the abdomen above the navel but below the ribs so as to initiate coughing. Clear object from mouth.

In an unconscious adult administer abdominal thrusts with the victim lying on his back. Attempt mouth to mouth breathing. Do not give up.

Infants and small children should just be given 5 forceful blows on the back before proceeding to chest thrusts which are performed in the same way as chest compressions but should be sharper and performed at a slower rate, with each thrust trying to relieve the obstruction. Continue if no relief, with the sequence of 5 rescue breaths, 5 back blows and 5 chest thrusts.

8.6 DROWNING

The resuscitation of an apparently drowned person may be complicated by two factors:

- An acute (sudden) illness (8.9 and 8.10) – a stroke, accident or blow to the head, for example – may have precipitated the fall into the water.
- The time spent in the water may have produced marked hypothermia. The water around the UK is rarely warmer than 15°C (60°F).

During rescue and after resuscitation try to keep the head low so that vomit is not inhaled and water is able to drain from the mouth.

Treatment

A* = *Airway Clear airway: seaweed, dentures etc. See 8.4.

B* = *Breathing If not breathing start mouth to mouth ventilation as soon as possible and in the water if practicable. See 8.4.

C* = *Circulation If pulse is absent, start chest compression as soon as aboard. See 8.4.

- If stomach is bulging, turn casualty on to side to empty water, or he may vomit large quantities of water which could be inhaled.
- Prevent cooling. Remove wet clothes; wrap casualty in blankets to warm him/her.
- Continue resuscitation until the casualty revives or death is certain. Hypothermia may mimic death. Do not abandon resuscitation until the casualty has been warmed or signs of death persist despite attempts at warming.
- Once revived, put in the recovery position, Fig 8(2).
- Any person rescued from drowning may collapse in the next 24 hours as the lungs react to inhaled water. ***Urgent help needed***.

8.7 HYPOTHERMIA

Lowered body temperature may follow immersion in the sea or prolonged exposure on deck.

Symptoms include: unreasonable behaviour followed by apathy and confusion; unsteady gait, stumbling; slurring of speech; pale, cold skin; slow, weak pulse; slow breathing; shivering. Hypothermia may lead to collapse, unconsciousness and, ultimately, death.

Treatment

A* = *Airway control; put in recovery position.

B* = *Breathing If not breathing, start mouth to mouth ventilation.

C* = *Circulation Be prepared to use chest compressions.

Remove wet clothing. Avoid wind chill. Dry and wrap in blankets or sleeping bag plus warm hat and cover, if available, in foil survival bag. ***Urgent help needed***.

Give hot sweet drinks if conscious.

Do not give alcohol, rub the skin or place very hot objects against skin.

8.8 SHOCK

Shock can result from almost any accident or medical emergency and, depending upon the cause, may range in severity from a simple faint to near death. Shock occurs when the delivery of oxygen to the tissues is impaired because of inadequate or inefficient circulation of the blood. Possible causes include:

- Loss of blood: internal or external bleeding.
- Loss of fluid: diarrhoea, peritonitis, burns.
- Heart failure: heart attack.
- Lung failure: drowning.
- Brain failure: stroke, head injury.
- Illness: diabetes.

Signs and symptoms

Thirst, apathy, nausea, restlessness. Pale, cold, clammy skin, sweating. Rapid, weak pulse. Rapid, shallow breathing. Dull, sunken eyes, bluish lips; it can lead to collapse.

Treatment

- ***ABC – airway, breathing, circulation*** **see 8.4**.
- Control bleeding, if present.
- Lay the casualty flat; elevate legs to 20°.

Exceptions:

i Bleeding from mouth – use recovery position.

ii Unconscious – use recovery position.

iii Chest injury – sitting may be preferred.

- Splint any fractures; avoid movement.

- Keep reasonably warm; don't overheat.
- Relieve pain – give painkillers.

Exceptions:

i Head injury with impaired consciousness.

ii Cases with severe breathing difficulty.

