ADVANCED HEALTH EDUCATION CENTER®

EDUCATION ▲ STAFFING ▲ CONSULTING

Carotid Duplex Ultrasound Course

2024

16 AMA PRA Category 1

Carotid Duplex Ultrasound

Faculty: Shawn Shanmuganathan BS, RDMS, RVT

Welcome to Advanced Health Education Center

As the Senior Vice President, I would like to thank you for choosing Advanced Health Education Center's (AHEC) for your Ultrasound training course. The faculty, staff, and fellow students join me in welcoming you. We will make reasonable efforts to ensure that your time with us is enjoyable as well as educational. These courses are designed to help you develop the skills and acquire the information necessary to perform at a high level of competency in sonography. There are various areas in which you will be evaluated during the course to ensure your learning and success.

AHEC has been a leading provider of continuing education for healthcare professionals in imaging sciences since 1988. Our mission is to provide you with evidence-based education and training that will increase your knowledge, enhance your competency, and improve patient care. Since receiving ACCME Accreditation in 1998, we have assisted in the development of ultrasound skills for physicians, sonographers, nurses, midwives and other healthcare professionals.

The registration packet is designed to provide students with general information regarding AHEC, course information, CME credit, and disclosure of relevant financial interest. We wish you well in your professional advancements and are here to assist you in pursing your educational goals. Please contact us if we can be of further assistance to you at 1-800-239-1361.

Congratulations and good luck pursuing your professional goals!

Best,

Kelli Reddix, MBA, BAAS, LVN
Senior Vice President
Phone 1-800-239-1361 • 8502 Tybor, Houston, Tx, 77074

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Course Overview

Event Location: Advanced Health Education Center
8502 Tybor Drive
Houston, Texas, 77074
Credit: 16 AMA PRA Category 1™
Time: 8:00 am – 5:00 pm
Instructor: Shawn Shanmuganathan BS, RDMS, RVT

Course Description:

Vascular ultrasound has progressed over the years to become much more than a screening tool. From its early beginnings of grainy black and white two-dimensional images, to the addition of Doppler and color flow, it has become the modality of choice for early detection of peripheral arterial, cerebrovascular, and venous disease. For the detection of DVT and venous reflux, duplex testing is now the gold standard other modalities are compared to. Accurate diagnostic testing of the vascular system requires a comprehensive understanding of anatomy and hemodynamics as well as the various pathological conditions that can present. Multiple variables such as cardiac output, dehydration, and infection can all have an impact on the vascular system.

This two-day seminar provides an overview of physics and instrumentation, anatomy and hemodynamics, and diagnostic criteria suitable for anyone from an experienced sonographer to the beginner. For the physician wanting a more thorough understanding of the capabilities and potential of the vascular lab, along with interpretative criteria, our extensive library of case studies will prove invaluable. Our scan lab and state of the art equipment, along with our low student instructor ratios allow you plenty of time to perfect your protocol, and acquire the scanning experience necessary to perform diagnostic vascular exams.

Faculty: Shawn Shanmuganathan - No relevant financial relationships to disclose.

Course Objectives:

At the completion of this course, the learner will be able to:

- Correctly identify vessel anatomy and orientation in a vascular ultrasound examination.
- Identify the variations in instrumentation and Doppler principles and the effects in scanning parameters.
- Describe the flow characteristics and the manifestations of disease processes.
- Discuss QA of the procedure and equipment.
- Analyze the results of a vascular exam for pathological conditions and in certain cases, quantify the diseases.
- Identify additional resource information on vascular ultrasound.

Course Topics:

- Overview of the physical principles of ultrasound including Doppler and color flow
- Comprehensive review of the ultrasound platform controls enabling you to optimize your system for even the most difficult patient
- Carotid duplex testing including: anatomy, hemodynamics, diagnostic criteria, case studies, reporting
- Case studies, pearls and pitfalls, and standardized reporting
- Hands-on scan lab

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Course Schedule

Lecture 8am-12 noon | Lunch 12-1pm | Scan Lab 1pm-5pm

Day 1 Lecture

- Physics and Instrumentation
- Normal Anatomy and Hemodynamics
- Scan Protocol
- Quality Assurance
- Carotid Arterial Disease
- Case Studies

Scan Lab

Day 2 Lecture - Carotid

- Basic Anatomy of the Carotid Arteries
- Carotid Anatomy, Physiology, and Hemodynamics
- Doppler: Color, Spectral, Morphology, Physiology, and Quantification

