Complete Summary

GUIDELINE TITLE

Acute hand and wrist trauma.

BIBLIOGRAPHIC SOURCE(S)

Rubin DA, Dalinka MK, Daffner RH, DeSmet AA, El-Khoury GY, Kneeland JB, Manaster BJ, Morrison WB, Pavlov H, Schneider R, Steinbach LS, Weissman BN, Haralson RH III, Expert Panel on Musculoskeletal Imaging. Acute hand and wrist trauma. [online publication]. Reston (VA): American College of Radiology (ACR); 2005. 8 p. [47 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American College of Radiology (ACR), Expert Panel on Musculoskeletal Imaging. Acute hand and wrist trauma. Reston (VA): American College of Radiology (ACR); 2001. 7 p. (ACR appropriateness criteria).

The appropriateness criteria are reviewed annually and updated by the panels as needed, depending on introduction of new and highly significant scientific evidence.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Acute hand and wrist trauma

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Internal Medicine
Nuclear Medicine
Orthopedic Surgery
Radiology

INTENDED USERS

Health Plans
Hospitals
Managed Care Organizations
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of initial radiologic examinations for patients with acute hand and wrist trauma

TARGET POPULATION

Patients with acute hand and wrist trauma

INTERVENTIONS AND PRACTICES CONSIDERED

1. X-ray
    - Posteroanterior (PA)
    - Lateral
    - Semipronated oblique
    - Semisupinated oblique
    - PA with ulnar deviation and/or cephalad tube angle
    - Complete 3-views
    - Carpal tunnel projection
    - Externally rotated oblique
    - Internally rotated oblique
    - Anterior-posterior (AP) or posteroanterior of thumb
    - PA with valgus stress and contralateral comparison
2. Computed tomography (CT)
    - Without contrast
    - Prone and supinated, both wrists
    - Prone only, both wrists
3. Magnetic resonance imaging (MRI)
    - Without contrast
    - Including prone and supine with comparison

- Arthrogram

4. Arthrography
5. Nuclear medicine (NUC), bone scan
6. Ultrasound
7. Panorex
8. Tomography

MAJOR OUTCOMES CONSIDERED

Utility of radiologic examinations in differential diagnosis

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches of peer-reviewed medical journals, and the major applicable articles were identified and collected.

NUMBER OF SOURCE DOCUMENTS

The total number of source documents identified as the result of the literature search is not known.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not stated

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

One or two topic leaders within a panel assume the responsibility of developing an evidence table for each clinical condition, based on analysis of the current literature. These tables serve as a basis for developing a narrative specific to each clinical condition.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Since data available from existing scientific studies are usually insufficient for meta-analysis, broad-based consensus techniques are needed for reaching agreement in the formulation of the appropriateness criteria. The American College of Radiology (ACR) Appropriateness Criteria panels use a modified Delphi technique to arrive at consensus. Serial surveys are conducted by distributing questionnaires to consolidate expert opinions within each panel. These questionnaires are distributed to the participants along with the evidence table and narrative as developed by the topic leader(s). Questionnaires are completed by the participants in their own professional setting without influence of the other members. Voting is conducted using a scoring system from 1-9, indicating the least to the most appropriate imaging examination or therapeutic procedure. The survey results are collected, tabulated in anonymous fashion, and redistributed after each round. A maximum of three rounds is conducted and opinions are unified to the highest degree possible. Eighty percent agreement is considered a consensus. This modified Delphi technique enables individual, unbiased expression, is economical, easy to understand, and relatively simple to conduct.

