

FIRST AID

(Essential Skills for Everyday Emergencies)



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A TEXTBOOK OF FIRST AID

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FIRST AID

Preface

It is with immense pleasure and dedication that I present this book on First Aid. Writing this book, “First Aid,” has been a profoundly rewarding journey, and it brings me immense pride to finally share it with you. It is designed with the goal of imparting essential first-aid knowledge to students, particularly those pursuing diploma courses in engineering. The value of basic first-aid skills cannot be overstated. In life’s most critical moments, knowing how to respond effectively can save lives and prevent complications. This book aims to empower readers with practical, accessible, and actionable information that equips them to take swift action in emergencies.

This book covers a wide spectrum of topics, starting with the basics of first aid, emphasizing its importance, and introducing the roles and responsibilities of a first aider. It progresses into critical areas like handling burns, fractures, wounds, and poisoning, as well as providing essential knowledge on responding to emergencies involving foreign objects in the body, CPR techniques, and other lifesaving measures. The content in this book is carefully structured to ensure it is reader-friendly and easily applicable in real-life scenarios.

To the students and readers who pick up this book, I hope it serves as a guide to help you gain confidence and competence in first aid. Whether you are a future engineer working in environments prone to accidents or an individual eager to be a proactive member of society, this knowledge is a gift that will serve you and others in need.

contd...

Preface

To my family, friends, and especially my husband, Mr. Ranjodh Singh, I thank you for being my support system. Your belief in me is my greatest strength. “Let us strive to be prepared, compassionate, and responsible first responders.”

Warm regards,

Dr. Sukhvir Kaur

Syllabus

Unit-1: Basics of First Aid

First aid, importance of first aid, first aider, laws of first aid, contents of an ideal first aid kit, dealing with an emergency.

Unit-2: Emergency Response

CPR, steps for performing CPR, CPR for newborns and infants, recovery position, first aid in drowning, fractures of bones, causes and types of fractures, dislocation.

Unit-3: First Aid in Burns

Types of burns, danger of burns, first aid in dry burns and scalds, electrical burns, chemical burns, sunburn, heatstroke.

Unit-4: First Aid in Wounds and Injuries

Types of wounds- small cuts and abrasions, Head injury- nose bleed, bleeding gums, bleeding from varicose veins, Shocks- causes of shock and its first aid.

Unit-5: First Aid in Poisoning

Poisoning by swallowing, gases, injections, skin absorption, Animal bites, snake bites and insect stings.

Unit-6: First Aid in Foreign Objects

Entering the Sense Organs

Foreign body in the eye, ear, nose, skin, swallowing of foreign objects.

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1.

BASICS OF FIRST AID

Features

- i. *First aid*
- ii. *Importance of first aid*
- iii. *First aider*
- iv. *Laws of first aid*
- v. *Contents of an ideal first aid kit*
- vi. *Dealing with an emergency*

1.1 Introduction

A person who provides medical treatment to someone who is injured or has been in an accident in order to improve his condition; the medical treatment provided as aid is known as "first aid." You can't stay a helpless observer in an incident of an accident at work since doing nothing could make things worse. This is why it's critical to possess at least fundamental first aid knowledge. The most basic meaning of first aid is the very first care provided to an injured or ill person. When professional medical assistance arrives, first aid is usually performed by a layperson using relatively simple techniques that may be carried out with basic equipment.

1.1.1 Definition of first aid?

The immediate treatment of an injured or sick person is known as first aid, and it usually happens by a layperson with a limited expertise.

- First aid is often administered until the disease or injury is adequately treated (for example, minor cuts, bruises, and blisters) or until the next level of care—such as a doctor or paramedic—arrives.
- First aid is emergency care or treatment given to someone who has been wounded becomes ill unexpectedly, etc., while regular medical services can be obtained or arrive.

Why first aid is important?

- ***It helps you prepared.***

The purpose of first aid is twofold. First, it helps you observe the indicators that someone requires assistance, and second, it prepares you to respond when minutes count. No matter where you are—at home with your family, at work, at the grocery store, or hiking a nature trail—an emergency can strike at any time. It might be as simple as dressing cuts and scratches properly, but it can also be a lifesaver which keeps someone life until help arrives. The importance of first aid training should therefore never be understated.

- ***Learning Does Not Take Long.***

People with hectic schedules can still participate in First Aid training. It can equip you with the knowledge and confidence to react to an emergency, take action, and, in critical situations, even save a life. It only takes a few hours. Classes that are specific to your learning style and schedule are offered both weekdays and weekends in a range of formats (e.g., in-person, online-only, or blended learning).

- ***It appears well on a CV.***

Training in CPR, First Aid, and other skills is still highly valued on your resume, even if your workplace (or potential employer) does not need it. You demonstrate that you take the

initiative to receive worthwhile, life-saving training by signing up for these kinds of seminars. Simply include it to your resume under the "Special Skills" or "Certifications" section, along with any pertinent background information. For example, include a quick statement stating that you have first aid experience from your time as a volunteer fireman, lifeguard, babysitter, or child care provider.

What is a first aider?

A first aider is defined as an individual trained to provide assistance to those involved in emergencies. Their responsibilities include caring for patients who are injured or experiencing health issues that require urgent medical attention. Furthermore, first aiders work to ensure the safety of their patients, preventing any additional harm. They are certified to validate their skills and knowledge in first aid, which guarantees their capability to deliver appropriate care. In the context of the workplace, the presence of nominated first aiders is crucial, as employers often seek to comply with specific health and safety regulations by having trained personnel on-site.

What are the roles of first aiders?

As a first aider, you are responsible for providing first aid to anyone who is ill or injured. You bear the responsibility for addressing minor medical issues, such as treating wounds, managing external bleeding, or attending to various injuries. First aiders play a crucial role in safeguarding the well-being of patients, particularly in the interim period before professional medical assistance is available or prior to transporting the individual to a medical facility. The following are some of the responsibilities you may be required to

undertake as a first aider:

- Ensuring the airway of an unconscious individual is clear by positioning them in the recovery position
- Administering cardiopulmonary resuscitation (CPR) or utilizing an automated external defibrillator (AED) along with other medical devices
- Applying pressure to control external bleeding
- Providing support to an injured limb

What are other responsibilities of first aiders?

In addition to the overarching responsibility of first aid provision, individuals designated as first aiders have specific roles that are contingent upon their assignments and qualifications.

1.1.2 Workplace First Aider

When tasked with the role of a workplace first aider, one is expected to provide immediate care to employees experiencing health emergencies. The provision of first aid is critical in workplace settings, as accidents can occur unexpectedly. It is the employer's duty to ensure the safety of their workforce, which includes adherence to regulations mandating such safety measures. Consequently, employers must appoint a qualified first aider, ensure the availability of appropriate equipment, maintain a well-stocked first aid kit, and provide an on-site first aid facility.

1.1.3 Mental Health First Aider

Mental health first aiders are increasingly recognized in various work environments. Employers must extend their concern beyond the physical health and safety of their employees to encompass their mental well-being. This necessitates the presence of mental health first aiders who are equipped to address these specific needs.

1.1.4 Duty of Care First Aider

First aid coverage is generally mandated in any setting where a duty of care exists. Such coverage can be found in diverse locations, including community centers or organized events. It is the responsibility of event organizers to ensure that qualified first aiders are available on-site.

1.2 First Aid and The Law

1.2.1 Indian Good Samaritan Protection Guidelines

A Good Samaritan, in legal terminology, is defined as an individual who voluntarily provides assistance to an injured person during an emergency situation. In May 2015, the Ministry of Road Transport and Highways issued the Indian Good Samaritan and Bystanders Protection Guidelines, which were published in The Gazette of India (***Notification No 25035/101/2014-RS dated 12 May 2015***). These guidelines are intended for adherence by hospitals, law enforcement, and other relevant authorities to ensure the protection of Good Samaritans. Key provisions of the guidelines include:

1. A bystander or Good Samaritan, including any eyewitness to a road accident, is permitted to transport an injured individual to the nearest medical facility and should be allowed to depart without delay. The eyewitness is required to provide their address, but no further inquiries should be made.
2. A bystander or Good Samaritan shall not incur any civil or criminal liability for their actions.
3. An individual who contacts the police or emergency services to report an injured person on the road is not obligated to

disclose their name or personal information, whether over the phone or in person. The sharing of contact information by the Good Samaritan is entirely voluntary.

4. A medical professional's failure to respond to an emergency situation involving a road accident, where their intervention is anticipated, will be regarded as 'Professional Misconduct'.

1.3 Duty of Giving Care

In general, when a volunteer assists an injured or ill individual who is a stranger, the volunteer is expected to exercise reasonable care. As of 2015, there is no legal requirement for bystanders to administer first aid in public settings unless such action is stipulated in their job responsibilities. However, designated first aid personnel in workplaces and educators in schools are bound by a duty of care. Once a volunteer initiates first aid, this duty of care is activated, obligating the volunteer to adhere to it. In the event of a traffic accident, individuals involved are legally mandated to remain at the scene, provide assistance to the injured, and notify law enforcement. Failing to uphold the duty of care may expose the first aider to allegations of negligence. Although there is no legal compulsion for individuals to treat a casualty, neglecting to assist someone known to be in peril could result in liability due to a failure to act.

If one is unwilling to provide first aid, there are several appropriate actions to take, including but not limited to:

- contacting authorities such as the police or emergency services.
- ensuring the safety of the area surrounding the casualty for oneself, others, and the casualty.
- observing the casualty and/or gathering information about the incident; and providing comfort to the casualty.

1.4 Consent of the Person in Need

A person who is conscious possesses the autonomy to either accept or decline medical assistance. Prior to initiating any first aid measures, it is imperative to seek the individual's consent. Should the individual decline assistance, it is advisable to remain in proximity while contacting law enforcement and emergency services to manage the situation. In cases involving individuals under the age of 18, it is prudent to secure consent from a parent or guardian, provided they are available. If the guardian also refuses assistance, one should continue to stay close and notify the police and emergency services for further intervention. In instances where the individual is unconscious or otherwise unable to provide explicit consent, it is understood that consent is implied, allowing for the provision of necessary first aid.

1.5 Privacy

In any first aid scenario, it is imperative for the first responder to ensure that the individual receives assistance while preserving their personal privacy. This involves actions such as dispersing onlookers, erecting a barrier if required, and using blankets or sheets to cover any exposed areas of the body, if such materials are accessible. Additionally, the first responder must prioritize confidentiality by refraining from discussing the incident with others or responding to media inquiries, unless explicit consent has been obtained from the individual affected by the incident.

1.6 Negligence

When a volunteer assists an injured or ill individual who is unfamiliar to them, the volunteer has a responsibility to exercise reasonable care in their actions. Failing to uphold this duty of care may result in inquiries regarding potential negligence. However, it is improbable that a first aider would face legal action, provided

they operate within the guidelines of the techniques learned during their first aid training.

1.7 Dealing With An Emergency

Emergency scenarios can differ significantly, however, four fundamental steps consistently apply:

Ensure the safety of the environment.

Assess the condition of the injured individual.

Obtain assistance.

Administer first aid.



Figure 1: First Aid Process

STEP 1: Ensure the safety of the environment

Prioritizing your safety is of utmost importance. As a first aider, it is essential to:

- ascertain the circumstances surrounding the incident.
- evaluate potential hazards, such as traffic, fire, or electrical wires
- avoid approaching the accident scene if it poses a risk to your safety
- endeavor to safeguard both the injured individuals and bystanders

- recognize that the belongings of the injured may be vulnerable to theft; therefore, remain vigilant regarding your safety.
- request assistance from law enforcement or emergency services if the scene is unsafe and you are unable to provide aid without endangering yourself.

STEP 2: Assess the condition of the injured individual

It is essential to assess the condition of a sick or injured individual, provided that it is safe to do so. Begin by confirming that the person is conscious and exhibiting normal breathing patterns. Impairments in consciousness or respiration can indicate life-threatening situations. Additionally, internal bleeding may occur, posing significant risks even when external signs of blood loss are not apparent. Familiarity with resuscitation techniques, such as cardiopulmonary resuscitation (CPR) and the recovery position, is crucial in these scenarios.

STEP 3: Obtain assistance

Upon assessing the condition of the sick or injured individual, you can determine whether immediate assistance is required. If urgent help is necessary, request a bystander to contact emergency services and ensure they return to confirm that assistance is on the way. Should you need to make the call yourself, be prepared to provide the following information:

- The precise location where assistance is needed (including address, street, notable landmarks, and if applicable, the floor and room number within a building).
- The telephone or mobile number from which you are calling.
- A description of the issue at hand.
- Details regarding the incident (such as a car accident, fall, sudden illness, explosion, etc.).

- The number of individuals injured.
- Information about the nature of the injuries, if known.
- The type of assistance required, which may include an ambulance, police, fire brigade, or other services.
- Any additional information that could be pertinent.

You may be asked to provide your name. It is essential to remain composed and respond to inquiries in a calm manner. The call takers are trained professionals who will offer further instructions. If an ambulance can be dispatched promptly, it is advisable to request one for the transportation of the injured or ill individual to a medical facility. While ambulances are the most suitable means of transport for such cases, they may not always be readily available. In such instances, you can seek assistance from the police. If no help is forthcoming, you will need to arrange for transportation yourself, which could involve a van, truck, car, auto-rickshaw, motorcycle, scooter, bike-rickshaw, or bicycle. Always exercise extreme caution when moving the sick or injured person.

STEP 4: Provide First Aid

Provide first aid in accordance with the guidelines outlined in the subsequent chapters of this manual. While administering first aid, it is essential to shield the affected individual from extreme temperatures, both cold and hot. Avoid offering food or beverages to individuals who are:

- seriously injured,
- experiencing nausea,
- becoming drowsy, or loss of consciousness.

To assist the individual during this challenging time, consider the following recommendations:

- introduce yourself to the sick or injured person, clarify the assistance you will provide, and offer reassurance to help

-
- alleviate their anxiety;
 - attend to their needs by listening attentively and demonstrating empathy;
 - ensure their comfort to the best of your ability;
 - if they express fear, acknowledge that it is a natural response;
 - if feasible, encourage the presence of family and friends for support; and
 - communicate clearly about the situation and the steps that will follow.

