

DMS-1311: INITIAL SONOGRAPHIC SCANNING

Cuyahoga Community College

Viewing: DMS-1311 : Initial Sonographic Scanning

Board of Trustees:

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Academic Term:

Fall 2020

Subject Code

DMS - Diagnostic Medical Sonography

Course Number:

1311

Title:

Initial Sonographic Scanning

Catalog Description:

Application of transducer manipulations, instrumentation controls, body mechanics, sonographic scanning techniques, interpersonal communication, recognition of anatomic structures, and practice of patient care skills in laboratory setting under personal supervision of Registered Diagnostic Medical Sonographer.

Credit Hour(s):

2

Lecture Hour(s):

0

Lab Hour(s):

6

Requisites

Prerequisite and Corequisite

Concurrent enrollment in DMS-1401 Abdominal Sonography I and DMS-1500 Gynecologic and Obstetrical Sonography; or DMS-1602 Echocardiography I, or DMS-1701 Vascular Sonography I, or departmental approval: admission to Diagnostic Medical Sonography program.

Outcomes

Course Outcome(s):

Act as a professional in carrying out the functions of a sonographer.

Objective(s):

1. Exhibit proper communication skills with diverse populations in the laboratory environment.
2. Seek to assist and cooperate when opportunity arises.
3. Display an ethic that is considerate to peers.
4. Demonstrate professionalism in the laboratory environment.

Course Outcome(s):

Recognizes the importance of the patient.

Objective(s):

1. Adhere to infectious control policies and standard precautions.
 2. Engage in clear effective communication with diverse populations.
 3. Apply patient care and standard precautions.
 4. Respect and protect the confidentiality of acquired patient information and patient rights.
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Course Outcome(s):

Performs basic level technical functions within the scope of practice of a Sonographer.

Objective(s):

1. Apply knowledge of physics and instrumentation.
 2. Perform sonographic imaging of anatomic structures according to the program protocols.
 3. Recognize and identify the normal and abnormal sonographic appearance of anatomic structures.
 4. Demonstrate ability to manipulate probe and equipment to optimize the sonographic image.
 5. Identify and produce quality examinations by using appropriate equipment while maintaining safety.
 6. Demonstrate continuous improvement in skills and behaviors.
 7. Follow principles of good body mechanics and ergonomics.
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Methods of Evaluation:

1. Oral quizzes
2. Homework assignments
3. Lab competency exams
4. Portfolio
5. Image/anatomy identification

Course Content Outline:

1. Concepts
 - a. Exam specific protocols
 - i. Abdomen-according to the American Institute of Ultrasound in Medicine (AIUM) clinical guidelines
 1. Aorta
 2. Kidneys
 3. Liver
 4. Gallbladder
 5. Pancreas
 - ii. Cardiac according to American Society of Echocardiography (ASE) guidelines and standards
 1. Parasternal views
 2. Apical views
 3. Subcostal views
 4. Suprasternal
 - iii. Vascular according to Society for Vascular Ultrasound (SVU) positions and guidelines
 1. Arterial lower extremities
 2. Arterial upper extremities
 3. Arterial physiological testing
 4. Carotids
 - b. Lab policies
 - c. Scan planes
 - d. Image orientation
 - e. Basic ultrasound physics
 - f. Patient preparation
 - g. Lab preparation
 - h. Cooperation
 - i. Quality
 - j. Scope of practice
 - k. Professionalism
 - l. Ergonomics
 - m. Infections control policies
 - n. Communication techniques
2. Skills
 - a. Working as part of a team in the lab setting
 - b. Annotate exams properly
 - c. Performing a technical scan of:

