



Western Technical College

## 10526149 Radiographic Procedures 1

### Course Outcome Summary

#### Course Information

**Description** Prepares radiography students to perform routine radiographic procedures of the chest, abdomen, upper and lower extremities, and pelvis. Course includes considerations for mobile and trauma procedures. Students apply knowledge of human anatomy to position the patient correctly to achieve and evaluate optimal diagnostic quality images which includes identifying radiographically significant anatomy.

**Total Credits** 5

#### Textbooks

*Bontrager's Textbook of Radiographic Positioning and Related Anatomy*. 10th Edition. Copyright 2020. Bontrager, Kenneth L, John Lampignano and Leslie E. Kendrick. Publisher: Elsevier Science. **ISBN-13:** 978-0-323-65367-1. Required. (Part of Western Bundle Package **ISBN-13:** 978-0-443-15028-9)

*Bontrager's Handbook of Radiographic Positioning and Techniques*. 10th Edition. Copyright 2020. Bontrager, Kenneth L, John Lampignano and Leslie E. Kendrick. Publisher: Elsevier Science. **ISBN-13:** 978-0-323-69422-3. Required. (Part of Western Bundle Package **ISBN-13:** 978-0-443-15028-9)

*Radiographic Positioning and Related Anatomy Workbook*. 10th Edition. Copyright 2020. Lampignano, John. Publisher: Elsevier Science. **ISBN-13:** 978-0-323-69423-0. Required. (Part of Western Bundle Package **ISBN-13:** 978-0-443-15028-9)

*Elsevier Adaptive Quizzing for Bontrager's Textbook of Radiographic Positioning and Related Anatomy*. 10th Edition. Copyright 2022. Lampignano, John and Leslie Kendrick. Publisher: Elsevier Science. **ISBN-13:** 978-0-323-83233-5. Required. (Part of Western Bundle Package **ISBN-13:** 978-0-443-15028-9)

*526-149: Radiographic Procedures 1*. Copyright 2023. Publisher: Xanedu. **ISBN-13:** 979-8-822-73661-0. Required.

## Learner Supplies

Rad Tech Boot Camp Codes – 24 month Academic License – Clover Learning. **Vendor:** Campus Shop. Required.

## Success Abilities

1. Cultivate Passion: Expand a Growth-Mindset

## Program Outcomes

1. Carryout the production and evaluation of radiographic images
2. Provide quality patient care

## Course Competencies

### 1. Perform radiologic procedures on the chest

#### Assessment Strategies

- 1.1. Oral, written, graphic and/or skill assessment

#### Criteria

*Your performance will be successful when:*

- 1.1. you select the correct field of view and/or image receptor
- 1.2. you explain pre and post procedure requirements
- 1.3. you perform all critical steps in the right order
- 1.4. you position the patient correctly utilizing positioning aids if necessary
- 1.5. you employ appropriate exposure parameters
- 1.6. you wear personal protective equipment
- 1.7. you follow safety procedures
- 1.8. you verbalize an explanation of the process as you perform it
- 1.9. you adapt to non-routine situations
- 1.10. you adapt procedure to age and condition of patient

#### Learning Objectives

- 1.a. a. Perform non-routine ER procedures
- 1.b. b. Select appropriate equipment and supplies for procedure
- 1.c. c. Demonstrate positioning for assigned procedure
- 1.d. d. Evaluate image for appropriate anatomical demonstration
- 1.e. e. Evaluate positioning of phantom and/or model
- 1.f. f. Evaluate proper radiographic demonstration of anatomy
- 1.g. g. Identify anatomical structures on radiographs
- 1.h. h. Demonstrate proper use of positioning aids
- 1.i. i. Explain pre and post procedure requirements
- 1.j. j. Apply anatomical nomenclature

### 2. Identify radiographically significant chest anatomy

#### Assessment Strategies

- 2.1. Oral, written, graphic and/or skill assessment

#### Criteria

- 2.1. you locate and identify pertinent anatomy
- 2.2. you explain relationship and orientation to other anatomical structures
- 2.3. you identify normal and abnormal presentation