Having a well-equipped first aid kit is invaluable. To ensure readiness for emergencies:

- store a first aid kit in your residence and vehicle;
- carry a first aid kit with you or be aware of its location;
- identify where first aid kits are located in your workplace.

First aid kits are available in a variety of configurations and dimensions. They can often be purchased at local pharmacies, or alternatively, one can assemble a custom kit. Certain kits are tailored for specific activities, including hiking, camping, or boating. Regardless of whether you opt to purchase a pre-made first aid kit or create your own, it is essential to ensure that it contains all necessary items: - Incorporate personal items such as prescribed medications and emergency contact numbers, as well as any additional items recommended by your healthcare provider. - Regularly inspect the kit for completeness. - Verify expiration dates and replenish any used or expired components.

The Indian Red Cross advises that a comprehensive first aid kit for a family of four should encompass the following essential items:

- 2 absorbent compress dressings (5 x 9 inches)
- 25 adhesive bandages (assorted sizes), also found within our Family First Aid Kit



Figure 2: First Aid kit with various essential materials

- 1 adhesive cloth tape (10 yards x 1 inch)
- 5 antibiotic ointment packets (approximately 1 gram)
- 5 antiseptic wipe packets
- 2 packets of aspirin (81 mg each)
- 1 emergency blanket
- 1 breathing barrier (with one-way valve)
- 1 instant cold compress
- 2 pair of nonlatex gloves (size: large)
- 2 hydrocortisone ointment packets (approximately 1 gram each)
- 1 3 in. gauze roll (roller) bandage
- 1 roller bandage (4 inches wide)
- 5 3 in. x 3 in. sterile gauze pads
- 5 sterile gauze pads (4 x 4 inches)
- Oral thermometer (non-mercury/nonglass)
- 2 triangular bandages
- Tweezers
- Emergency First Aid instructions

2.

EMERGENCY RESPONSE

Features

- i. CPR*
- ii. Steps for performing CPR*
- iii. CPR for newborns and infants*
- iv. Recovery position*
- v. First aid in drowning*
- vi. Fractures of bones*
- vii. Causes and types of fractures*
- viii. Dislocation*

2.1 Introduction

Emergency response is a systematic, immediate response to an unexpected or dangerous situation. The main goal is to reduce the impact of the event on person.

Here are some ways to contact emergency services in India:

- Dial 112: This is the unified emergency number for all services
- Activate a panic call: On a smartphone, you can press the power button three times quickly. On a feature phone, you can long press the "5" or "9" key
- Use the State ERSS website: You can log on to the website and place an SOS request
- Email an SOS alert: You can email an SOS alert to the State ERC

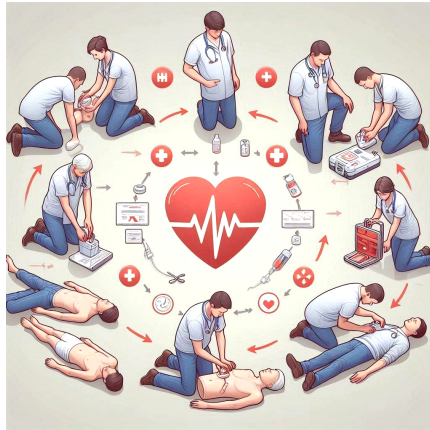


Figure 1: Cardiopulmonary resuscitation process

2.2 Cardiopulmonary Resuscitation

- CPR Stands for cardiopulmonary resuscitation which means an attempt to start respiration and heartbeat in a person who had a cardiac arrest.
- Nowadays, it is known as CPBR, CPR Where ‘B’ stands for brain & ‘C’ stands for cerebral.

2.3 CPR can be divided into following stages

- BLS (Basic life support)
- ALS (Advanced life support)
- Post-resuscitation life support.

2.4 Methods of giving BLS

- It can be given by persons trained in BLS.
- If patient is unconscious, go and try to wake him, and if he is not breathing, assess his pulse in carotid artery on your side, for an adult, at the brachial artery for a child and infant for at least 5 seconds and not more than 10 seconds to be sure about presence of pulse.



Figure 2: Method of giving BLS

- If pulse is not felt, start CPR by following the technique CAB (Circulation, airway, breathing) immediately without wasting time as brain damage occurs after 5 minutes and CPR may not be effective.
- Previously it was known as ABC instead of CAB.

ABC:-

1. Airway
2. Breathing
3. Circulation

CAB:-

1. Circulation
2. Airway
3. Breathing

2.5 Steps in CPR

According to latest guide lines CPR is done according to:-

DSR

D: - Check for danger

S: - Send for help

R: - Check for response

CAB:-

1. Circulation

2. Airway

3. Breathing

D:- Defibrillator if AED is available.

2.6 Technique of CAB

- It commences with chest compressions rather than rescue breaths.
- ‘C’ directs rescuers to perform chest compressions at a rate of 30 compressions in 18 seconds followed by two rescue breaths in 5 seconds.
- Compression is done to restore circulation that means providing adequate blood to tissues.
- ‘A’ directs rescuers to open the airway which is done for protection and maintenance of clear passage of gases to pass between lungs & atmosphere.
- ‘B’ directs rescuers to check breathing but not essential to deliver rescue breaths
- ‘D’ directs rescuers to attach an AED as soon as it is available and follow its command to give shock.
- It has been found that early defibrillation (i.e. shock delivery within 5 minutes of the cardiac arrest) is very useful for survival of patient.

2.7 Methods of chest compressions

- It is done by pressing chest in the following ways.
- The patient should be placed on a hard surface either on the table or on the floor.
- If patient is lying on a spring bed, the pressure during heart massage is not transmitted
- While giving heart massage the elbows and the forearm of the massager should be kept straight so that pressure is properly transmitted.
- If patient is lying on the ground, you should sit on your knees while giving cardiac massage.
- Now keep palm of your hand on the sternum.
- Now cover the palm of one hand with other hand and give pressure downwards with the heel of the palm in such a way that sternum is depressed downward, towards

towards backbone by 1 and a half inch.

- If massage is correct, it can generate a systolic blood pressure of 80-100mm of Hg.
- For adults, push up to 5cm and for child up to 4 cm, for infants up to 3 cm.
- Keep counting aloud. After every 30 chest compressions give two rescue breaths in adult and child victim, continue for five cycles or two minutes before re-assessing the pulse.
- If two persons are there, one can give chest compression and the other can give rescue breath.
- If one person is there he should give 30 compressions and 2 breaths.
- CPR for adults 30:2
- CPR for infants and children uses a 15:2 cycle

2.8 Harmful effects of BLS

- Ribs can be broken
- Membrane of lung can be ruptured.
- Liver can be injured.
- Major vessels can get ruptured.
- Intestines can be damaged.

2.9 Delayed complications

- Infection
- ARDS (Adult respiratory distress syndrome)
- Nerves and vessels can get damaged.

2.10 Chain of survival CPR

- Step 1 Recognition and activation of the emergency response system. ...
- Step 2 Early CPR. ...
- Step 3 Rapid Defibrillation. ...
- Step 4 Advanced Life Support. ...
- Step 5 Post Arrest Care.

2.11 To Perform CPR on Child

The processes for giving CPR to a child age 1 through puberty is essentially the same as that for an adult — follow the C-A-B steps.

2.12 Compressions: Restore blood flow

If you are alone and didn't see the child collapse, start chest compressions and continue for about two minutes. Then quickly call your local emergency number and get an AED if one is available.

If you're alone and you did see the child collapse, call your local emergency number first. Then get an AED, if available, and start CPR. If another person is with you, have that person call for help and get the AED while you start CPR.

- i. Place the child on their back on a firm surface.
- ii. Kneel next to the child.
- iii. Place two hands — or only one hand if the child is very small — on the lower half of the child's breastbone.
- iv. Using the lower palm of one or both hands, press straight down on the chest about 2 inches (5 centimeters) but not greater than 2.4 inches (6 centimeters). Push hard and fast— 100 to 120 compressions a minute.
- v. If you haven't been trained in CPR, continue chest compressions until the child moves or until emergency medical help takes over. If you have been trained in CPR, open the airway and start rescue breathing.

2.13 Airway: Open the airway

If you're trained in CPR and you've performed 30 chest compressions, open the child's airway using the head-tilt, chin-lift maneuver.

- Place your palm on the child's forehead and gently tilt their head back.
- With the other hand, gently lift the chin forward to open the airway.

2.14 Breathing: Breathe for the child

Follow these steps for mouth-to-mouth breathing for a child.

- After using the head-tilt, chin-lift maneuver to open the airway, pinch the child's nostrils shut. Cover the child's mouth with yours, making a seal.
- Breathe into the child's mouth for one second. Watch to see if the chest rises. If it rises, give a second breath. If the chest doesn't rise, repeat the head-tilt, chin-lift maneuver. Then give the second breath. Be careful not to provide too many breaths or to breathe with too much force.
- After the two breaths, begin the next cycle of compressions and breaths right away. If there are two people available to do CPR on the child, change rescuers every two minutes or sooner if a rescuer is tired and give 1 to 2 breaths every 15 compressions.
- As soon as an AED is available, follow the device's directions. Use pediatric pads for children older than 4 weeks and up to age 8 years. If pediatric pads aren't available, use adult pads. Give one shock, then start CPR again starting with chest compressions — for two more minutes before giving a second shock. If you're not trained to use an AED, an emergency medical operator may be able to give you directions. Continue until the child moves or help arrives.

2.15 To perform CPR on a baby 4 weeks old or older

Cardiac arrest in babies is usually due to a lack of oxygen, such as from choking. If you know that the baby has an airway blockage, perform first aid for choking. If you don't know why the baby isn't breathing, perform CPR.

First, study the situation. Touch the baby and watch for a response, such as movement. Don't shake the baby. If there's no response, call your local emergency number, then start CPR right away.

Follow the compressions, airway and breathing method for a baby under age 1. Do not follow this procedure for newborns, which include babies up to 4 weeks old.

If you saw the baby collapse, get an AED, if available, before starting CPR. If you're with another person who can help, have that person call for help right away and get the AED while you stay with the baby and perform CPR.

2.16 Compressions: Restore blood flow

- i. Place the baby on their back on a firm, flat surface, such as a table or floor.
- ii. Imagine a horizontal line drawn between the baby's nipples. Place two fingers of one hand just below this line, in the center of the chest.
- iii. Gently compress the chest about 1.5 inches (4 centimeters).
- iv. Count aloud as you push in a fairly rapid rhythm. You should push at a rate of 100 to 120 compressions a minute, just as you would when giving an adult CPR.



Figure 3: Breathe for the baby

2.17 Airway: Open the airway

- After 30 compressions, gently tip the head back by lifting the chin with one hand and pushing down on the forehead with the other hand.

2.18 Breathing: Breathe for the baby

- Cover the baby's mouth and nose with your mouth.
- Prepare to give two rescue breaths. Use the strength of your cheeks to deliver gentle puffs of air instead of deep breaths from your lungs. Gently puff a breath into the baby's mouth one time, taking one second for the breath. Watch to see if the baby's chest rises. If it does, give a second rescue breath. If the chest does not rise, repeat the head-tilt, chin-lift maneuver and then give the second breath.
- If the baby's chest still doesn't rise, continue chest compressions.
- Give two breaths after every 30 chest compressions. If two people are doing CPR, give 1 to 2 breaths after every 15 chest compressions.
- Continue CPR until you see signs of life or until medical help arrives.

2.19 Reasons you may need to perform CPR on an infant include

- Choking
- Drowning
- Electrical shock
- Excessive bleeding
- Head trauma or other serious injury
- Lung disease
- Poisoning
- Suffocation

It's also important to maintain the infant's body temperature. You can use pre-warmed towels, blankets, and bed warmers to keep the infant warm.

2.20 Recovery position

The recovery position is a first aid technique that can be used after CPR to help maintain adequate ventilation and prevent cardiac arrest. It's important to put an unconscious person in the recovery position after CPR because recovering from cardiac arrest can be dangerous.

Here are some steps to put someone in the recovery position:

- i. Kneel beside the person on the floor
- ii. Extend the person's arm closest to you at a right angle to their body



Figure 4: Recovery position

- iii. Fold the person's other arm so the back of their hand rests on their cheek
- iv. Bend the person's knee farthest away from you to a right angle
- v. Carefully roll the person onto their side by pulling on the bent knee towards you
- vi. Gently tilt the person's head back and lift their chin
- vii. Place the person's hand under their chin to keep their airway open
- viii. Adjust the top leg so that it is bent at a right angle
- ix. Call for help
- x. Monitor the person's level of response

2.21 Drowning

Drowning causes asphyxia by water, weeds and mud entering into the lungs. When the lungs' alveoli are filled with water, they cannot exchange oxygen to and from the blood.

In case of 'dry drowning' the water never reaches the lungs. Instead, breathing in water causes the vocal cords spasm that shuts off his airways, making it hard to breathe.

'Secondary drowning' happens differently. The swimmer often appears fine immediately after swimming. But over time, water left in the swimmer's lungs begins to cause edema, or swelling.

If a casualty has been immersed in cold water, there is also the danger of hypothermia. It is important to keep the victim warm. If the casualty was diving there could be trauma to the head, neck or spine.

2.22 What do I see and enquire?

A victim is in the water and is in distress.

Following signs of drowning may be observed:

- no breathing;
- difficulty in breathing and signs of restlessness;



Figure 5: A victim is in the water and is in distress

- the rate of breathing increases;
- the breaths get shorter;
- the veins of the neck become swollen;
- the face, lips, nails, fingers and toes turn blue;
- the pulse gets faster and feebler; and
- Water may gush from the mouth.

This water is from the stomach and should be left to drain of its own accord. Do not attempt to force the water to come out of the stomach as the victim may inhale it.

What do I do?

2.23 Safety first and call for help

- Make sure there is no danger to you of drowning.
- The person urgently needs help. Shout or call for help if you are alone but do not leave the person unattended. Ask a bystander to seek help or to arrange urgent transport to the nearest healthcare facility. Tell him to come back to you to confirm if help has been secured.



