

Course Description

NMT2733C | Nuclear Medicine Methodology 3 | 2.00 credits

A continuation of Nuclear Medicine Procedures 2, students will learn the imaging parameters necessary to obtain images as well as the use of instrumentation necessary to produce the required images performed in a nuclear medicine department. Exposure to patient management during the procedures will also be addressed. Prerequisite(s): BSC2085/L, BSC2086/L, NMT1713C, NMT2723C; Corequisite(s): NMT2779C, NMT2824C

Course Competencies:

Competency 1: The student will be able to accurately describe all aspects of lymphoscintigraphy procedures performed in nuclear medicine by:

1. Utilizing breast lymphoscintigraphy; melanoma lymphoscintigraphy:
 - a. Instrumentation – detector system, data acquisition, data analysis, ancillary equipment, and computer processing
 - b. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry, and if applicable, pharmaceutical intervention
 - c. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age-specific considerations
 - d. Imaging Techniques - views performed and patient-detector orientation
 - e. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests
 - f. Anatomy and Pathophysiology

Competency 2: The student will be able to accurately describe all aspects of therapeutic procedures performed in nuclear medicine by:

2. Identifying and demonstrating palliative bone therapeutic procedures, thyroid ablation procedures, hyperthyroidism therapeutic procedures, and Hodgkin's lymphoma therapeutic procedures:
 - a. Instrumentation - detector system, data acquisition, data analysis, ancillary equipment, and computer processing
 - b. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry, and if applicable, pharmaceutical intervention
 - c. Patient Preparation, Monitoring, and Education – indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age-specific considerations
 - d. Imaging Techniques - views performed and patient-detector orientation
 - e. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests
 - f. Anatomy and Pathophysiology regulations

Competency 3: The student will accurately describe all aspects of tumor procedures performed in nuclear medicine by:

1. Utilizing I-131 whole body tumor imaging; sestamibi tumor imaging; PET or PET/CT tumor imaging; peptide receptor imaging:
 - a. Instrumentation - detector system, data acquisition, data analysis, ancillary equipment, and computer processing
 - b. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry, and if applicable, pharmaceutical intervention
 - c. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age-specific considerations
 - d. Imaging Techniques - views performed and patient-detector orientation
 - e. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests
 - f. Anatomy and Pathophysiology
2. Identifying and demonstrating abscess, infection, and inflammation imaging procedures

Competency 4: The student will be able to accurately describe all aspects of uncommon, less frequently performed nuclear medicine procedures by:

1. Identifying and assessing dacroscentigraphy and scintimammography:
 - a. Instrumentation – detector system, data acquisition, data analysis, ancillary equipment, and computer processing
 - b. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry, and if applicable, pharmaceutical intervention
 - c. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age-specific considerations
 - d. Imaging Techniques - views performed and patient-detector orientation
 - e. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests
 - f. Anatomy and Pathophysiology
2. Utilizing shunt imaging and heat-damaged red blood cell imaging:
 - a. Instrumentation- detector system, data acquisition, data analysis, ancillary equipment, and computer processing
 - b. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry, and if applicable, pharmaceutical intervention
 - c. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age-specific considerations
 - d. Imaging Techniques - views performed and patient-detector orientation
 - e. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests
 - f. Anatomy and Pathophysiology

Learning Outcomes:

- Communicate effectively using listening, speaking, reading, and writing skills
- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information