- Reassure the casualty.
- Do not let the casualty eat, drink, smoke or move unnecessarily. If he complains of thirst, moisten the lips with a little water.

Exception

Fluids may be life saving in cases of dehydration (diarrhoea, vomiting, severe burns, for example). Give half a cup of water at 15 minute intervals. Add a pinch of salt and a little sugar. Never give alcohol. Avoid fluids if severe abdominal pain or internal injury. *Never* attempt to give fluids by mouth to an unconscious person.

Collapse and signs of shock after an accident when external blood loss is slight or absent must suggest internal bleeding. Clues may be few. The casualty may cough or vomit blood, or pass blood in urine or from bowel. He/she may complain of worsening pain in abdomen or chest. ***Urgent help needed.***

Medical illnesses, such as diabetes, severe infections or heart disease, may produce shock without giving many clues as to the cause. ***Urgent help needed***.

8.9 ACUTE (SUDDEN) ILLNESS

Before a long passage be aware of any crew medical problems and record medication being taken. Seek medical advice on likely symptoms and treatment. Unless forewarned, diagnosis may be very difficult once at sea.

- ***Abdominal pain (minor)***

  i Upper abdomen, intermittent, burning, no tenderness, otherwise well. May follow large alcohol intake. Eased by milk or antacid; bland meals; no alcohol.

  ii More generalised, cramping or colicky pain, no tenderness, may have diarrhoea or vomiting. May be gastroenteritis or food poisoning. Take oral fluid with a pinch of salt added. Avoid dehydration. Seek advice.

- ***Abdominal pain (major)*** Severe abdominal pain, usually constant and generalised. Abdomen may be rigid or very tender to touch, fever may be present, rapid pulse rate, generally unwell, nausea and vomiting. Make the casualty comfortable, give pain relief (injection if possible). Give nothing to eat or drink. ***Urgent help needed.***
- ***Allergies*** Mild cases may just have a rash which responds to calamine lotion and antihistamine tablets. Severe cases may collapse with breathing difficulty and require emergency ABC resuscitation. Seek advice.
- ***Children*** may become ill with alarming rapidity. Ear and throat infections are especially common. Children are also more susceptible to the effects of dehydration; if ill get them to drink copious fluids. Reduce drug dosage to a proportion of adult dose based on weight (average adult 70kg/155lb). Seek advice.
- ***Constipation*** Common at sea. Prevent by eating fruit, vegetables, bran and, if necessary, anti-constipation medication (eg senna preparations).
- ***Convulsion*** Casualty may be a known epileptic. **Do not** put anything in the mouth. Prevent injury. Place in recovery position; protect airway (he/she may still look very blue). After fit, allow him/her to sleep. ***Urgent help needed.***
- ***Diabetes*** A diabetic may become unconscious if his/her blood sugar is too high or too low. For **hyper**glycaemia (too much sugar) insulin is needed. **Hypo**glycaemia (too little sugar) may be caused by too much insulin, unusual stress or exercise, or too little food. In either case, if rousable, first give sweets, sugar, soft drinks. If recovery not rapid, ***Urgent help needed.***
- ***Diarrhoea*** Can be serious, especially in young children if much fluid is lost. Stop food, give plenty of fluid. Water is sufficient in most cases or, alternatively, add salt (1 teaspoon/litre) and sugar (4–5 teaspoons/litre) to water. Lomotil or Imodium tablets are very effective in adults.
- ***Fever*** May be associated with anything from common cold, appendicitis, heat stroke to an infected toe. Except for major abdominal problems, prescribe copious fluids, paracetamol or aspirin (not in the case of children) and antibiotics if infection is present. Seek advice.
- ***Heart attack*** Severe central 'crushing' chest pain; may spread to shoulders, neck or arms. Sweating, then bluish lips, then collapse. Breathing and heart may stop. Give one aspirin tablet 300mg, to be chewed not swallowed whole. Note that some casualties (diabetics, for example) may not experience the chest pains. ***Urgent help needed.***

  i Early symptoms; rest, reassure.

  ii If unconscious: recovery position; observe breathing and pulse.

  iii If breathing stops or pulse is absent, commence mouth to mouth ventilation and chest compression immediately and do not stop. See 8.4.