Figure 6: A victim in the water



Figure 7: Fractures

2.24 Remove the victim out of the water

- Remove the person rapidly and safely from the water, but do not place yourself into any danger by doing so.
- Try to throw a rope or something that the drowning person can hold onto (if he is still conscious and able to grasp the helpline).
- Once the person has been rescued from the water, do not try to remove water from his lungs.

2.25 Fractures (Injuries to Bones)

A fracture is a break/bend or crack in a bone. Generally, a considerable force is needed to break a bone, unless it is diseased or old. The bones that are still growing are supple and may split, bend, or crack.

2.26 Causes of Fractures

Fractures may happen when direct (a blow) or indirect force (a twist, a wrench) is inflicted on a bone.

- ***Direct Force***

The bone breaks at the spot of application of the force e.g. a severe fall on a projecting stone, a bullet passing into bones, or a wheel passing over the body, etc.

- ***Indirect Force***

The bone breaks at the spot away from the spot of application of force e.g. collar-bone fracture when the fall is on outstretched hands, etc.

- ***Muscular Force***

The fracture occurs due to a violent contraction of a group of muscles (e.g. fracture of ribs on violent cough). This type of fracture happens very rarely and is mostly related to other underlying diseases (e.g. weakened bone structure).

2.27 Types of fractures

There are two types of fractures: Open and Closed fractures.

Closed Fractures

The skin above the fracture is intact, although the bone ends may have damaged nearby tissues and blood vessels.

Open Fractures (Compound Fractures)

The skin above the fracture is not intact. There is bleeding. The bone is exposed to the outside air at the surface; dirt, dust and germs can enter the wound. There is a high risk of infection.

2.28 Simple and complex fractures

The term “complex fracture” describes a broken bone that is more severe than what is more common. Fractures are considered to be complex when:

- The bones are broken into many pieces.
- The soft tissues and vital organs are severely damaged.
- There are multiple fractures at several levels in a single bone.
- There is an associated joint dislocation or joint injury.

Otherwise, the fracture can be classified as a ‘simple fracture’.

What do I see and enquire?

Following signs and symptoms may be observed when a person suffered a fracture:

- The injured complains of pain at the spot of fracture or around it.
- The injured complains of tenderness i.e. pain on touching over the injured spot.
- Never press hard on a suspected fracture spot!
- There might be swelling of the area of the fracture.
- There might be a bleeding at the location of the fracture.
- The bone might be sticking out.
- There might be a discoloration in the area of the fracture.
- The injured may have lost the capability of normal movements of the affected part.
- There might be a deformity of the affected limb. The limb may have lost its normal shape. Sometimes the muscles may pull up the lower free end, causing an apparent shortening of the limb.
- An irregular outline of the bone can be felt (e.g. on lower limb fractures).
- The injured may feel an unnatural movement at the spot of fracture. The response of an injured person to a dislocated limb or a broken bone can be very different. Some people might even be able to walk with a broken leg with some pain, whilst others might not be able to move at all.

If you are not sure whether a bone is broken, it is safer to assume that it has broken. If the broken leg looks deformed or dislocated, do not try to reset it. This might make the injury worse and will cause pain.

What do I do?

Safety first and call for help

- Make sure there is no danger to you and the person.

- The person needs help. Shout or call for help if you are alone but do not leave the person unattended. Ask a bystander to seek help or to arrange transport to the nearest healthcare facility. Tell him to come back to you to confirm if help has been secured.

Hygiene

- If possible, wash your hands before taking care of the injured. 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.
- Use gloves to protect yourself. If gloves are not available, you can use a clean plastic bag. Try not to come in contact with the person's blood.

Provide First Aid

- Fractures often occur in major accidents. Therefore, it is necessary to treat other potential injuries also. The first aider must decide which injury is more urgent. Providing CPR when the victim does not breathe, or treating a severe bleeding is more urgent and should be handled on priority.
- There may be more than one fracture in the same patient or even in the same limb.
- Try not to move the broken or dislocated limb unnecessarily. Try not to move the casualty until the injured part has been secured. If you need to move the victim, be careful when moving or turning him. It is better to ask assistance by bystanders.
- Reassure the casualty.
- Advise the person to keep calm.
- If the casualty is able to support the injured part, ask him to do so; else, support the injured part with your hands or ask a bystander to do so. You can immobilize the injured part with a bandage or a splint (if the first aider is experienced

in these techniques). If you applied a splint or bandage, check the circulation below the bandage or splinting (e.g. at finger or toe level).

- Arrange appropriate transport to the nearest healthcare facility.
- Continuously observe the casualty.
- Do not give the casualty anything to eat or drink.

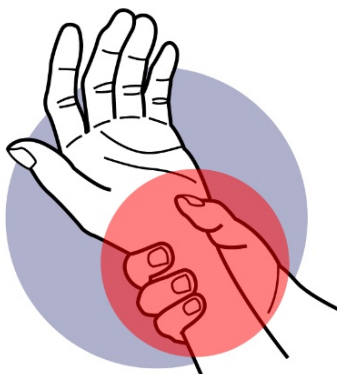


Figure 8: Dislocation

2.29 Dislocations (Injuries to Joints)

A dislocation is a displacement of a bone at a joint, like the knee or shoulder. The supporting tendons at the joint (the ligaments) might be damaged. The response of an injured person to a dislocated limb can be very different. If you are not sure whether a bone is dislocated, always seek medical help.

2.30 Causes of Dislocations

Dislocations are mostly the result of an external force that impacts the body.

For example: a dislocation of a shoulder can happen by a heavy fall on the hand. A dislocation of the jaw can happen due to wide/violent yawning or blows on the chin.

What Do I See and Enquire?

- If a person has dislocated bone, you might observe the following signs and symptoms: The lower jaw may limp downwards when dislocated.
- The joint looks deformed.
- The person has pain.
- The casualty cannot move the joint.
- There might be swelling and bruising in the area of the injury in due course of time.

What Do I Do?

- Do not try to reset the dislocated bone back into place.
- Verify the colour of the nails of the hand of a dislocated elbow as the dislocation might traumatize an artery.

Provide first aid as follows:

Dislocation of:	Treat the same as:
Jaw	Fracture of jaw
Shoulder	Fracture of shoulder
Elbow	Fracture of elbow
Fingers	Fracture of fingers

When To Refer To A Healthcare Facility?

A casualty with a suspected dislocation should be transported or referred to a nearby healthcare facility.

3.

FIRST AID IN BURNS

Features

- | | |
|------|--|
| i. | <i>Types of Burns</i> |
| ii. | <i>Danger of burns</i> |
| iii. | <i>First aid in dry burns and scalds</i> |
| iv. | <i>Electrical burns</i> |
| v. | <i>Chemical burns</i> |
| vi. | <i>Sunburn</i> |
| vii. | <i>Heatstroke</i> |

3.1 Introduction

Burns are injuries to the skin and underlying tissue that result from the sun, heat sources, fire, hot items, boiling liquids, chemicals, irradiation, etc. However, cold can also create burn wounds!

3.2 First, Second- And Third-Degree Burns

Burns are classified by the degree of skin and underlying tissues that are damaged. You will observe different signs and symptoms according to the severity of the burn wound.

3.2.1 First Degree Burns

Superficial first-degree burns show following signs and symptoms:

- Red or darker than usual skin;
- Slightly swollen skin;
- Painful, but mostly bearable.

These burns usually extend only into the epidermis.

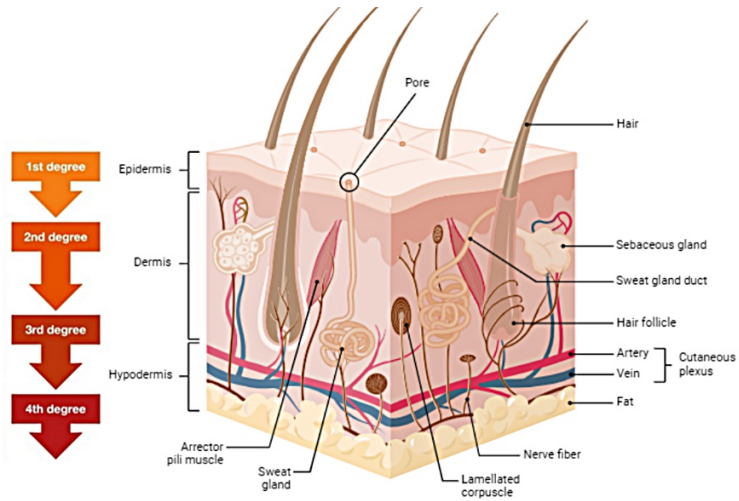


Figure 1: Skin and underlying tissues

3.2.2 Second Degree Burns

Intermediate second-degree burns show following signs and symptoms:

- blistering,
- swelling,
- Very painful.

These burns usually involve the epidermis and the dermis.

3.2.3 Third Degree Burns

Deep third-degree burns show following signs and symptoms

- black, parchment-like or white-looking burn wound;
- mostly dry;
- No pain inside the third-degree area, but very painful in the surrounding second and first degree burned parts of the skin.

3.2.4 Fourth Degree Burns

Fourth-degree burns go through both layers of the skin and underlying tissue as well as deeper tissue, possibly involving

muscle and bone. There is no feeling in the area since the nerve endings are destroyed.

3.3 Type of Burns by Origin

Burns can be differentiated by their origin:

3.3.1 Dry Burns

Dry burns are burns from flames, contacts with hot objects (e.g. hot cigarettes, hot domestic appliances) or friction (e.g. rope burns).

3.3.2 Scalds

Scalds are burns by steam or hot liquids (e.g. tea, coffee, hot fat).

3.3.3 Electrical Burns

Electrical burns are burns caused by electrical current. These burns can result from low voltage current (e.g. home appliances) or high voltage current (e.g. transformers) or by lightning strikes.

3.3.4 Chemical Burns

Exposure to chemical substances like industrial chemicals, corrosive gases or inhaled chemical fumes can cause chemical burns. Also, the exposure to domestic chemicals and agents as paint stripper, caustic soda, weeds killers, bleach, oven cleaners or strong acids or alkali can cause burns.

3.3.5 Radiation Burns

Exposure to radioactive sources e.g. X-rays or radiotherapy-rays can result in radiation burns.

3.3.6 Frost Bites (Cold Burns)

Cold burns like frost bites originate from exposure to cold wind, cold temperature or contact with cold freezing materials (e.g. cold metal), or can happen from contact with freezing

vapours (e.g. liquid oxygen or liquid nitrogen).

3.3.7 Sun Burns

Intensive exposure to sunlight, an over-exposure to ultraviolet light (UV) from a sunlamp or the sun result in sun burns. Long exposure to heat or hot weather can also lead to heat exhaustion and heat stroke.

3.3.8 Danger of Burns

Severe or large burn injuries can pose serious problems. However, any burn injury can lead to complications. The danger from burns usually depends more on the area of the burns rather than the degree. Superficial burns over a large area of the body are more dangerous than the complete charring of a part of the limb. It must be noted that a burn is mostly a mixture itself of different degrees of burns, and that in the same person different degrees of burns may show on different parts of the body.

The most important dangers are:

- *Infection*

Burn injuries leave the skin open and susceptible to infection. Burn injuries also increase your risk of sepsis, which is a life-threatening infection that rapidly travels through the bloodstream. Sepsis can cause shock and organ failure.

- *Low blood volume*

Burn injuries damage the skin and the blood vessels, causing fluids to escape the body.

This can result in low blood volume, known as hypovolemic. A severe loss of fluid and blood can prevent the heart from pumping enough blood through the body (resulting in shock).

- *Low body temperature*

The skin helps to control the body's temperature. When a large portion of the skin is injured, the body loses heat. This increase

the risk of hypothermia — i.e. when the body loses heat faster than it can produce – resulting in a dangerously low body temperature.

- *Breathing difficulties*

One of the most common dangers that accompany burn injuries is the inhalation of smoke or hot air. This can burn the airways, making it difficult to breathe. Smoke can permanently damage the lungs and lead to respiratory failure.

- *Pain*

Burn wounds are very painful.

- *Disability*

Burn injuries form scar tissue once healed. When the skin is burned, the surrounding skin starts to pull together resulting in a post-burn contracture that prevents movement. Deeper burns can limit movement of the bones or joints when skin, muscles or tendons shorten and tighten, permanently pulling joints out of position.

3.4 First aid for burns

First aid for burns involves several steps to help manage the injury and reduce the risk of further complications:

3.4.1 Step 1: Stop the Burning Process

- Move the person to a safe location, away from the source of the burn.
- Remove any clothing or jewelry near the burned area, as these can stick to the burn and cause further damage.
- Turn off any electrical appliances or heat sources.

3.4.2 Step 2: Cool the Burn

- Run cool tap water over the burn for 10-15 minutes or apply a cool compress.
- Never use ice or ice water, as this can cause further damage.
- Apply a topical antibiotic ointment, like silver sulfadiazine, to help prevent infection.

3.4.3 Step 3: Assess the Burn

- Determine the severity of the burn based on its size, depth, and location.
- Identify any signs of infection, such as redness, swelling, or pus.

3.4.4 Step 4: Provide Wound Care

- Cover the burn with a non-stick, sterile dressing or bandage.
- Secure the dressing with medical tape.
- Change the dressing daily or whenever it becomes wet or dirty.

3.4.5 Step 5: Manage Pain and Discomfort

- Administer over-the-counter pain medication, like acetaminophen or ibuprofen, as directed.
- Apply topical pain relievers, like lidocaine or capsaicin, to help manage pain.

3.4.6 Step 6: Seek Medical Attention

- Seek immediate medical attention if:
- The burn covers a large area of the body.
- The burn is deep or has penetrated through multiple layers of skin.
- The burn is on the face, hands, feet, or genital area.

- The person shows signs of infection or has a weakened immune system.
- The person has not had a tetanus shot in the past 10 years.

