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The American College of Radiology will periodically define new practice guidelines 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 guidelines and technical standards will be reviewed for revision or renewal, as appropriate, on their fifth anniversary or sooner, if indicated.

Each practice guideline 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, requiring the approval of the Commission on Quality and Safety as well as the ACR Board of Chancellors, the ACR Council Steering Committee, and the ACR Council. The practice guidelines 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 guideline and technical standard by those entities not providing these services is not authorized.

Revised 2009 (Resolution 23)\*

## **ACR–SIR PRACTICE GUIDELINE FOR THE REPORTING AND ARCHIVING OF INTERVENTIONAL RADIOLOGY PROCEDURES**

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### **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 of 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**

This guideline was revised collaboratively by the American College of Radiology (ACR) and the Society of Interventional Radiology (SIR) [1].

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

These guidelines 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 document procedures for appropriate coding.
4. To provide guidelines 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:

1. Documentation of preprocedural inpatient and/or office consultation.
2. Immediate preprocedure note.
3. Immediate postprocedure note.
4. Final report.
5. Documentation of postprocedure inpatient and/or office contact.

### B. Preprocedure Documentation

The preprocedural documentation provides a baseline record of patient status and documents the indication for the procedure. It should be written 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. The plan for each procedure to be performed.
2. Indication for procedure and brief history.
3. Findings of targeted physical examination.
4. Relevant laboratory and other diagnostic findings.
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 this was an emergency medical procedure.

### C. 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, as appropriate:

1. Diagnosis.
2. Procedure.
3. Physician.
4. Assistant.
5. Sedation.
6. Medications.
6. Findings.
7. Blood Loss.

### 8. Specimens.

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

### D. Final Report

1. A final report is required:
  - 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. Specific information to be included in this report depends on the procedure. The following elements are recommended, although all of them may not be applicable:
  - a. Procedure.
  - b. Date.
  - c. Operator(s).
  - d. Indication.
  - e. Method of anesthesia or sedation.
  - f. Procedure/technique: a technical description of the procedure. This information should include, as appropriate, access site (and attempted access sites), guidance modalities, catheters/guidewires/needles used, vessels or organs accessed technique, and hemostasis. Each major vessel catheterized for imaging or intervention should be noted specifically.
  - g. For inserted medical devices, appropriate identifying information such as the product name, vendor, and lot numbers.
  - h. Medications, dosages, and route of administration, including any premedications and contrast agents.
  - i. Estimated radiation dose (fluoroscopy time if no other measurement is available) [2,3].
  - j. Findings and results.
  - k. Complications.
  - l. Conclusion.
  - m. Postprocedure disposition.

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 (e.g., 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. Archiving should be similar for both cut-film angiography and digital imaging. 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 obtained should be archived. If imaging is used to mark a position for subsequent needle entry (e.g., 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 (e.g., 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 computed tomography (CT) scanner should be transferred and archived with the images from the procedure. 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.

### ACKNOWLEDGEMENTS

This guideline was revised according to the process described under the heading *The Process for Developing ACR Practice Guidelines and Technical Standards* on the ACR web page (<http://www.acr.org/guidelines>) by the Guidelines and Standards Committee of the Commission on Cardiovascular and Interventional Radiology with the collaboration of the SIR.

#### Collaborative Committee

##### ACR

Drew M. Caplin, MD

Timothy L. Swan, MD

##### SIR

Michael A. Bettmann, MD, FACR

Marc S. Schwartzberg, MD

#### ACR Guidelines and Standards Committee-Interventional

Donald L. Miller, MD, FACR, Chair

Stephen Balter, MD, FACR

Drew M. Caplin, MD

Christine P. Chao, MD

Debra A. Gervais, MD

John D. Grizzard, MD

John W. Ho, MD

Sanjoy Kundu, MD

Walter S. Lesley, MD, FACR

Harjit Singh, MD

Timothy L. Swan, MD

Matthew A. Mauro, MD, FACR, Chair, Commission

#### Comments Reconciliation Committee

Philip S. Cook, MD, FACR, Chair

Mark J. Adams, MD, MBA, FACR

Michael A. Bettmann, MD, FACR

Drew M. Caplin, MD

Craig E. Clark, MD

Alan D. Kaye, MD, FACR

David C. Kushner, MD, FACR

Paul A. Larson, MD, FACR

Lawrence A. Liebscher, MD, FACR

Matthew A. Mauro, MD, FACR

Donald L. Miller, MD, FACR  
Marc S. Schwartzberg, MD  
Timothy L. Swan, MD

## REFERENCES

1. Omary RA, Bettmann MA, Cardella JF, et al. Quality improvement guidelines for the reporting and archiving of interventional radiology procedures. *J Vasc Interv Radiol* 2002; 13:879-881.
2. ACR technical standard for management of the use of radiation in fluoroscopic procedures. *Practice Guidelines and Technical Standards*. Reston, Va: American College of Radiology; 2008:1143-1149.
3. Miller DL, Balter S, Wagner LK, et al. Quality improvement guidelines for recording patient radiation dose in the medical record. *J Vasc Interv Radiol* 2004; 15:423-429.

**Suggested Reading** (Additional articles that are not cited in the document but that the committee recommends for further reading on this topic)

4. *To Err is Human: Building a Safer Health System*. Washington, DC: The National Academies Press; 1999.
5. *Guidelines for Optimal Office Based Surgery*. Chicago, IL: The American College of Surgeons Board of Governors Committee on Ambulatory Surgical Care; 2000.
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8. *Information for Health: A Strategy for Building the National Health Information Infrastructure*. Hyattsville, Md: National Committee on Vital and Health Statistics. US Department of Health and Human Services; 2001.
9. The American Gastroenterological Association standards for office-based gastrointestinal endoscopy services. *Gastroenterology* 2001; 121:440-443.
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12. *Guideline for Office Endoscopic Procedures*. Los Angeles, CA: Society of Gastrointestinal and Endoscopic Surgeons (SAGES); 2004.
13. Amis ES, Jr., Butler PF, Applegate KE, et al. American College of Radiology white paper on radiation dose in medicine. *J Am Coll Radiol* 2007; 4:272-284.

14. Omary RA, Bettmann MA, Cardella JF, et al. Quality improvement guidelines for the reporting and archiving of interventional radiology procedures. *J Vasc Interv Radiol* 2002; 13(9 Pt 1):879-881.

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\*Guidelines and standards are published annually with an effective date of October 1 in the year in which amended, revised or approved by the ACR Council. For guidelines and standards published before 1999, the effective date was January 1 following the year in which the guideline or standard was amended, revised, or approved by the ACR Council.

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