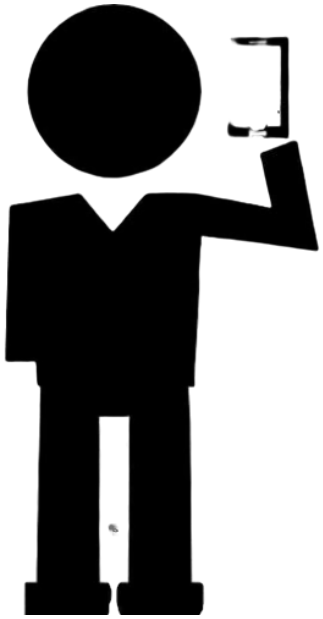
First Aid at work

Introduction

First Aid and emergency procedures provide a framework on how to approach a potentially dangerous or risky situation and, or when someone is hurt. This will help you stay calm, make safe choices and reduce the time it takes for help to arrive.

Mostly injuries on a Duke of Edinburgh expedition are minor: cuts and grazes, blisters and minor burns. We however have to be prepared, but don't be scared by the First Aid training. You are not expected to be an expert First Aider. It will help you identify a possibly illness or injury and act in a way that helps a casualty.



Who to call

•Remember your supervisor will be able to deal with most emergencies. Call your supervisor first.

•**BUT**

•If there is a life-threatening situation or a crime in progress you must not hesitate to call 999, then contact your supervisor. We do not want to waste the time of our emergency services, but, if the call is necessary, make it.

Stay safe

Personal safety, your team and safety of other countryside users should be foremost in your mind when planning your expedition. The safety and advice provided by the DofE can be download here.

Plan for safety. Prepare escape routes and alternative routing, allowing for bad weather. Know the weather forecast and emergency procedures, before setting off.

Equip for safety. Have the properly equipment and personal clothing, making sure it is being used or worn correctly. Do not carry too much and carry a personal first aid kit. DofE recommended kit can be found here. Find out how to use your first aid kit here.

Train for safety. Follow the instructions and advice given to you throughout your training. Most accidents are avoidable. Prevention is better than cure, meaning taking steps to prevent an accident is better than having to deal with it.

What to do in an emergency or accident?

A Duke of Edinburgh expedition isn't risk-free and it is important that you know what to do. Remember it may not be your team, but a member of the public who needs help. The most important piece of advice is to stay **calm**.

Assess using the 3 S's. Is it Safe? What can you See? What is the Situation or what has happened?

Make an area safe. It is important to eliminate anything that presents a danger to those involved and anyone who goes to help, including you, if it is safe to do so. Once an area is safe, use the primary survey to assess casualties.

Assist the emergency services. Give the emergency services as much information as you can when they arrive. Follow their instructions.

DR ABC (or the primary survey)

DR ABC is a really useful acronym when faced with an accident or emergency. It will help you assess any casualties, treating those most in need first.

D = Danger. Always make sure the area is safe before attending to the casualty.

R = Response. Check if the casualty is responsive or unresponsive.

A = Airway. Check their airway is open and clear.

B = Breathing. Check if they are breathing normally.

C = Circulation. Check for signs of severe bleeding.

How to treat a severe wound or bleeding

Severe bleeding can be dramatic and distressing. It is therefore important to stay calm, helping you think clearly and keep the casualty calm.

Severe bleeding can be life-threatening.

How to treat shock

Shock - not emotional shock - is a life-threatening condition, caused by anything reducing the flow of blood, so oxygen is not reaching the body's vital organs.

The recovery position

Putting a casualty into the recovery position will not improve a casualty's condition, but it does keep the airway clear and prevent choking as vomit and fluids drain out of the mouth.

Only an unconscious casualty, breathing normally should be put into the recovery position.

A casualty in the recovery position should be continually monitored.

.

How to do CPR

Do not carry out CPR unless you have gone through DR ABC. CPR should only be used when a casualty has stopped breathing or irregular breathing, called agonal breathing. Dial 999 or 112 for an ambulance. Essentially it is then 30 chest compressions and 2 rescue breaths until the ambulance arrives.

