Ultrasound Quality Control Frequently Asked Questions

The American College of Radiology recently published new QC requirements for their Ultrasound and Breast Ultrasound Accreditation Programs. Effective June 1, 2014, all accredited facilities or facilities applying for accreditation must comply with the minimum quality control tests and frequencies listed in the Program Requirements. The new requirements call for Acceptance Testing and Annual Surveys to be performed by a qualified medical physicist (or “appropriately trained personnel with ultrasound imaging equipment experience” who has been approved by the lead interpreting physician) as well as routine QC by appropriately trained sonographers or service engineers. On June 1, 2014, as part of the accreditation application, facilities must demonstrate compliance with the ACR requirements for QC by providing:

• Reports from the most recent ultrasound Annual Survey performed by the medical physicist or designee
• Documentation of corrective action (if the Annual Survey and/or QC data identified performance problems)

Please feel free to contact us at ultrasound-accred@acr.org or breastultrasound-accred@acr.org if you have questions about ultrasound or breast ultrasound accreditation.

General

Q. Why is ACR requiring that QC be conducted for ultrasound and breast ultrasound as part of their accreditation programs?

A. Both the Committees on Ultrasound and Breast Ultrasound Accreditation understand that QC is a vital part of quality imaging and patient safety. For many years, the ACR has alerted accredited facilities through the Program Requirements that “although the ACR will not initially use this [QC] information to determine whether a facility passes or fails accreditation, it may be used in the future to set criteria.” Since most facilities are performing QC as a result of the above notification, the committees decided that it was time to begin requiring QC as part of accreditation. Medical physicist and radiologist members of the 2 committees decided on the tests and frequencies to be performed, as well as who is responsible for their performance. In addition, the committees strongly recommended that QC be done under the supervision of a qualified medical physicist.

Q. Will not having Annual Surveys or routine QC prevent a facility from becoming accredited?

A. Yes. Effective June 1, 2014, the ACR will not grant accreditation if documentation of compliance with ACR QC requirements is not provided.

Q. If a facility is applying for accreditation between June 1, 2013 and May 31, 2014 (before the new requirements go into effect) should they submit the Annual Survey report?
A. No. Facilities will not be asked to submit documentation of an Annual Survey if we receive their application between June 1, 2013 and May 31, 2014. However, they should use this time period to begin establishing a QC program if they have not done so before. The currently required semi-annual routine quality control testing for the Ultrasound Accreditation Program and the medical physicist or service engineer report for Breast Ultrasound Accreditation Program must still be submitted.

Q. What is the difference between Acceptance Testing, Annual Surveys and routine QC Testing? Many of the tests appear to be the same.

A. Acceptance testing is the initial performance testing of newly installed or repaired imaging equipment (or components) that is completed before clinical use. Acceptance testing should be comprehensive and include all tests done for the Annual Survey to provide complete performance baselines for comparison with future test results. Annual Surveys are complete tests performed once a year by the medical physicist (or designee) to assess the performance of the equipment. Although Annual Surveys include all of the same tests conducted during routine QC testing, it is intended to be more extensive. Having the medical physicist annually perform the measurements included in the routine QC can verify that routine QC is being performed accurately, and serve as an additional educational opportunity for the sonographers to understand the QC. In addition, Annual Surveys include an evaluation of the facility’s routine QC program. Routine QC testing is less extensive and is performed semiannually by the facility’s sonographer (or a service engineer).

Q. May we count the tests performed during the medical physicist’s (or designee’s) Annual Survey as counting towards the sonographer’s (or service engineer’s) routine QC Testing?

A. No. The semiannual routine QC testing must be performed in addition to the tests performed during the Annual Survey. The Annual Survey tests must be performed once a year by the medical physicist or designee; the routine QC tests must be performed 2 times a year by the sonographer or service engineer.

Q. Will the facility be required to purchase a phantom?

A. No. Tests of uniformity, geometric accuracy, system sensitivity, and contrast and spatial resolutions must be made using an ultrasound phantom or test object. The ACR does not specify the phantom(s) to be used. Phantoms may be obtained from a variety of commercial vendors or may be fabricated by experienced personnel. Other approaches to performance measurement, e.g., the “paper-clip test” and use of transducer evaluation devices which test the electrical and acoustic characteristics of each individual transducer array element, may also be used, but may not replace any of the required tests. Additional information may be found in the ACR Technical Standard for Diagnostic Medical Physics Performance Monitoring of Real-time Ultrasound Equipment.
**Acceptance Testing and Annual Surveys**

**Q.** Will facilities have to provide proof that “appropriately trained personnel with ultrasound imaging equipment experience” conducting Acceptance Testing and Annual Surveys have been trained when they apply for accreditation?