Scan Lab

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Skills Checklist

Two Dimensional / Gray Scale

The student should acquire the image and identify the following structures under real time sonography in all standard views:

- ☐ Lateral and Posterior Lateral
- ☐ Longitudinal and Transverse Views

Left and Right Arterial Images:

- ☐ Proximal Common Carotid Artery
- ☐ Mid Common Carotid Artery
- ☐ Distal Common Carotid Artery
- ☐ Bulb
- ☐ Bifurcation
- ☐ Proximal Internal Carotid Artery
- ☐ Mid Internal Carotid Artery
- ☐ Distal Internal Carotid Artery
- ☐ Proximal External Carotid Artery
- ☐ Mid External Carotid Artery
- ☐ Distal External Carotid Artery
- ☐ Vertebral Artery

Other Structures on Left and Right:

- ☐ Thyroid
- ☐ Jugular Vein
- ☐ Subclavian Artery
- ☐ Brachiocephalic Trunk
- ☐ External Branches

Color Doppler

The student should apply Color Doppler to evaluate the following structures:

- ☐ Left and Right Common Carotid Artery
- ☐ Left and Right Internal Carotid Artery
- ☐ Left and Right External Carotid Artery
- ☐ Left and Right Vertebral Artery
- ☐ The student should be able o optimize the Color Doppler parameters for low, medium, and high flow status of all arteries with the following options:
- ☐ Scale
- ☐ Pulse Repetition Frequency (PRF)
- ☐ Nyquist Limit
- ☐ Baseline
- ☐ Electronic Steering
- ☐ Color Doppler Gain
- ☐ Filter
- ☐ Angle Correct

Spectral Doppler Analysis

The student should acquire a stable window to apply angle-corrected pulsed wave interrogation through the following vessel segments:

- ☐ Left and Right
- ☐ Proximal, Mid and Distal Common Carotid Artery
- ☐ Proximal, Mid and Distal Internal Carotid Artery
- ☐ Proximal, Mid and Distal External Carotid Artery
- ☐ Vertebral Artery

Measurements Documented

- ☐ Peak Systolic Velocity (PSV)
- ☐ End Diastolic Velocity (EDV)
- ☐ ICA / CCA Ratio, Systole ≤ 1.8
- ☐ ICA / CCA Ratio, Diastole ≤ 2.6
- ☐ % Stenosis by area circumference

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CME Credit:

- "The Advanced Health Education Center is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians."
- "The Advanced Health Education Center designates this educational activity for a maximum of 16 hours AMA PRA Category I™. Physician should claim credit commensurate with the extent of their participation in the activity."

AHEC Cancellation and Refund Policy for Skills Courses:

AHEC defines a skills course as a limited enrollment course where a received registration with payment reserves your place in a course (i.e. all Ultrasound courses, Mammography Initial Training and other theory courses). For cancellations received at least two weeks prior to the course date, a refund less a 30% processing fee will be given. Within two weeks of the course, no refund is given, but a tuition credit – less a 30% processing fee – may be applied to a future course. No refunds or tuition credit is given for non-attendance. Facilities may substitute employees by notification to AHEC at least one week in advance.

Disclosure of Relevant Financial Interest for Individuals in Control of Content:

As a provider accredited by the ACCME, Advanced Health Education Center, Ltd ensures balance, independence, objectivity, and scientific rigor in all of its sponsored educational activities.

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  - No relevant financial interest to disclose
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  - AHEC: Chief Executive Officer (CEO)
  - No relevant financial interest to disclose

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- Peggy Hoosier, M.Ed RT(R)(M) - Program Director
  - AHEC: Chief Operating Officer (COO)
  - No relevant financial interest to disclose
- Kelli Reddix, MBA, BAAS, LVN - Planning Committee
  - AHEC: Senior Vice President
  - No relevant financial interest to disclose
- Nanette Joiner
  - AHEC: Administrative Support
  - No relevant financial interest to disclose
- Debbie Robertson, BS, RDMS
  - Ultrasound Faculty
  - No relevant financial interest to disclose
- Virlene Guzman, RT(R), RDMS, RVT
  - Ultrasound Faculty
  - No relevant financial interest to disclose
- Shawn Shanmuganathan, BS, RDMS, RVT
  - Ultrasound Faculty
  - No relevant financial interest to disclose

Content Validation:

All presentations designated for AMA PRA Category 1™ are reviewed and approved by members of the curriculum committee for content validity, and to ensure that no conflicts of interest exist prior to the advertisement and delivery of the educational activity.

The faculty and staff at AHEC welcome you!