- ***Heat stroke*** Cool casualty by spraying with cold water or wrap the casualty in a cold wet sheet until their temperature falls to 38°C under the tongue; encourage drinking (one teaspoon of salt/half litre of water). If casualty stops sweating, has a rapid pounding pulse and is becoming unconscious, ***urgent help needed.***
- ***Seasickness*** is basically an inner ear disturbance caused by motion. The condition is aggravated by fear, anxiety, fatigue and boredom. It may manifest itself as lethargy, dizziness or headache as well as nausea and vomiting. Avoid strong food tastes and too much alcohol. Take small amounts of fluid and food frequently if you feel ill. Avoid fatigue; adequate sleep will often relieve the sick feeling. Keep warm. Stay on deck and concentrate on some task if possible – taking the helm can work wonders. Sick crew on deck must be secured by lifeline. Turn in if all else fails. Vomiting may cause serious loss of fluid.

  No one remedy suits everybody. Try the alternatives until you find one that is effective with minimal side effects; most tend to cause a dry mouth and some tiredness. Tablets available over the counter include: Avomine (promethazine) and Stugeron (cinnarizine). Take the first tablet some hours before going to sea, and then regularly for as long as necessary. Take a tablet just before going to sleep if possible. Various preparations can be applied behind the ear or worn as a wrist band. Prolonged seasickness is serious – seek advice.

8.10 STROKE

Stroke presents in different ways. However, if a person develops **sudden** onset weakness on one side of the body, problems with speech &/or visual problems: ***think of stroke***. Recognise a stroke using the FAST test:

- Face – Has one side of face fallen; can they smile?
- Arms – Can both arms be raised and kept up?
- Speech – Is it slurred or muddled?
- Time – To call for help.

If there is difficulty with *any one* of these suspect, a stroke.

Place in recovery position and check airway.

Urgent help needed – specialist treatment within 4½ hours may reverse the effects of a stroke. If you are more than 4½ hours from help, and the casualty is conscious and able to swallow, give 300mg of asprin, even if he/she is improving.

ACCIDENTS AND INJURIES

8.11 BITES AND STINGS

Injected poison from bites and stings usually only causes local swelling and discomfort, but some individuals may react severely. For insect stings, resuscitate if collapse occurs; otherwise give rest, painkillers, antihistamines (eg chlorpheniramine).

In warmer water, sea snakes and various sea stingers can inject deadly poison: prevent drowning, resuscitate if necessary. If sting is caused by jelly fish or Portuguese Man O'War etc, pour vinegar onto sting to reduce further poison release.

If the victim becomes weak and breathless, lightly compress the limb above the wound with a rolled up roller bandage to delay the spread of poison. **Do not** apply a tourniquet; this practice is out of date due to the danger of losing a limb. Start resuscitation. ***Urgent help needed***.

Many large cities maintain a 24-hour poison information centre. Use the radio for advice.

8.12 FISH HOOK INJURY

Push the hook round until the point and barb appear. Cut off the point and barb and withdraw the hook. Dress the holes and give an antibiotic.

8.13 BLEEDING – OPEN WOUND

Bleeding is often dramatic, but is almost always controllable.

Treatment

- Apply firm continuous direct pressure; bandage on a large pad. If bleeding continues, bandage more pads on top of initial pads; then press directly over wound for at least 10 minutes (blood takes this long to clot).
- Elevate if wound is on a limb.
- **Do not** apply a tourniquet. This practice is out of date and risks losing a limb.

8.14 BLEEDING – INTERNAL (CLOSED INJURY)

Follows fractured bones, crush injuries, or rupture of organs such as the liver or spleen. Treat for shock which may appear rapidly. ***Urgent help needed***.

