



Please follow all instructions carefully.

General Instructions

The enclosed labels show when your testing materials are due to the ACR. Failure to meet this due date will jeopardize completion of your accreditation. If your facility is renewing its accreditation, we cannot guarantee completion before your ACR certificate expires.

Please read and understand the documents listed below **before** beginning this process:

- A. *Diagnostic Modality Accreditation Program Overview*
- B. *Ultrasound Accreditation Program Requirements*

You will need the following items from the ACR website (www.acr.org/accreditation):

- 1. This *Ultrasound Testing Instructions* Document
- 2. *Ultrasound Quality Assurance Questionnaire*
- 3. *Evaluation Attributes*
- 4. *Important Instructions Memo*
- 5. *Important CD Information*

You will also need these items (sent to you by mail):

- 6. Bar coded identification labels for all images and requested documents

ACR staff is available Monday through Friday, from 8:30a.m. to 5:00 p.m. (ET), to answer any questions you may have about the process. The telephone number is **800-770-0145**, and the email address is ultrasound-accred@acr.org.

The ACR Web site (www.acr.org) has frequently asked questions (FAQ's) for all accreditation programs under the Accreditation menu. The ACR *Appropriateness Criteria* and *Practice Guidelines and Technical Standards* can also be accessed from this site under the Quality and Patient Safety menu.

Facilities must apply for all modules routinely performed at that site in order to be accredited. Keep all documents for your records and keep copies of everything you submit to the ACR for your records.

After your application is processed, the ACR assigns your facility a unique identification number (UAP #). This number appears on all correspondence from the ACR, your online records and on all of the barcode labels. Please use this number on all submitted materials and to identify your facility when contacting the ACR for assistance.

The ACR website (www.acr.org) provides a listing of accredited facilities and facilities that have applied for accreditation and are under review. If a third party payer requests verification of your participation in one of the accreditation programs, please refer them to the ACR website.

Materials due date:

The barcode labels mailed to you have image submission due dates. You must collect your test images and return them with your completed application to the ACR by the date indicated on the labels. Failure to

meet this due date will jeopardize completion of your accreditation. Thus, if your facility is renewing its accreditation, we cannot guarantee completion in a timely fashion before your ACR certificate expires. If your site cannot submit the required materials by your due date, notify the ACR **immediately**.

Image collection time period for clinical images:

No images will be accepted for review that predate the application by more than six months.

Online Application

The application for ACR Ultrasound Accreditation is found online through the ACR website (www.acr.org). After you submit your application online, you must log into your account, and fill out the forms for your Testing Package. You may print generic form from the Ultrasound Accreditation section of the ACR website so you can fill them out online later, but the data must be submitted online.

Clinical Image Testing Instructions

Each set of ultrasound examinations will be evaluated for:

- Technique parameters
- Anatomic coverage and display
- Exam identification (All information annotated on clinical examinations will be kept confidential by the ACR.)

Clinical images should represent your facility's standard exam protocols. However, please refer to the enclosed ***Evaluation Attributes Document*** for additional guidance. In the initial application, your facility selected the exams that you will submit from each module for accreditation. Please refer to the barcode labels provided for the exams that your facility selected.

The following identifying demographic data must be displayed on each image:

- First and last name
- Medical record number
- Institution name
- Date and time of examination
- Date of birth or age
- Type of examination

Adding the technologist's identification number, name, or initials to at least one image of the examination is recommended.

Clinical Image Checklist:

1. Clinical images for Obstetrical, Gynecological, and General Accreditation should be normal exams.
2. Gynecological accreditation requires **four** complete female pelvis exams from **four different patients**. At least one exam out of the four **must** include an endovaginal study.
3. Vascular accreditation requires **two normal** cases be submitted for each examination type chosen.
4. Clinical images should be accompanied by the physician report to confirm the date of the examination and must include diagnostic physiologic and anatomic findings for all vascular exams.
5. Images should be submitted in standard transparency form.

6. Images should be original or near-original quality copies. Clinical images submitted will be returned upon completion of the accreditation process.
7. Clinical Images should represent current practice and No images will be accepted for review that predate the application by more than six months.
8. All views of an US examination must be from an examination performed on the same patient.
9. All testing materials must be submitted to the ACR within **45 calendar days** from the date sent or the application will be made inactive. If you have difficulties meeting this deadline, please contact the ACR.

