Ultrasound Accreditation Program Requirements

Overview

The Ultrasound Accreditation Program involves the acquisition of clinical images, submission of relevant physician reports corresponding to clinical images submitted, and quality control documentation. Sites must apply for accreditation in all categories of ultrasound services this site provides (e.g., OB, General, Gynecological, and/or Vascular).

Mandatory Accreditation Time Requirements

Submission of all accreditation materials is subject to mandatory timelines. Detailed information about specific time requirements is located in the *Overview for the Diagnostic Modality Accreditation Program*. Please read and be familiar with these requirements.

Personnel Qualifications

All interpreting physicians and technologists working in ultrasound (including part-time and locum tenens staff) *must meet and document* specific requirements in order for their facility to be accredited by the ACR.

The continuing education and continuing experience requirements are based on previous full calendar years. For example, if a site renews their accreditation in July 2009, the physicians at that site must have met the full requirement for continuing education from January 1, 2006 to December 31, 2008. Likewise, they must have met the full continuing experience requirements from January 1, 2007 to December 31, 2008. If they did not meet these requirements in the given timeframes, the ACR will accept continuing education credits or continuing experience obtained in 2009.

Physician Qualifications

The physician must be a licensed medical practitioner with a thorough understanding of indications for ultrasound examinations and be familiar with the basic physical principles and limitations of the technology and ***meet at least one*** of the four initial qualifications criteria.

Requirements for all Physicians Supervising and/or Interpreting Ultrasound Examinations		
Qualifications	**Radiologists/Physicians**	**Physician (without formal fellowship or postgraduate training)**
Initial	• Completion of an approved residency program including three months of training supervised by qualified individuals, and involvement with 500 ultrasound examinations, including a broad spectrum of uses. The physician should have successfully passed written and oral board certification examinations, including sections related to diagnostic ultrasound. OR • If residency did not include ultrasound, the physician must have had appropriate fellowship or postgraduate training including involvement with performance and interpretation of at least 500 ultrasound examinations, including a broad spectrum of ultrasound uses under the direct supervision of a qualified physician. OR • Physicians trained prior to 1982 must have performed and interpreted ultrasound examinations for at least 10 years, generating film or other hard-copy records for studies performed, along with a written report.	• Two years of ultrasound experience during which at least 500 ultrasound examinations were performed or supervised and interpreted. • Generation of film, videotape or other hard-copy records with written reports for studies performed. • Quality improvement projects to continuously improve patient care.
Continuing Experience	Upon renewal, physicians reading ultrasound examinations must have read an average of 9 exams per month over the prior 24-month period.	
Continuing Education	Upon renewal, physicians must have earned at least 15 CME in ultrasound (half of which must be category 1) over the prior 36-month period.	

Technologist Qualifications

Requirements for Ultrasound Technologist		
	Initial Accreditation	**Renewal Accreditation**
Initial Qualifications	• Certified or eligible for certification by: o American Registry of Diagnostic Medical Sonographers (ARDMS), OR o American Registry of Radiologic Technologists, Sonography (ARRT) (S).	• All sonographers must be certified and currently registered as RDMS (OB or AB*****), RT(S), RT (VS), RVT, or RVS at the time of application for renewal of accreditation. (All sonographers should obtain certification within twenty-four months of eligibility or cross training.)
	Both Initial and Renewal Vascular Accreditation	
	Sites applying for Vascular Ultrasound Accreditation must have at least one technologist who has an RVT (Registered Vascular Technologist) by the ARDMS, a Vascular Sonographer (VS) by the ARRT, or as a Registered Vascular Specialist (RVS) (also known as RCVT) by Cardiovascular Credentialing International (CCI) credential working **on-site** during the performance of vascular examinations.	
Continuing Education	Sonographers must be in compliance with the ARDMS, ARRT or CCI requirements for continuing education appropriate to their practices	

***Breast (BR) credential earned prior to June 30, 2010 will be accepted.**

PRN technologists should meet all accreditation requirements. PRN technologists who are not certified may not be used at an accredited facility for more than two consecutive weeks and no more than a total of three weeks per calendar year.