3.5 Important Considerations

- Never break blisters or apply butter, oil, or other greasy substances to the burn.
- Avoid using harsh or abrasive cleansers.
- Do not delay seeking medical attention if the burn is severe or shows signs of infection.

Remember, first aid for burns is only temporary management until medical help arrives. A medical professional should assess and treat the burn as soon as possible.

3.6 Danger of burns

Burns can be dangerous and potentially life-threatening, posing various risks and complications. Here are some dangers of burns:

- *Infection:* Burns can lead to infections, sepsis, and organ failure if not properly treated.
- *Fluid Loss:* Severe burns can cause significant fluid loss, leading to dehydration, shock, and organ failure.
- *Hypothermia:* Burns can cause hypothermia, as the skin's ability to regulate body temperature is compromised.
- *Respiratory Distress:* Inhalation of smoke, heat, or toxic fumes can cause respiratory distress, acute respiratory distress syndrome (ARDS), or respiratory failure.
- *Cardiac Issues:* Severe burns can lead to cardiac arrest, arrhythmias, or myocardial infarction due to fluid loss, electrolyte imbalance, or stress.
- *Renal Failure:* Severe burns can cause acute kidney injury-

- or renal failure due to fluid loss, electrolyte imbalance, or toxins.
- *Liver Damage*: Severe burns can cause liver damage or failure due to toxins, infection, or hypoperfusion.
- *Scarring and Contractures*: Burns can lead to scarring, contractures, and disability if not properly treated.
- *Psychological Trauma*: Burns can cause significant psychological trauma, anxiety, depression, and post-traumatic stress disorder (PTSD).
- *Multi-Organ Failure*: Severe burns can lead to multi-organ failure, a life-threatening condition requiring intensive care.

It's essential to seek immediate medical attention for any burn that:

- Covers a large area of the body
- Is deep or has penetrated through multiple layers of skin
- Is on the face, hands, feet, or genital area
- Shows signs of infection or has a weakened immune system
- Has not received proper wound care or tetanus prophylaxis
- Prompt medical attention can significantly reduce the risk of complications and improve outcomes for burn patients.

3.7 First aid in dry burns and scald

3.7.1 Dry Burns

A dry burn, also known as a thermal burn or heat burn, is a type of burn injury caused by exposure to dry heat, such as:

- Fire or flames
- Hot surfaces or objects
- Electrical sources (e.g., sparks, arcs)
- Explosions

Dry burns differ from scalds, which are caused by exposure to moist heat (e.g., hot water, steam).

Dry burns can be further classified into:

- *Flash burns*: Caused by brief exposure to high temperatures

-
- *Flame burns:* Caused by exposure to open flames
 - *Contact burns:* Caused by direct contact with hot surfaces or objects
 - *Radiation burns:* Caused by exposure to thermal radiation (e.g., from a fire)

Dry burns can cause:

- Redness and swelling
- Blisters or charring
- Pain or discomfort
- Infection
- Scarring

Treatment for dry burns typically involves:

- Cooling the burn with cool water or compresses
- Removing damaged tissue (debridement)
- Applying topical creams or dressings
- Managing pain and discomfort
- Preventing infection

Examples:

- *Sunburn:* Prolonged exposure to direct sunlight, leading to redness, swelling, and blistering.
- *Flash Burn:* Brief exposure to intense heat, such as from a fire or explosion, causing burns to the skin.
- *Electrical Burn:* Contact with electrical sources, such as outlets or wiring, causing burns to the skin.
- *Friction Burn:* Prolonged friction or rubbing against a surface, causing burns to the skin.
- *Chemical Burn:* Exposure to corrosive substances, such as acid or alkali, causing burns to the skin.

3.8 Steps

- *Cool the burn:* Run cool tap water over the burn for 10-15 minutes or apply a cool compress.
- *Remove clothing and jewelry:* Gently remove any clothing or jewelry near the burned area, as these can stick to the burn and cause further damage.
- *Apply topical creams:* Apply topical antibiotic creams or silver sulfadiazine to help prevent infection and promote healing.
- *Cover the burn:* Cover the burn with a non-stick, sterile dressing or bandage to protect it from further irritation and infection.
- *Monitor for infection:* Watch for signs of infection, such as redness, swelling, or pus.

3.9 Scalds

Scalds are a type of burn injury caused by exposure to hot liquids or gases, such as:

- i. Hot water
- ii. Steam
- iii. Food
- iv. Oil
- v. Tar

Scalds can occur through various means, including:

- Accidental spills or splashes
- Contact with hot surfaces or objects
- Exposure to steam from faulty appliances or pipes
- Handling hot foods or liquids without proper protection
- Workplace accidents, such as in kitchens or industrial settings

Scalds can cause

- Redness and swelling
- Blisters or charring

- Pain or discomfort
- Infection
- Scarring

3.9.1 Scalds are classified into three degrees of severity:

- First-degree scalds: Affect only the outermost layer of skin (epidermis)
- Second-degree scalds: Affect both the epidermis and dermis (layer beneath epidermis)
- Third-degree scalds: Extend through all layers of skin and potentially into underlying tissues

3.10 Steps

- *Cool the scald:* Run cool tap water over the scald for 10-15 minutes or apply a cool compress.
- *Remove clothing and jewelry:* Gently remove any clothing or jewelry near the scalded area, as these can stick to the scald and cause further damage.
- *Apply topical creams:* Apply topical antibiotic creams or silver sulfadiazine to help prevent infection and promote healing.
- *Cover the scald:* Cover the scald with a non-stick, sterile dressing or bandage to protect it from further irritation and infection.
- *Monitor for infection:* Watch for signs of infection, such as redness, swelling, or pus.

Examples:

- *Hot Water Scald:* Exposure to hot water, such as from a sink or bathtub, causing burns to the skin.
- *Steam Scald:* Exposure to hot steam, such as from a kettle or pipe, causing burns to the skin.

- *Food Scald*: Exposure to hot food or liquids, such as soup or coffee, causing burns to the skin.

3.11 Tips:

- Never use ice or ice water, as this can cause further damage.
- Avoid breaking blisters or applying butter, oil, or other greasy substances to the burn or scald.
- Do not use harsh or abrasive cleansers.
- Take pain relief medication, such as acetaminophen or ibuprofen, as directed.
- Seek medical attention immediately if the burn or scald is severe, covers a large area, or shows signs of infection.

3.12 Electrical Burns

Electrical burns occur when the body comes into contact with an electrical current, causing tissue damage and potentially life-threatening injuries.

Here's a detailed overview

3.12.1 Causes

- Direct contact with electrical sources (e.g., outlets, wiring, appliances)
- Indirect contact through conductive objects (e.g., metal pipes, water)
- Arc flash or electrical explosion

3.12.2 Types

- Low-voltage electrical burns (<1000 volts): Typically cause localized damage
- High-voltage electrical burns (≥ 1000 volts): Can cause extensive internal and external damage

3.12.3 Effects

- External burns: Entry and exit wounds, charring, and tissue damage
- Internal burns: Damage to organs, muscles, and tissues
- Cardiac arrest: Electrical shock can disrupt heart function
- Respiratory distress: Inhalation of smoke or toxic fumes
- Neurological damage: Electrical current can affect the nervous system

3.12.4 Symptoms

- Pain or numbness
- Burns or charring
- Cardiac arrhythmias or arrest
- Respiratory distress
- Confusion or loss of consciousness

3.12.5 Treatment

- Call emergency services immediately
- Ensure scene safety (turn off power source if possible)
- Provide first aid (CPR, wound care)
- Hospitalization for monitoring and treatment
- Surgical interventions (debridement, grafting)

3.12.6 Prevention

- Follow safety guidelines when working with electricity
- Use personal protective equipment (PPE)
- Ensure proper installation and maintenance of electrical systems
- Avoid water and electrical sources
- Keep children away from electrical sources

3.13 Chemical Burns

Chemical burns occur when the skin or eyes come into contact with corrosive substances, causing tissue damage and

potentially life-threatening injuries.
Here's a detailed overview:.

3.13.1 Causes

- Exposure to strong acids (e.g., sulfuric, hydrochloric, nitric)
- Exposure to strong bases (e.g., sodium hydroxide, calcium hydroxide)
- Exposure to corrosive substances (e.g., bleach, ammonia, phenol)

3.13.2 Types

- Acid burns- Cause coagulation necrosis, leading to scab formation
- Alkali burns- Cause liquefaction necrosis, leading to deeper tissue damage

3.13.3 Effects

- Skin damage- Redness, swelling, blistering, charring
- Eye damage- Corneal ulcers, vision loss, blindness
- Respiratory distress- Inhalation of toxic fumes
- Systemic toxicity- Absorption of chemicals into the bloodstream

3.13.4 Symptoms

- Severe pain or burning sensation
- Redness, swelling, or blistering
- Vision changes or blindness
- Difficulty breathing
- Nausea, vomiting, or abdominal pain

3.13.5 Treatment

- Call emergency services immediately
- Flush affected area with water (for at least 20 minutes)
- Remove contaminated clothing and jewelry

- Apply topical treatments (e.g., hydrogel, antibiotic creams)
- Hospitalization for monitoring and treatment
- Surgical interventions (debridement, grafting)

3.13.6 Prevention

- Handle chemicals with care and protective equipment
- Wear appropriate PPE (gloves, goggles, mask)
- Follow safety guidelines and protocols
- Store chemicals properly
- Dispose of chemicals correctly

3.14 Sunburn

Sunburn is a type of burn that occurs when the skin is exposed to too much ultraviolet (UV) radiation from the sun or tanning beds. Here's a detailed overview:

3.14.1 Causes

- Prolonged exposure to UV radiation
- Failure to use protective measures (sunscreen, clothing, shade)
- Fair skin or increased sensitivity to UV radiation

3.14.2 Symptoms

- Redness and inflammation
- Pain or tenderness
- Swelling and blistering
- Peeling or flaking skin
- Fever or chills (in severe cases)

3.14.3 Degrees of sunburn

- First-degree: Redness, swelling, and pain
- Second-degree: Blisters, peeling, and increased pain
- Third-degree: Severe blisters, charring, and potential scarring.

3.14.4 Treatment

- Cool baths or showers
- Topical creams (after-sun lotions, hydrocortisone)
- Pain relief medications (ibuprofen, acetaminophen)
- Stay hydrated and rest
- Avoid further sun exposure until healed

3.14.5 Prevention

- Use broad-spectrum sunscreen (SPF 30+)
- Wear protective clothing (hats, long sleeves)
- Seek shade, especially during peak hours (10am-4pm)
- Wear sunglasses with UV protection
- Avoid tanning beds and artificial UV radiation

3.14.6 Long-term effects

- Increased risk of skin cancer
- Premature aging (wrinkles, fine lines)
- Dark spots or hyperpigmentation
- Weakened immune system

3.15 Heatstroke

Heat stroke is a serious medical condition that occurs when the body's heat-regulation system is overloaded, causing the body temperature to rise rapidly.

Here's a detailed overview:

3.15.1 Causes

- Prolonged exposure to high temperatures
- Intense physical activity in hot weather
- Inadequate hydration
- Wearing heavy or dark clothing
- Underlying medical conditions (e.g., heart disease, diabetes)

3.15.2 Symptoms

- Body temperature above 103°F (39.4°C)
- Confusion, altered mental state, or loss of consciousness
- Slurred speech, seizures, or coma
- Dry, flushed skin with no sweating
- Rapid heartbeat, pulse, or breathing rate
- Headache, nausea, or vomiting

3.15.3 Types

- Classic heat stroke: Caused by prolonged exposure to heat
- Exertional heat stroke: Caused by intense physical activity

3.15.4 Treatment

- Call emergency services immediately
- Move to a cool, shaded area
- Remove excess clothing
- Spray or fan with cool water
- Apply cool compresses or ice packs
- Provide hydration (if conscious)
- Monitor vital signs and body temperature

3.15.5 Prevention

- Stay hydrated by drinking plenty of water
- Avoid strenuous activities in hot weather
- Wear lightweight, light-colored clothing
- Take regular breaks in cool, shaded areas
- Monitor weather forecasts and heat indexes

3.15.6 Complications

- Brain damage or death
- Organ failure (kidney, liver, heart)
- Seizures or coma
- Permanent disability

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4.

FIRST AID IN WOUNDS AND INJURIES

Features

- i. *Types of wounds – small cuts and abrasions.*
- ii. *Head injury – nose bleeds*
- iii. *Bleeding gums*
- iv. *Bleeding from varicose veins*
- v. *Shocks- causes of shock and its first aid.*

4.1 Wounds

A wound is a disruption in the continuity of tissue, including skin, mucous membranes, or organs, caused by trauma, injury, or disease. Wounds can be acute or chronic, and they can vary in size, depth, and severity.

4.2 Types of wounds

4.2.1 Abrasion: A superficial wound caused by friction or scraping, removing the top layers of skin. 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.

4.2.2 Laceration: A deep cut or tear in the skin, often caused by a sharp object. Lacerated wounds are caused by crushing,



Fig. 1: Abrasion

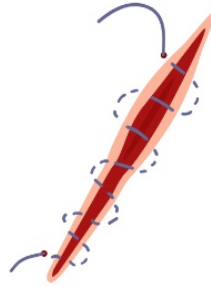


Fig. 2: Laceration

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.

4.2.3 Incision: A clean cut made by a sharp object, such as a knife or glass. 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.

4.2.4 Puncture: A small, deep wound caused by a sharp, pointed object, like a nail or needle. 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. It's essential to properly assess and treat each type of wound to promote healing, prevent infection, and minimize scarring. 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



Fig. 3: Incision

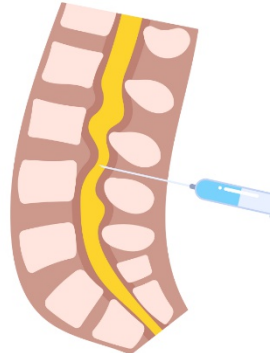


Fig. 4: Puncture

projectile also exits the body, the exit wound may be large and ragged.

4.2.5 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.

4.2.6 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.