REMEMBER:

1. REVIEWERS ASSUME THAT ALL IMAGES SUBMITTED ARE EXAMPLES OF YOUR BEST WORK. IMAGES WILL BE JUDGED ACCORDINGLY.
2. WHENEVER POSSIBLE, SUBMIT NORMAL ULTRASOUND EXAMS; HOWEVER, EXAMS WITH MINIMAL PATHOLOGY MAY BE SUBMITTED IF NO HIGH QUALITY NORMAL STUDIES ARE AVAILABLE.
3. THE APPROPRIATE BARCODE LABEL **MUST BE** ON ALL IMAGES AND DOCUMENTS (FOR CDS, SEE INSTRUCTIONS BELOW).
4. THE SUPERVISING ULTRASOUND PHYSICIAN SHOULD REVIEW AND APPROVE ALL CLINICAL IMAGES BEFORE THEY ARE SUBMITTED.

IMPORTANT

*****If you decide to change the type of exam you will be submitting, you must notify the ACR for new labels to replace that exam. All submissions will be returned if notification did not occur. *****

Additional Required Paperwork

1. One “**Quality Assurance (QA) Questionnaire**” will be completed online.
2. A physician’s report, with the corresponding bar-coded label, must be submitted for each exam.
3. **For arterial and carotid 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.
4. **For vascular exams, sites must include diagnostic and physiologic criteria for interpretation with their clinical exam submission.** Diagnostic criteria should consist of a brief summary of the criteria the physician(s) at the facility use to determine normal vs. abnormal exams. For Duplex carotid exams the velocity table should be included.
5. For each unit, submit a copy of your most recent physicist’s or service engineer’s report. This QC report should document results of the testing described below in the Ultrasound Equipment Quality Control section.

Instructions for Electronic and Film Submission

You may submit your clinical images on 5 ¼” CD.

Submit two (2) CD-ROMs that are identical (each CD contains all of the clinical examinations listed on your application). We send the CDs out simultaneously to two reviewers to shorten the turnaround time for your final report.

Because of the difficulties experienced with some viewers, the preferred format for submission of images on CD are JPG, GIF, BITMAP or TIF file format.

Alternatively, images may be submitted on CDs with an embedded viewer. The embedded viewer must include the following functions:

1. window/level
2. magnification

The following scan protocol attributes for exams should be displayed on each image:

- First and last name
- Medical record number
- Institution name
- Date and time of examination
- Date-of-birth or age
- Type of examination
- Images labeled properly

*****Because there are many different viewers available, we request that you send instructions for opening.*****

Once you have created the CDs for submission, you must open the images on the CDs and check both CDs for accuracy and to make sure all of the minimum requirements listed below are easily available for the reviewers.

IMPORTANT: It is imperative that you test the CDs on a different computer than the one that they were burned on. Each CD should be viewed to ensure that all images have been included and that all of the pertinent information, including labeling, has been transferred over. Failure to review these CDs may result in a significant delay of the review process or failure of accreditation

Labeling Instructions

Please take care in following these instructions: The correct labeling of your images (CD or hard copy films) is critical to the proper identification of the materials submitted. Incorrect or incomplete labeling can delay the accreditation process. The ACR will return your package to you if your images are not labeled properly. This will delay the accreditation process.

If you are submitting your clinical images on hard copy film, you may have more labels than you need. If you damage a label, use the next label in the series for that examination type. Please do not place labels over anatomic structures. **Do not alter barcode labels in any way.**

If you are submitting clinical images on hard copy film, and run out of barcode labels, use the additional image labels included in this package. Do not make copies of the existing barcode labels. Use one label per film. You must fill in all the blanks on each label. Retain a copy of the completed label sheet with the blanks filled in for your records. If you need additional labels, please contact the ACR.

