Principles of First Aid and Scene Safety

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Fundamentals of First Aid and Emergency Care for Radiography

Medical Technical Radiology Department

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Student Learning Outcomes

By the end of this course, students will be able to:

1. Define first aid and describe its main objectives.
2. Identify the key principles of first aid relevant to radiology practice.
3. Explain the steps for assessing scene safety before providing help.
4. Describe the primary and secondary survey process (DRABC).
5. Apply infection control measures based on exposure risk, recognize situations requiring additional precautions, and explain the importance of infection control in preventing cross-contamination.
6. Demonstrate clear and calm communication with colleagues during simulated emergency situations.

DEFINITION OF FIRST AID

- First Aid is the initial assistance or treatment given to a casualty for any injury or sudden illness before the arrival of an ambulance, doctor, or other qualified personnel.

DEFINITION OF FIRST AID

- First aid is an important part of everyday life at home, work or at play.
- Everyone should learn first aid and be willing to administer basic care until emergency assistance arrives.
- Not every incident requiring first aid is a life-and-death situation. First aid knowledge is commonly used to manage minor injuries at home or work.

The five principles of first aid are to:

1.**Preserve life** – This includes the life of the casualty, bystander and rescuer.

2. **Protect the casualty from further harm** – Ensure the scene is safe.

3. **Provide pain relief** – This could include the use of ice packs or simply applying a sling.

4. **Prevent the injury or illness from becoming worse** – Ensure the treatment you provide does not make the condition worse.

5. **Provide reassurance** – Stay with the casualty, providing emotional reassurance

Accident Management

- Safety: **STOP - THINK - RESPOND** In the event of an accident always think “AM I SAFE?” Take a few seconds to calm down and assess the whole scene before acting. Then, are the bystanders safe? Is the patient or are the patients safe? Respond to any dangers before approaching the patient.

PRIORITY OF CASUALTIES

- Save the conscious casualties before the unconscious ones as they have a higher chance of recovery.
- Save the young before the old.
- Do not jeopardize your own life while rendering First Aid. In the event of immediate danger, get out of site immediately.
- Remember: One of your aims is to preserve life, and not endanger your own in the process of rendering First Aid.

Basic Principles of First Aid

1. Stay calm and ensure your own safety first
2. Quick but safe assessment of the situation
3. Follow standard procedures (DRABCDE)
4. Call for help/ Activate emergency code
5. Provide car within your level of training
6. Use PPE (gloves, mask, eye shield)

D.R.A.B.C.D.E.' Procedure

D.R.A.B.C.D.E. (pronounced 'Doctor ABCDE') is a procedure that will help you to remember the order in which you must proceed.

D – Check for **Danger**
Make the area safe/Protect yourself

▼

R - Check for **Response/Consciousness**
and shout for help

▼

A - Open the **Airway**

▼

B - Check for **Breathing**

▼

C – **Circulation**: Check for serious bleeds

▼

D - Check for any other **Damage** (injury) or **Disability**

▼

E - Expose and Examine more closely

Scene Safety and Risk Assessment

A. **Ensures Personal Safety**

B. **Prevents Further Injury or Harm**

C. **Helps Determine the Nature and Scope of the Emergency**

D. **Supports Efficient and Organized Response**

E. **Protects Radiology-Specific Safety Concerns**

F. **Legal and Ethical Responsibility**

Scene Safety and Risk Assessment

A. Ensures Personal Safety:

1. The first priority in any emergency is **your own safety**.

2. Entering a dangerous scene (e.g., electrical hazards, radiation exposure, fire, chemical spills) can turn the rescuer into another victim.

3. Always perform a **“scene size-up”** before approaching.

Scene Safety and Risk Assessment

B. Prevents Further Injury or Harm

1. Assessing the surroundings helps identify potential risks to the patient and others—such as moving machinery, sharp objects, or slippery floors.

2. Controlling or isolating these hazards can prevent additional injuries.

Scene Safety and Risk Assessment

C. Helps Determine the Nature and Scope of the Emergency:

1. Observation of the scene provides vital clues: what happened, how many people are injured, and what kind of assistance is needed.

2. This helps prioritize care and make accurate reports to emergency teams.

Scene Safety and Risk Assessment

D. Supports Efficient and Organized Response:

1. A calm and structured assessment reduces panic.

2. It allows the responder to gather needed equipment and coordinate help effectively.

Scene Safety and Risk Assessment

E. Protects Radiology-Specific Safety Concerns:

1. In imaging areas, additional hazards may exist—**ionizing radiation, strong magnetic fields, contrast media, or heavy equipment**.

