

Ultrasound is a widely dispersed imaging modality in the current health-care environment, encompassing various specialties such as radiology, cardiology, ob/gyn, vascular surgery, and emergency medicine. Reasons for this widespread use include: a) relatively low-cost, b) small, portable machines and c) the non-invasiveness of the procedure and general perception of minimal risk. All three reasons present challenges to the medical physicist tasked with implementing a quality control program. Nevertheless, the rationale for establishing a standard-of-care is important enough to overcome these perceptions. The ongoing and rapid evolution of US technology brings more complexity to these instruments; thus, quality control tests for US can provide benchmarks of performance that are increasingly important to government and private entities that reimburse for health care services.

This course will review the steps necessary to start an ultrasound quality control program, including a review of the appropriate tests and test objects (phantoms) that a part of such a program. The course will address the more critical aspects of ultrasound system performance that affect image quality. In addition, each test will be described in light of standards established by organizations with an interest in ultrasound quality control. In many cases, these organizations operate some accreditation program for ultrasound imaging facilities. These programs will be reviewed with respect to requirements for a medical physicist's contribution to the success of an accreditation application.

Learning Objectives:

1. Understand the beginning steps to implement a Quality Control program for ultrasound equipment
2. Know which tests are appropriate to assessing clinical image quality.
3. Know selection of test objects appropriate for these tests.
4. Knowing how to establish objective criteria and,
5. a basic introduction to accreditation bodies and standards for ultrasound QC.