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The American College of Radiology will periodically define new practice parameters and technical standards for radiologic practice to help advance the science of radiology and to improve the quality of service to patients throughout the United States. Existing practice parameters and technical standards will be reviewed for revision or renewal, as appropriate, on their fifth anniversary or sooner, if indicated.

Each practice parameter and technical standard, representing a policy statement by the College, has undergone a thorough consensus process in which it has been subjected to extensive review and approval. The practice parameters and technical standards recognize that the safe and effective use of diagnostic and therapeutic radiology requires specific training, skills, and techniques, as described in each document. Reproduction or modification of the published practice parameter and technical standard by those entities not providing these services is not authorized.

Revised 2014 (Resolution 16)*

ACR–SIR–SPR PRACTICE PARAMETER FOR THE REPORTING AND ARCHIVING OF INTERVENTIONAL RADIOLOGY PROCEDURES

PREAMBLE

This document is an educational tool designed to assist practitioners in providing appropriate radiologic care for patients. Practice Parameters and Technical Standards are not inflexible rules or requirements of practice and are not intended, nor should they be used, to establish a legal standard of care¹. For these reasons and those set forth below, the American College of Radiology and our collaborating medical specialty societies caution against the use of these documents 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 practitioner in light of all the circumstances presented. Thus, an approach that differs from the guidance in this document, 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 this document when, in the reasonable judgment of the practitioner, such course of action is indicated by the condition of the patient, limitations of available resources, or advances in knowledge or technology subsequent to publication of this document. However, a practitioner who employs an approach substantially different from the guidance in this document 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 the guidance in this document 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 this document is to assist practitioners in achieving this objective.

¹ Iowa Medical Society and Iowa Society of Anesthesiologists v. Iowa Board of Nursing, ___ N.W.2d ___ (Iowa 2013) Iowa Supreme Court refuses to find that the ACR *Technical Standard for Management of the Use of Radiation in Fluoroscopic Procedures* (Revised 2008) sets a national standard for who may perform fluoroscopic procedures in light of the standard's stated purpose that ACR standards are educational tools and not intended to establish a legal standard of care. See also, Stanley v. McCarver, 63 P.3d 1076 (Ariz. App. 2003) where in a concurring opinion the Court stated that "published standards or guidelines of specialty medical organizations are useful in determining the duty owed or the standard of care applicable in a given situation" even though ACR standards themselves do not establish the standard of care.

I. INTRODUCTION

This practice parameter was revised collaboratively by the American College of Radiology (ACR), the Society of Interventional Radiology (SIR), and the Society for Pediatric Radiology (SPR) [1].

This practice parameter is intended to improve patient care by improving the consistency of medical record content, the written or dictated reports, and image archiving for vascular/interventional radiology procedures (exclusive of breast interventional procedures). For information on breast interventional procedures, see the [ACR Practice Parameter for the Performance of Stereotactic Guided Breast Interventional Procedures](#) or the [ACR Practice Parameter for the Performance of Ultrasound-Guided Percutaneous Breast Interventional Procedures](#).

These practice parameters will serve the following specific purposes:

1. To document medical care
2. To be used in quality improvement programs and for credentialing purposes
3. To be used in research
4. To document procedures for appropriate coding
5. To provide practice parameters for state health codes for image archiving

II. MEDICAL REPORT

A. Medical Record

A medical record consists of a patient's medical information recorded in either written or electronic format. This information may be recorded in the patient medical chart, nursing reports, radiology records, inpatient or outpatient medical information storage areas, or electronically. The medical record should include, as appropriate, the following information [2]:

1. Documentation of preprocedural inpatient and/or office consultation
 2. Immediate preprocedure note
 3. Immediate postprocedure note
 4. Final report
 5. Documentation of postprocedure patient follow-up, if applicable
- B. Documentation of Preprocedural Inpatient and/or Office Consultation

The preprocedural documentation provides a baseline record of patient status and documents the indication for the procedure. It should be entered in the chart before the procedure. Preprocedural documentation should, as appropriate depending on the complexity and/or clinical urgency of the procedure, include the following information:

1. Indication for procedure and brief history
2. Findings of targeted physical examination
3. Relevant laboratory and other diagnostic findings
4. The plan for each procedure to be performed
5. Risk stratification, such as the American Society of Anesthesiologists Physical Status Classification
6. Documentation of informed consent (consistent with state and federal laws) or, in the case of an emergency, that it was an emergent medical procedure

C. Updated Immediate Preprocedure Note

The updated immediate preprocedure documentation should be an interval note with any new information developed between the preprocedural evaluation/documentation and the presentation of the patient for the procedure. In

situations where the preprocedural documentation is performed/completed immediately preceding the procedure, the updated immediate preprocedure note is not necessary.