Quality Control

A quality control (QC) program must be in place for each ultrasound unit in the facility and must:

- Have program documentation describing the goals and responsibilities of the QC program
- Be directed by a medical physicist or by the supervising radiologist/physician (who may appoint an appropriate designee to oversee the program).

Continuous Quality Control

Routine quality control testing must occur regularly; ***a minimum requirement is semiannually***. The same tests must be performed during each testing period so that changes can be monitored over time and effective corrective action can be taken. Testing results, corrective action, and the effects of corrective action must be documented and the documentation maintained on site. In the event of a site survey, reviewers will expect to see such documentation.

The QC program must evaluate at least the following items in gray-scale imaging mode:

- System sensitivity and/or penetration capability.
- Image uniformity.
- Assurance of electrical and mechanical safety and cleanliness
- Photography and other hard-copy recording.

In addition, it is recommended that users verify the accuracy of vertical and horizontal distance measurement when a QC program is initiated for an ultrasound unit.

These items may be assessed using a commercially available phantom test object. At the present time, no one type of phantom is preferred; users should select one that is commercially available. Using a phantom will be helpful in responding to questions about low-contrast detectability in the quality control part of the testing material. However, the use of a phantom is ***optional*** at this time. Questions relating to characteristics associated with system sensitivity and image uniformity may be answered without the use of a phantom as a test object.

Transducer Testing

On an ongoing basis (at least semiannually), the following tests should be done for each ultrasound unit. Testing should be done using two transducers commonly used with any unit employing more than one transducer. Data should be taken from testing of the transducers which are used for the ***most frequently occurring*** examination(s) at the site. It is recommended that these be of different scan formats such as one linear (or curvilinear array), and one sector (mechanical, phased or vector).

System Sensitivity/Penetration (Required)

This test should be done with the following settings:

- maximum transmit power
- proper receiver gain and TGC that allows echo texture to be visible in the deep region
- transmit focus at the deepest depth

The maximum depth of visualization is determined by comparing the gradually weakening echo texture to electronic noises near the bottom of the image.

Image Uniformity (Required)

Adjust the TGC controls and other sensitivity controls to obtain an image as uniform as possible.

- vertical or radially oriented streaks?
- dropouts?
- reduction of brightness near edges of the scan?
- brightness transitions between focal zones?

Electrical and Mechanical Safety and Cleanliness

- Are all cords and cables intact (no frays)?
- Are all transducers intact without cracks or delamination?
- Are the transducers cleaned after each use?
- Are the image monitors clean?
- Are the air filters clean?
- Are the wheel locks in working condition?
- Are the wheels fastened securely to the US unit and do the wheels rotate easily?
- Are all accessories (VCR, cameras, etc.) fastened securely to the US unit?

Gray Scale Photography (if applicable) – Do either A, B or C

A. For Scanners with a Discrete Bar Pattern:

Count the number of distinct gray bar steps on the viewing monitor. Then count the number of steps visualized in the gray bar on the hard copy image.

B. For Scanners with a Continuous Gray Bar Pattern:

Use calipers to measure the length of the black-to-white transition of the gray wedge on the viewing monitor. If the relative length of the black-to-white transition on the hard copy image is less, document how much is missing.

C. For Laser Imager (Hard Copy Device)

Prior to filming any images, a SMPTE test pattern created by the Society of Motion Picture and Television Engineers, should be printed using the appropriate window width (WW) and window level (WL). If you are unfamiliar with this procedure, you should review Gray et al., "Test pattern for video display and hard-copy camera," Radiology 145:519-527 (1985), and then contact your local service engineer for assistance.

When printed, the 95% density patch within the 100% square and the 5% density patch within the 0% square should be visible, and there should be no notable distortions or artifacts present. If these criteria are not met, contact your service engineer for laser camera calibration before proceeding with ***any*** filming.

