

## D. WOUNDS AND INJURIES

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A wound is an injury in which the skin or another surrounding surface is torn, pierced, cut or otherwise broken. Wounds can be external or internal in the body. Each type of wound carries specific risks associated with the surrounding tissue damage and infection.

### D.1 TYPES OF WOUNDS

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- Abrasions



These wounds are superficial wounds in which the top most layers of the skin are scraped off, leaving a raw, tender area. These wounds appear often when experiencing a sliding fall (e.g. of a bike). The wounds often contain embedded foreign particles which may result in infections. Abrasions do not bleed much, but are usually very painful.

- Incisions



Incised wounds are caused by sharp instruments such as a knife, razor, etc. The blood vessels show a straight cut and bleeding may be profuse. Other structures such as tendons and nerves may be damaged too.

- Contusions (bruises)



Contused wounds are caused by blows, by blunt instruments or by punching. The capillaries are ruptured by the punch and blood leaks into the tissues. Severe contusion might be an indication of a deeper damage, like a fracture or internal injury.

- Lacerations



Lacerated wounds are caused by crushing, ripping forces by machinery, or clawing of animals resulting in tears or lacerations. The edges are mostly irregular in shape. There is usually more underlying tissue damage. These wounds are often contaminated with germs; the risk of infection is high. This type of wound sometimes has less bleeding, but is usually very painful.

- Puncture wounds



Puncture wounds are caused by stabs or sharp instruments like knives, daggers or nails. These wounds typically have a smaller opening, but may reach deep into the tissue. These may not be very painful.



A *stab wound* is a puncture wound by a knife or sharp blade. A *gunshot wound* is the wound caused by a bullet or missile driven into the body. The entry wounds of gunshot wounds are mostly small and neat. If the projectile also exits the body, the exit wound may be large and ragged.

- Amputations



Amputation is the removal of a limb by trauma. Re-attachment of amputated limbs, fingers or toes might be possible if the injured and the amputated part(s) arrive at the hospital as soon as possible.

### **D.1.1      COMPLICATIONS OF WOUNDS**

Wounds can cause two great dangers:

- Bleeding, and
- Infection

#### **D.1.1.1      BLEEDING**

Bleeding is the immediate complication of a wound and must be treated immediately.

#### **D.1.1.2      INFECTION**

*Germ*s are tiny, not visible to the human eye, organisms that can cause diseases. Germs are *bacteria*, *viruses*, *fungi* and *protozoa*.

An *infection* is caused by germs getting into the body through the broken skin. The germs multiply in the wound and make it 'infected', also called as 'septic'. Germs may later get into the bloodstream and cause a *septicaemia*.

A wound is initially not infected, even though it may be contaminated by dirt or materials that contain germs. An infection occurs after a lapse of time when the germs have time to multiply and invade the tissues. This time varies with the number of germs and their virulence and the body's resistance to fight back. Pus formation is part of the body's method to fight an infection.

The prevention of infection is very important. The first step consists of personal hygiene and the washing of your hands prior and after taking care of a person.

## **D.2      SMALL CUTS AND ABRASIONS**

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Even if the injured person has a small cut or abrasions, you will still need to take care of the wound to stop the bleeding and to prevent infection.

### **D.2.1      WHAT DO I SEE AND ENQUIRE?**

You might observe the following signs on a person with a cut or abrasions:

- the skin or the tissue is damaged,
- open skin or tissue might be bleeding,
- the bleeding might be minor or profuse,
- the skin might be discoloured, or
- the casualty might feel pain.

### **D.2.2      WHAT DO I DO?**

#### **D.2.2.1      HYGIENE**

1. Wash your hands before giving care. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.

#### **D.2.2.2      STOP THE BLEEDING AND BANDAGE THE WOUND**



2. Try to stop or slow down the bleeding: press on the wound with a clean cloth or bandage. If possible, ask the injured person to press on the cut or graze himself to stop the bleeding.



3. Rinse out the wound with clean water. You can also use boiled and cooled water.

Pour water on the wound until you cannot see any foreign material left in the wound. If necessary, wash out the wound under running water. Foreign material means dirt or anything else that comes from outside the injured person's body.

❗ In the event the wound is bleeding profusely, do not waste time cleaning it. Your priority is to stop the bleeding by applying pressure on the wound.



4. If you have a piece of clean (cotton) cloth, then cover the wound with it. Use adhesive strips to close a clean cut. If no strips are available, use a bandage. Bandage the dressing to the wound.

Do not apply the bandage too firmly. If the part of the body below the bandage changes colour, is swelling or is feeling numb, loosen the bandage a little bit.



5. Tell the injured person or the person caring for him to keep the wound dry after cleaning with water or getting wet. Every 2 or 3 days, the wound should be cleaned and the dressing changed.



6. If a dressing needs to be changed, do not tear the old one off as this can damage the healing wound. Instead, put enough water (preferably saline water if available) on the old dressing so that it comes off easily.
7. If the wound is infected, then always refer him to a healthcare facility for further care.