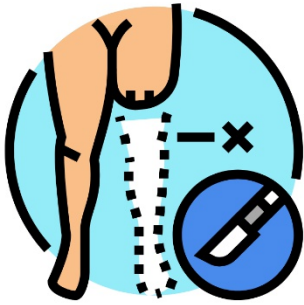
4.3 Complications of Wounds

Wounds can cause two great dangers:

- Bleeding, and
- Infection

4.3.1 Bleeding

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

**Fig. 5:** Amputation**Fig. 6:** Wounds

4.3.2 Infection

Germes are tiny, not visible to the human eye, organisms that can cause diseases. Germes are bacteria, viruses, fungi and protozoa. An infection is caused by germes getting into the body through the broken skin. The germes multiply in the wound and make it 'infected', also called as 'septic'. Germes 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 germes. An infection occurs after a lapse of time when the germes have time to multiply and invade the tissues. This time varies with the number of germes 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.

Here's a comprehensive guide to first aid in wounds:

General Principles

- i. Stop the bleeding
- ii. Clean and protect the wound
- iii. Promote healing
- iv. Prevent infection

4.4 Hygiene

- 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.

4.5 Stop the Bleeding and Bandage the Wound

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

4.6 Step-by-Step First Aid

4.6.1. Stop the bleeding

- Apply gentle pressure with a clean cloth or bandage
- Elevate the injured area above heart level
- Use a tourniquet if necessary (only if trained to do so)

4.6.2. Clean the wound

- Rinse with cool or lukewarm water
- Use mild soap and a clean cloth
- Avoid using harsh soap, hydrogen peroxide, or iodine

4.6.3. Protect the wound

- Apply a topical antibiotic ointment
- Cover with a bandage or dressing
- Secure with medical tape

4.6.4. Promote healing

- Keep the wound moist with a topical ointment
- Avoid picking at scabs or scratching the wound
- Get enough rest and maintain a healthy diet

4.6.5. Prevent infection

- Monitor for signs of infection (redness, swelling, increased pain, pus)
- Keep the wound clean and dry
- Change the dressing daily or as needed

4.7 Additional Tips

4.7.1. *Seek medical attention if*

- The wound is deep, large, or jagged
- Bleeding doesn't stop after 10-15 minutes of pressure
- You're unsure of the wound's severity or how to care for it
- You notice signs of infection

4.7.2. *Tetanus shot*

If you haven't had a tetanus shot in the past 10 years, consider getting one.

4.7.3. *Wound closure*

If the wound is deep or large, consider seeking medical attention for stitches or staples.

Remember, proper wound care and first aid can help promote healing, prevent infection, and minimize scarring. If in doubt, always err on the side of caution and seek medical attention.

4.8 Head Injuries

Head injuries are traumas or wounds to the head, including the scalp, skull, brain, and facial structures. 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:

- i. Ask the injured not to blow his nose.
- ii. Do not pack the ear or nose. You may eventually place light dressing on the ear or nose.
- iii. If the person is breathing, put him in recovery position. Be aware of the risk of neck (spinal) injury.
- iv. Urgent transport to the nearest hospital is required.
- v. 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.

Head injuries can also cause bleeding from other parts of the body, including:

4.9.1 Nosebleed (epistaxis)

Bleeding from the nose, which can be caused by a blow to the head or face. 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:

- a. 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.
- b. 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:

- i. blood is still coming from the nose after 20 minutes;
- ii. the nosebleed was caused by a hard punch on the nose; a fall, a road accident, etc.;
- iii. blood spurts from the nose, or
- iv. the injured person turns pale, becomes sleepy or falls unconscious.

c. 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.

4.9.2 Bleeding gums

Bleeding from the gums, which can be caused by trauma to the mouth or teeth.

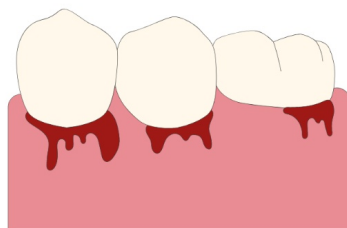


Fig. 7: Bleeding gums

In case of a bleeding of the gums:

- The person may rinse his mouth with water or saline water.
- 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.
- Refer the person to a healthcare facility

4.9.3 Bleeding from varicose veins

Bleeding from enlarged veins, which can be caused by increased

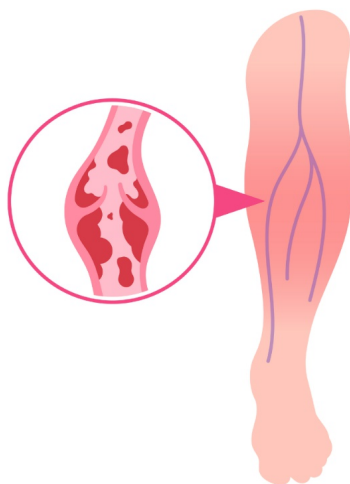


Fig. 8: Bleeding veins

pressure from a head injury.

In case of a varicose vein bleeding:

- Ask the person to lie down on the floor.
- 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.
- Put a bandage on the wound.

- 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.

4.10 Shocks

Shocks are a medical emergency characterized by inadequate blood flow and oxygen delivery to vital organs, leading to cellular damage and potentially life-threatening complications.

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.

4.11 Causes of Shock

4.11.1 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.

4.11.2 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.

4.11.3 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).

4.12 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 restlessness and aggressive.
- The casualty might complain of chest pain.

Remember, shock can be life-threatening. Always be on the side of caution and seek medical help if you suspect someone is in shock.

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5.

FIRST AID IN POISONING

Features

- i. Poisoning by swallowing, gases,*
- ii. Injections, skin absorption,*
- iii. Animal bites,*
- iv. Snake bites and insect stings.*

5.1 Poisoning

Poisoning occurs when a toxic substance, either intentional or unintentional, enters the body and causes harm.

This can happen through:

- ☐ Ingestion (eating or drinking)
- ☐ Inhalation (breathing in)
- ☐ Absorption (skin or eye contact)
- ☐ Injection (through a needle or other sharp object)
- ☐ Animal bites, snake bites or insect stings

5.2 Poisoning by swallowing/ ingestion (eating or drinking)

Poisoning from swallowing is often caused by household products, overdose of medication or toxic plants. The effects of poisoning depend on what poison has been swallowed.

- Acids, alkalis, disinfectants etc. swallowed burn the lips, tongue, throat, oesophagus and stomach and cause great pain.
- Other swallowed poisons cause vomiting, pain abdomen and later on diarrhea (e.g. poisonous fungi, berries, metallic poisons).

- Some swallowed poisons affect the nervous system. To this group belong:
 - alcoholic drinks (methylated spirit, wine, whisky etc.) when taken in large quantities;
 - sleeping pills, tranquilizers, and painkillers when taken in overdoses.

Victims of poisoning must be considered as seriously ill. The symptoms are either delirium or fits or coma. Please note that 'Food poisoning' is an illness caused by eating contaminated food. Please see the 'Food poisoning' chapter for more information on this topic.

Poisoning by swallowing, also known as ingestion, occurs when a toxic substance is eaten or drunk. This can happen:

Accidentally: Mistaking a poisonous substance for food or drink.

Intentionally: Taking a substance to harm oneself or others.

Unintentionally: Taking too much of a medication or substance.

Common substances involved in poisoning by swallowing include:

- Medications (overdose or incorrect use)
- Household chemicals (cleaning supplies, pesticides)
- Drugs (illicit or recreational)
- Plants (toxic species)
- Heavy metals (lead, mercury)
- Carbon monoxide (from generator exhaust or faulty appliances)
- Food poisoning (bacterial or viral contamination)

5.2.1 Symptoms of swallowing

- Nausea and vomiting
- Abdominal pain
- Diarrhea
- Burning sensation in the mouth, throat, or chest

- Difficulty swallowing
- Drooling
- Confusion, drowsiness, or loss of consciousness

Step-by-step guide to first aid in poisoning by swallowing:

Before calling for help:

Stay calm: Panicking can lead to poor decision-making.

Keep the person awake: If they're conscious, try to keep them awake and calm.

While waiting for help:

Do not induce vomiting: Unless instructed by a medical professional.

Rinse the mouth: With water, if the substance is corrosive or caustic.

Provide water: If the person is conscious and able to drink, give small sips of water to help flush out the substance.

Loosen tight clothing: Remove any constrictive clothing or jewelry.

Do not:

Do not give anything to drink: Unless instructed by a medical professional.

Do not try to neutralize: The poison with milk, water, or other substances.

Do not delay: Seeking medical attention, even if symptoms seem mild.

When help arrives:

Provide information: Share any details about the substance and ingestion with medical responders.

Follow instructions: From medical professionals, such as administering activated charcoal or other treatments.

Remember, prompt medical attention is crucial in cases of poisoning by swallowing. Always be on the side of caution and seek help immediately.

5.3 Poisoning by Gases/ inhalation (breathing in)

Fumes or gases from charcoal stoves, household gas, motor exhausts and smoke from explosions etc., cause choking (asphyxia) which may result in unconsciousness in addition to difficulty in breathing.

Poisoning by gases can occur through inhalation of toxic substances, including:

Carbon monoxide (CO);

Hydrogen sulfide (H₂S);

Ammonia (NH₃);

Chlorine (Cl₂);

Natural gas (methane, CH₄);

Propane (C₃H₈);

Industrial gases (e.g., nitrogen, N₂; argon, Ar);

Volatile organic compounds (VOCs);

5.3.1 Symptoms of gas poisoning

Headache,

Dizziness or lightheadedness,

Nausea and vomiting,

Confusion, disorientation,

Difficulty breathing,

Chest pain or tightness,

Seizures,

Loss of consciousness,

5.3.2 First aid for gas poisoning

Move to fresh air: Immediately remove the person from the contaminated area.

Call for help: Dial emergency services or the national poison control center (1800-2333-1122 for India).



Fig. 1: Poisoning by Gases

Provide supportive care: If the person is unconscious, not breathing, or not responsive, begin CPR.

Administer oxygen: If trained and equipped to do so.

Do not attempt to rescue: Unless you're trained and equipped to handle the situation safely.

5.3.3 Prevention is key

Ensure proper ventilation: In areas where gases are used or stored.

Use gas detectors: To alert you to potential leaks or buildup.

Follow safety guidelines: When handling gases or working in areas where they're present.

Maintain equipment: Regularly inspect and maintain gas-related equipment to prevent leaks.

Remember, prompt medical attention is crucial in cases of gas poisoning. Always prioritize caution and seek help immediately if you suspect exposure.

5.4 Poisoning by skin absorption

Hazardous chemicals that are spilt on the skin can cause irritation or burns. Certain substances can be also absorbed through the skin and cause damage inside the body.

Poisoning by skin absorption occurs when toxic substances penetrate the skin, entering the bloodstream and causing harm. This can happen through:

- a. Direct contact with chemicals (e.g., pesticides, solvents);
- b. Exposure to toxic plants (e.g., poison ivy, poison oak);
- c. Handling contaminated objects or surfaces.



Fig. 2: Poisoning by skin

d. Using toxic substances without proper protection (e.g., gloves).

5.4.1 Symptoms of poisoning by skin absorption

- ☐ Redness, itching, or burning at the exposure site
- ☐ Blisters, rashes, or hives
- ☐ Numbness or tingling
- ☐ Weakness or fatigue
- ☐ Headache, dizziness, or nausea
- ☐ Systemic symptoms (e.g., fever, chills, muscle pain)

5.4.2 First aid for poisoning by skin absorption

Remove contaminated clothing: Carefully cut off clothing to avoid spreading the substance.

Wash affected area: Use soap and water to clean the skin thoroughly.

Rinse with water: Continue rinsing for 15-20 minutes to remove any remaining substance.

Neutralize if necessary: Use a neutralizing agent (e.g., vinegar for alkaline substances) if advised by a medical professional.

Seek medical attention: If symptoms persist or worsen.

Provide supportive care: If the person is experiencing systemic symptoms.

5.4.3 Prevention is key

Wear protective gear: Gloves, masks, and protective clothing when handling toxic substances.

Use barrier creams: Apply creams or gels to protect skin from chemicals.

Avoid skin contact: With toxic plants, chemicals, or contaminated objects.

Wash hands thoroughly: After handling potentially toxic substances.

Remember, prompt medical attention is crucial in cases of poi-

soning by skin absorption. Always prioritize caution and seek help if you suspect exposure.

5.5 Poisoning by injection

Poisons get into the body through injection, bites of poisonous snakes and rabid dogs, or stings by scorpions and poisonous insects. Danger to life is again by choking and coma.

Poisoning by injection occurs when a toxic substance is introduced directly into the body through a needle or other sharp object. This can happen through:

- a. Accidental needlestick injuries
- b. Intentional injection of a toxic substance
- c. Contaminated medical equipment or needles
- d. Shared needles among drug users.



Fig. 3: Poisoning by injection

5.5.1 Symptoms of poisoning by injection

- ☐ Pain, swelling, or redness at the injection site
- ☐ Numbness, tingling, or weakness
- ☐ Muscle cramps or spasms
- ☐ Abnormal heart rate or blood pressure
- ☐ Confusion, agitation, or loss of consciousness
- ☐ Seizures or convulsions

5.5.2 First aid for poisoning by injection

Call for help: Dial emergency services or the national poison control center.

Remove the needle or object: If still present, carefully remove it without pushing it further in.

Wash the area: Clean the injection site with soap and water.

Apply a bandage: Cover the site with a sterile bandage.

Provide supportive care: If the person is experiencing systemic symptoms.

Seek medical attention immediately: Poisoning by injection can be life-threatening.

5.5.3 Prevention is key

Handle needles safely: Use proper techniques and dispose of needles properly.

Use protective gear: Wear gloves and masks when handling needles or medical equipment.

Avoid sharing needles: Never share needles or equipment among drug users.

Get vaccinated: Stay up-to-date on vaccinations to prevent infections.

Seek medical help: If you've been exposed to a potentially toxic substance through injection.

Remember, prompt medical attention is crucial in cases of poisoning by injection. Always prioritize caution and seek help immediately if you suspect exposure.