Hard Copy Output Quality Test (Digital) (if applicable)

This test, or a similar test specifically recommended by the hard copy equipment manufacturer, should be carried out at least monthly.

Required Test Equipment

- Densitometer
- SMPTE (Society of Motion Picture and Television Engineers) Test Pattern or another similar test pattern or phantom image having a wide range of gray scales.

The same test image should be used each time.

Test Procedure Instructions

1. Display the SMPTE test pattern or phantom image on the monitor with gray scales ranging from white to black and a reasonable range of gray scales in between.
2. Record the window width and the window level settings used to display the image; the same window width and level settings should be used for each subsequent display and printed image.
3. Print the image on film.
4. Process the film.
5. View the recorded film image on an appropriately masked viewbox next to the monitor.
6. Measure the optical density at four consistent locations on the film and record.
7. Compare all optical density measurements to those from the previous month's image.

Data Analysis and Interpretation

1. Visually compare gray scales on the film and monitors using the same window width and window level settings as used to produce the film.
2. The first time this procedure is performed and there is consistency between the monitor and film, record these window width and window level values and measured optical density film values on the chart as your control level.

QC Data to be Submitted for Accreditation

For each unit, submit a copy of your most recent physicist's or service engineer's report. The QC report should document results of the above testing.

Physician Peer-Review Requirements

Examinations should be systematically reviewed and evaluated as part of the overall quality improvement program at the facility. Monitoring should include evaluation of the accuracy of interpretation as well as the appropriateness of the examination. Complications and adverse events or activities that may have the potential for sentinel events must be monitored, analyzed and reported as required, and periodically reviewed in order to identify opportunities to improve patient care. These data should be collected in a manner that complies with statutory and regulatory peer-review procedures in order to ensure the confidentiality of the peer-review process.[1]

All sites initially applying for ACR accreditation and all sites renewing their accreditation must actively participate in a physician peer review program that performs the following functions:

- Includes a double reading (2 MDs interpreting the same study) assessment.
- Allows for random selection of studies to be reviewed on a regularly scheduled basis.
- Exams and procedures representative of the actual clinical practice of each physician.
- Reviewer assessment of the agreement of the original report with subsequent review (or with surgical or pathological findings).
- A classification of peer review findings with regard to level of quality concerns (One example is a 4-point scoring scale).
- Policies and procedures for action to be taken on significant discrepant peer review findings for the purpose of achieving quality outcomes improvement.
- Summary statistics and comparisons generated for each physician by imaging modality.
- Summary data for each facility/practice by modality.

There are several options available to meet this requirement. Sites may develop their own peer review program, use a vendor product or RADPEER, a peer review process developed by the ACR.

For information about RADPEER or eRADPEER please visit the ACR web site at: http://www.acr.org/SecondaryMainMenuCategories/quality_safety/radpeer.aspx.

[1] 2005 ACR Guidelines and Technical Standards. ACR Position Statement on Quality Control and Improvement, Safety, Infection Control, and Patient Education Concerns. Page IV.

Accreditation Testing

Clinical Images

Clinical images from four examinations for each type of ultrasound accreditation the facility is seeking must be submitted (see table below). Clinical images must be clearly labeled and obtained within the established time period. The time period is established using the date your application is processed by the ACR (two months before the date of the application and 45 days following the date of the application). Since we do not know exactly when the application will be processed, do not collect images until you have received instructions with the testing material.

Original films (transparencies preferred) or near-original-quality copies will be accepted. Normal examinations are requested. For vascular exams, both normal and abnormal exams are required. Examinations containing abnormal findings must be clearly documented in the accompanying physician report. The ACR is not responsible for abnormal evaluations. All views of an ultrasound examination must be from the same patient. ***Sites cannot submit images performed on models or volunteers.*** Films will be returned to the facility once the accreditation process is complete. The facility may choose which examinations it will submit for accreditation (see selection list in Clinical Image section). ***Note: The reviewers will assume that the images submitted are examples of your best work.***

Vascular Exam Diagnostic Criteria

Diagnostic physiologic and anatomic criteria for interpretation in each area being reviewed ***must*** be submitted with vascular exams.

