NEEDS ASSESSMENT
Whereas ultrasound in the diagnosis and treatment of thyroid and parathyroid disorders encompasses new knowledge and technology that was not available in most formal training programs for endocrinologists, the American Association of Clinical Endocrinologists has undertaken responsibility of training and certifying endocrinologists, endocrine surgeons, otolaryngologists / head and neck surgeons, pathologists and radiologists in these new procedures. The target audience for this course is clinical endocrinologists, endocrine surgeons, ENT / head and neck surgeons, pathologists and radiologists and their physician extenders.

COURSE OBJECTIVE
Upon completion of this course, one will understand the indications and limitations of thyroid ultrasound and how it integrates with other thyroid tests (FNAB, and Tg) to improve the diagnosis and management of thyroid disease. "Hands-on" ultrasound and ultrasound guided FNA biopsy will be demonstrated and practiced by the attendees using phantoms.

Day 1

7:00-7:30 a.m.  Registration and Breakfast
7:30-8:00 a.m.  Defining the Anatomy of the Neck

Objective:
1. Learn the anatomy of the neck
2. Identify the important landmarks (trachea, muscles, and vessels)
3. Understand the surgical components of the neck
4. Begin to recognize basic ultrasound characteristics such as echogenicity.

8:00-9:00 a.m.  The History and Physics of Ultrasound

Objectives:
1. Understand the advances of ultrasound over the past 20 years (gray-scale and real-time imaging, linear an curvilinear transducers) and how these help in thyroid imaging.
2. Compare and contrast thyroid ultrasound with other thyroid imaging methods.
3. Understand the contrast between the clinician doing the ultrasound vs. a sonographer or radiologist.
4. Understand the principles of ultrasound production; how an ultrasound image is produced; sonographic interpretation of the ultrasound image, including basic terminology; gray scale characteristics of normal and abnormal structures; the operation of an ultrasound system; and differences in ultrasound technology.

9:00 -9:50 a.m.  Ultrasound Pathology

Objectives
1. Understand the various ultrasound patterns seen in autoimmune thyroiditis
2. Recognize the ultrasound appearance of common pathologic thyroid abnormalities
3. Describe the ultrasound appearance of the various causes of goiter.
9:50-10:05 a.m. Break

10:05-11:05 a.m. Evaluation and Analysis of Thyroid Nodules

Objective:
1. Learn to identify and measure thyroid nodules
2. Recognize ultrasound characteristics of benign and malignant nodules that have predictive value in deciding treatment
3. Understand the current guidelines for biopsy of nodules.

11:05 a.m.-11:45 a.m. Color Flow and Power Doppler

Objectives:
1. Understand the principles of Doppler shift of sound waves and how motion is demonstrated on ultrasound images.
2. Recognize the utility of color Doppler, power Doppler, and spectral analysis in the differential diagnosis of thyroid nodules.
3. Understand the utility of Doppler analysis in differentiating the subtypes of Amiodarone thyrotoxicosis.
4. Recognize the role of Doppler imaging in image clarification

11:45 a.m.—12:30 p.m. Informed Consent, Report and Coding

Objectives:
1. Understand the various codes used to bill for thyroid ultrasound and biopsy, as well as the appropriate use of modifiers.
2. Recognize the elements needed for a comprehensive ultrasound report.
3. Be able to design an appropriate informed consent document for thyroid biopsy.

12:30-1:10 p.m. Lunch

1:15-5:15 p.m. Laboratory 1

Objectives:
1. Perform a proper thyroid ultrasound exam according to standardized AIUM/AACE Protocol.
2. Address proper mechanics of ultrasound imaging techniques.
3. Correlate ultrasound physics principles with sonographic image creation.
4. Recognize normal anatomic architecture of the neck from suspected pathologic structures.
5. Describe tissue characteristics sonographically.
6. Identify the components of an ultrasound exam.

5:15 p.m. Adjourn
Day 2

7:00-7:30 a.m.  Continental Breakfast

7:30-8:40 a.m.  Use of Ultrasound in the Surveillance of Thyroid Cancer

Objectives:
1. Understand the use of thyroid ultrasound in the follow up of patients with thyroid carcinoma.
2. Understand the difference between ultrasound and I-131 scanning regarding cost, morbidity, sensitivity and the effect of "stunning".
3. Learn to identify characteristics of benign and malignant lymph nodes

8:40-9:40 a.m.  Ultrasound Guided FNA Biopsy

Objective:
1. Review the indications for UGFNA Biopsy.
2. Understand the variety of techniques of performing the procedure.
3. Recognize the importance of good slide making techniques in presenting material for analysis

9:40-10:00 a.m.  Break

10:00-11:05 a.m.  Parathyroid Ultrasound

Objectives:
1. Recognize the ultrasound appearances and features of parathyroid adenomas.
2. Understand the anatomical variations in the location of parathyroid glands.
3. Define the role of US guided FNA biopsies with PTH estimation in syringe aspirates in the localization of parathyroid adenomas.

11:05-11:45 p.m.  Lunch

11:45-2:45 p.m.  Laboratory II

Objectives:
1. Learn how to properly prepare the probe for biopsy (clean vs. sterile technique).
2. Understand the spatial relationship of needle to probe in the performance of an Ultrasound-guided FNA biopsy in both the parallel and perpendicular approaches.
3. Review benign vs. malignant parameters in assessing a nodule for biopsy.
4. Discuss the various acceptable methods of biopsy technique including parallel approach, perpendicular approach; biopsy guide, curvi-linear probe.
5. Practice both the parallel and perpendicular approaches toward developing proficiency.