Even small wounds need attention to prevent infection. Even if the injured person has received appropriate medical care, there is a need to watch out for infection in the wound.

The following signs might indicate an infection:

- pain that is getting worse;
- swelling, hot or red skin around the wound;
- the wound shows discharge, or
- person having fever or feeling unwell.

In these cases the injured should seek further medical help.

#### **D.2.2.3    HYGIENE**

Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.

## D.3 HEAD INJURIES

The scalp has many small blood vessels near the skin surface. Any cut can result in profuse bleeding and may make the wound appear worse than it is.

In case of a severe head injury, a watery fluid (cerebrospinal fluid) and blood may flow out of the nose, ear(s) or mouth.

In case of suspecting a severe head injury:

1. Ask the injured not to blow his nose.
2. Do not pack the ear or nose. You may eventually place a light dressing on the ear or nose.
3. If the person is breathing, put him in recovery position. Be aware of the risk of neck (spinal) injury.
4. Urgent transport to the nearest hospital is required.
5. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.



Always urgently transport the casualty with a suspected head injury to the nearest healthcare facility.

### D.3.1 NOSE BLEED

The nose contains small blood vessels that can bleed easily. A nosebleed can be the result of a blow to the nose or a trauma to the face, but can also occur spontaneously because of dryness inside the nose. Other causes include a foreign object in the nose, infection, common cold, allergies, high blood pressure, high altitude, a dry environment, alcohol abuse, disease and the use of certain medication.

During a nosebleed, blood may flow from one or both nostrils. This flow may last from a few seconds to several minutes.



In case of a nose bleed:

1. Ask the person to pinch his nose above the nostrils with index finger and thumb. Tell the injured person to breathe through the mouth. Ask the injured person to lean forward so that he does not swallow or breathe in blood. Swallowing blood can make the person feel sick.
2. Pinch the nostrils for 10 to 15 minutes. If necessary, pinch the injured person's nose yourself.

In a few cases a nose bleed can be serious and lead to death.

The person should seek medical help if:

- blood is still coming from the nose after 20 minutes;
  - the nosebleed was caused by a hard punch on the nose; a fall, a road accident, etc.;
  - blood spurts from the nose, or
  - the injured person turns pale, becomes sleepy or falls unconscious.
3. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.

### **D.3.2 BLEEDING OF THE GUMS**

Bleeding may occur immediately or after some time after a tooth extraction.



In case of a bleeding of the gums:

1. The person may rinse his mouth with water or saline water.
2. A thick cotton ball can be put in the casualty's teeth socket and tell him to bite on the cotton ball to stop the bleeding.
3. Refer the person to a healthcare facility.



## D.4 CHEST INJURIES

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Injuries to the chest are always serious. Without being visible, there might be fractures of the ribs, tear of the lung, injury to the heart and injuries to blood vessels.

In case of a penetrating injury a condition called '*pneumothorax*' may occur. Air can enter between the lung membranes and exert pressure on the lung and make the lung to collapse. The pressure may build up effecting the other lung making the injured breathless.

Air may also come out from the wound during breathing.

In case of a chest injury:



1. Place him in a half-sitting position and control the bleeding by providing direct pressure to the wound. Leave the open chest wound exposed. Do not apply an occlusive dressing. Eventually put a light dressing on the wound that is not occlusive.
2. Reassure the casualty.
3. You may also encourage the injured to lean towards the injured side and use his hand to cover the penetration wound.
4. If the casualty becomes unconscious but keeps breathing, put him in the recovery position.
5. If the casualty stops breathing, start CPR.
6. Arrange urgent transport to the nearest hospital.
7. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.



Always urgently transport the casualty with a chest injury to the nearest healthcare facility,

## D.5 ABDOMINAL INJURIES

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Stab wounds, gun shots or crush injuries to the abdomen cause serious and potentially life-threatening wounds.

In case of an abdominal injury:

1. Control the bleeding by providing direct pressure to the wound.
2. Put a clean cotton bandage on the wound.
3. Adjust the position of the victim so the wound does not gap



4. If the intestines come out:  
Cover the intestines with a clean plastic bag or a clean pad.  
Do not touch the intestines that came out.
5. Do not give anything to drink or eat.
6. If the casualty becomes unconscious but is breathing, put him in the recovery position.
7. If the casualty stops breathing, start CPR.
8. Arrange urgent transport to the nearest hospital.
9. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.



Always urgently transport the casualty with an abdominal injury to the nearest healthcare facility,

## D.6 BLEEDING FROM VARICOSE VEINS

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Swollen knobbly dilated veins, as often found in the legs, are called varices. Bleeding from varicose veins might be very profuse.

In case of a varicose vein bleeding:

1. Ask the person to lie down on the floor.



2. Raise and support the affected leg (this might help to slow down the bleeding). Apply at the same time direct pressure to the site of the bleeding.
3. Put a bandage on the wound.
4. Refer the person to a healthcare facility. Transport the person to the hospital if the bleeding can't be stopped.
5. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.



Transport the person to the nearest healthcare facility if the bleeding can't be stopped.