Where possible work in teams of two as this is physically tiring.

Siezures

- **For people having a tonic-clonic seizure, note the time, and if it lasts less than 5 minutes:**Look for an epilepsy identity card or jewellery.
- Protect them from injury by:
    - Cushioning their head, for example with a pillow.
    - Removing glasses if they are wearing them.
    - Removing harmful objects from nearby, or if this is not possible, moving the person away from immediate danger.
- Do not restrain them or put anything in their mouth.
- When the seizure stops, check their airway and place them in the recovery position.
- Observe them until they have recovered.
- Examine for, and manage, any injuries.
- Arrange emergency admission (call for an ambulance) if it is their first seizure; a seizure reoccurs shortly after the first one; the person is injured or having trouble breathing after the seizure, or is difficult to wake up.

Siezure Management

- **For people having a tonic-clonic seizure lasting more than 5 minutes, or who have more than three seizures in an hour,** in addition to the above measures: **Treat with one of the following:**
  - Buccal midazolam as first-line treatment in the community.
  - Rectal diazepam if preferred, or if buccal midazolam is not available.
  - Intravenous lorazepam if intravenous access is already established and resuscitation facilities are available.
  - Note that midazolam oromucosal solution is not licensed for children under 3 months or adults over 18 years of age (for infants between 3–6 months of age treatment should be in a hospital setting); and some preparations of rectal diazepam are not licensed for children under 1 year of age.

When to call an ambulance

- **Call an ambulance for urgent hospital admission if seizures *do not* respond promptly to treatment.**
- **Call an ambulance for urgent hospital admission if seizures *do* respond to treatment but:**
  - Seizures were prolonged or recurrent before treatment was given, particularly if seizures had developed into status epilepticus.
  - There is a high risk of recurrence, such as a history of repeated seizures or status epilepticus.
  - There are difficulties monitoring the person's condition.
  - This is their first seizure.

How to treat hypothermia and heatstroke

Being too cold and too hot can be life-threatening.

Hypothermia is a condition that occurs when a casualty's body temperature drops below normal. It is a condition affecting many older people.

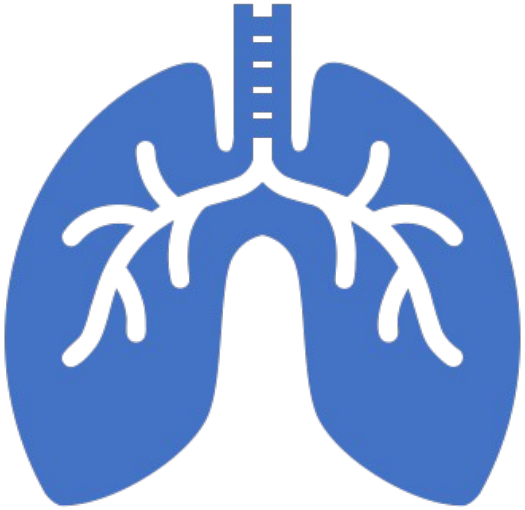
Heatstroke is the opposite condition, when a casualty's brain stops regulating the body's temperate and is unable to cool itself.

Heatstroke also happens after heat exhaustion.

The **general advice** in the hot weather is to cover up with light clothing, wear a hat, keep to the shade where possible, apply sun cream regularly and drink plenty of water.

General advice in hot weather

•The **general advice** in the hot weather is to cover up with light clothing, wear a hat, keep to the shade where possible, apply sun cream regularly and drink plenty of water. A DofE Expedition is not the time to 'top up your tan'. Sunburn also needs treating.



Asthma attack

Asthma is a common lung condition, affecting someone's breathing. The air passages of a casualty become inflamed, possibly triggered by an irritant such as an allergy or just at random, causing the airways to narrow.

Being unable to breathe can be a frightening experience.

Severe allergic reaction

•An allergen is a substance that causes the body to react in an abnormal way. Hayfever for example is a body's response to pollen.

•Some one in your team probably has an identified allergic reaction, for example to nuts and carries an epipen. Being outdoors however increases the chances of being exposed to an allergen.

