RADT-2630: POSITIONING TECHNIQUES FOR BREAST IMAGING

Cuyahoga Community College

Viewing: RADT-2630 : Positioning Techniques for Breast Imaging

Board of Trustees:
March 2023

Academic Term:
Fall 2023

Subject Code
RADT - Radiography

Course Number:
2630

Title:
Positioning Techniques for Breast Imaging

Catalog Description:
Provides a knowledge base of the various positioning techniques and projections used to perform screening and diagnostic mammography. Content consists of discussions about resolving imaging problems, selection of technical factors and national standards involved in breast imaging.

Credit Hour(s):
1

Lecture Hour(s):
1

Requisites

Prerequisite and Corequisite
Departmental approval: admission to Mammography program.

Outcomes

Course Outcome(s):
Demonstrate basic and special positioning protocols for an entry-level mammographer.

Essential Learning Outcome Mapping:
Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):

a. Demonstrate the craniocaudal (CC) and mediolateral oblique (MLO) projections, the two standardized mammographic projections for screening.
b. Describe screening and diagnostic positions/projections utilized to image the breast.
c. Describe breast-imaging techniques for breast implants.
d. Describe the critical role of breast compression.
e. Recognize key terms and phrases used in breast imaging mammography.
f. Maintain a professional, competent, confident and nonjudgmental attitude.

Course Outcome(s):
Recognize the need for changes in positioning and exposure techniques specific to the patient.

Essential Learning Outcome Mapping:

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):

a. Select proper exposure factors according to patient's breast composition and/or placement of an Automatic Exposure Control.
b. Identify common problems of poor positioning and make appropriate corrections.
c. Identify anatomical structures or pathological findings.
d. Modify positions/projections for the physically nonconforming patient.
e. Identify supplemental positions/projections used for diagnostic mammography.
f. Describe the positioning technique for specimen imaging.

Course Outcome(s):

Discuss implemented national standards involving breast imaging.

Essential Learning Outcome Mapping:

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):

a. Identify FDA regulations regarding image identification; record and report results.
b. Explain the basic American College of Radiology and Mammography Quality Standards Act guidelines required for all mammograms.

Course Outcome(s):

Describe a good quality diagnostic image.

Essential Learning Outcome Mapping:

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):

a. Evaluate resulting mammogram image quality for good diagnostic interpretation.

Methods of Evaluation:

a. Participation and discussion
b. Observation
c. Written assignments
d. Case studies
e. Exams
f. Quizzes
g. Other methods deemed appropriate by department

Course Content Outline:

a. Screening Mammography (purpose, anatomical structures demonstrated, part position [x-ray tube assembly and image receptor] and patient position)
    i. Craniocaudal (CC) projection
    ii. Mediolateral oblique (MLO) projection
    iii. DBT acquired craniocaudal projection
    iv. DBT acquired mediolateral oblique projection
b. Diagnostic and Additional Projections (purpose, anatomical structures demonstrated, part position [x-ray tube assembly and image receptor] and patient position)
    i. Exaggerated craniocaudal (XCCL, XCCM) projection
    ii. Ninety degree or true lateral position

1. Mediolateral (ML) projection
2. Lateromedial (LM) projection

iii. Spot compression positioning
iv. Cleavage (CV) projection
v. Tangential (TAN) projection
vi. Axillary tail (AT) projection
vii. Rolled positions (RL, RM, RS, RI)
viii. Superolateral to inferomedial oblique (SIO) projection
ix. Inferomedial to superolateral oblique (ISO) projection
x. Caudocranial (FB) projection
xi. Implant displaced (ID) positions (Eklund)
xii. Magnification (M) positions
xiii. Lateromedial oblique (LMO) projection
xiv. Other position modifiers
1. Nipple in profile
2. Anterior compression
3. Inframammary fold
4. Axillary tissue

xv. Triangulation
xvi. Patients requiring modification of positioning techniques
1. Males
2. Transgender patients
3. Kyphotic patients
4. Large breasts
5. Small breasts
6. Encapsulated implants
7. Pectus excavatum
8. Pectus carinatum
9. Protruding abdomens
10. Pacemaker
11. Wheelchair
12. Infuse-port (Port-A-Cath)
13. Physically disabled
14. Mentally disabled
15. Frozen shoulder
16. Barrel chest
17. Thick axilla
18. Irradiated breast
19. Reduction mammography
20. Postsurgical breast
21. Loop recorder

c. Evaluation of Images
i. Positioning
ii. Compression
iii. Exposure
iv. Contrast
v. Sharpness
vi. Noise
vii. Artifacts
viii. Motion
ix. Labeling
x. Collimation

d. Correct Image Labeling
i. Required
1. Two patient identifiers
2. View and laterality
3. Name, city, state and zip of facility

4. Performing technologist ID
5. Date of exam
6. Detector or room ID

ii. Strongly recommended
1. Street address of facility
2. Technical factors

e. Image Quality Problems
i. Nipple not in profile
ii. Skin fold or wrinkling
iii. Difficulty compressing due to patient body habitus
iv. Incorrect or uneven compression
v. Superimposition of extra anatomy
vi. Drooping of breast
vii. Motion
viii. Artifact

f. Examination Results
i. Mechanism of patient to receive results

g. Digital Breast Tomosynthesis
i. Views performed
1. Craniocaudal
2. Mediolateral oblique
3. Lateral
4. Tomo spot compression

ii. Slices and projections
1. Manipulation
2. Number of slices
3. Number of projections

iii. Recognizing artifact

Resources

American College of Radiology (ACR). *ACR Mammography Manual*, Reston, VA.

American Registry of Radiologic Technologists (ARRT). (Current) *Content Specifications for Mammography*, St. Paul, MN. https://www.arrt.org/docs/default-source/discipline-documents/mammography/mammography-content-specifications.pdf?sfvrsn=8a6303fc_8

American Society of Radiologic Technologists (ASRT). (Current) Mammography Curriculum. Albuquerque, NM. https://www.asrt.org/docs/default-source/educators/curriculum/mammography/2018-adopted-mammography-curriculum.pdf

Cardenosa, Gilda. (2017) *Breast Imaging Companion*, Philadelphia: Wolters-Kluwer.

Peart, Olive. (2022) *Lange Q and A: Mammography Examination*, New York: McGraw-Hill.

Resources Other

U. S. Department of Health and Human Services. *Quality Determinants of Mammography Clinical Practice Guidelines*

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