R T 202: RADIATION SAFETY IN FLUOROSCOPY FOR RADIOLOGIC TECHNOLOGISTS

Foothill College Course Outline of Record

Heading	Value
Units:	0.5
Hours:	6 lecture per quarter (6 total per quarter)
Prerequisite:	Current certification in Radiologic Technology.
Degree & Credit Status:	Non-Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Unlimited Repeatability

Student Learning Outcomes

- Describe the radiation equipment used for pediatric patients.
- Identify and describe various types of regulatory provisions and radiation safety measures for adult patients associated with fluoroscopy.

Description

Exploration of radiation safety measures in the field of fluoroscopy for both fixed and mobile units. Emphasis will be placed on time, distance, shielding, radiobiology, isometric curves, inverse square law, as well as reduction of radiation exposure to both patients and personnel. Restricted to licensed California Radiologic Technologists to meet continuing education requirements set forth by the Department of Public Health's Radiologic Health Branch.

Course Objectives

The student will be able to:
A. Identify radiation safety measures for the pediatric patient.
B. Describe how fluoroscopic equipment functions and can be utilized safely.
C. Define and discuss the regulations and guidelines associated with mobile image intensified units.
D. Describe the regulatory provisions and radiation safety measures of fluoroscopic equipment and the adult patient.

Course Content

A. Radiation Safety Measures for the Pediatric Patient
1. Law of Bergonie and Tribondeau
a. Immature cells
b. Young tissues and organs
c. High metabolic rate
d. Rapidly dividing cells
2. Critical factors to consider when imaging pediatric patients in the fluoro mode
a. Motion
b. Artifacts
c. AEC vs. manual technical factors
d. Pulse progressive fluoroscopy and frame rate
e. Last image hold and image grab
f. Repercussions of using grids or mag mode
g. Reduce number of images
3. National campaigns aimed at public awareness as well as imaging professionals
a. Image Gently protocols for the radiologic technologist
b. Step Lightly
c. ASRT
B. Fluoroscopy Equipment, to Include the Following:
1. Construction of different types of units
2. Operating technical factors
3. Timing
4. Filtration
5. X-ray beam restriction
6. Safety factors
7. Inverse square law
8. Exposure control
C. Mobile Image Intensified Unit (C-Arm)
1. Special requirements
2. Source-to-skin distance
3. X-ray beam intensity
4. Isoexposure curves for various examinations
D. Regulatory Provisions and Radiation Safety
1. Primary protective barrier
2. Secondary protective barriers
3. Occupancy factor (T)
4. Work load factor (W)
5. Use factor (U)
6. Mobile screens
7. Bucky slot cover
8. Protective curtains or drape
9. Collimation
10. Cumulative timer
11. Autobrightness control
12. Technical factors
13. Excessive light
14. X-ray intensity
15. X-ray quality
16. Protective clothing
17. Isoexposure curves (different examinations - upright and horizontal table)
18. Radiation dose for patient for various examinations
19. Radiation exposure to operator and others
20. Minimum source-to-table top distance beam restriction system

Lab Content

Not applicable.

Special Facilities and/or Equipment

Multimedia classroom, visualizer, internet access.

Method(s) of Evaluation

Methods of evaluation may include, but are not limited to:
A. Quizzes
B. Participation in class discussion

Method(s) of Instruction

Methods of instruction may include, but are not limited to: lecture, discussion, cooperative learning exercises, and demonstration.

Representative Text(s) and Other Materials

Instructor created materials.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

The student will complete a survey related to radiation protection behaviors in the fluoroscopy environment.

Discipline(s)

Radiological Technology