- i. Abdomen-according to AIUM clinical guidelines
 - 1. Aorta
 - 2. Kidneys
 - 3. Liver
 - 4. Gallbladder
 - 5. Pancreas
- ii. Cardiac according to ASE guidelines and standards
 - 1. Chambers
 - 2. Valves
 - 3. Blood flow
- iii. Vascular according to SVU positions and guidelines
 - 1. Arterial lower extremities
 - 2. Arterial upper extremities
 - 3. Arterial physiological testing
 - 4. Carotids
- d. Taking appropriate safety precautions in the lab environment
- e. Continue to demonstrate patient care skills previously taught
- f. Communicating to a diverse population
- g. Preparing a clean lab for the procedure
- h. Using proper body mechanics while scanning and positioning patients
- i. Using ergonomic features of the equipment to your benefit
- j. Preparing the exam room and quipment for the exam
- k. Measuring structures according to protocol:
 - i. Abdomen-according to AIUM Clinical Guidelines
 - 1. Aorta
 - 2. Kidneys
 - 3. Liver
 - 4. Gallbladder
 - 5. Pancreas
 - ii. Cardiac according to ASE guidelines and standards
 - 1. Chambers
 - 2. Valves
 - 3. Blood flow
 - 4. Vessels
 - iii. Vascular according to SVU positions and guidelines
 - 1. Lower extremity arterial vasculature
 - 2. Upper extremity arterial vasculature
 - 3. Arterial physiological testing waveforms
 - 4. Carotid arteries
- l. Manipulating equipment controls for a quality exam
- m. Selecting the proper equipment to perform a procedure.
- 3. Issues
 - a. Ethics
 - b. Legal
 - c. Standards of practice
 - d. Diversity
 - e. Standard precautions
 - f. Safety
 - g. Quality
 - h. Scope of practice
 - i. Practice
 - j. Ergonomics
 - k. Body habitus
 - l. Retention of learned knowledge and skills

Topical Outline

- 1. Scan lab policies
 - a. Safety precautions
 - b. Exam protocols

- c. Standard precautions
- d. Professionalism/Teamwork in the lab environment
- 2. Image labeling and annotation
 - a. Proper format
 - b. Abbreviations
 - c. Scanning planes
- 3. Exam protocol
 - a. Abdomen-according to AIUM Clinical Guidelines
 - i. Aorta
 - ii. Kidneys
 - iii. Liver
 - iv. Gallbladder
 - v. Pancreas
 - b. Adult cardiac views according to ASE guidelines and standards for 2D imaging and color doppler
 - c. Vascular according to SVU positions and guidelines
 - i. Arterial lower extremities
 - ii. Arterial upper extremities
 - iii. Arterial physiological testing waveforms
 - iv. Carotid arteries
- 4. Ultrasound lab equipment
 - a. Instrumentation controls and effects
 - b. Measurement and reporting capabilities
 - c. Recording capabilities
 - d. Care and maintenance
 - e. Quality control
- 5. Transducer
 - a. Purpose
 - b. Selection criteria
 - i. Patient type
 - ii. Procedure
- 6. Body mechanics
 - a. Ergonomic techniques
 - b. Ergonomic devices

Resources

Otto, Catherine. *Textbook of Clinical Echocardiography*. 6th ed. Philadelphia: Elsevier, 2018.

Curry, Reva Arnez, and Betty Bates Tempkin. *Sonography: Introduction to Normal Structure and Function*. 4th ed. St.Louis: Elsevier, 2015.

Rumwell, Claudia, and Michalene McPharlin. *Vascular Technology: An Illustrated Review*. 5th ed. Pasadena: Appleton Davies, 2014.

Sanders, Roger C. and Thomas C. Winter III, eds. *Clinical Sonography: A Practical Guide*. 5th ed. Philadelphia: Lippincott Williams & Wilkins, 2015.

Tempkin, Betty B. *Ultrasound Scanning: Principles and Protocols*. 4th ed. Philadelphia: W. B. Saunders, 2014.

Daigle, Robert J. *Techniques in Noninvasive Vascular Diagnosis: An Encyclopedia of Vascular Testing*. 4th ed. Littleton, Co: Summer, 2014.

Hagen-Ansert, Sandra L. *Textbook of Diagnostic Ultrasonography*. 8th ed. 2 Volumes. St. Louis: Mosby, 2017.

Harry, Mark J. *Essentials of Echocardiography and Cardiac Hemodynamics: An Illustrative Guide*. 4th ed. Cardiac Ultrasound Consulting, 2014.

Strandness, D. Eugene Jr. *Duplex Scanning in Vascular Disorders*. 5th ed. Philadelphia: Lippincott Williams & Wilkins, 2015.

Curry, Reva Arnez and Betty Bates Tempkin. *Workbook and Lab Manual for Sonography: Introduction to Normal Structure and Function*. 4th ed. St. Louis: Saunders, 2017.

Top of page

Key: 1432