8.15 BURNS AND SCALDS

Treatment

- Move the victim into fresh air to avoid inhaling smoke.
- ***ABC – Airway, Breathing, Circulation;*** **see 8.4.**
- Stop further injury: dip the whole of the burnt part into cold water for 10–15 minutes. Seawater is excellent but may be very painful.
- Remove loose clothing only; do not pull off clothing stuck to the skin.
- Cover with sterile dressing. If skin is broken or blistered, use sterile paraffin gauze beneath the dressing. Separate burnt fingers with paraffin gauze. Never use adhesive dressings.
- Do not prick blisters or apply ointments.
- Elevate burnt limb and immobilise.
- Give strong painkillers.
- Treat for shock: give frequent and copious drinks of water.
- Start giving antibiotics for major burns.
- If burns are extensive or deep, ***urgent help needed***.

Sunburn can be very severe. Best treated by keeping the skin cool by fanning or careful sponging with chilled water; give painkillers. For prevention keep well covered and only use sunscreen preparations with high protection factor, greater than SPF 20.

8.16 CHEST INJURY

May result in fractured ribs. These are very painful, and breathing may be uncomfortable and shallow. The fractured ribs may puncture the lung or, if a number of ribs are each broken in two places (eg after crush injury), then this part of the chest may move independently of the rest of the chest and seriously impair breathing.

Treatment

- ***ABC – Airway, Breathing, Circulation;*** **see 8.4.**
- Casualty may be more comfortable sitting up.
- Tape a plastic cover over any hole on 3 sides (top and both sides) if air is sucking in and out.
- Support any unstable chest segment with your hand.
- For fractured ribs prescribe rest and strong pain-killers if necessary. Very painful.

Avoid tight strapping lest it restricts breathing even further. ***Urgent help needed*** for any case with impaired breathing.

8.17 CRUSH INJURIES

These injuries involve skin, underlying muscle and tendon and sometimes bone as well. Common in hands and fingers (from winches and anchor chains) and elsewhere when tissue is sandwiched. Bleeding may be slight, but bruising and swelling considerable and extremely painful. Keep affected part as cold as possible; elevate if a hand or foot and give painkillers. ***Urgent help needed***.

8.18 CUTS AND WOUNDS

Often dramatic but only potentially serious if nerves, tendons or blood vessels are severed.

Treatment

- Clean thoroughly with antiseptic. Remove dirt or other foreign bodies from the wound.
- Small clean cuts can be closed using Steristrips. Skin must be dry. Use as many Steristrips as necessary to keep the skin edges together. Leave for at least 5 days.
- Larger deep cuts may require special suture techniques (stitches); apply a dressing and seek help. Do not try amateur surgery at sea.
- Ragged lacerations or very dirty wounds – do not attempt to close these; dead tissues may have to be trimmed away to prevent infection. Clean as well as possible, sprinkle antibiotic powder in wound and apply a dressing. Seek help.

If in doubt a wound is best left open and lightly covered to keep it clean and dry.

Fingers and toes

Blood may collect under the nail following an injury. Release the blood by piercing the nail with a red hot needle or paper clip. It will not hurt!

8.19 DENTAL PROBLEMS

Dental pain usually seems worse at sea; prevention is better than cure. It is advisable to see a dentist about 4 weeks before departing on a long voyage to allow time for any necessary treatment. If X-Rays are taken, be sure to keep them with you.

Consider carrying a dental mirror, tongue spatula, pen torch, cotton wool rolls, tweezers and a ready-mixed temporary filling. Dentanurse is an emergency treatment pack which enables an amateur to make basic temporary repairs, eg replacing crowns, lost fillings. It contains zinc oxide and Eugenol.

Treatment

- Throbbing toothache, made worse by hot or cold or when bitten on. If a cavity, clean out and apply temporary filling. Take an anti-inflammatory painkiller.
- Dull toothache, tender to bite on; gum swollen or red with possible discharge. Treat as above but also take an antibiotic.
- Broken tooth or filling. Cover exposed surfaces with zinc oxide paste.
- Teeth which have been knocked out should be placed in a clean container with milk or moist gauze and taken to a dentist at the first opportunity for re-implantation. This can be attempted onboard. If the tooth is not re-implanted within 24 hours (preferably within 1 hour), chance of success is poor.
- Bleeding gums. Clean teeth more thoroughly. If accompanied by foul odour and metallic taste, use regular hot salt water rinses and antibiotics.
- Pain around wisdom tooth. Toothbrush to clean area; use hot salt water rinses; take antibiotics and painkillers.

