

Introduction to First Aid and Role of Radiology Staff

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Fundamentals of First Aid and Emergency Care for Radiography

Medical Technical Radiology Department

Fall Semester/ Lec 1

2025-2026



Course Objectives

- This course introduces radiology students to the essential principles and practices of **first aid** and **basic life support (BLS)** within the **imaging and diagnostic environment**. Students will develop the skills needed to **recognize, respond to, and manage medical emergencies** that may occur **before, during, or after radiologic procedures**.
- The course emphasizes **early intervention, patient safety, effective communication, and teamwork** in emergency scenarios such as **contrast media reactions, fainting, cardiac arrest, hypoglycemia, seizures, and trauma incidents**.
- All content and skills are aligned with **international BLS and radiology safety standards**, including those from the **American Heart Association (AHA)**, **European Resuscitation Council (ERC)**, and the **World Health Organization (WHO)**, ensuring that students meet global professional expectations for radiographers.

Student Learning Outcomes

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

- 1. Identify** the principles of first aid and basic life support relevant to the radiology and imaging environment.
- 2. Recognize** common medical emergencies that may occur before, during, or after radiologic procedures.
- 3. Demonstrate** appropriate first aid and BLS techniques, including adult and pediatric cardiopulmonary resuscitation (CPR) and use of an automated external defibrillator (AED).
- 4. Apply** correct procedures for managing contrast media reactions, fainting, hypoglycemia, seizures, shock, and trauma-related incidents in the radiology department.
- 5. Practice** effective communication and teamwork during simulated emergency situations to promote patient safety.
- 6. Adhere** to international guidelines (AHA, ERC, WHO) and institutional safety policies while performing emergency care in imaging settings.



Student Obligations

1. Attend all lectures on time and regularly.
2. Be prepared for class discussions and quizzes.
3. Participate actively and respectfully during sessions.
4. Complete and submit assignments on time.
5. Maintain academic integrity in all coursework.
6. Keep mobile devices silent and avoid distractions during lectures.

Mark Distribution Summary

Method	Quantity	Percentage (%)
Participation	1	5
Quiz	2	5
Project (Radiologic Emergency Response Demo)	1	10
Midterm Exam	1	30
Algorithm Card Assignment	1	5
Final Exam	1	40
Total		100

Definition and Objectives of First Aid

- An **emergency** is a situation in which the condition of a patient or a sudden change in medical status requires immediate action.
- Emergency actions on the part of the radiologic technologist generally have the objectives of preserving life, avoiding further harm to the patient, and obtaining appropriate medical assistance as quickly as possible.

- Although radiologic technologists rarely need to initiate emergency measures, they must be able to identify emergency situations, remain calm and composed, and respond appropriately.
- Recognizing when help is needed is a crucial first step, as the technologist must know when to seek assistance.

- Many patients arrive at the diagnostic imaging department in a weakened physical state, which may result from illness, injury, or extensive preparation for the examination. In such conditions, physiological responses may be unpredictable.
- Abnormal physiological reactions can occur **suddenly**, often **without warning**, and may become **life-threatening** if not promptly recognized and treated.

Sudden Medical Reactions

- Abnormal reactions can occur **quickly and without warning**.
- These may become **life-threatening** if not recognized early.
- Radiologic technologists must be alert and ready to act.

Common Non-Trauma Emergencies

- 1. Shock**
- 2. Anaphylaxis** (severe allergic reaction)
- 3. Pulmonary embolus** (blood clot in the lungs)
- 4. Diabetes-related issues** (hypo/hyperglycemia)
- 5. Stroke**
- 6. Cardiac or respiratory failure**
- 7. Fainting (syncope)**
- 8. Seizures**

General Priorities

- Most patients arrive in the radiology department in a stable condition, some may be unstable, and others' conditions can change while they are there.
- Radiologic technologists should recognize that their quick thinking and prompt actions can significantly impact a patient's survival and well-being.

When managing patients in emergency situations, technologists should prioritize:

1. Maintaining a clear airway
2. Controlling bleeding
3. Preventing or treating shock
4. Caring for wounds or fractures
5. Offering emotional support
6. Continuously reassessing the patient and providing appropriate follow-up

Emergency Cart

- Familiarity with the location of emergency equipment in the radiology department is an important part of being able to respond appropriately.
- Most radiology departments have at **least one emergency cart** (often referred to as a crash cart). This cart is a wheeled container of equipment and drugs typically required in emergency situations (Fig. 20.1).

Emergency Cart



FIG. 20.1 A typical emergency crash cart.

Importance of Medical Cart

- The ready availability of emergency **equipment** and **drugs** reduces the time required to respond to a medical crisis.
- A radiologic technologist's orientation to a department should include learning the location of emergency carts and becoming familiar with the contents and organization of the carts at that particular institution.

Role of the Radiologic Technologist

1. First Observer:

Often the first to notice changes in patient condition.

2. Quick Recognition:

Identify abnormal physiological reactions early.

3. Immediate Action:

Initiate appropriate emergency measures when needed.

4. Patient Assessment:

Evaluate neurological and cognitive status on arrival.

Role of the Radiologic Technologist

5. Patient Safety:

Ensure well-being throughout imaging procedures.

6. Communication:

Alert the healthcare team promptly if assistance is needed.

7. Support:

Provide reassurance and emotional support to patients.