5.6 Poisoning by animal bites/ snake bites/ insect stings

Many animals, including dogs, cats, monkeys, foxes, bats, cows, horses, and jackals, may carry the germ of rabies. Rabies is a viral infection that targets the brain and nervous system. A person can catch rabies when bitten or scratched by an infected animal. If not treated urgently, the disease is lethal. All victims of dog (cat, monkey, jackals, etc.) bites or scratches need to be referred immediately for further treatment and follow-up.

5.6.1 Snake Bite

There are more than 2500 different kinds of snakes. The effects of snake bites vary according to the type of snake.

Note that not all snakes are poisonous, not all poisonous ones are lethal, but one should always be careful handling snakes.

All snake bites should be treated as if they are poisonous bites. Snakes rarely strike when not disturbed or threatened.

Poisoning by animal bites, snake bites, and insect stings can occur through:

a. Animal bites

Mammals (e.g., dogs, cats, monkeys)

Reptiles (e.g., snakes, lizards)

b. Snake bites

Venomous snakes (e.g., rattlesnakes, cobras, vipers)

c. Insect stings

Bees, wasps, hornets, ants, and scorpions

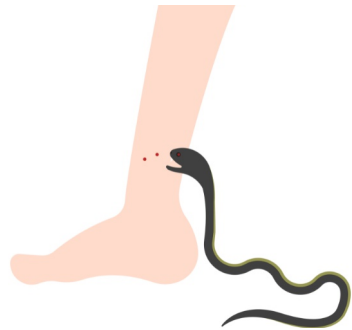


Fig. 4: Poisoning by snake

5.6.2 Symptoms may include

Pain, swelling, or redness at the bite or sting site;

Numbness, tingling, or weakness;

Difficulty breathing or swallowing;

Abnormal heart rate or blood pressure;

Nausea, vomiting, or diarrhea;

Fever, chills, or headache;

Systemic symptoms (e.g., seizures, coma);

5.6.3 First aid

- Make sure the area is safe and the animal cannot bite you or the injured person again.
- Wash your hands before and 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.

- Wash your hands before and 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.
- Put on gloves if available. If not, you can also use a clean plastic bag. Try not to come in contact with the injured person's blood or wound.
- Flush the wound immediately with lots of clean water and then wash the wound with soap and water or a detergent for 10-15 minutes, if available to remove the rabies virus from the wound. Wash with povidone-iodine (Alopim, Betadine, Clopo, Wokadine, a.o.) if available. Washing is also necessary when a person is licked, scratched or has abrasion.
- If the person is severely bleeding, stop the bleeding by applying pressure to the wound.
- Do not cut the wound larger .
- Do not put herbs or unclean materials like chilies, oil, petrol in or on the wound.
- Cover the wound with a dry clean cloth or bandage.
- Refer the person to a healthcare facility immediately for further treatment.

When to refer to a health care facility?

A person bitten by a dog (or any other animal) should always visit the nearest healthcare facility. Any person who was licked, scratched or suffered abrasions from an animal should visit the healthcare facility.

5.6.4 First aid on snake bite

- Make sure the area is safe before you assist the person.
- The injured person urgently needs help. Shout or call the person unattended. Ask a bystander to seek help or to arrange urgent transport to the nearest healthcare facility.

- Tell him to come back to you to confirm if help has been secured.
- Comfort person
- Help the injured person to lie down and tell him not to move. Offer comfort and keep the person calm, but do not forcibly restrain him. Keeping calm and not moving will slow the spread of the venom. If safe to do so, check what type of snake has bitten the person. If possible, note down the features of the snake. Do not lose time chasing the snake: the person needs urgent help now. It is difficult to assess whether a snake is poisonous or not. Therefore, always assume that the snake is poisonous.
- Watch the person for any change in his condition (i.e. consciousness and breathing).
- Put on gloves if they are available. If not available, you can also use a clean plastic bag to cover your hands. Try not to come in contact with the person's blood
- Do not suck or cut the venom out of the skin. Do not rub herbs on the bite.
- Do not apply a tourniquet.
- Remove any rings, watches or tight clothing that may cut off the blood flow because of swelling.
- Try not to move the injured limb and eventually apply a splint to immobilize the affected part.
- Cover the wound with a clean cotton cloth or bandage.
- Once action to obtain help has been taken, stay with the injured person until help is available.
- Observe the condition of the person (i.e. consciousness and breathing).
- Arrange urgent transport to the nearest healthcare facility or hospital.

a. Animal bites

Clean the wound with soap and water;

Apply antibiotic ointment and a bandage

Seek medical attention if severe or if the animal was rabid

b. Snake bites

- Remain calm and still
- Remove constricting items
- Keep the affected limb below heart level
- Do not attempt to suck out venom or use a tourniquet
- Seek medical attention immediately

c. Insect stings

- Remove the stinger by scraping it off with a credit card
- Wash the area with soap and water
- Apply a cold compress or antihistamine cream
- Seek medical attention if severe or if an allergic reaction occurs

5.7 Prevention

Avoid interacting with wild animals;

Wear protective clothing and gloves when handling animals;

Use insect repellent and wear protective clothing outdoors;

Avoid reaching into dark or hidden areas;

Keep pets up-to-date on vaccinations and preventatives;

Remember, prompt medical attention is crucial in cases of poisoning by animal bites, snake bites, and insect stings. Always prioritize caution and seek help immediately if you suspect exposure.

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6.

FIRST AID IN FOREIGN OBJECTS ENTERING THE SENSE ORGANS

Features

*Foreign body in the eye, ear, nose, skin,
swallowing of foreign objects.*

The human body exchanges information with its environment via five senses:

- Sight (the eyes).
- Hearing (the ears).
- Smelling (the nose).
- Tasting (the tongue and nose).
- Touching (the skin).

In addition to these five senses, the human body senses heat and cold (thermoception), balance and acceleration (vestibular sense), the relative position on its body parts (kinaesthetic sense or proprioception), feels pain (nociception) and can perceive time (chronoception).

6.1 Eye

The eyeballs are covered with folds of skin (the eyelids) from which the eyelashes project. The outermost parts of eyes are

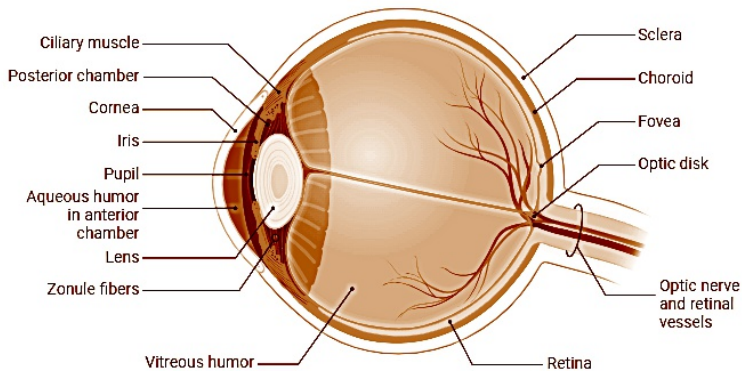


Fig. 1: The Eyeball

covered by a smooth membrane (conjunctiva) and are kept moist by tears produced by the tear-glands.

The transparent portion of the eye is called cornea through which the light from the object passes and forms the image at the back of the eye. Behind the cornea is seen a coloured circular diaphragm (iris) with a round opening (hole), the pupil. The latter varies in size with the amount of light passing through it. Behind the pupil is the lens of the eye which focuses rays of light on to the light sensitive part of the eye (retina). Both eyes move simultaneously.

6.2 Ear

The ear consists of three parts:

- The outer ear is that part which can be seen projecting from the side of the skull, together with the canal which leads to the eardrum.
- The middle ear, situated inside the skull, receives and transmits sound waves concerned in hearing to the inner ear. It also communicates with the back of the nose and throat through the Eustachian tube, which opens during swallowing.

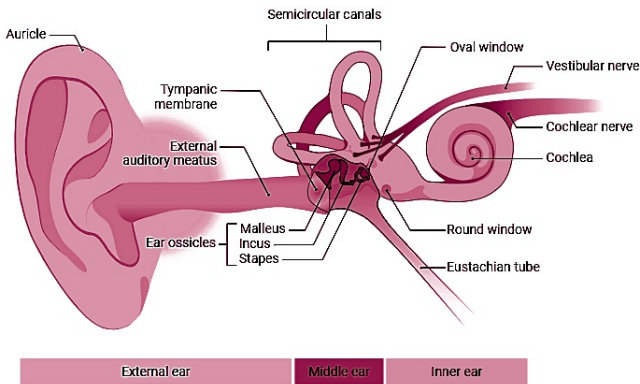


Fig. 2: The Ear

- The inner ear is embedded inside the skull and is concerned with the sense of balance in addition to the sense of hearing. The outer ear is separated from the middle ear by the eardrum.

6.3 Tongue

The tongue is the muscular organ which lies on the floor of the mouth; it assists in tasting, mastication and swallowing of food. In an unconscious casualty, the tongue tends to obstruct by falling back in the throat and prevents breathing.

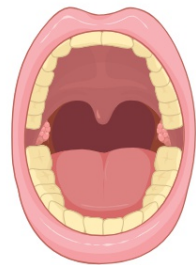


Fig. 3: The Tongue

6.4 Nose

The nose is organ of smell and also functions as part of the body's respiratory system. Air enters into the body through the nose. As it passes over the specialized cells of the olfactory system, the brain recognizes and identifies smells. Hairs in the nose clean the air of foreign particles. As air moves through the nasal passages, it is warmed and humidified before it goes into the lungs. People may not taste anything without some help from the nose: the ability

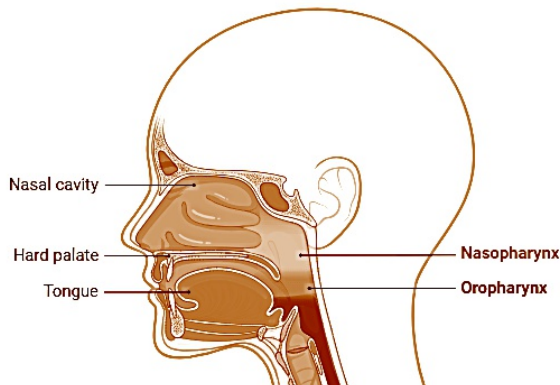


Fig. 4: The Nose

to smell and taste go together because odours from foods allow to taste more fully.

6.5 Skin

The pain and touch receptors in the skin allow us to feel touch, pressure, heat, cold and pain.

What is a foreign body?

A foreign body is when an object is swallowed or stuck in a body opening, such as the ear, nose, or throat.

Who usually has problems with foreign bodies?

A person of any age could have a foreign body, but it is most common in children ages 1-3.

What are some objects that commonly become foreign bodies?

Small, interesting, shiny objects are likely to attract children's attention and could easily become foreign bodies.

Young children commonly swallow food (meats, nuts, seeds, candy, fruit pits, and popcorn). Coins, marbles, safety pins, buttons, crayon pieces, erasers, paper wads, rocks, and beads

are also risks. Small batteries are easily swallowed. They are dangerous because they are toxic. Toothpicks and razors are also dangerous.

Small toy parts, such as screws, eyes, noses, and other pieces that could be taken apart are dangerous.

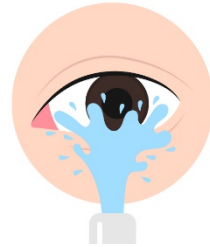


Fig. 5: Foreign body in eye

6.6 Foreign Body in The Eye

Wings of insects, dust, coal, metal particles from lathes and loose eye-lashes are common objects which get lodged under the eyelids. They cause pain and later redness if they are not removed at-once.

Sometimes iron particles and wood splinters get lodged in the cornea causing severe trouble. All penetrating foreign bodies are a danger to the eye itself.

6.6.1 What do I see and enquire?

Following signs or symptoms may be observed:

- The person complains of pain or discomfort in the eye.
- Redness and watery eyes.
- The person complains of a blurred vision.
- Eyelids are screwed up in spasm.

6.6.2 What do I do?

Ask the casualty not to rub into the eye;

Ask the casualty to sit. Pull the lower lid down to inspect;

Rinse the eye immediately with plenty of water for 10-15 minutes, preferably from the nose outwards. Use clean water or water that has been boiled and cooled;

Be careful:

- Water at room temperature is more comfortable than cold water.
- Very warm water might burn the eye.



Fig. 6: Eye drop

Make sure no liquid or rinsing water runs into the other eye;
If washing of eyes did not work, you may try to remove foreign object with a narrow moist swab or a twisted corner of a clean handkerchief.

If foreign body is not visible it may be under the upper eye lid. Ask the casualty to grasp his upper lashes and pull the upper eyelid over the lower lid. The lower lashes may brush the particle clear. If this did not work, you may ask the casualty to blink under clean water. You can also use an eye cup to blink the eye in it.

If something is sticking to or embedded in the eye, the eyeball or pupil, do not try to remove it;

Cover the eye and transport the casualty to the nearest healthcare facility for further care;

Do not put medication into the eye;

Wash your hands after taking care of the patient. Use soap and water to wash your hands. Alcohol-based sanitizers can also be

used if available.

6.6.3 What Do I Do When There Are Burns To The Eye?

Provide first aid as described in the section on burns to the eye.

6.6.4 What Do I Do When There Are Harmful Liquids Spilled Into The Eye?

Provide first aid as described in the section on chemical burns to the eye.

6.7 Foreign bodies in the ears

Sometimes foreign objects become lodged in the ear. The object might even damage the drum. Children often push objects into their ears. Cotton wool may get stuck in the ear while cleaning it. Insects may crawl or fly into the ear.

6.7.1 What Do I See And Enquire?

Following signs or symptoms may be observed:

- The person complains of pain or itching in the ear.
- The person complains of worsened hearing.
- There may be damage to the drum if:
 - the person hears a constant noise;
 - the person complains of ear pain;
 - blood comes out of the ear, or
 - the person feels dizzy.

6.7.1 What Do I Do?

Never try to get lodged objects out of the ear and always refer the person to a healthcare facility for further treatment. In case of an insect, you may fill the ear with tepid clean water so the insect can float out. If it does not come out refer the person to a healthcare facility for further treatment.