8.20 EYE PROBLEMS

All eye injuries or illnesses are potentially serious. Never put old or previously opened ointment or drops into an eye; serious infection could result.

Treatment

- Foreign object. Flush the eye with clean water, pull the bottom lid out to inspect, remove object with a clean tissue. For objects under upper eyelid, ask casualty to grasp lashes and pull the upper lid over the lower lid. A proper eye-bath is very effective. Blinking under water may also remove the object. After removal of object, insert sterile antibiotic ointment inside pulled out lower lid. Cover with pad.
- Corrosive fluid. Flush continuously with water for 15 minutes. Give painkillers and chloramphenicol ointment; cover with pad. ***Seek help as soon as possible***.
- Conjunctivitis. A sticky, weeping eye with yellow discharge. Chloramphenicol ointment 4 times a day.

8.21 FRACTURES AND DISLOCATIONS

Fracture is a broken bone. Dislocation is a displaced joint. Both result from major trauma and will produce pain (which is worse on attempted movement), localised swelling, abnormal shape, and a grating feeling on movement (when a fracture is present). Blood vessels or nerves around the fracture or dislocation may also be damaged resulting in a cold, pale, or numb limb below the site of the injury.

Fractures of large bones such as the femur (upper leg) will result in major internal bleeding and may cause shock. When complications occur, ***Urgent help needed***.

Early application of a splint and elevation of the injured limb where possible will reduce pain and minimise complications. Treat for shock and pain.

Specific fractures and dislocations

Cheek Caused by a direct blow. Rarely serious but requires specialist care.

Jaw Beware of associated brain or spinal injury. Remove blood and teeth fragments; leave loose teeth in place; protect broken teeth (see 8.19). Ensure airway is clear. Start regular antiseptic mouth washes and antibiotics. Support jaw with bandage over top of the head. Give only fluids by mouth.

Neck May result from a direct blow, a fall or a whiplash type injury. If conscious, casualty may complain of pain, tingling, numbness or weakness in limbs below the injury. ***Mishandling may damage the spinal cord, resulting in paralysis or death***. Avoid movement and support the head. Immobilise by wrapping a folded towel around the neck. If movement is necessary then lift the victim as one rigid piece, never allowing the neck to bend. ***Urgent help needed***.

Nose Control bleeding by pinching (8.25).

Ribs See chest injury (8.16). Often very painful. Strapping is not advised.

Skull See head injury (8.23).

Spine Fracture of the spine may occur below the neck, also resulting in ***paralysis or death***. Mishandling of the victim may greatly worsen the damage. Avoid movement if possible. Lift the casualty without allowing the spine to sag. ***Urgent help needed***.

Upper Limb

Collar bone (clavicle). Support arm in sling, Fig 8(7).

- **Dislocated shoulder**. If this has happened before, the casualty may remedy the dislocation himself; otherwise do not attempt to remedy it in case a fracture exists.
- **Upper arm (humerus)**. Support the arm with a collar and cuff inside the shirt as illustrated in Fig 8(8), ie tie a clove hitch around the wrist and loop the ends behind the neck.
- **Forearm and wrist**. Splint (eg with battens or wood). Do not bandage tightly. Elevate or support in a sling.
- **Fingers**. Elevate hand and, unless badly crushed, leave unbandaged; keep moving. If very wobbly, bandage to adjacent finger.