**A.** No. Presentation of documentation of training is not required as part of the accreditation application. However, the facility must be sure all requirements for personnel are met when they apply for accreditation with the ACR. During ACR Site Visits, the surveyors will request to see verifying documentation. Failure to demonstrate that personnel are qualified could adversely affect accreditation status.

**Q.** Who must provide the training for “appropriately trained personnel with ultrasound imaging equipment experience” conducting Acceptance Testing and Annual Surveys?

**A.** The ACR strongly recommends that the training for the “appropriately trained personnel with ultrasound imaging equipment experience” be provided by a qualified medical physicist. If unable to acquire training by a qualified medical physicist, training can be achieved through the ultrasound equipment manufacturer or through an appropriate course. Documentation of such training is strongly encouraged. Facilities should keep such documentation on file, but should not submit this documentation with accreditation submissions.

**Q.** If our medical physicist fails a test performed during the annual survey, how long do we have until we must contact service and take corrective action?

**A.** If acceptance or Annual Survey test results fall outside of the acceptable limits, corrective action must be taken. Appropriate action must occur immediately if there is imminent danger to patients or staff using the equipment due to unsafe conditions. However, for other cases there is no specific timeframe required by the ACR. You should consult your medical physicist regarding the seriousness of the failure to determine how quickly corrective action should be implemented. In any event, effective June 1, 2014, the ACR will not grant accreditation if documentation of compliance with ACR QC requirements is not provided; if any tests fail, you must provide documentation of corrective action with your accreditation material.

**Q.** Is there an ACR-provided form the medical physicist must use to record his/her acceptance testing or Annual Survey test data and results?

**A.** The qualified medical physicist (or designee) may use whatever forms he/she deems appropriate for their Annual Survey. However, effective June 1, 2014, the medical physicist (or designee) must also provide a summary of the acceptance testing or Annual Survey pass/fail test results. They may complete the ACR-provided Annual System Performance Evaluation Report Summary form or provide their own summary as long as it itemizes the pass/fail results for each required test.
Q. We have had our ultrasound unit for several years prior to the effective date of this new accreditation requirement and had no acceptance testing performed upon installation. What documentation must we maintain for acceptance testing if none was performed?

A. Since no acceptance testing was performed, no documentation of such testing can be maintained. The ACR understands that. As long as Annual Surveys are performed routinely and appropriate documentation is maintained, this will be sufficient.

**Routine Quality Control Testing**

Q. After June 1, 2014, must we submit documentation of routine QC performed by the sonographer as part of the accreditation application?

A. No, the ACR will not ask for documentation of routine QC performed by the sonographer as part of the accreditation application. This is because your medical physicist (or designee) is responsible to check that all required routine QC tests were performed as part of the Annual System Performance Evaluation. The ACR will check that this review was done when the Annual Survey report is reviewed.

Q. Who must perform the routine QC tests?

A. The routine QC tests must be performed by an appropriately trained sonographer or service engineer.

Q. Who must provide the training for “appropriately trained sonographers or service engineers” conducting routine QC?

A. The ACR strongly recommends that the training for “appropriately trained sonographers or service engineers” conducting routine QC be provided by a qualified medical physicist. If unable to acquire training by a qualified medical physicist, training can be achieved through the ultrasound equipment manufacturer or through an appropriate course.

Q. Should a facility assign the lead sonographer to perform routine QC tests? If so, do we need to notify ACR who that person will be?

A. It is not required that the lead sonographer be assigned the duty of conducting routine QC. This is the facility’s decision. You do not need to notify ACR of the designated staff performing QC.

Q. Is there an ACR-provided form that we must use to record our data and results from our routine QC tests?

A. No. At this time, the ACR does not provide forms to record data from routine QC tests. We suggest working with your qualified medical physicist to help develop your own forms or contact the equipment manufacturer to see if any are available through them.