### **Learning Objectives**

- 2.a. Identify related structures of the lung on basic and special projections of the chest
- 2.b. Locate related structures of the bony thorax on basic and special projections of the chest
- 2.c. Locate related structures of the respiratory/vascular system on basic and special projections of the chest
- 2.d. Identify radiographically the four types of body habitus
- 2.e. Locate related bony landmarks of the chest

## **3. Evaluate radiographic chest image quality**

### **Assessment Strategies**

- 3.1. Oral, written, graphic and/or skill assessment

### **Criteria**

- 3.1. you determine if image shows accurate positioning
- 3.2. you determine if image reflects overall diagnostic quality
- 3.3. you determine if image includes pertinent anatomy

### **Learning Objectives**

- 3.a. Recognize rotation on all basic and special chest projections
- 3.b. Identify the spinal level that the sterno-clavicular joints should be visualized
- 3.c. Count for visualization of a minimum of ten (10) ribs on a PA position of the chest to ensure adequate inspiration
- 3.d. Recognize the importance of low contrast when imaging the chest
- 3.e. Recognize shoulder position and arm placement on all basic and special chest projections
- 3.f. Describe the importance of shoulder position and arm placement on all basic and special chest projections
- 3.g. Describe the corrective measures required for all suboptimal radiographic images of the chest
- 3.h. List variances utilized in pediatric chest imaging

## **4. Perform radiologic procedures on the abdomen**

### **Assessment Strategies**

- 4.1. Oral, written, graphic and/or skill assessment

### **Criteria**

*Your performance will be successful when:*

- 4.1. you select the correct field of view and/or image receptor
- 4.2. you demonstrate pre-procedure requirements
- 4.3. you perform all procedural steps in a logical order
- 4.4. you position the patient correctly
- 4.5. you employ appropriate exposure parameters
- 4.6. you follow safety procedures
- 4.7. your explanation presents sound reasoning as you describe the decisions you make throughout the process
- 4.8. you adapt to non-routine and trauma situations
- 4.9. you adapt procedure to pediatric, geriatric, cultural factors, and condition of patient
- 4.10. you explain post-procedure requirements

### **Learning Objectives**

- 4.a. Perform non-routine ER procedures
- 4.b. Select appropriate equipment and supplies for procedure
- 4.c. Demonstrate positioning for assigned procedure
- 4.d. Evaluate image for appropriate anatomical demonstration
- 4.e. Evaluate positioning of phantom and/or model
- 4.f. Evaluate proper radiographic demonstration of anatomy
- 4.g. Identify anatomical structures on radiographs
- 4.h. Demonstrate proper use of positioning aids
- 4.i. Explain pre and post procedure requirements
- 4.j. Apply anatomical nomenclature

## **5. Identify radiographically significant abdominal anatomy**

### **Assessment Strategies**

- 5.1. Oral, written, graphic and/or skill assessment

### **Criteria**

- 5.1. you locate and identify pertinent anatomy
- 5.2. you explain relationship and orientation to other anatomical structures
- 5.3. you identify normal and abnormal presentation

### **Learning Objectives**

- 5.a. Identify all organs of the abdomen
- 5.b. Identify related bony and muscular structures located within the abdominal cavity
- 5.c. Locate related bony landmarks of the abdomen

## **6. Evaluate radiographic abdominal image quality**

### **Assessment Strategies**

- 6.1. Oral, written, graphic and/or skill assessment

### **Criteria**

- 6.1. you determine if image shows accurate positioning
- 6.2. you determine if image reflects overall diagnostic quality
- 6.3. you determine if image includes pertinent anatomy

### **Learning Objectives**

- 6.a. Identify required four structures that must be visualized to evaluate an adequate exposure
- 6.b. Describe factors that will indicate proper positioning for all basic and special projections of the abdomen
- 6.c. Recognize extenuating circumstances that would not allow visualization of all structures listed above
- 6.d. Identify the specific structures required to be visualized on all basic and special abdominal radiographic images
- 6.e. Recognize the importance of low contrast when imaging abdomen
- 6.f. Describe the corrective measures required for all suboptimal radiographic images of the abdomen

