1996 (Res. 23)
Revised 2000 (Res. 35)
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ACR PRACTICE GUIDELINE FOR GENERAL RADIOGRAPHY

PREAMBLE

These guidelines are an educational tool designed to assist practitioners in providing appropriate radiologic care for patients. They are not inflexible rules or requirements of practice and are not intended, nor should they be used, to establish a legal standard of care. For these reasons and those set forth below, the American College of Radiology cautions against the use of these guidelines in litigation in which the clinical decisions of a practitioner are called into question.

The ultimate judgment regarding the propriety of any specific procedure or course of action must be made by the physician or medical physicist in light of all the circumstances presented. Thus, an approach that differs from the guidelines, standing alone, does not necessarily imply that the approach was below the standard of care. To the contrary, a conscientious practitioner may responsibly adopt a course of action different from that set forth in the guidelines when, in the reasonable judgment of the practitioner, such course of action is indicated by the condition of the patient, limitations on available resources, or advances in knowledge or technology subsequent to publication of the guidelines. However, a practitioner who employs an approach substantially different from these guidelines is advised to document in the patient record information sufficient to explain the approach taken.

The practice of medicine involves not only the science, but also the art of dealing with the prevention, diagnosis, alleviation, and treatment of disease. The variety and complexity of human conditions make it impossible to always reach the most appropriate diagnosis or to predict with certainty a particular response to treatment. Therefore, it should be recognized that adherence to these guidelines will not assure an accurate diagnosis or a successful outcome. All that should be expected is that the practitioner will follow a reasonable course of action based on current knowledge, available resources, and the needs of the patient to deliver effective and safe medical care. The sole purpose of these guidelines is to assist practitioners in achieving this objective.

I. INTRODUCTION

Radiography is a proven and useful procedure that utilizes differences in X-ray attenuation to evaluate human anatomy and pathology. The goal of radiography is to establish the presence or absence and nature of disease by demonstration of the disease process itself or the effects of the disease process on the normal anatomy. The study should be done with the minimal radiation dose necessary to achieve an optimal study.

If an American College of Radiology (ACR) guideline or standard exists for the specific type of radiographic examination being performed, that guideline or standard as well as the general guidelines below would apply.

II. INDICATIONS AND CONTRAINDICATIONS

A. There are many indications for radiography, and these are dependent on the patient's clinical history and the disease processes that affect the anatomic area to be

studied. There should be a sufficient clinical indication to warrant performance of a study, and a reasonable anticipation that the results of the radiograph, normal or abnormal, will influence the treatment course of the patient. The indications should be communicated to the facility and the physician responsible for performance and interpretation of the radiographic study. The ACR Appropriateness Criteria® should be considered when making these communications.

B. All imaging facilities should have policies and procedures to reasonably attempt to identify pregnant patients prior to the performance of any diagnostic examination involving ionizing radiation. If the patient is known to be pregnant, the potential radiation risks to the fetus and clinical benefits of the procedure should be considered before proceeding with the study. 1995, 2005 (Res. 1a)

III. QUALIFICATIONS AND RESPONSIBILITIES OF PERSONNEL

A. Physician

Radiographs must be obtained under the supervision of, and interpreted by, a licensed physician with the following qualifications:

1. Certification in Radiology or Diagnostic Radiology by the American Board of Radiology, the American Osteopathic Board of Radiology, the Royal College of Physicians and Surgeons of Canada, or Le College des Medecins du Quebec.

   or

2. Completion of an Accreditation Council for Graduate Medical Education (ACGME) approved diagnostic radiology residency program or an American Osteopathic Association (AOA) approved diagnostic radiology residency program including radiographic training on all body areas and documentation of a minimum of 6 months of formal dedicated training in the interpretation and formal reporting of general radiographs, for patients of all ages.

   and

3. The physician should have documented training and understanding of the physics of diagnostic radiography and experience with the equipment needed to safely produce the images. This should include general radiography, screen-film combinations, conventional image processing, and, where applicable, digital image processing.

   and

4. The physician must be familiar with the principles of radiation protection, the hazards of radiation exposure to both patients and radiologic personnel, and radiation monitoring requirement.

   and

5. The physician shall have documented training and understanding of other medical imaging modalities (fluoroscopy, computed tomography, ultrasound, magnetic resonance imaging, nuclear medicine, etc.) and their value relative to general radiography in order to best evaluate the patient's clinical symptoms.

B. Maintenance of Competence

All physicians performing general radiography examinations should demonstrate evidence of continuing competence in the interpretation and reporting of those examinations. If competence is assured primarily based on continuing experience, a minimum of 200 examinations per year is recommended in order to maintain the physician's skills. Because a physician's practice or location may preclude this method, continued competency can also be assured through monitoring and evaluation that indicates acceptable technical success, accuracy of interpretation, and appropriateness of evaluation.

Continuing Medical Education

The physician's continuing medical education should be in accordance with the ACR Practice Guideline for Continuing Medical Education (CME) and should include CME in general radiography as is appropriate to his/her practice.

C. Qualified Medical Physicist

A Qualified Medical Physicist is an individual who is competent to practice independently one or more of the subfields in medical physics. The ACR considers that certification and continuing education in the appropriate subfield(s) demonstrate that an individual is competent to practice one or more of the subfields in medical physics, and to be a Qualified Medical Physicist. The ACR recommends that the individual be certified in the appropriate subfield(s) by the American Board of Radiology (ABR) or for MRI, by the American Board of Medical Physics (ABMP) in magnetic resonance imaging physics.