## D.7 AMPUTATION

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Re-attachment of amputated limbs, fingers or toes might be possible if the injured and the amputated part(s) arrive at the hospital as soon as possible.

In case of an amputation:



1. Control the bleeding by providing direct pressure to the wound. Put a clean cotton bandage on the wound.



2. Place the amputated part in a clean plastic bag.
3. If possible, place the packed amputated part in a container of ice. Do not put ice directly on the amputated part – the amputated part should always be packed in a clean plastic bag.

Do not put liquids or antiseptic products on the amputated part.



4. Mark the package clearly with the casualty's name and the time the amputation occurred.
5. Arrange urgent transport of the casualty and the amputated part to the nearest hospital.

6. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.



Always urgently transport the casualty suffering an amputation injury to the nearest healthcare facility. If the amputated part has been recovered, do not forget to send it together with the casualty.

## D.8 CRUSH INJURIES

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Traffic accidents, building site accidents, explosions and natural disasters (e.g. landslides, earthquakes) are the most common causes of crush injuries. Crush injuries may include fractures, bleedings and swelling.

In case of a crush injury:

1. Try to keep the head of the victim as low as possible.
2. Monitor the respiration and consciousness of the victim.
3. If the victim stops breathing, start CPR.
4. Arrange urgent transport to the nearest healthcare facility or hospital.
5. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.



Always urgently transport a casualty suffering (potential) crush injuries to the nearest healthcare facility,

## D.9 SHOCK

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This life-threatening condition occurs when the circulatory system fails and as a result vital organs such as the heart and the brain are deprived of oxygen. It requires emergency treatment to prevent permanent organ damage and death.

Shock can be made worse by fear and pain. Whenever there is a risk of shock developing, reassuring the casualty, making him comfortable and keeping him warm may be sufficient to prevent him from deteriorating.

### D.9.1 CAUSES OF SHOCK

- Hypovolemic shock

The most common cause of shock is severe blood loss. If the blood loss exceeds 1.2 litres (this is about one-fifth of the normal blood volume of an adult), shock may occur. The blood loss may occur due to external and/or internal bleedings.

Loss of other body fluids can also result in shock. Conditions that cause heavy fluid losses include diarrhoea, severe burns, etc.

- Cardiogenic shock

In addition, shock may occur when an adequate volume of blood is available, but the heart is unable to pump the blood around. This problem can be due to severe heart diseases, heart attack or acute heart failure.

- Other types of shock

Other causes of shock include overwhelming infections (*septic shock*), lack of certain hormones, low blood sugar level (*hypoglycaemia*) (*metabolic shock*), under-cooling (*hypothermia*), injuries to the respiratory track or lungs (*respiratory shock*) and severe allergic reactions (*anaphylactic shock*), drug overdose or spinal cord injuries (*neurogenic shock*).

### D.9.2 WHAT DO I SEE AND ENQUIRE?

You might observe following symptoms:

- Initially:
  - rapid pulse;
  - pale looks;
  - cold clammy, sweaty skin.
- As shock develops:
  - rapid, shallow breathing;
  - cold, clammy skin;
  - rapid, weak pulse;
  - dizziness or fainting;
  - weakness;
  - eyes appear to stare;

- anxiety or agitation;
- seizures;
- confusion or unresponsiveness;
- low or no urine output;
- bluish lips and fingernails;
- sweating;
- nausea and vomiting might occur.
- The casualty might feel thirsty.
- The casualty might become restless and aggressive.
- The casualty might complain of chest pain.

### D.9.3 WHAT DO I DO?

1. Reassure the casualty (when conscious)
2. Treat the possible cause of shock that you can detect, such as a severe bleeding.
3. Lay the casualty comfortably on his back on a blanket.

However, in cases of injury of the head, chest or of the abdomen, lower the head slightly and turn it to a side.

In cases of vomiting put the casualty in the recovery position.

4. You may raise and support the legs. However, do not do this when you suspect a fracture or spinal injuries.
5. Loosen the tight clothing.
6. Keep the injured person warm by taking off wet clothing, covering him with a blanket or other covering, taking care not to overheat him.



Never use hot water bottles or very warm rugs.

Do not rub any part of the body to get him warm.

7. In case of major injuries nothing should be given by mouth as he may later need an operation or blood transfusion.

The general principle is never to give food or drink to a casualty. Important exceptions include hypothermia (low body temperature), hypoglycaemic shock (low blood sugar in a diabetes patient), diarrhoea and fever leading to dehydration and in case of heat exhaustion or heatstroke when the person remains conscious.

8. Observe the casualty's consciousness and breathing.
9. If the casualty loses consciousness, put him in the recovery position.
10. If the casualty stops breathing, start CPR.
11. Arrange urgent transport to the nearest healthcare facility or hospital.



12. Wash your hands after taking care of the patient. Use soap and water to wash your hands. If no soap is available, you can use ash to wash your hands. Alcohol-based sanitizers can also be used, if available.

#### **D.9.4      WHEN TO REFER TO A HEALTHCARE FACILITY?**



Always urgently transport a casualty showing shock symptoms to the nearest healthcare facility.