## **7. Perform radiologic procedures on the upper extremities**

### **Assessment Strategies**

- 7.1. Oral, written, graphic and/or skill assessment

### **Criteria**

*Your performance will be successful when:*

- 7.1. you select the correct field of view and/or image receptor
- 7.2. you demonstrate pre-procedure requirements
- 7.3. you perform all procedural steps in a logical order
- 7.4. you position the patient correctly
- 7.5. you employ appropriate exposure parameters
- 7.6. you follow safety procedures
- 7.7. your explanation presents sound reasoning as you describe the decisions you make throughout the process
- 7.8. you adapt to non-routine and trauma situations
- 7.9. you adapt procedure to pediatric, geriatric, cultural factors, and condition of patient
- 7.10. you explain post-procedure requirements

### **Learning Objectives**

- 7.a. Perform non-routine ER procedures
- 7.b. Select appropriate equipment and supplies for procedure
- 7.c. Demonstrate positioning for assigned procedure 7.d. Evaluate image for appropriate anatomical demonstration
- 7.d. Evaluate positioning of phantom and/or model
- 7.e. Evaluate proper radiographic demonstration of anatomy
- 7.f. Identify anatomical structures on radiographs
- 7.g. Demonstrate proper use of positioning aids
- 7.h. Explain pre and post procedure requirements
- 7.i. Apply anatomical nomenclature

## **8. Identify radiographically significant upper extremity anatomy**

### **Assessment Strategies**

8.1. Oral, written, graphic and/or skill assessment

### **Criteria**

- 8.1. you locate and identify pertinent anatomy
- 8.2. you explain relationship and orientation to other anatomical structures
- 8.3. you identify normal and abnormal presentation

### **Learning Objectives**

- 8.a. Explain fat pad location and importance in the upper extremity
- 8.b. Explain the type/category of joints in the finger, hand, wrist, forearm, elbow, humerus, and scapula
- 8.c. Identify all related bony structures of the finger, hand, wrist, forearm, elbow, humerus, and scapula

## **9. Evaluate radiographic upper extremity image quality**

### **Assessment Strategies**

9.1. Oral, written, graphic and/or skill assessment

### **Criteria**

- 9.1. you determine if image shows accurate positioning
- 9.2. you determine if image reflects overall diagnostic quality
- 9.3. you determine if image includes pertinent anatomy

### **Learning Objectives**

- 9.a. Describe factors that will indicate proper positioning for all basic and special projections of the finger, hand, wrist, forearm, elbow, humerus, shoulder, and scapula
- 9.b. Recognize the importance of high contrast when imaging the upper extremity
- 9.c. Describe the corrective measures required for all suboptimal radiographic images of the upper extremity

## **10. Perform radiologic procedures on the lower extremities**

### **Assessment Strategies**

10.1. Oral, written, graphic and/or skill assessment

### **Criteria**

*Your performance will be successful when:*

- 10.1. you select the correct field of view and/or image receptor
- 10.2. you demonstrate pre-procedure requirements
- 10.3. you perform all procedural steps in a logical order
- 10.4. you position the patient correctly
- 10.5. you employ appropriate exposure parameters
- 10.6. you follow safety procedures
- 10.7. your explanation presents sound reasoning as you describe the decisions you make throughout the process
- 10.8. you adapt to non-routine and trauma situations
- 10.9. you adapt procedure to pediatric, geriatric, cultural factors, and condition of patient
- 10.10. you explain post-procedure requirements

### **Learning Objectives**

- 10.a. Perform non-routine ER procedures
- 10.b. Select appropriate equipment and supplies for procedure
- 10.c. Demonstrate positioning for assigned procedure
- 10.d. Evaluate image for appropriate anatomical demonstration
- 10.e. Evaluate positioning of phantom and/or model
- 10.f. Evaluate proper radiographic demonstration of anatomy
- 10.g. Identify anatomical structures on radiographs
- 10.h. Demonstrate proper use of positioning aids
- 10.i. Explain pre and post procedure requirements
- 10.j. Apply anatomical nomenclature