•A severe allergic reaction is called an anaphylactic shock.

How to treat fractures and dislocated joints.

•A fracture is a break or a crack in a bone. If it is an open fracture, breaking through the skin there will be bleeding. A closed fracture, when the skin remains intact can cause internal bleeding and possibly shock.

•Dislocated joints happen when bones are pulled out of their normal position. DO NOT ATTEMPT TO PUT THE BONE BACK as this can cause further damage. Instead support the bones as much as possible to stop it and get the casualty to hospital. A casualty may go into shock.

How to treat strains and sprains

•Strains and sprains are stretches or tears of the soft tissues between bones. The treatment is the same as demonstrated in the video.

•Remember the acronym RICE.

•**Rest** – stop any activity and avoid putting weight on it.

•**Ice** – apply an ice pack.

•**Compression** – wrap a bandage around it.

•**Elevate** – keep it raised as much as possible.

How to treat burns and scalds

- A burn is caused by dry heat - hot objects, fire, electricity - and a scald by wet heat: hot liquid or steam. The longer the contact, the more skin damage and remember your DR ABC.

- Burns and scalds can be awful, depending on the 'thickness' of the wound.

Burns

- **What are the red flags for non-accidental injury?**
- **Suspect non-accidental injury if a child or adult has a burn or scald with any of the following:**
    - Explanation for the injury is absent or unsuitable.
    - The person is not independently mobile.
    - The injury is on any soft tissue area that would not be expected to come into contact with a hot object in an accident (for example, the backs of hands, soles of feet, buttocks, or back).
    - The injury is in the shape of an implement (for example, a cigarette or iron from a contact burn).
    - The injury indicates forced immersion, for example, scalds:
        - To the buttocks, perineum, and lower limbs.
        - To limbs in a glove or stocking distribution.
        - To limbs with a symmetrical distribution.
        - With sharply delineated borders.

How should I assess the extent of the burn?

- **The extent of a burn is a measure of burn severity.** It is expressed as the total burn surface area (TBSA), which is the percentage of the body surface area (BSA) affected.
- There are three main methods for estimating TBSA: the Lund and Browder method, Wallace's Rule of Nines, and the Rule of Palm.
    - **The Lund and Browder method** is a chart with an outline of a person divided into several regions, each represented by a number.
        - The chart is shaded to show the burned area, and the TBSA is calculated by adding the numbers for each affected region.
        - In babies and children, the head and legs make up different proportions of the BSA, so the chart includes age-related numbers for these areas.
    - **Wallace's Rule of Nines** estimates an adult's affected BSA using multiples of 9 representing different areas of the body.
        - Head and neck represent 9%.
        - Each lower extremity is 18%.
        - Each upper extremity is 9%.
        - Anterior and posterior torso are 18% each.
        - For scattered or irregular burns, the palmar surface of the person's hand represents approximately 1%.
        - Different calculations are used for children and infants.
    - **The Rule of Palm** assumes that the palm (including the fingers) of the person who is burned is about 1% of the body. This can be used to calculate the BSA burned. It can be used as a guide for small or scattered burns, or for assessing the amount of unburnt skin in very extensive burns.
    - **Note that** all three methods are reported to provide inaccurate estimates of TBSA.

Classification of the depth of burn.

Depth of burn	Layers of skin affected	Skin examination
Superficial epidermal (for example, sunburn)	The epidermis is affected, but the dermis is intact.	The skin is red and painful, but not blistered. Capillary refill* blanches then rapidly refills.
Superficial dermal (partial thickness)	The epidermis and upper layers of dermis are involved.	The skin is red or pale pink and painful with blistering. Capillary refill* blanches but regains its colour slowly.
Deep dermal (partial thickness)	The epidermis and the upper and deeper layers of the dermis are involved, but not underlying subcutaneous tissues.	The skin appears dry, blotchy or mottled, red, and typically painful (due to exposed superficial nerves). There may be blisters. Capillary refill* does not blanch.
Full thickness	The burn extends through all the layers of skin to subcutaneous tissues. If severe, it extends into muscle and bone.	The skin is white, brown, or black (charred) in colour, with no blisters. It may appear dry, leathery, or waxy and is painless. Capillary refill* does not blanch.

