

Course Number and Title: NMT 101 Patient Care for the NMT

Campus Location:

Wilmington

Effective Date:

2022-51

Prerequisite:

MAT 162, BIO 100, SSC 100 or concurrent

Co-Requisites:

None

Course Credits and Hours:

2.00 credits

2.00 lecture hours/week

1.00 lab hours/week

Course Description:

This course introduces the basic concepts of patient care in the field of nuclear medicine and includes consideration of the physical and psychological needs of the patient and family. Emphasis is on routine and emergency patient care procedures, infection control procedures, and nuclear medicine techniques and procedures.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

Nuclear Medicine Program Policy Manual Allied Health/Science Department Program Student Policy Manual

Schedule Type:

Classroom Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Examine trends in modern healthcare and hospitals. (CCC 1; PGC 1, 6)
2. Interpret the role of healthcare providers and the need for effective communication. (CCC 1, 2, 3, 4; PGC 1, 3, 4, 6)
3. Demonstrate the principles of transferring and repositioning patients using appropriate equipment and safety techniques. (CCC 1, 3, 4; PGC 1, 6)
4. Identify issues encountered in general patient care. (CCC 1, 2; PGC 1, 6)
5. Prepare to interact with the terminally ill. (CCC 1, 2, 3; PGC 1, 3, 4, 6)
6. Explain the process and benefits of obtaining vital signs, and accurately collect and interpret vital signs in the healthcare setting. (CCC 1, 5, 6; PGC 1, 3, 6)
7. Point out the steps to maintain asepsis in patient care. (CCC 1, 5, 6; PGC 1, 4, 5, 6)
8. Explain infection control and its importance to the healthcare environment. (CCC 1, 6; PGC 1, 4, 5, 6)
9. Evaluate and discuss selected emergency situations encountered in the healthcare environment. (CCC 1, 2; PGC 1, 4, 5, 6)
10. Demonstrate cardiopulmonary resuscitation (CPR) at the healthcare provider level. (CCC 1, 3; PGC 1, 4, 5, 6)
11. Explain and identify the selected groups of drugs commonly encountered in patient care. (CCC 1, 5; PGC 1, 3, 5)
12. Demonstrate procedures associated with venipuncture and injection techniques. (CCC 1, 3, 4; PGC 1, 4, 5, 6)
13. Explain chemical hygiene, right to know, and fire safety in the healthcare environment. (CCC 1, 6; PGC 1, 4, 6)
14. Interpret the limiting and measuring of radiation exposure in nuclear medicine. (CCC 1, 6; PGC 1, 3, 4, 5, 6)
15. Explain common imaging procedures and radiopharmaceuticals used in nuclear medicine. (CCC 1, 6; PGC 1, 3, 4, 5, 6)
16. Identify contrast materials and their properties as used in imaging procedures such as positron emission tomography/computed tomography (PET/CT). (CCC 1, 6; PGC 1, 3, 4, 5)
17. Explain the Picture Archiving and Communication System (PACS) and radiology information systems (RIS). (PGC 1, 2, 3)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Examine trends in modern healthcare and hospitals.
 1. Identify at least two current trends in modern healthcare.
 2. Describe the main function of at least three types of acute care hospitals.
 3. Explain the main functions of four general classifications of hospital departments.
 4. Identify at least six areas of specialty and the type of service they provide.
 5. Explain one purpose of accreditation.
2. Interpret the role of healthcare providers and the need for effective communication.