## **11. Identify radiographically significant lower extremity anatomy**

### **Assessment Strategies**

- 11.1. Oral, written, graphic and/or skill assessment

### **Criteria**

- 11.1. you locate and identify pertinent anatomy
- 11.2. you explain relationship and orientation to other anatomical structures
- 11.3. you identify normal and abnormal presentation

### **Learning Objectives**

- 11.a. Identify all related bony structures of the toe, foot, heel, ankle, lower leg, knee, and femur
- 11.b. Explain the type/category of joints in the toe, foot, heel, ankle, lower leg, and knee
- 11.c. Explain the importance of the tibial plateau angle to ensure radiographic visualization of the knee joint

## **12. Evaluate radiographic lower extremity image quality**

### **Assessment Strategies**

- 12.1. Oral, written, graphic and/or skill assessment

### **Criteria**

- 12.1. you determine if image shows accurate positioning
- 12.2. you determine if image reflects overall diagnostic quality
- 12.3. you determine if image includes pertinent anatomy

### **Learning Objectives**

- 12.a. Describe factors that will indicate proper positioning for all basic and special projections of the toe, foot, heel, ankle, lower leg, knee, and femur
- 12.b. Describe the corrective measures required for all suboptimal radiographic images of the lower extremity
- 12.c. Locate the adductor tubercle on a lateral knee radiograph
- 12.d. Explain the importance of the adductor tubercle when evaluating accurate positioning of the lateral knee

## **13. Perform radiologic procedures on the pelvis**

### **Assessment Strategies**

- 13.1. Oral, written, graphic and/or skill assessment

### **Criteria**

*Your performance will be successful when:*

- 13.1. you select the correct field of view and/or image receptor
- 13.2. you demonstrate pre-procedure requirements
- 13.3. you perform all procedural steps in a logical order
- 13.4. you position the patient correctly
- 13.5. you employ appropriate exposure parameters
- 13.6. you follow safety procedures
- 13.7. your explanation presents sound reasoning as you describe the decisions you make throughout the process
- 13.8. you adapt to non-routine and trauma situations
- 13.9. you adapt procedure to pediatric, geriatric, cultural factors, and condition of patient
- 13.10. you explain post-procedure requirements

### **Learning Objectives**

- 13.a. Perform non-routine ER procedures
- 13.b. Select appropriate equipment and supplies for procedure
- 13.c. Demonstrate positioning for assigned procedure
- 13.d. Evaluate image for appropriate anatomical demonstration
- 13.e. Evaluate positioning of phantom and/or model
- 13.f. Evaluate proper radiographic demonstration of anatomy
- 13.g. Evaluate proper radiographic demonstration of anatomy
- 13.h. Demonstrate proper use of positioning aids
- 13.i. Explain pre and post procedure requirements
- 13.j. Apply anatomical nomenclature

## **14. Identify radiographically significant pelvic anatomy**

**Assessment Strategies**

14.1. Oral, written, graphic and/or skill assessment

**Criteria**

- 14.1. you locate and identify pertinent anatomy
- 14.2. you explain relationship and orientation to other anatomical structures
- 14.3. you identify normal and abnormal presentation

**Learning Objectives**

- 14.a. Identify all related bony structures of the proximal femur and pelvis
- 14.b. Explain the type/category of joints in the hip and pelvis
- 14.c. Locate related bony landmarks of the hip and pelvis
- 14.d. Describe exact location of the head and neck of the femur

**15. Evaluate radiographic pelvic image quality****Assessment Strategies**

15.1. Oral, written, graphic and/or skill assessment

**Criteria**

- 15.1. you determine if image shows accurate positioning
- 15.2. you determine if image reflects overall diagnostic quality
- 15.3. you determine if image includes pertinent anatomy

**Learning Objectives**

- 15.a. Describe factors that will indicate proper positioning for all basic and special projections of the proximal hip and pelvis
- 15.b. Describe the corrective measures required for all suboptimal radiographic images of the hip and pelvis
- 15.c. Explain the importance of the angle in which the femoral neck lies