Why Seek Accreditation of Your CT Program?

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Achieving accredited status for CT through the ACR Accreditation Program or other comparable programs shows an ongoing commitment to the quality and safety of your CT exams. ACR accreditation has the most robust radiation safety standards, and demonstrates that you have paid attention to the fundamental details that allow you to conduct suitably designed and executed studies using optimized equipment. Appropriate exam dose is a cornerstone of the ACR CT Accreditation Program.

The ACR developed its CT Accreditation Program in 2002 to promote overall quality in the practice of CT and to be educational in nature. The program evaluates the qualifications of personnel, equipment performance, quality of clinical images, appropriateness of scan parameters/technique, scan performance characteristics, and radiation dose estimates assessed with a dedicated CT phantom. Sites must demonstrate that they have a peer-review program in place, which may be either home-grown or provided by a third party such as the ACR RADPEER® program.

Individual radiologists' outcomes are not currently part of the criteria for CT accreditation in the ACR program. Similarly, while the exams you submit must be for appropriate indications, the program does not require a statistically significant group of exams to determine appropriateness of ordering practices. The ACR Appropriateness Criteria® are available to all physicians. Radiologists should use these and encourage their clinical colleagues to be familiar with them.

Board-certified, radiologist and medical physicist member volunteers, who are in current practice, assess the images submitted by the sites for accreditation. Expert medical physicists also review the CT dose estimate data.

Sites may accredit in one to four CT modules: head/neck, chest, abdomen and cardiac. The program has been refined over the years to be robust but also allow efficient customization to individual practices. Depending on the types of examinations the site performs, each applicant must submit three to four clinical examinations from each CT unit along with their protocols for review. Sites choose from a list of 20 basic and sub-specialized examinations representing a wide array of body, neuro and cardiac CT studies commonly performed in adults and children. For example, for the head/neck module, a site may submit an adult head, adult temporal bones or adult cervical spine CT examination. If the unit is also used for pediatric patients, at least one of the examinations submitted for the unit's accreditation must be from a child between the ages of 0 and 18. Pediatric images should clearly reflect that the site has taken into account the child's age and body habitus in selecting the scanning parameters and contrast dosage. If a site performs cardiac studies, at least one CTA examination must be submitted. If a CT unit is only used for patients 18 years of age and under, the facility must submit a pediatric cardiac examination for the cardiac module. The exams should represent a site's best quality work. Clinical reviewers evaluate the clinical test image data, the submitted exams, and the dose estimates for the exams.

Sites must also submit images of a specifically designed, 16- or 32-cm standardized acrylic phantom, which are used to determine CT number accuracy, low-contrast resolution and image uniformity. In addition, the site's medical physicist must perform CTDI testing on every CT unit at the facility in order to calculate various descriptors of dose for an adult head, 1 year old pediatric head, 5 year old (40-50

lbs) pediatric abdomen, and adult abdomen using the average technique factors provided by the facility. These values will be compared against accreditation pass/fail criteria and reference levels. [1] Sites have generally been able to meet the original $CTDI_w$ values and then the $CTDI_{vol}$ pass/fail values that were introduced in 2008. The 2008 values ($CTDI_{vol}$ adult head 80 mGy, $CTDI_{vol}$ adult abdomen 30 mGy, and $CTDI_{vol}$ pediatric abdomen 25 mGy) were determined based on an analysis of dose indices used during the first three years of the accreditation program. In 2013, after the analysis of more recent data, the pass/fail criteria for pediatric abdomen was reduced to 20 and pass/fail criteria and reference levels were added for pediatric head. [2]

ACR CT Accreditation Dose Pass/Fail Criteria and Reference Levels

Examination	Pass/Fail Criteria $CTDI_{vol}$ (mGy)	Reference Levels $CTDI_{vol}$ (mGy)
Adult Head	80	75
Adult Abdomen	30	25
Pediatric Head (1 year old)	40	35
Pediatric Abdomen (40-50 lb.)	20	15

Detailed online instructions are now consolidated into one document, the new ACR CT Accreditation Program Testing Instructions. In addition to testing instructions, this document includes guidance on clinical image and phantom image quality.

Failure to pay attention to the details spelled out in the ACR instructions and the clinical image quality guide is a frequent cause of failures, re-submissions, or appeals. Failure to submit images that are specifically requested; excessive series through a body region (especially in children) and imaging protocols that are missing key information such as the contrast administration strategy are common problems with initial accreditation.

Because the CT Accreditation Program is an educational process, the reviewers provide very focused comments, in some cases even for positive attributes of studies. The opportunity exists for corrective action and appeal to get the fundamentals correct.

There are additional practical reasons to become accredited. Accreditation can offer a marketing advantage to the practice, with both referring physicians and patients. The Medicare Improvements for Patients and Providers Act of 2008 (MIPPA) required that all physicians who bill under the Part B fee schedule be accredited by January 1, 2012 in order to receive technical component payments from CMS for advanced imaging. The ACR is one of four approved accrediting organizations designated by CMS to accredit for advanced imaging. Private payers such as United Health Care have adopted similar measures.

The MIPPA legislation applies only in office-based settings. What if you are hospital-based? At present there is no requirement to be accredited if you don't bill the technical component through Medicare Part B. Eventually such a requirement is likely to occur in order to have a level "quality" playing field for inpatients and outpatients.

Many hospital administrators are reluctant to fund ACR accreditation in the hospital setting because they already undergo scrutiny by the Joint Commission. Because the ACR program is directed by radiologists and medical physicists who have specific expertise in CT, it addresses the details of the CT operation in a more robust way that hospital-based patient tracer methodology may not. ACR accreditation also complements the recent Joint Commission requirements that focus on radiation dose by showing your practice's commitment to diagnostic reference levels as one of many important benchmarks in a dose optimization program.

The CT Accreditation Program is dynamic and changing as the CT field changes. Electronic submission and scoring have streamlined the application process and enabled rapid return of results. Requirements will continue to be modernized as the field evolves. CT Accreditation has already become an integral component of becoming an ACR Designated Lung Cancer Screening Center [3]. As dose reporting within the CT Accreditation Program expands, and databases such as the ACR Dose Index Registry [4] become more widespread, the CT Accreditation Program will also continue to better define the optimal dose for the various CT exams submitted by sites seeking accreditation.

REFERENCES

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