1. Discuss the responsibilities of the healthcare facility, the healthcare department with respect to caring for the ill and trauma patients, promoting health, preventing disease, education, and research.
 2. Describe the appropriate methods for verifying patient identification.
 3. Demonstrate the appropriate methods of greeting a patient.
 4. Describe the sections of the medical and electronic charts, and explain the information contained in each.
 1. Automated patient scheduling
 2. Automated prescription generation
 3. Other healthcare clinical functions
 5. Discuss system wide networks.
 1. Identify and discuss Power Chart, Isite, and hospital information system (HIS).
 6. Explain the importance and characteristics of the helping interview.
 7. Outline the purpose and content of the Patient's Bill of Rights.
 8. Identify and practice effective communication skills in various simulated patient scenarios.
 9. Discuss the Health Insurance Portability and Accountability Act (HIPAA), including disclosure procedures, patient rights, security standards, and other aspects.
 10. Explain medical records privacy and ethical issues related to patient information and the use of data encryption tools, digital signatures, and other user authentication methods to protect medical records privacy.
 1. Define data quality control tools and system protection from viruses and spyware.
 11. Explain why it is important for a healthcare provider to have an understanding of cultural diversity.
 12. Describe and employ the basic characteristics of professional behaviors.
 13. Demonstrate professional and ethical behaviors as they relate to social networking.
3. Demonstrate the principles of transferring and repositioning patients using appropriate equipment and safety techniques.
 1. Describe and demonstrate good principles of body mechanics applicable to patient care.
 2. Demonstrate techniques for these various types of patient transfers: wheelchair to table/table to wheelchair, stretcher to table/table to stretcher, ceiling mounted lift, air transfer mattress, and slide board.
 3. Describe and demonstrate the mechanics and safety procedures for turning and positioning patients who have conditions such as severe trauma, unconsciousness, disorientation, and amputation.
 4. Identify issues encountered in general patient care.
 1. Demonstrate restraint techniques for various types of procedures for trauma patients, pediatric patients, geriatric patients, and patients with a disability.
 2. Indicate the administration of parenteral fluids in terms of methods (i.e., subcutaneous, intramuscular, intravenous, and intrathecal), and explain the purpose and considerations of each.
 3. Describe the support, warmth, and privacy aspects of patient comfort, and discuss the importance of each to the care and safety of the patient.
 4. Given specific patient situations, discuss various aspects of general patient care, including trauma, pediatrics, geriatrics, and physical and/or emotional disability.
 5. Given specific patient situations and conditions, discuss specific aspects of general patient care with regard to the following: tubes/catheters (nasogastric, chest, urinary, central and peripheral intravenous infusion pump, oxygen, and central lines), surgical, cardiac, unconsciousness, and disorientation.
 6. Indicate specific procedures for assuring security of property of inpatients and outpatients.
 7. Identify the following items used in nuclear medicine departments, and explain their use: bed pan, fracture bed pan, emesis basin, wash basin, and urinal.
 8. Describe and demonstrate techniques and procedures for changing and disposing of soiled radioactive linens and for using and disposing of radioactive bed pans and urinals.
 5. Prepare to interact with the terminally ill.
 1. Discuss the ethical, personal, and physical aspects of death, including suicide, euthanasia, religion, culture, pain, suffering, disability, and deterioration.
 2. List the stages of dying (rejection, denial, anger, bargaining, and acceptance), and describe the characteristics of each stage.
 3. Identify the support mechanisms available to the terminally ill: family and friends, pastoral care, patient-to-patient service groups, psychological support groups, hospice, and health professionals.
 6. Explain the process and benefits of obtaining vital signs, and accurately collect and interpret vital signs in the healthcare setting.
 1. Explain temperature, pulse, respiration, and blood pressure, and discuss the significance of each in the assessment of a patient's condition.
 2. Explain the physiological principles related to temperature, pulse respiration, and blood pressure.
 3. Identify normal values for clinical measurement of temperature, pulse, respiration, and blood pressure.
 4. Discuss the use and maintenance of equipment used for measuring vital signs.
 5. Given a simulated patient, measure and record each of the vital signs.
 7. Point out the steps to maintain asepsis in patient care.
 1. Review each of the following: asepsis, antiseptic/disinfectant, sterile/clean, sterile area/contaminated area, and endogenous infections/exogenous infections.
 2. List some common antiseptics.
 3. Explain methods of sterilization such as autoclave, dry heat, chemical, and gas.
 4. Discuss and demonstrate the following procedures: scrubbing, proper gowning and donning of gloves, handling of instruments (including those contaminated with radioactivity), and maintenance of a sterile area.
 5. Explain the principles of wound care.
 8. Explain infection control and its importance to the healthcare environment.
 1. Define infectious pathogens, communicable diseases, nosocomial infections, Centers for Disease Control and Prevention (CDC), human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis B virus (HCV), and tuberculosis.
 2. Describe and demonstrate the use of universal precautions for blood, body fluids, and secretions and isolation procedures for airborne particles and contact precautions.
 3. Describe infectious sources such as bacteria and viruses and transmission modes for transmission of infections and diseases such as airborne, direct contact, indirect contact, and disease prevention.
 4. Describe the Occupational Safety and Health Act (OSHA) procedures for infection control through universal precautions.