The appropriate subfields of medical physics for this guideline are Therapeutic Radiological Physics, Diagnostic Radiological Physics, Medical Nuclear Physics, and Radiological Physics.

The continuing education of a Qualified Medical Physicist should be in accordance with the ACR Practice Guideline for Continuing Medical Education (CME). 2006 (Res. 16g)

D. Radiologist Assistant

A radiologist assistant is an advanced level radiographer who is certified and registered as a radiologist assistant by the American Registry of Radiologic Technologists (ARRT) after having successfully completed an advanced academic program encompassing an ACR/ASRT (American Society of Radiologic Technologists) radiologist assistant curriculum and a radiologist-directed clinical preceptorship. Under radiologist supervision, the radiologist assistant may perform patient assessment, patient management and selected examinations as delineated in the Joint Policy Statement of the ACR and the ASRT titled "Radiologist Assistant: Roles and Responsibilities" and as allowed by state law. The radiologist assistant transmits to the supervising radiologists those observations that have a bearing on diagnosis. Performance of diagnostic interpretations remains outside the scope of practice of the radiologist assistant. 2006 (Res. 34)

E. Radiologic Technologist

Certification by the American Registry of Radiologic Technologists (ARRT) or an unrestricted state license is required.

IV. SPECIFICATIONS OF THE EXAMINATION

The written or electronic request for general radiography should provide sufficient information to demonstrate the medical necessity of the examination and allow for the proper performance and interpretation of the examination.

Documentation that satisfies medical necessity includes 1) signs and symptoms and/or 2) relevant history (including known diagnoses). The provision of additional information regarding the specific reason for the examination or a provisional diagnosis would be helpful and may at times be needed to allow for the proper performance and interpretation of the examination.

The request for the examination must be originated by a physician or other appropriately licensed health care provider. The accompanying clinical information should be provided by a physician or other appropriately licensed health care provider familiar with the patient's clinical problem or question and consistent with the state scope of practice requirements. 2006 (Res. 35)

Technique

1. All radiographic studies should be permanently labeled with patient identification and date of the examination. The time of the examination should be included, if relevant. The side (right or left) of the anatomic site radiographed should be permanently labeled.
2. All facilities performing radiography should have protocols for standard views of each anatomic area that will be radiographed. These should be designed to optimize diagnostic information while minimizing radiation exposure.
3. Appropriate collimation should be used to limit exposure to the anatomic area of interest.
4. All facilities performing radiography should have technique charts listing exposure factors that will reliably produce diagnostic radiographs of anatomic parts of patients of different sizes to minimize the need for repeat exposures. Repeat rates should be part of the routine quality control process.
5. All radiographs should be reviewed for positioning and diagnostic quality at the facility before the patient is released. Repeat radiographs should be performed when necessary for diagnostic quality.
6. All facilities producing radiographs should have policies and procedures for appropriate shielding of patients.
7. Immobilization and assistance procedures appropriate for the age and size range of patients to be imaged should be available to ensure that images of diagnostic quality can be obtained in patients who are unable to cooperate, or unable to be positioned in the usual manner due to age or physical limitations, and without unnecessary irradiation of healthcare workers.

V. DOCUMENTATION

Reporting should be in accordance with the ACR Practice Guideline for Communication of Diagnostic Imaging Findings.

VI. EQUIPMENT SPECIFICATIONS

A. The diagnostic radiographic equipment and facility should meet all applicable federal and state radiation standards.

B. Where an analog film system is used, appropriate screen-film and grid combinations should be available to obtain diagnostic radiographs of all anatomic areas to be imaged.

C. Where digital imaging is used, the equipment should meet the specifications described in the ACR Technical Standard for Digital Image Data Management.

D. Automated processing is preferred. Carefully controlled temperature and regular processor maintenance should be included in a quality control program. A constant time and temperature shall be maintained for manual processing.

VII. RADIATION SAFETY IN IMAGING

Radiologists, radiologic technologists, and all supervising physicians have a responsibility to minimize radiation dose to individual patients, to staff, and to society as a whole, while maintaining the necessary diagnostic image quality. This is the concept "As Low As Reasonably Achievable (ALARA)".

Facilities, in consultation with the medical physicist, should have in place and should adhere to policies and procedures, in accordance with ALARA, to vary examination protocols to take into account patient body habitus, such as height and/or weight, body mass index or lateral width. The dose reduction devices that are available on imaging equipment should be active or manual techniques should be used to moderate the exposure while maintaining the necessary diagnostic image quality. Patient radiation doses should be periodically measured by a medical physicist in accordance with the appropriate ACR Technical Standard. 2006 (Res. 17)

VIII. QUALITY CONTROL AND IMPROVEMENT, SAFETY, INFECTION CONTROL, AND PATIENT EDUCATION CONCERNS

Policies and procedures related to quality, patient education, infection control, and safety should be developed and implemented in accordance with the ACR Policy on Quality Control and Improvement, Safety, Infection Control, and Patient Education Concerns appearing elsewhere in the ACR Practice Guidelines and Technical Standards book.

Equipment performance monitoring should be in accordance with the ACR Technical Standard for Diagnostic Medical Physics Performance Monitoring of Radiologic and Fluoroscopic Equipment.

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