D. Immediate Postprocedure Note

Before a patient is transferred to the next level of care, an immediate postprocedure note or a final report should be completed and available. The immediate postprocedure note should include the following, as appropriate:

1. Diagnosis
2. Procedure
3. Physician
4. Assistant
5. Sedation
6. Medications
7. Findings
8. Blood loss.
9. Specimens
10. Complications
11. Disposition

It is not necessary for the listed items to be recorded in the order given above.

E. Final Report [3,4]

1. A final report is required for the following purposes:
 - a. To transmit procedural information to all members of the health care community who may participate in subsequent care of the patient
 - b. For legal purposes
 - c. For reimbursement
2. Additional functions of the final report include the following:
 - a. Quality improvement programs and for credentialing purposes
 - b. Data collection for research
 - c. Teaching
 - d. Informing patients and families
3. Specific information to be included in this report depends on the procedure. The following elements are recommended, although not all of them may be applicable:
 - a. Procedure name
 - b. Administrative information
 - i. Date
 - ii. Time
 - iii. Facility
 - c. Patient information
 - i. MRN (Medical record number)
 - ii. DOB
 - iii. Gender
 - d. Procedural personnel
 - i. Attending(s)
 - ii. Fellow(s)
 - iii. Resident(s)
 - iv. Mid-level provider(s)

- v. Other assistant(s)
- e. Clinical history
 - i. Diagnosis
 - ii. Indications
 - iii. Comparison
- f. Procedure performed
- g. Intra-procedural or immediate post-procedural complications, occurrences or unexpected events
- h. Observations
- i. Summary/impression
- j. Plan
- k. Procedure details
 - i. Informed consent
 - ii. Time out
 - iii. Anesthesia
 - Type and provider
 - Local anesthesia
 - iv. Medications
 - Antibiotics and start time
 - Other medications
 - Contrast
- l. Technical details of the procedure
 - i. Patient position
 - ii. Imaging guidance for access
 - iii. Imaging guidance for procedure
 - iv. Access location/site
 - v. Access technique
 - vi. Equipment utilized
 - vii. Closure
 - viii. Estimated blood loss
 - ix. Radiation doses such as: [5]
 - Skin dose mapping
 - Peak skin dose (PSD)
 - Reference air kerma ($K_{a,r}$) Kerma-area product (PKA).
 - Fluoroscopy time/# of fluorographic images
 - Dose-length product (DLP).
 - Volume computed tomography (CT) dose index ($CTDI_{vol}$).
- m. Attestation
 - i. Supervision
 - ii. Antisepsis
 - iii. Barrier technique
- n. Supplemental information

It is not necessary for the listed items to be recorded in the order given above.

III. ARCHIVING OF IMAGES

A. General Principles

All pertinent imaging data should be saved in permanently retrievable digital or hard-copy format. Examples of pertinent imaging data include the relevant anatomy that will affect patient management, device position, complications, and any transient adverse events (such as emboli) that have been successfully treated during a procedure.

B. Documentation of Device Position

The final position of all devices inserted permanently or long-term with imaging guidance (eg, stents, endovascular grafts, central venous catheters, inferior vena cava filters, embolic agents, drainage catheters) should be documented with imaging.

C. Angiography

Archived images are crucial to the overall diagnostic and/or therapeutic treatment plan of the patient. For saved digital subtraction angiography (DSA) runs, an attempt should be made to record at least 1 image in unsubtracted or partially subtracted format. This image is useful for orientation/localization purposes. It should be understood that, with the use of rapid-sequence imaging and fluoroscopy, some observations that are described in the report may not be adequately documented by the static archived images.

D. Endovascular Interventions

Predeployment and postdeployment intervention images should be obtained and archived. Intermediate stages that are pertinent to the performance of the endovascular procedure may also be documented with archived images. Images should detail the position of the device and, when appropriate, the effect of the device on target or nontarget vessels.

E. Nonvascular Interventions

Images should document the device's position and its effect on target and nontarget organs. The final position of drainage catheters within fluid collections, the biliary system, the urinary tract, or the gastrointestinal tract should be documented. If contrast material is injected for delineating cavity size, location, or communication with adjacent structures, at least 1 image should be archived. If imaging is used to mark a position for subsequent needle entry (eg, ultrasound to mark an entry site for later paracentesis performed without imaging guidance), at least 1 image of this position should be saved. For needle placement (eg, biopsies, drug delivery, pain management interventions) under direct imaging guidance, at least 1 image should be saved with the needle in final position at each treated site. The operator may choose to document every needle pass and the final condition of the accessed structure.

IV. ARCHIVING OF RADIATION DOSE DATA

If technically possible, all radiation dose data recorded by the fluoroscopy unit or CT scanner should be transferred and archived with the images from the procedure [5]. When possible, this should be performed electronically with automatic transfer of the data from the fluoroscopy unit or CT scanner to a picture archiving and communication system (PACS). Archiving of radiation dose data is of particular importance if the procedure is likely to be repeated or if the patient has received a clinically important radiation dose [2].

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