RADT-2610: INTRODUCTION TO MAMMOGRAPHY

Cuyahoga Community College

Viewing: RADT-2610 : Introduction to Mammography

Board of Trustees:
March 2023

Academic Term:
Fall 2023

Subject Code
RADT - Radiography

Course Number:
2610

Title:
Introduction to Mammography

Catalog Description:
Introduction to mammography. Topics include historical development, patient education, patient services and screening procedures, risk factors for breast cancer, medical history documentation and assessment.

Credit Hour(s):
1

Lecture Hour(s):
1

Requisites

Prerequisite and Corequisite
Departmental approval: admission to Mammography program.

Outcomes

Course Outcome(s):
Explore the historical development of mammography.

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. Describe the evolution of modern mammography from xeroradiography and analog to digital mammography.
b. Compare and contrast the differences between digital mammography and digital breast tomosynthesis (DBT).

Course Outcome(s):
Recognize the importance of participating in patient education.

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. Discuss the practice of clinical breast examination and breast self-examinations and current evidence-based data about them.
b. Provide patient with reasons and support for screening mammograms and early detection.
c. Identify and describe risk factors for breast cancer.

d. Discuss the screening mammography guideline controversy.
e. Provide patient with information regarding the benefits and risks of DBT over traditional mammography.

Course Outcome(s):

Discuss elements of breast cancer screening protocols.

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. Recognize any outstanding physical characteristics and document them on the patient history sheet.
b. Document detailed patient personal and clinical histories and data.
c. Respond to patient questions; explain the procedure and the reasons for compression before proceeding with the mammogram.
d. Explain the DBT examination focusing on its ability to give more detail to dense breast tissue and further evaluate the breast.

Course Outcome(s):

Identify risk factors for breast cancer.

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 current epidemiology and risk factors for breast cancer.
b. Discuss physiological contributors associated with breast cancer.

Course Outcome(s):

Document medical history and assessment.

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. Use non-diagnostic descriptors to record findings and document observations arising from the breast assessment.
b. Recognize the technologist's role in the health care team.
c. Implement proper techniques and procedures for conducting a breast assessment.

Methods of Evaluation:

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

Course Content Outline:

a. Historical development of mammography
    i. Early mammography practices
    ii. Scientific advances in technology to include digital breast tomosynthesis
b. Breast cancer detection method

i. Screening mammograms
    1. ACS and ACR guidelines
ii. Diagnostic mammograms
    1. Clinical findings
    2. Recall from screening
iii. Clinical examinations
    1. Women aged 20 to 40 years, every 3 years
    2. Women older than 40 years, every year
iv. Breast self-examination
v. Digital breast tomosynthesis (DBT)
    1. Define DBT
    2. Advantages
    3. Disadvantages
    4. Radiation dose in DBT compared to traditional digital mammography

c. Patient services and procedures offered
i. Screening mammography
    1. Asymptomatic patients
    2. Self-referring
    3. Self-requesting
ii. Diagnostic mammography
    1. Clinical signs, symptoms or physical findings
    2. Abnormal or questionable screening mammogram
    3. History of breast cancer
iii. Digital breast tomosynthesis (DBT)
    1. Increased level of detail
    2. Provides more definitive diagnosis using 3-D approach
    3. Better cancer detection in dense breast tissue
    4. Reduction in false positive results

d. Risk factors associated with breast cancer
i. Gender
ii. Age
iii. Breast density and breast compression
iv. Personal history of breast cancer
v. Family history of breast cancer
vi. Personal history of female cancer
vii. Genetic predisposition
viii. Menses
    1. Early age at menarche
    2. Late age at menopause
ix. Parity
    1. Nulliparity
    2. Primiparity
x. Hormone replacement therapy
xi. Obesity
xii. Ethnicity
xiii. Risk assessment models

e. Medical history documentation
i. Gender
ii. Age
iii. Age at onset of menses
iv. Parity
    1. Nulliparity
    2. Multiparity
    3. Age at primiparity
v. Menstrual status
    1. Last menstrual cycle
    2. Age at menopause
    3. Hysterectomy
    4. Oophorectomy

vi. Medications
    1. Estrogen
    2. Progesterone
    3. Prolactin
    4. Steroids - males
    5. Estrogen inhibitors
vii. Breast tissue density
viii. Family or personal history of breast cancer
ix. Previous breast biopsies
    1. Surgical biopsy and pathologic results
    2. Core biopsy and pathologic results
    3. Cyst aspirations
x. Previous breast surgery
    1. Augmentation
    2. Reduction
    3. Lumpectomy
    4. Other
xi. History of breast trauma
xii. Physical symptoms
    1. Skin thickening
    2. Unusual lumps
    3. Dimpling or puckering
    4. Eczema, ulcers
    5. Nipple changes
xiii. Other
    1. Previous chest surgery (e.g. open heart)
    2. Port-a-caths, pacemakers, loop recorder, shunts
    3. Moles
    4. Accessory breast/nipple
    5. Unusual landmarks

f. Description of Examination
i. Explain procedure
    1. Pre-exam instruction
    2. Establish rapport
    3. Psychological and emotional support
    4. Address patient limitations
    5. Available language services (e.g. interpreters, translated documents)
ii. Explain compression
iii. Answer questions
    1. Typical patient dose
    2. Digital breast tomosynthesis
    3. Use of thyroid or gonadal shielding

g. Patient Education: breast self-examination (BSE)
i. Current recommendations (e.g. ACS)
ii. Target population
iii. Benefits
iv. Rationale for performing BSE
v. Possible reasons for not performing BSE
vi. When to do a BSE

h. Patients with special needs
i. Patients with physical or cognitive limitations
    1. Emotional support
    2. Alternative views
    3. Documentation
ii. Cultural barriers
iii. Morbidly obese patients
    1. Additional views (e.g. tiling)

Resources

American College of Radiology. ACR Mammography Manual.

American Registry of Radiologic Technologists (ARRT). (2018) Content specifications for Mammography. https://www.arrt.org/docs/default-source/discipline-documents/mammography/mammography-content-specifications.pdf?sfvrsn=8a6303fc_8

American Society of Radiologic Technologists. (2018) *Mammography Curriculum*, St. Paul, Minnesota. https://www.asrt.org/docs/default-source/educators/curriculum/mammography/2018-adopted-mammography-curriculum.pdf

---

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

Lille, Shelly L. Marshall, Wendy. (2019) *Mamographic Imaging-A practical guide*, Philadelphia: Wolters-Kluwer.

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

Peart, Olive. (2022) *Mammography and Imaging Prep: Program Review and Exam Prep*, New York: McGraw-Hill.

Top of page
Key: 3863