2. Evaluating these factors before intervening ensures compliance with safety protocols and protects staff and patients.

Scene Safety and Risk Assessment

F. Legal and Ethical Responsibility:

1. Acting recklessly or without awareness of risks can violate safety policies or professional standards.

2. Proper scene assessment demonstrates professional judgment and adherence to institutional procedures.

Hazards in radiology departments:

1. Electrical cables
2. Radiation zones
3. Wet floors
4. Contrast spills or chemical exposure
5. Magnetic field hazards (MRI zone)

STANDARD PRECAUTIONS & INFECTION CONTROL

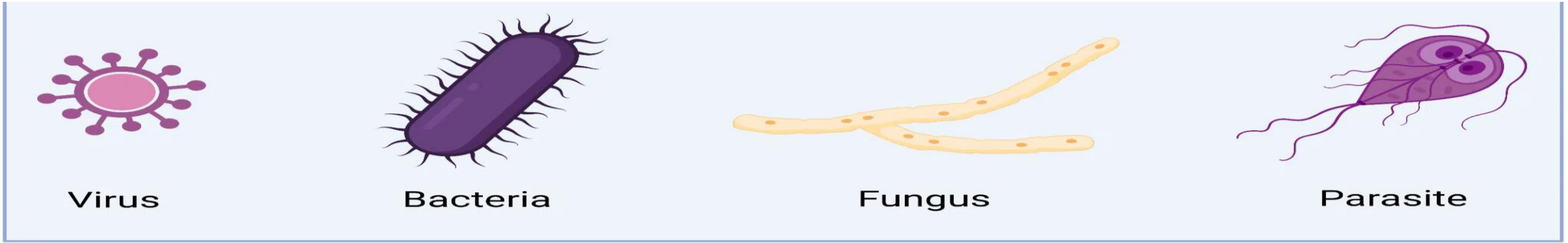
- Ensuring cleanliness in all first aid situations is extremely important.
- A first aider must take precautions to ensure the risk of infection is minimised by practising good first aid hygiene procedures.

STANDARD PRECAUTIONS & INFECTION CONTROL

- Infectious diseases such as bacteria, viruses, parasites or fungi are diseases that cause infections to the human body and, in some cases, are transmitted by contact or by cross-infection.

The usual methods of transmission are:

- Direct contact (with an infected person)
- Indirect contact (through coughing, air conditioning or similar)
- Or through a host (insects, worms).



STANDARD PRECAUTIONS & INFECTION CONTROL

Many deadly infectious diseases have been eradicated, but several, such as poliomyelitis (a virus), are on the increase. Example of Infectious diseases include:

- **Viral infections**. Measles, mumps, rubella, hepatitis, influenza, chickenpox, HIV and the common cold.
- **Bacterial infections**. Throat infections, whooping cough, diphtheria, rheumatic fever, tuberculosis strains, cholera, staphylococcus infection and some forms of meningitis.
- **Parasitic infections**. Malaria, tapeworm, hookworm, itch mites, pubic and body lice.
- **Fungal infections**. Ringworm, tinea (‘Athlete’s Foot’) and thrush.

Infection Control Guide/Prior to treatment

- Wash hands with soap and water or rinse with antiseptic
- Ensure hands are washed thoroughly between fingers and under nails.
- Place a barrier between you and the casualty's body fluids.
- Always wear nitrile or latex gloves if available.
- Take care not to touch any unclean object when wearing gloves or once hands are washed.
- If possible, use a protective cover over clothing.
- Cover any adjacent areas likely to produce infection

Infection Control Guide/ During treatment

- Use a face shield or mask with a one-way-valve or filter, if available, when performing resuscitation
- Use only clean bandages and dressings
- Avoid coughing, breathing or speaking over the wound
- Avoid contact with body fluids.
- Avoid treating more than one casualty without washing hands and changing gloves

Infection Control Guide/ After treatment

- Clean up both casualty and yourself.
- Clean up the immediate vicinity.
- Dispose of dressings, bandages, sharps, gloves and soiled clothing safely and correctly.
- Wash hands with soap and water thoroughly, even if gloves were used.

Communication and Teamwork During Emergencies

- Clear, calm communication with colleagues.
- Assigning roles: caller, first responder, recorder.
- How to communicate with a frightened or semi-conscious patient.
- Debriefing after an incident

Key message:

“You cannot help the patient if you become a victim yourself.

Always stop, look, listen, and think before you act.”