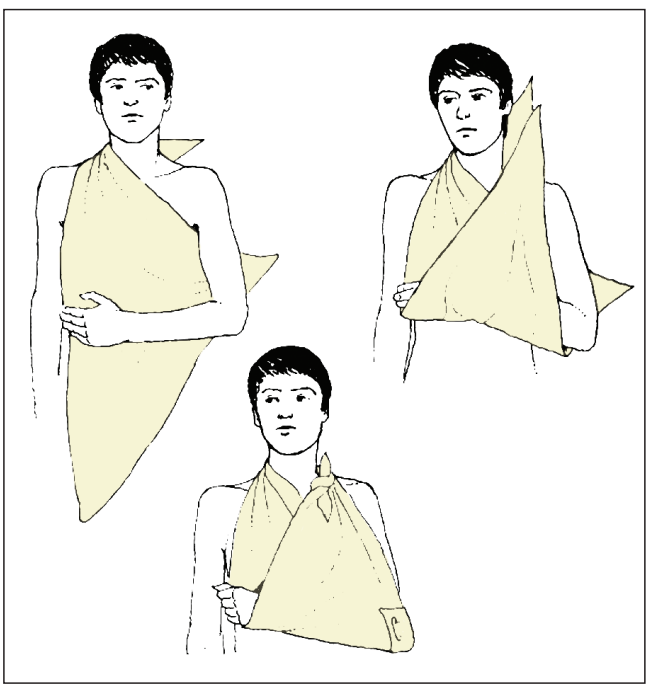

Fig 8(7) Sling

Fig 8(8) Collar and cuff

Lower limb

- **Thigh**. Shock may be considerable. Splint by strapping to other leg with padding between the legs. Gently straighten the casualty's lower leg. If necessary apply traction at the ankle to help straighten the leg. Do not bandage too tightly.
- **Knee**. Twisting injuries or falls damage the ligaments and cartilages of the knee. Very painful and swollen. Treat as for fracture.
- **Lower leg**. Pad very well. Splint using oar, broom handle or similar pieces of wood.
- **Ankle**. Fracture or severe sprain may be indistinguishable. Immobilise in neutral position with foot at right angles. Elevate the limb.

To be really effective a splint must be rigid and extend to the joints above and below the fracture. This is not always possible. The splint must be very well padded.

If the limb beyond the bandage or splint becomes swollen or discoloured, the bandage must be loosened to improve circulation. If you improvise a splint it is essential not to enclose the whole limb and risk cutting off the circulation (see 8.13, reference non-use of tourniquet).

As a general rule, if a fracture is suspected then seek advice.

Compound fractures

If a deep wound overlies the fracture, or the bone ends are visible, do not try to close the wound or replace the bone ends. Clean thoroughly with antiseptic and cover with a sterile dressing. Seek help. Start antibiotics if help is delayed.

8.22 FROSTBITE

Usually affects the extremities: toes, fingers, ears or nose. The affected part may be very painful, numb, stiff and discoloured. Warm gently (on someone else's back, for example).

Immersion in water less than 43°C (110°F); any higher temperature will cause more damage. Do not rub the affected part with anything.

8.23 HEAD INJURY

A blow to the head, with or without fracture, may result in immediate unconsciousness or more delayed effects.

Treatment

- Immediate unconsciousness, but quick recovery with slight drowsiness or headache. Prescribe rest and watch carefully.
- Immediate unconsciousness, no sign of recovery. Put in recovery position (beware of associated spine injury). Check airway. Observe the following and record every 10 minutes: pulse rate, breathing rate, pupil size (both sides), responses to verbal command, response to firm pinching. ***Urgent help needed***.
- Delayed deterioration (either not unconscious immediately, or apparently recovering then worsening). Increasing drowsiness, change in mental state and eventually unconsciousness. Treat as above. ***Urgent help needed***.

Scalp wounds may bleed profusely. Control with very firm pressure; cut away hair, and close using Steristrips if no fracture beneath. ***If in doubt seek help***. Avoid giving drugs after head injury.

8.24 NAIL INJURIES

Nails can be torn or lifted off the underlying flesh and bleeding can be impressive. Do not try to remove the damaged nail which will support the underlying tissue or bone if it is also damaged. Treat as for any bleeding wound with a pad and a bandage wrapped around the finger.

Blood may collect under the nail following a blow. Release the blood by piercing the nail with a red hot needle or paper clip. It will not hurt!