Fig. 7: Objects in the ear

Foreign bodies in the ear canal can be anything a child can push into the ear. Some of the items that are commonly found in the ear canal include:

- Food
- Insects
- Toys
- Buttons
- Pieces of crayon
- Small batteries

6.8 Symptoms

Some objects placed in the ear may not cause symptoms. Other objects, such as food and insects, may cause pain in the ear, redness, or drainage. Hearing may be affected if the object is blocking the ear canal.

6.9 Treatment

The treatment for foreign bodies in the ear is prompt removal of the object by your child's healthcare provider. The following are some of the ways your child's healthcare provider may treat an object in the ear:

- Instruments such as long, thin tweezers or forceps may be put in the ear to grab and remove the object.
 - Magnets are sometimes used to remove the object if it is metal.
 - The ear canal may be flushed with water.
 - A machine with suction may be used to help pull the object out.
- After removal of the object, your child's healthcare provider will then re-examine the ear to determine if there has been any injury to the ear canal or ear drum. Antibiotic drops for the ear may be prescribed to treat any possible outer ear infections.

6.10 Foreign bodies in the nose

Objects that are put into the child's nose are usually soft things. These would include:

- Tissue
- Clay
- Pieces of toys
- Erasers

Sometimes, a foreign body may enter the nose while the child is trying to smell the object.

6.10.1 Symptoms

The most common symptom of a foreign body in the nose is nasal drainage. The drainage appears only on the side of the nose with the object and often has a bad odor. In some cases, the child may also have a bloody nose.

6.10.2 Treatment

Treatment of a foreign body in the nose involves quick removal of the object by your child's healthcare provider. Sedating the child is sometimes needed. These are some of the ways your child's healthcare provider may use to remove the object from the nose:

Suction machines with tubes attached may be used;

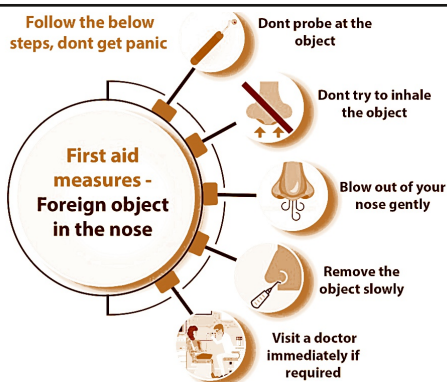


Fig. 8: Foreign body in the nose

Instruments may be inserted in the nose;

The object may be "blown" out of the nose. You may be asked to hold the unaffected nostril shut and place your mouth directly over your child's mouth as if you were giving mouth-to-mouth resuscitation. With your child's mouth open, you can quickly and forcibly blow into their mouth. The pressure will go through the mouth, up into blocked nasal passage, and can often "blow" the object out.

After removal of the object, your child's healthcare provider may prescribe nose drops or antibiotic ointments to treat any possible infections.

6.11 Foreign bodies in the throat

A foreign body in the throat can cause choking and is a medical emergency that needs immediate attention. The foreign body can get stuck in many different places within the airway. As with other foreign body problems, children tend to put things into their mouths when they are bored or curious. The child may then inhale deeply and the object may become lodged in the "airway" tube (trachea) instead of the "eating" tube (esophagus).

Food may block the throat in children who don't have a full set of teeth to chew completely, or those children who simply don't chew their food well. Children also don't have complete coordination of the mouth and tongue, which may also lead to problems. Children under the age of 4 years are in the greatest danger of choking on small objects, including:

- Seeds
- Toy parts
- Grapes
- Hot dogs
- Pebbles
- Chunks of raw vegetables
- Nuts
- Buttons, button-cell batteries
- Coins

Children need to be watched very closely to prevent a choking emergency. Foreign body ingestion needs immediate medical attention.

6.11.1 Symptoms

The following are the most common symptoms that may mean a child is choking:

- Choking or gagging when the object is first inhaled
- Coughing at first
- Wheezing (a whistling sound, usually made when the child breathes out)

Although the initial symptoms listed above may resolve, the foreign body may still be blocking the airway.

The following symptoms may mean that the foreign body is still blocking an airway:

Stridor (a high-pitched sound usually heard when the child breathes);

Cough that gets worse;

Child can't speak;

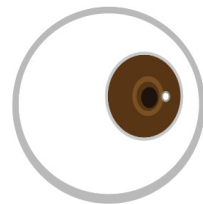
- Pain in the throat area or chest
- Hoarse voice
- Blueness around the lips
- Not breathing
- The child becoming unconscious

6.11.2 Treatment

Treatment of the problem varies with the degree of airway blockage. If the object is completely blocking the airway, the child will be unable to breathe or talk and their lips will become blue. This is a medical emergency and you should seek emergency medical care. Do basic life support treatment for choking if you have been trained. Sometimes, surgery is needed to remove the object. Children who are still talking and breathing but show other symptoms also need to be evaluated by a healthcare professional right away.

To prevent choking:

- Cut foods into small pieces.
- Never let small children run, play, or lie down while eating.
- Keep coins and small items out of reach of your children.
- Make sure older children don't give younger children things that they can choke on.
- Read warning labels on toys.
- Learn first aid for choking.



6.12 Foreign bodies in the eye

Small particles (like dust, sand, or eyelashes):

Blink repeatedly to try to dislodge the object;

Pull the upper lid over the lower lid to help remove the object;

Flush the eye with water (aim for the inner corner);

Use artificial tears to help lubricate and flush out the object;

6.12.1 Larger objects (like glass, metal, or wood)

Do not touch or rub the eye;

Do not attempt to remove the object.

Cover the eye with a protective shield (like a cup or goggles) to prevent further injury.

Seek immediate medical attention.

6.12.2 Chemical exposure

Flush the eye with water (aim for the inner corner) for at least 15 minutes.

Remove contact lenses (if applicable).

Seek immediate medical attention.

6.13 Foreign bodies in skin

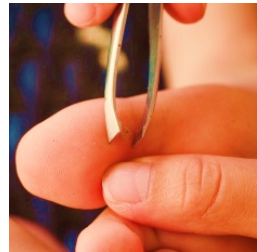
6.13.1 General principles

Stop activity and rest;

Clean the area with mild soap and water;

Apply antibiotic ointment (if available);

Cover with a bandage or dressing;



6.13.2 Specific scenarios

Splinters:

- Remove with tweezers (sterilized with alcohol).
- Clean and apply antibiotic ointment.

Thorns or prickles:

- Remove with tweezers (sterilized with alcohol).
- Clean and apply antibiotic ointment.

Glass or metal shards:

- Do not touch or remove.
- Cover with a protective shield (like a cup or goggles).
- Seek immediate medical attention.

Needles or syringes:

- Do not touch or remove.

-Seek immediate medical attention (risk of infection or blood-borne pathogens).

Ticks:

- Remove with fine-tipped tweezers (grasp close to skin).
- Clean and apply antibiotic ointment.
- Monitor for signs of infection or tick-borne illness.

6.13.3 When to seek medical attention:

Object is deeply embedded

Object is large or irregularly shaped

Wound is deep, jagged, or bleeding heavily.

Signs of infection (redness, swelling, increased pain, pus).

Wound is on the face, hands, or feet.

You are unsure of the best course of action.

Remember, if in doubt or if the situation worsens, always consult a medical professional for further guidance and treatment.

=====

Multiple Choice Questions (MCQs)**1.What is the primary purpose of first aid?**

- a)To replace professional medical care
- b)To provide immediate assistance until professional help arrives
- c)To diagnose and treat serious illnesses
- d)To offer ongoing care for chronic conditions

Answer: b

2.Who is typically responsible for providing first aid in the workplace?

- a)Manager
- b)HR personnel
- c)Nominated First Aider
- d)Security personnel

Answer: c

3.What should a first aider do if a person refuses care?

- a)Walk away from the scene
- b)Insist on providing care
- c)Stay nearby and call emergency services
- d)Provide care without consent

Answer: c

4.Which of the following is NOT a responsibility of a first aider?

- a)Performing CPR
- b)Diagnosing medical conditions
- c)Stopping external bleeding
- d)Supporting an injured limb

Answer: b

5. According to Indian Good Samaritan Protection Guidelines, a Good Samaritan is:

- a) Someone who provides emergency assistance and is required to stay at the hospital
- b) Someone who renders aid in an emergency on a voluntary basis and is not liable for civil or criminal charges
- c) A professional doctor who assists in road accidents
- d) A legal term for someone who reports an accident

Answer: b

6. What should you do first when dealing with an emergency situation?

- a) Provide first aid immediately
- b) Evaluate the injured person's condition
- c) Make the area safe
- d) Call for help

Answer: c

Fill-in-the-Blank Questions:

1. First aid is the provision of _____ care to a victim with an injury or illness.

Answer: immediate

2. A _____ is trained to take care of individuals involved in an emergency.

Answer: first aider

3. According to the Indian Good Samaritan Protection Guidelines, a bystander who calls emergency services cannot be compelled to give their _____.

Answer: name or personal details

4. The first step in dealing with an emergency situation is to make the area _____.

Answer: safe

5. First aid training can take only a few _____ to complete.

Answer: hours

6. Before giving care to a conscious person, you must ask for their _____.

Answer: consent

Short Question

1. Define "first aid."
2. What are the two main goals of first aid?
3. List two responsibilities of a first aider in the workplace.
4. Mention any two items that should be included in a standard first aid kit.
5. Explain what a "Good Samaritan" is in the context of first aid law.

Long Question

1. Define first aid and explain its importance in both everyday life and workplace settings.
2. Who is a first aider? List and explain at least three key responsibilities of a first aider.
3. What are the steps to deal with an emergency situation? Discuss the role of each step in providing effective first aid.
4. Describe the legal protections offered to a "Good Samaritan" in India. How does this influence bystanders' involvement in providing first aid?
5. What should a standard first aid kit contain for a family of four? Why is it important to regularly check the kit's contents?
6. What is the importance of obtaining consent from an injured or ill person before providing first aid? What should a first aider do if consent is not given?
7. Describe how a first aider should maintain a person's privacy during an emergency. Why is this important?
8. Discuss how a first aider should evaluate the condition of an injured person before proceeding with treatment. Include steps

Multiple Choice Questions (MCQs):**1. What is the primary goal of emergency response?**

- a) To assess the danger
- b) To reduce the impact of the event on a person
- c) To contact emergency services
- d) To perform CPR

Answer: b) to reduce the impact of the event on a person

2. What is the correct sequence of CPR according to the CAB method?

- a) Airway, Breathing, Circulation
- b) Breathing, Circulation, Airway
- c) Circulation, Airway, Breathing
- d) Defibrillator, Airway, Breathing

Answer: c) Circulation, Airway, Breathing

3. Which emergency number should you dial in India for all services?

- a) 100
- b) 101
- c) 108
- d) 112

Answer: d) 112

4. Which of the following is NOT a harmful effect of Basic Life Support (BLS)?

- a) Broken ribs
- b) Ruptured lung membrane
- c) Intestinal damage
- d) Increased heart rate

Answer: d) Increased heart rate

5. Which type of fracture involves the skin being intact?

- a) Open fracture
- b) Closed fracture
- c) Compound fracture
- d) Complex fracture

Answer: b) Closed fracture

6. What should be done first when performing CPR on a child?

- a) Get an AED
- b) Start chest compressions
- c) Call emergency services
- d) Check for danger

Answer: b) Start chest compressions

7. Which of the following describes "secondary drowning"?

- a) Vocal cord spasm that shuts off the airway
- b) Lungs filling with water immediately
- c) Water left in the lungs causing swelling over time
- d) Hypothermia due to cold water

Answer: c) Water left in the lungs causing swelling over time

Fill-in-the-Blank Questions

1.The unified emergency number for all services in India is _____.

Answer: 112

2.According to CPR guidelines, the ratio of chest compressions to rescue breaths for adults is _____.

Answer: 30:2

3. In CPR, chest compressions should be delivered at a rate of _____ compressions per minute.

Answer: 100 to 120

4. A _____ fracture involves the skin being broken, exposing the bone to the outside air.

Answer: Open (or Compound)

5. In drowning, water filling the lungs prevents the exchange of _____ and _____ in the alveoli.

Answer: oxygen, carbon dioxide

6. For infants and children, CPR uses a compression to breath ratio of _____.

Answer: 15:2

7. If a person collapses in cold water, there is a danger of _____, which means a severe drop in body temperature.

Answer: hypothermia

Short Questions:

9. What is the unified emergency number for all services in India?

10. What does CPR stand for?

11. What are the three stages of CPR?

12. What is the difference between dry drowning and secondary drowning?

13. What is an open fracture?

14. What should be the depth of chest compressions for adults during CPR?

15. How many chest compressions should be given to a baby during CPR?

16. What is the CAB technique in CPR?

17. What are the common signs of drowning?

18. What is the first thing to do in case of a suspected fracture?

Long Questions:

1. Explain the step-by-step process for performing CPR on an adult, child, and infant. Highlight the differences between each technique.
2. Discuss the different methods of contacting emergency services in India, including the use of mobile apps and websites. How can you activate a panic call on a smartphone and a feature phone?
3. Compare the processes and complications of dry drowning and secondary drowning. What first aid steps should be taken in case of drowning?
4. Describe the causes, types, and symptoms of fractures. How should open and closed fractures be managed before transporting the victim to a healthcare facility?
5. What are the harmful effects of BLS (Basic Life Support)? How can potential injuries during BLS be prevented?
6. What are the signs and symptoms of bone dislocations, and how should you provide first aid for dislocated joints?
7. Discuss the role of defibrillation in the CPR process. Why is early defibrillation critical for increasing survival rates during cardiac arrest?
8. What are the steps involved in rescuing a drowning person and providing immediate first aid? How can hypothermia complicate the condition of a drowning victim?
9. Explain the recovery position and its importance in first aid. When should it be used, and how does it help maintain proper ventilation after CPR?
10. How can fractures and dislocations be differentiated in terms of symptoms, and what immediate actions should be taken for each injury?