*Assess capillary refill by pressing with a sterile cotton bud (such as a bacteriology swab).
Note: assessment should take into account the person's skin pigmentation. In white skin, full thickness burns may be mistaken for unburnt skin. In pigmented skin, a superficial epidermal or dermal burn may not appear red.

Data from: [Lloyd, 2012; Wounds International, 2014; Douglas, 2017]

First Aid for Burns

When giving immediate first aid to a person with a burn:

- Avoid personal injury by checking the area is safe and wearing personal protective equipment, if necessary (for example, when treating chemical burns).
- Assess the person's airway, breathing, and circulation.
- Assess for other significant injuries or trauma that may be life-threatening and require emergency treatment, such as crush injuries, fractures, head injuries, or penetrating injuries.

For thermal burns:

- Stop the burning process (for example, extinguish flames using 'drop and roll' or smother them with a blanket).
- Remove non-adherent clothing and potentially restricting jewellery.
  - Do not attempt to remove tar stuck to the skin.
- Within 20 minutes of the injury, irrigate the burn with cool or tepid running water for 15–30 minutes.
  - Do not use ice or very cold water as it may cause vasoconstriction and may deepen the wound.
  - If water is not available, use wet towels or compresses.
  - Ensure the person is kept warm with coats, sheets, or blankets to avoid hypothermia, especially if cooling large areas of skin in children and the elderly.
- Immediately after cooling, cover the burn using cling film.
  - The layers of cling film should be laid over the burn rather than wrapped circumferentially, to avoid the possibility of constriction.
  - If cling film is not available, use a clean, cotton sheet. Consider using a clean, clear plastic bag for burns to the hand.
  - Do not apply topical creams at this stage, as they will hinder later assessment of the wound.
- Elevate the affected area if possible, to reduce the risk of oedema.
- Offer pain relief, such as paracetamol or ibuprofen, for mild-to-moderate pain. Consider adding codeine for more severe pain. See the CKS topics on Analgesia - mild-to-moderate pain and NSAIDs - prescribing issues.
- Take a history and assess burn severity to determine whether immediate admission to A&E is needed, or whether the person can be managed in primary care.

For electrical burns

- **Do not** approach a person connected to a high-voltage source (1000 volts or more).
- If the person has been injured by a low-voltage source (for example, domestic electricity supply [220–240 volts]):
  - Switch off the power supply if it is safe to do so, or remove the person from the electrical source using a non-conductive material (such as a wooden stick or wooden chair).
- Arrange immediate admission to A&E.
- If possible, take a history and assess burn severity to help guide subsequent management.

How to treat cuts, grazes and splinters.

- A cut is when the skin is fully broken, whereas only the top layers of skin are scrapped away. Most cuts and grazes can be treated with the contents of a basic first aid kit.

- Splinters of wood, glass and metal can usually be removed using tweezers. Again only if the splinter is deeply embedded or difficult to take out might a casualty need to seek medical help.

Blisters

- Blisters are small pockets of fluid underneath the skin, looking like fluid-filled bumps. They are caused by constant rubbing or exposure to heat.

How to treat stings and bites.

It is better to prevent stings and bites than treat a bite. Regularly apply bite protection creams and sprays, wearing long sleeves and trousers and avoiding areas where stinging and biting insects gather, such as water.

Ticks, a spider-like insect, living in woods and long grass, feeding off animal and human blood is particular problem. The video shows you how to remove a tick. Ticks spread serious diseases. Further information from the DofE is available here.

Generally bites can be treated by removing the sting, tick or hairs if still in the skin. Wash the area and apply a cold press. Avoid scratching the sting or bite or any blisters to prevent infection.

Insect Stings

- Stinging insects (such as honeybees, bumblebees, wasps and hornets) cause a sting by injecting venom from a sac attached to a barbed or non-barbed stinger into the skin. Stings are usually immediately painful.
- Honeybees and occasionally other stinging insects may leave a barbed stinger and attached venom sac in the skin after they sting.
- Venom contains allergens (such as hyaluronidase and acid phosphatase) and pharmacologically active substances (such as histamine) which cause reactions ranging from mild localized pain and erythema to severe systemic reactions including anaphylaxis.
- The antigenic substances in the venom of bees, wasps, and hornets are more likely to cause severe systemic hypersensitivity reactions than the antigens of most other insects.