8.25 NOSEBLEED

Lean forwards and pinch the soft part of the nose firmly for at least 10 minutes to allow the blood to clot. Do not blow nose or try to remove clot.

If bleeding continues repeat the pressure for longer than 10 minutes. If still bleeding after 30 minutes insert as much 50mm (2in) gauze bandage (moistened with water) into the nostrils as you can, using forceps to feed the bandage in. ***Urgent help needed***.

8.26 POISONING

Poison may reach the body when swallowed, inhaled or injected through the skin (for bites and stings see 8.11).

Treatment

- ***ABC – Airway, Breathing, Circulation;*** see 8.4.
- Recovery position if unconscious.
- *Seek help*.

Swallowed poison

The poison container may give instructions or suggest antidote(s). For corrosive or petroleum products (acids, alkalis, bleach, detergent, petrol) *do not induce vomiting*. Administer copious fluids (eg milk).

For other substances (pills, medicines) *do not induce vomiting* – it is often ineffective and may cause further harm to the casualty. If collapsed or unconscious ***urgent help needed***.

Inhaled poison

Poison may be inhaled from sources such as carbon monoxide or other exhaust fumes, bottled gas which has leaked into the bilge, or fire extinguisher gas. Carbon monoxide inhalation produces cherry red lips and skin. Move into fresh air at once. If breathing is absent, start resuscitation. ***Urgent help needed***.

8.27 STRAINS AND SPRAINS

Torn ligaments, pulled muscles and other injuries. Rest the injured part; elevate if possible; apply ice packs (wrapped in a towel) if possible; administer painkillers. If in doubt, treat as a fracture and immobilise.

8.28 FIRST AID KIT

A made-up Offshore First Aid kit (below) costs about £50; a more comprehensive pre-packed kit might exceed £180. Prescriptions marked * are needed for three of the drugs listed in 8.29. Out of date drugs are potentially dangerous and should be destroyed. Special preparations are available for children. Stow the following suggested items in a readily accessible, clearly marked waterproof container:

Triangular bandage x 2 (doubles as bandage or sling)
Crepe bandage 75mm x 2
Gauze bandage 50mm x 2
Elastoplast 75mm x 1
Band Aids (or similar) various shapes and sizes
Wound dressings, 1 large, 1 medium
Sterile non-adhesive dressing (Melolin) x 5
Steristrips x 5 packs
Cotton wool
Scissors and forceps, good quality stainless steel
Safety pins
Thermometer
Disposable gloves
Antiseptic solution (eg Savlon)
Eye wash
Antifungal powder or cream (athlete's foot)
Insect repellent (DEET, diethyltoluamide)
Individual choice of anti-seasickness tablets
Sunscreen with high protection factor
Moisture cream (for cracked hands and lips)
Medication – see 8.29 for basic suggestions. The list will vary with voyage area, duration and crew embarked

Additional items for extended cruising

Vaccinations (possibly start 6 months before departure)
Syringes 2ml x 2 (if carrying injections)
Dental kit – see 8.19.

8.29 DRUGS AND MEDICATION

Drug	Type/Use	Dose
Paracetamol 500mg tablets	painkiller	1–2 tablets every 4 hours
Aspirin	blood thinner	300mg single dose in case of heart attack or stroke
Ibuprofen	anti-inflammatory	400mg every 8 hours (avoid if history of asthma or stomach ulcer)
*Dihydrocodeine 30mg tablets	strong painkiller	1–2 tablets every 4 hours
Cetirizine	antihistamine	10mg once a day
Aludrox	indigestion	1–2 before meals
Loperamide 2mg capsules	diarrhoea	Take 2 capsules initially followed by 1 after each loose stool, up to a maximum of 8 per day
Senokot tablets	constipation	2–4 tablets daily
*Amoxycillin 250mg	antibiotic	250–500mg every 8 hours (beware penicillin allergy)
*Erythromycin 250mg	antibiotic	For penicillin-allergic adults 4 tablets daily
Cinnarizine 15mg tablets	seasickness	2 before voyage, then 1 every 8 hours
*Scopolamine patches	seasickness	1 patch behind ear 5-6 hrs before voyage; replace after 72 hrs if necessary
Chloramphenicol ointment 1%	eye infection	3-4 times per day

* Only available on prescription.