Label all documents, CD-ROM cases (**do not apply labels to your CD's**) and/or films submitted with the corresponding label. **Do not submit CDs, films or documents without labeling.**

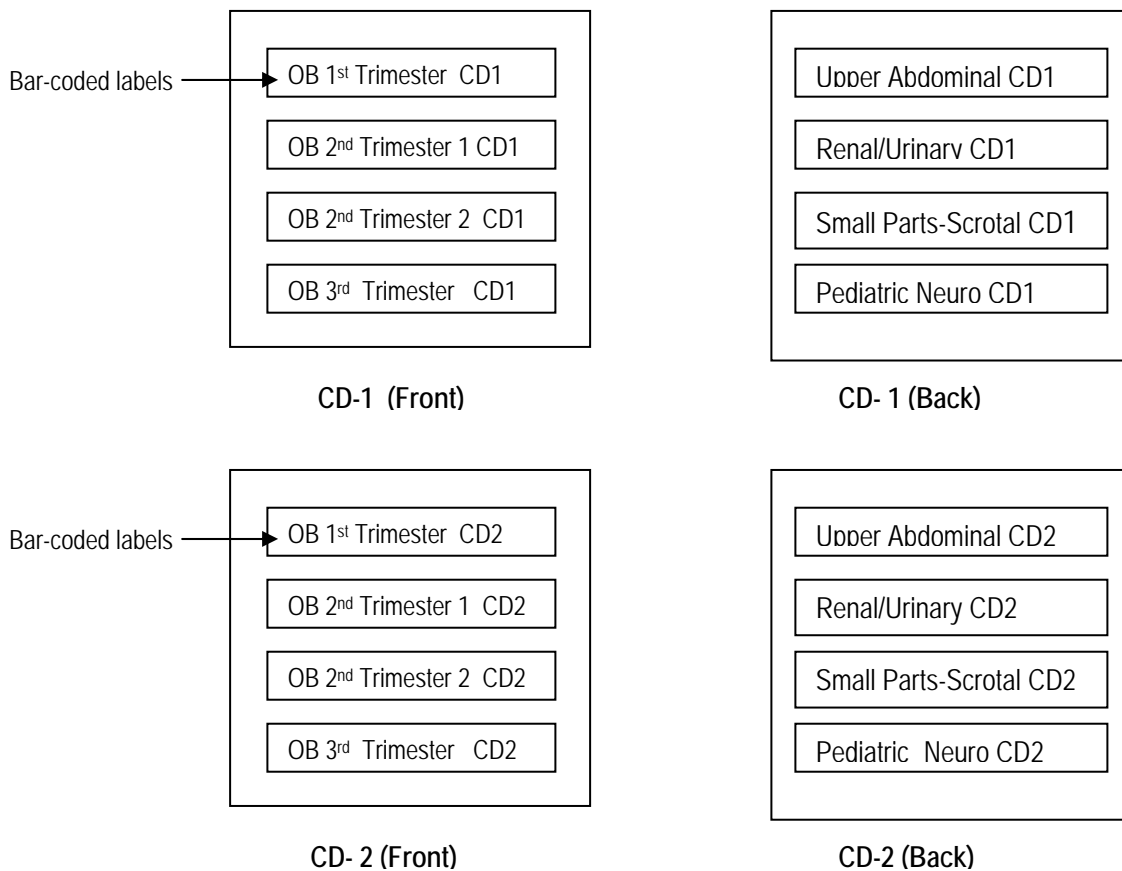
Hard Copy submission of Clinical Images:

- A. Place one barcode label on each sheet of film of the examination.

- B. Place each examination in its own film jacket.
You will have separate jackets for each examination.
- C. Place the appropriately labeled physician report and, if vascular exams, the appropriate diagnostic criteria. film jacket.

Electronic Submission of Clinical Images:

Use one CD-ROM for every 2 modules. Place the barcode labels for each exam on the **jewel case** of each clinical CD-ROM. Place the “CD1” labels on the first CD, and put the “CD2” labels on the second CD. **Do not put labels on the CD-ROM. You MUST label the CD with a permanent marker (CD # and UAP#) if your facility does not have the ability to label it with a CD compatible label.**



Place one copy of the physician report and diagnostic criteria, if applicable, for each examination with each clinical image CD.

Failure to provide the additional copies will significantly delay the review process for your facility.

Ultrasound Equipment Quality Control

A quality control (QC) program must be in place for each scanner in the facility. The QC program must be directed by a medical physicist or by the supervising radiologist or physician who may appoint an appropriate designee to oversee the program.

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 materials. 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.

Mailing Instructions

- A. Mail all images and paperwork to:

**Ultrasound Accreditation
American College of Radiology
1891 Preston White Drive
Reston, VA 20191-4397**

- B. We also strongly suggest that you use UPS or FedEx to track images in case of loss.

The images will be returned once the accreditation evaluation is complete. However, it is strongly recommended that you maintain copies of all images submitted to the ACR as a record of clinical and phantom images that were submitted for accreditation purposes.