Multiple Choice Questions (MCQs)

1. Which of the following is a characteristic of second-degree burns?

- A) Black and parchment-like skin
- B) Blisters and swelling
- C) No pain in the burned area
- D) Skin redness with no swelling

Answer: B) Blisters and swelling

2. Which type of burn is caused by prolonged exposure to sunlight or ultraviolet light?

- A) Electrical burns
- B) Frostbite
- C) Sunburn
- D) Chemical burns

Answer: C) Sunburn

3. What should you never apply to a burn during first aid?

- A) Cool water
- B) Ice or ice water
- C) Topical antibiotic cream
- D) Non-stick sterile dressing

Answer: B) Ice or ice water

4. Which of the following burns affects both the epidermis and the dermis?

- A) First-degree burns
- B) Second-degree burns
- C) Third-degree burns
- D) Fourth-degree burns

Answer: B) Second-degree burns

7. How can sunburn be prevented?
8. What are the main steps in first aid for burns?
9. What is a scald?
10. What is the difference between radiation burns and sunburn?

Long Questions:

1. Explain the differences between first, second, third, and fourth-degree burns, including their symptoms and depth of skin damage.
2. Describe the types of burns by origin and give examples of causes for each type.
3. Discuss the complications and dangers associated with severe burn injuries, including infection, hypovolemia, and respiratory distress.
4. Outline the steps of first aid for burns, and explain the reasoning behind each step.
5. Compare and contrast dry burns, scalds, and electrical burns in terms of their causes, symptoms, and first aid treatments.
6. Explain the prevention, symptoms, and treatment of chemical burns. How do they differ from other types of burns?
7. What are the long-term effects of repeated sunburns, and how can one minimize the risk of these effects?
8. Describe the causes, symptoms, and first aid treatments for heat-stroke. How does it differ from other heat-related conditions like sunburn?

Multiple Choice Questions (MCQs)

1. What is the first step in first aid for a wound?

- A) Apply ointment
- B) Clean the wound
- C) Stop the bleeding
- D) Cover the wound

Answer: C) Stop the bleeding

2. What type of wound is caused by friction or scraping that removes the top layers of skin?

- A) Incision
- B) Abrasion
- C) Laceration
- D) Puncture

Answer: B) Abrasion

3. Which type of wound is characterized by a small opening but deep tissue damage, often caused by a sharp object like a nail or needle?

- A) Incision
- B) Laceration
- C) Puncture
- D) Amputation

Answer: C) Puncture

4. Which of the following is not a common cause of shock?

- A) Severe bleeding
- B) Infection
- C) Sunburn
- D) Heart attack

Answer: C) Sunburn

5. For a nosebleed, the injured person should:

- A) Pinch their nose and lean forward
- B) Tilt their head backward
- C) Apply ice to the back of their head
- D) Lie down with their head elevated

Answer: A) Pinch their nose and lean forward

6. What is the recommended action for an amputated limb?

- A) Apply direct pressure on the stump
- B) Reattach the limb immediately
- C) Soak the amputated part in hot water
- D) Cover the limb with a dry cloth and keep it cool

Answer: D) Cover the limb with a dry cloth and keep it cool

7. What is a common sign of an infected wound?

- A) Numbness
- B) Swelling, redness, and pus discharge
- C) Profuse bleeding
- D) Decreased body temperature

Answer: B) Swelling, redness, and pus discharge

Fill-in-the-Blank Questions:

1. A _____ is caused by a blunt force that ruptures capillaries, leading to bruising.

Answer: contusion

2. When treating a wound, use _____ water to clean it, and avoid harsh soaps or hydrogen peroxide.

Answer: cool or lukewarm

3. To prevent infection, the wound should be cleaned regularly, and the _____ should be changed daily or as needed.

Answer: dressing

4. In case of severe bleeding from varicose veins, the affected limb should be _____ to slow the bleeding.

Answer: elevated

5. A _____ wound is characterized by a clean, straight cut caused by a sharp object like a knife.

Answer: incised

6. If a person is in shock, lay them down and elevate their _____ to improve blood circulation.

Answer: legs

7. In the event of a head injury with suspected spinal damage, the injured person should be placed in the _____ position.

Answer: recovery

Short Questions:

1. What is an abrasion wound?
2. How are lacerations typically caused?
3. What are the complications of wounds?
4. How do you treat a puncture wound?
5. What is the primary danger of bleeding?
6. What should be done to prevent infection in wounds?
7. What are the first aid steps for nosebleeds?
8. What should you do if a wound is infected?
9. What is the definition of shock?
10. How do you treat a bleeding varicose vein?

Long Questions:

1. Explain the different types of wounds including abrasions, lacerations, incisions, and puncture wounds, and how they should be treated.

-
2. Describe the step-by-step first aid process for a wound, including how to stop the bleeding, clean the wound, and protect it to prevent infection.
 3. Discuss the causes, symptoms, and first aid treatment for shock, including the different types of shock (hypovolemic, cardiogenic, septic, etc.).
 4. Outline the signs that indicate a wound infection and the proper steps to take to treat an infected wound.
 5. Compare and contrast the treatment for a nosebleed, bleeding gums, and bleeding from varicose veins.
 6. Describe the complications that can arise from severe wounds and how they can be prevented through proper first aid.
 7. What is the role of personal hygiene in wound care and infection prevention, and why is it crucial in first aid?
 8. Explain the causes of head injuries, symptoms to watch for, and the first aid measures that should be taken in case of a head injury.
-

Multiple Choice Questions (MCQs):

1. Which of the following is not a common way that poisoning can occur?

- A) Ingestion
- B) Inhalation
- C) Exposure to sunlight
- D) Absorption through the skin

Answer: C) Exposure to sunlight

2. What should you not do if someone has ingested poison?

- A) Induce vomiting
- B) Rinse their mouth with water
- C) Keep the person calm
- D) Loosen tight clothing

Answer: A) Induce vomiting

3. Which of the following gases is most commonly associated with poisoning by inhalation?

- A) Carbon dioxide
- B) Hydrogen
- C) Oxygen
- D) Carbon monoxide

Answer: D) Carbon monoxide

4. What is the first step in first aid for gas poisoning?

- A) Move to fresh air
- B) Call for help
- C) Provide oxygen
- D) Begin CPR

Answer: A) Move to fresh air

5. Which symptom is not typically associated with poisoning by skin absorption?

- A) Redness and itching at the site
- B) Blisters or rashes
- C) Confusion or dizziness
- D) Chest pain

Answer: D) Chest pain

6. Which of the following should not be done after a snake bite?

- A) Remain calm and still
- B) Apply a tourniquet
- C) Remove rings or tight clothing
- D) Seek medical attention immediately

Answer: B) Apply a tourniquet

Fill-in-the-Blank Questions:

1. Poisoning can occur through ingestion, inhalation, absorption, or _____.

Answer: injection

2. In case of poisoning by ingestion, you should not try to neutralize the poison with _____ or water.

Answer: milk

3. The first step in dealing with gas poisoning is to move the affected person to _____.

Answer: fresh air

4. In case of poisoning by skin absorption, contaminated clothing should be _____ carefully to avoid further exposure.

Answer: removed

5. A venomous snake bite should be treated as an emergency, and the affected limb should be kept _____ heart level.

Answer: below

6. Poisoning by injection can result from accidental needle stick injuries or _____ by a poisonous animal.

Answer: bites

7. To prevent poisoning by gases, it's important to ensure proper _____ in areas where gases are used or stored.

Answer: ventilation

Short Questions:

1. What are the four main ways poisoning can occur?
2. How does poisoning by ingestion typically happen?
3. What are the common symptoms of gas poisoning?
4. What is the first step in treating poisoning by skin absorption?
5. Name two symptoms of poisoning by injection.
6. What should you do if someone is bitten by a snake?
7. What are the symptoms of poisoning by inhalation?
8. How can poisoning from household chemicals happen?
9. What are the first aid steps for insect stings?
10. What substances can cause poisoning by skin absorption?

Long Questions:

1. Explain the different routes through which poisoning can occur (ingestion, inhalation, absorption, injection) and the symptoms for each.
2. Describe the first aid treatment for poisoning by ingestion, including the steps to take before and while waiting for medical help.
3. Discuss the symptoms and first aid treatment for gas poisoning, emphasizing the importance of moving to fresh air and seeking help immediately.

-
4. Outline the first aid steps for poisoning by skin absorption, including what to do if the substance is corrosive or harmful.
 5. What is the appropriate first aid treatment for poisoning by injection, such as from needlesticks or insect bites, and what should be avoided?
 6. Provide a step-by-step guide for treating someone who has been bitten by a venomous snake. What should you avoid doing in such cases?
 7. Compare and contrast poisoning by animal bites and snake bites, including symptoms and first aid steps for each.
 8. Explain the importance of prevention when it comes to poisoning by animal bites, insect stings, and hazardous chemicals, and list preventive measures for each.
 9. What are the complications that can arise from poisoning by inhalation of gases, and how can they be prevented in industrial or household environments?
 10. Describe the steps you should take if you suspect someone has been poisoned by carbon monoxide and explain why immediate action is necessary.
-

Multiple Choice Questions (MCQs):

1. Which part of the body is responsible for sensing balance and acceleration?

- a) Cornea
- b) Retina
- c) Vestibular sense
- d) Nociception

Answer: c) Vestibular sense

2. Which of the following is the transparent portion of the eye?

- a) Iris
- b) Cornea
- c) Pupil
- d) Retina

Answer: b) Cornea

3. What should you avoid doing when there is a foreign body in the eye?

- a) Rinse the eye with water
- b) Cover the eye
- c) Rub the eye
- d) Use a moist swab

Answer: c) Rub the eye

4. In case of an insect in the ear, what is the first recommended step?

- a) Use tweezers to remove the insect
- b) Tilt the head and wait for the insect to crawl out
- c) Fill the ear with tepid clean water
- d) Use alcohol drops

Answer: c) Fill the ear with tepid clean water

5. Which age group is most prone to swallowing foreign objects?

- a) 1-3 years
- b) 4-6 years
- c) 7-9 years
- d) 10-12 years

Answer: a) 1-3 years

6. What is the most common symptom of a foreign body in the nose?

- a) Swelling
- b) Bleeding
- c) Nasal drainage with bad odor
- d) Fever

Answer: c) Nasal drainage with bad odor

7. Which of the following should not be done in case of glass shards embedded in the skin?

- a) Apply antibiotic ointment
- b) Cover the wound
- c) Remove the shards
- d) Seek medical attention

Answer: c) Remove the shards

Fill-in-the-Blank Questions:

1. The transparent portion of the eye is called the _____.

Answer: cornea

2. The three parts of the ear are the outer ear, _____, and inner ear.

Answer: middle ear

3. A foreign object in the throat can cause _____, which requires immediate medical attention.

Answer: choking

4. In case of an insect in the ear, you should fill the ear with _____ to help the insect float out.

Answer: tepid clean water

5. The muscular organ that assists in tasting and swallowing is the _____.

Answer: tongue

6. _____ are dangerous foreign objects because they are toxic and can be easily swallowed by children.

Answer: Small batteries

7. In case of a chemical spill in the eye, you should rinse the eye for at least _____ minutes with clean water.

Answer: 15

Short Questions:

1. What are the five senses of the human body?
2. What is the function of the cornea in the eye?
3. Name the three parts of the ear.
4. What is a foreign body in medical terms?
5. What should you do if a foreign object enters the eye?
6. How can you remove a foreign object lodged in the nose of a child?
7. What are common symptoms of foreign bodies in the ear?
8. What immediate treatment is recommended for chemical exposure to the eye?
9. How should a splinter be removed from the skin?
10. What should be done if an insect enters the ear?

Long Questions:

1. Explain how the human body exchanges information with its environment through the five senses and additional sensory functions.
2. Describe the structure and function of the eye, highlighting how it processes light and the role of different parts such as the

cornea, iris, and retina.

3. What are the common foreign bodies that can become lodged in the ear, and what are the symptoms and treatment options for such cases?
 4. Discuss the steps to be taken when a foreign object enters the eye, including first aid measures, and when medical attention is necessary.
 5. Explain the various treatments for foreign bodies in the nose and how parents or healthcare providers can safely remove objects lodged in a child's nose.
 6. Describe the symptoms of choking in children and the first aid measures that should be taken in cases of foreign bodies in the throat.
 7. Outline the general principles and specific treatments for foreign bodies in the skin, including when to seek medical attention.
 8. What precautions can be taken to prevent choking and ingestion of foreign objects by children, and what are the common symptoms indicating a foreign body in the airway?
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Sr. No.	DESCRIPTION	QR-Code
1.	The manual is provided by the Indian Red Cross Society and St John Ambulance Association India, offering the detailed first aid guidelines covering all the essential first aid techniques.	
2.	The book entitled First Aid is a comprehensive manual detailing about the procedures and strategies for providing emergency medical aid.	
3.	Mayo Clinic provides essential strategies for handling emergencies when someone swallows any foreign object. This covers the steps for prevention of further complications.	
4.	Healthy WA presents effective strategies for the positive response to different types of poisoning. It provides step-by-step approaches to administering immediate care so as to prevent further harm.	
5.	Mayo Clinic offers the emergency help seek for the first aid for poisoning victims. This includes the symptoms and treatment for poisoning.	
6.	American Heart Association and American Red Cross Society represents the essential guidelines for first aid with certain recommended treatments.	

Sr. No.	DESCRIPTION	QR-Code
7.	Healthy WA represents effective treatment for the first aid for wounds including minor cuts, bites and abrasions.	
8.	An introduction to First Aid by European First Aid guidelines includes emergency situations where first aid may be of life-saving importance.	
9.	Better Health channel offers the basic life support methods of DRSABCD (Danger, Response, Send for Help, Airway, Breathing, CPR, Defibrillator).	
10.	Heart to Heart CPR Inc. offers an instructional resource for first aid training and education. This vibrant training provides step-by-step approach to the effective prevention and treatment to a wide variety of emergencies.	
11.	CPR is an emergency procedure that can help saves a life. Chest compressions during the CPR mimics as an artificial pump maintaining the sufficient amount of oxygenated blood to the heart and brain.	



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