Management of Insects Bites and Stings

- Consider if tetanus prophylaxis is appropriate
- If a stinger is visible in the skin - remove it as quickly as possible by scraping sideways with a fingernail, a piece of card or a credit card.
- If a tick is visible in the skin:
  - And the person is not known to be allergic to ticks, remove the tick as soon as possible by grasping it close to skin with a pair of forceps, tweezers or specialist tick remover and pulling gently but firmly perpendicular to the skin.
  - Do not twist the tick as this may leave the mouthparts in the skin.
  - Do not use petroleum jelly, alcohol, nail polish remover, or lit matches to try and dislodge the tick as this may cause it to regurgitate potentially infectious material into bite.
  - Do not routinely offer antimicrobial prophylaxis or carry out serological tests for Lyme disease, but advise that if a rash appears at the site of the bite (erythema migrans) or a fever develops, the person should promptly seek medical advice Clean the area and advise the person that simple first aid measures such as the use of cold compresses may help reduce local pain and swelling.
- Advise the person on:
  - Prevention of secondary infections with good hygiene and avoidance of itching.
  - When to seek medical help for example, if secondary infection (ongoing or worsening erythema, pain, or fever), a large local reaction or systemic reaction develops.
- Provide the person with appropriate information on avoidance of insect bites and stings.
- Reassess people with an insect bite or sting if they:
  - Develop signs or symptoms of infection.
  - Experience a deterioration in their condition or become systemically unwell.
  - Report severe pain which is significantly worse than the appearance of the wound. This may indicate the presence of toxin-producing bacteria.

If the person has a transient localised reaction to the bite or sting

- Usually no treatment other than simple first aid is required.
    - Oral analgesics such as paracetamol and ibuprofen are often recommended to ease pain but evidence in support of these treatments is lacking.
    .
- Oral antihistamines (such as chlorphenamine [sedating]) or topical corticosteroids (such as hydrocortisone 1%) may help reduce itching associated with cutaneous reactions but use is generally off-label and good quality evidence in support of use is lacking.
- Topical antipruritics (such as crotamitin), topical antihistamines and topical anaesthetics sold over-the-counter are of uncertain value in the treatment of insect bites and may themselves cause irritant skin reactions.

How to treat a headache.

- Most headaches are easily treated, although it is useful to identify why a casualty might have a headache, for example, has s/he been drinking water regularly and therefore could be dehydrated.

- A headache after a head injury is of concern, particularly if it is getting worse. This is a sign of compression.

Summoning help

Your supervisor must remain in the area at all times and your supervisor can help in most situation. If emergency assistance is required, dial 999 immediately and then contact your supervisor.

Alternatively two members of the team could be sent for help. Make sure instructions are clear and that the two members are given the second map, compass, emergency mobile phone and emergency phone procedures.

Help maybe available at the nearest house or from other countryside users. Don't be afraid to ask.

Calling 999 or 112

If someone is seriously ill or injured and a life is at risk, do not hesitate to call 999.

Be ready to provide the following:

1. The telephone number you are calling from.
2. The exact location of the incident.
3. The type and gravity of the emergency.
4. Number, gender and age of casualties.
5. Details of any hazards

What to do while you are waiting?

There is a lot you can do while waiting for the emergency services. Again work as a team. Often having something to do helps everyone stay calm and feel a sense of control.

Make the casualty more comfortable perhaps put up the tent to create a shelter. Continue to monitor them. Record what has happened.

Take out hi-visibility clothing or bright rucksack covers. Form a chain to the nearest road.

Self-assessment

- Take a moment to reflect on your understanding of this course.
- **Confident.** Take the test and see where you need to improve, if at all.
- **Not confident.** Work through the material again, do some extra research or ask an adult for help. Take the test and see where you need to improve.