5. Discuss psychological considerations for the management of patients using universal precautions.
9. Evaluate and identify selected emergency situations encountered in the healthcare environment.
 1. Identify signs and symptoms and acute care procedures which are manifested in the following emergencies: cardiac arrest, anaphylactic shock, convulsion/seizure, hemorrhage, apnea, vomiting, aspiration, suspected/confirmed fracture, and diabetic coma/insulin shock.
 2. Describe the emergency medical code system for the institution, and discuss the role of the student in this procedure.
 3. Discuss the use of medical emergency equipment and supplies such as oxygen, a resuscitator, medication, and an emergency cart.
 4. Demonstrate the setup of emergency equipment, including oxygen and suction.
 5. Given simulations, demonstrate basic first aid techniques.
10. Demonstrate cardiopulmonary resuscitation (CPR) at the healthcare provider level.
 1. Successfully complete a CPR course at the healthcare provider level.
11. Explain, discuss and identify the selected groups of drugs commonly encountered in patient care.
 1. For each of the following drug groups, break down the characteristics of the drugs, usage, side effects, cautions, and interactions: analgesics, antipsychotic/antiemetic, antianxiety drugs, antidepressants, psychomotor stimulants, antiarrhythmic drugs, antianginal agents, diuretics, antihypertensive agents, anticoagulants and coagulants, antiallergic/antihistamine drugs, bronchodilator drugs, antiulcer therapy, adrenal steroids, gonadal hormones and oral contraceptives, antibacterial agents, antiprotozoal agents, and antiseptics and disinfectants.
12. Demonstrate procedures associated with venipuncture and injection techniques.
 1. Match proper patient identification, lab slips, and chart orders.
 2. Identify the different size needles, syringes, butterflies, and Jelco catheters.
 3. Describe hospital policy concerning quality control (QC) in dealing with needles and syringes.
 4. Use appropriate medical terminology associated with intravenous (IV) injections.
 5. Correctly identify the proper handling and disposal of radioactive needles and syringes.
 6. Use appropriate nuclear medicine terminology, including lead pig, syringe shield, "hot" trash, and "hot" sharps.
13. Explain chemical hygiene, right to know, and fire safety in the healthcare environment.
 1. Interpret the Right-to-Know law.
 2. Discuss the employee's or the student's rights and obligations.
 3. Identify a workplace chemical list.
 4. Translate labels and material safety data sheets (MSDS).
 5. Identify physical and health hazards of chemicals.
 6. Demonstrate proper handling, storage, and disposal practices.
 7. Practice protective measures including those needed for radioactive contamination/spills.
 8. Apply first aid procedures, including those needed for radioactive contamination/spills.
 9. Apply emergency procedures, including those needed for radioactive contamination/spills.
14. Summarize the limiting and measuring of radiation exposure in nuclear medicine.
 1. Explain limiting and measuring terms used, including as low as reasonably achievable (ALARA), application of the inverse square law, time, distance and shielding, Geiger-Muller counter (GM counter), well counter, dose calibrator, and the cutie pie.
15. Explain common imaging procedures and radiopharmaceuticals used in nuclear medicine.
 1. Outline procedures and radiopharmaceuticals used, including myocardial perfusion imaging (MPI), multigated acquisition scan (MUGA), ventilation/perfusion scan (VQ), bone scan, positron emission tomography (PET), gastrointestinal (GI) bleeding scan, technetium, choletec, methylenediphosphanate (MDP), 18F-2-fluoro-2-deoxy-D-glucose (FDG), and UltraTag.
16. Identify contrast materials and their properties as used in imaging procedures such as positron emission tomography/computed tomography (PET/CT).
 1. Recognize materials and properties for intravenous contrast agents, oral contrast agents, and intrathecal contrast agents.
17. Explain the Picture Archiving and Communication System (PACS) and Radiology Information Systems (RIS).
 1. Describe the configuration, function, and application of picture archiving and communication system (PAC).
 2. List the types of PAC system interfaces.
 3. Describe the function of the digital imaging and communications in medicine (DICOM).
 4. Identify the equipment needed to have a centralized network and server.
 5. Explain the operation of a work station.
 6. Explain the purpose of patient documentation in reference to HIPAA and release of acquired patient studies.
 7. Define and explain *telerradiography*.
 8. Discuss the archiving protocols for patient images and information.

Evaluation Criteria/Policies:

The grade will be determined using the Delaware Tech grading system:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
0	-	69	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Integrate principles of theoretical knowledge and demonstrate entry-level skills pertaining to nuclear medicine in-vivo and in-vitro procedures, radiation safety, quality control, quality assurance, NRC regulations, patient care, radiopharmaceutical preparation and administration, instrumentation and medical informatics.
2. Exhibit verbal, nonverbal, and written communication skills during patient care, research, and professional scope of practice.
3. Competently perform all in-vivo and in-vitro procedures.
4. Abide by the profession's code of ethics as stated in the American Registry of Radiologic Technologists (ARRT) and Nuclear Medicine Technology Certification Boards (NMTCB).
5. Exhibit critical thinking and problem solving skills during the practice of nuclear medicine.
6. Perform all entry-level procedural computer analysis.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.