Reporting of Results

Physician reports are requested to confirm the date and type of examination performed for all examinations. For vascular work, the reports must contain results from noninvasive pressure testing, where appropriate, obtained either from the referral source or from actual testing performed at your own site of practice. It is desirable that normal lab values for velocity measurements appear at the bottom of reports for reference; this is especially helpful with carotid examinations. If velocity measurements are not on the report, please include a copy of the measurements. Each ultrasound exam submitted must have a report that is clearly labeled; vascular reports must contain diagnostic physiologic and anatomic findings.

Types of Ultrasound Accreditation	
Categories	**Examinations Required**
Obstetrical	
• 1st trimester (Between 6-12 wks) • 2nd trimester (Between 13-<26 wks)***** • 3rd trimester (>26 wks) ***For ACR purposes, 2nd trimester exams should be 18 - <26 wks**	1 exam 2 exams 1 exam
Trimester Specific Obstetrical ***Your site will only be accredited in the specific trimester(s) that you select***	
• One trimester only (1st, 2nd or 3rd trimester) **OR** • Any combination of two trimesters	4 exams (if 1st trimester, 2 of which must be endovaginal) 2 exams of each trimester (if 1st trimester, both exams must be endovaginal)
Gynecological ***Must Apply for This Module Even If "Female Pelvis" is Selected in General Module***	
• Female pelvis • Female pelvis	1 endovaginal 3 endovaginal or transabdominal
General	
• Complete Upper Abdominal Ultrasound • Select ***3 different exams*** from the following list: 1. Female pelvis **(if selected, must still apply for GYN module)** 2. Renal/urinary 3. Transrectal/prostate 4. Pediatric neurosonology 5. Small parts ***(select only one exam)***: Scrotum **OR** Thyroid/parathyroid	1 exam 3 exams
Vascular (1 exam type from each category performed at this site: Peripheral, Cerebrovascular, Abdominal, and/or Deep Abdominal)	
• **Peripheral Exams:** ***Arterial*** Arterial occlusive disease Bypass graft **OR** ***Venous*** Thrombosis-lower extremities Thrombosis – upper arm Vein mapping Incompetence	1 normal and 1 abnormal exams 1 normal and 1 abnormal exams
• **Cerebrovascular Exam** Extracranial carotid (bilateral)	1 normal and 1 abnormal exams
• **Abdominal Exams**: ***Liver*** ***OR*** ***Renal*** 1. Liver vasculature — Renal artery stenosis 2. Liver transplantation — Renal vein thrombosis 3. TIPS — Renal artery thrombosis	1 normal and 1 abnormal exams
• **Deep Abdominal Exams:** Aorta and branches	1 normal and 1 abnormal exams

Accreditation Fees

Checks should be made payable to the American College of Radiology (include modality accreditation ID#, if available) (see table below). American Express, MasterCard, and Visa are accepted.

Accreditation Fees	
Cycle	**Fees**
Accreditation (Initial cycle and renewal)	$1200 OB antepartum ultrasound, only $1200 Trimester Specific Obstetrical, only $1200 Gynecological ultrasound, only $1200 General ultrasound, only $1200 Vascular only $1400 Combination accreditation (two types) $1500 Combination accreditation (three types) $1600 Combination accreditation (all types)
Repeat	$600
Reinstate/Corrective Action Plan	$1200 Single $1400 Two types $1500 Three types $1600 Four types
Add new module mid cycle	$1200 for one additional module $1400 for two additional modules $1500 for three additional modules
Replacement Certificate	$50 per certificate

Note: Fees subject to change without notice.

For Additional Information

For further information log on to the ACR Web site at www.acr.org, click on "Accreditation" and click on "Ultrasound". A link to "Frequently Asked Questions" is available in the Ultrasound menu, along with other useful information about accreditation and many of the program's forms. To contact the ACR Ultrasound Accreditation Program office by phone, dial (800) 770-0145.