8.30 EMERGENCY CHILDBIRTH

A yacht is no place to give birth. Unless remaining within about one hour of harbour, a woman who is more than 32 weeks' pregnant should not even consider going to sea in a small boat. Before 30 weeks into the pregnancy, there should be no problem embarking on short offshore passages.

Although giving birth may be an entirely natural process, it is potentially fraught with danger – for both mother and baby – and should ideally be supervised by a midwife or other suitably qualified person. Labour may start with backache, regular pains in the abdomen, a show of blood-stained mucus and a gush of water from the birth canal. Such a situation clearly demands a PAN PAN call followed by rapid assessment and transfer to hospital by lifeboat or helicopter.

Should help not be available, the best advice is to stay calm, unhurried and let nature take its course.

8.31 INJECTIONS

A doctor's prescription is required for injections. Stringent regulations apply to injectable painkiller drugs, which are probably only warranted for long passages. It is safest to inject into the muscle on the outer part of the mid-thigh. Clean the area, then plunge the needle swiftly an inch or so through the skin, pull back on the plunger to ensure that a blood vessel has not been entered, then slowly complete the injection.

8.32 BOOKS ON FIRST AID

The books below give detailed advice. At least one should be on board and the crew should know where it is stowed:

First Aid at Sea by Douglas Justins & Colin Berry (ACN, £10.99). Recommended by the RORC.

Skipper's Medical Emergency Handbook by Briggs & Mackenzie (ACN, £16.99). Flowchart problem-solving.

Doctor On Board by Jürgen Hauert (ACN, £12.99). Step by step photos and advice.

8.33 NORMAL PHYSIOLOGICAL MEASUREMENTS

Pulse rate	Adults 60–80/minute
	Children up to 100/minute
Breathing	12–15/minute
Temperature	36·7°C (98·4°F)

8.34 OBSERVATION FORM

The information recorded by you on this form will be invaluable in helping doctors or paramedics to diagnose the problem and arrange the best possible treatment for your casualty. This is particularly important if there may be a significant time lapse between requesting medical help and the casualty reaching hospital.

- Keep photocopies of this form in your First Aid kit so as to preserve the original.
- Whilst awaiting help, record your observations by ticking or annotating the various boxes at 10 minute intervals; trends can be important and will help doctors detect any improvement or deterioration in the casualty's condition.
- Continue recording observations until help arrives.
- If within radio range of shore attempt to pass the observations via the Coastguard to a medical authority; or ask a ship to relay.
- Before the casualty is taken off the yacht ensure that this form and personal documents are secured to him/her.

DATE ..... CASUALTY'S NAME ..... AGE ..... M/F .....

Times of observations @ 10 minute intervals:		**10**	**20**	**30**	**40**	**50**	**60**
EYES Observe for reactions whilst testing other responses	Open spontaneously						
	Open when spoken to						
	Open to painful stimulus						
	Nil response						
MOVEMENT Apply painful stimulus: Pinch ear lobe or skin on back of hand	Obeys commands						
	Responds						
	Nil response						
SPEECH Speak clearly and directly, close to the casualty's ear	Responds sensibly to queries						
	Seems confused						
	Uses inappropriate words						
	Incomprehensible sounds						
	Nil response						
PULSE (Beats per minute) Take adult's pulse at wrist or neck. Note rate and whether beats are: weak (w); strong (s); regular (reg) or irregular (irreg)	Over 110						
	101-110						
	91-100						
	81-90						
	71-80						
	61-70						
	Below 61						
BREATHING (Breaths per minute) Note rate and whether breathing is: quiet (q); noisy (n); easy (e); or difficult (d)	Over 40						
	31-40						
	21-30						
	11-20						
	Below 11						