If consensus cannot be reached by this Delphi technique, the panel is convened and group consensus techniques are utilized. The strengths and weaknesses of each test or procedure are discussed and consensus reached whenever possible. If "No consensus" appears in the rating column, reasons for this decision are added to the comment sections.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria®

Clinical Condition: Acute Hand or Wrist Trauma

Variant 1: Wrist trauma, first exam.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, wrist, PA	9	
X-ray, wrist, lateral	9	
X-ray, wrist, semipronated oblique	9	
X-ray, wrist, semisupinated oblique	5	An optional view that may increase yield for distal radius fractures, especially when added for ulnar-sided pain.
CT, wrist, without contrast	2	
MRI, wrist, without contrast	2	
NUC, bone scan	2	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 2: Suspect acute scaphoid fracture, first exam.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, wrist, PA	9	
X-ray, wrist, lateral	9	
X-ray, wrist, semipronated oblique	9	
X-ray, wrist, PA with ulnar deviation and/or cephalad tube angle	9	
X-ray, wrist,	1	

Radiologic Exam Procedure	Appropriateness Rating	Comments
semisupinated oblique		
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 3: Suspect acute distal radius fracture. Radiographs normal. Next procedure.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, wrist, cast and repeat in 10 to 14 days	8	
MRI, wrist, without contrast	8	If immediate confirmation or exclusion of fracture is required.
CT, wrist, without contrast	5	Only if casted and repeat radiographs are negative.
NUC, bone scan	2	
US, wrist	2	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 4: Suspect acute scaphoid fracture. Radiographs normal. Next procedure.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, wrist, cast and repeat in 10 to 14 days	8	Choice of casting or MRI should be tailored to clinical circumstances in the individual case.
MRI, wrist, without contrast	8	Choice of casting or MRI should be tailored to clinical circumstances in the

Radiologic Exam Procedure	Appropriateness Rating	Comments
		individual case.
CT, wrist, without contrast	4	A reasonable third option if the above two choices are contraindicated
Panorex, wrist	1	
NUC, bone scan	1	
US, wrist	1	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 5: Scaphoid fracture on films. Concern for displacement or age of fracture.

Radiologic Exam Procedure	Appropriateness Rating	Comments
CT, wrist, without contrast	9	
Tomography, wrist	2	
MRI, wrist, without contrast	1	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 6: Comminuted distal radius fracture. Suspect incongruity of joint.

Radiologic Exam Procedure	Appropriateness Rating	Comments
CT, wrist, without contrast	9	

Radiologic Exam Procedure	Appropriateness Rating	Comments
MRI, wrist, without contrast	1	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 7: Suspect distal radioulnar joint subluxation.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, wrist, complete 3-views	9	
CT, wrist, bilateral, prone and supinated	9	
CT, wrist, bilateral, prone only	2	
MRI, wrist (including prone and supine with comparison)	2	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 8: Suspect hook of the hamate fracture. Initial radiographs normal or equivocal.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, wrist, semisupinated oblique projection	9	
X-ray, wrist, carpal tunnel projection	9	

Radiologic Exam Procedure	Appropriateness Rating	Comments
CT, wrist	9	If additional projections are negative or equivocal.
NUC, bone scan	2	
MRI, wrist	2	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 9: Suspect metacarpal fracture or dislocation.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, wrist, PA	9	
X-ray, wrist, lateral	9	
X-ray, wrist, semipronated oblique (off-lateral view)	9	
CT, wrist	7	If strong clinical concern exists following negative or equivocal radiograph.
X-ray, wrist, semisupinated oblique (off-lateral view)	4	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 10: Suspect phalangeal fracture or dislocation.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, hand or finger,	9	

Radiologic Exam Procedure	Appropriateness Rating	Comments
PA		
X-ray, hand or finger, lateral	9	
X-ray, hand or finger, externally rotated oblique	9	
X-ray, hand or finger, internally rotated oblique	5	Appropriate but not always routine.
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 11: Suspect thumb fracture or dislocation.

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, thumb, AP or PA	9	
X-ray, thumb, lateral	9	
X-ray, thumb, rotated oblique	9	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 12: Suspect gamekeeper injury (thumb metacarpophalangeal [MCP] ulnar collateral ligament injury).

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, thumb, PA	9	

Radiologic Exam Procedure	Appropriateness Rating	Comments
X-ray, thumb, lateral	9	
MRI, thumb	8	
X-ray, thumb, PA with valgus stress and contralateral comparison	6	Controversy concerning accuracy and creation of Stener lesion.
US, thumb	6	If expertise exists, reliable alternative to MRI.
MRI, thumb, arthrogram	3	
Arthrography, thumb	2	
Appropriateness Criteria Scale **1 2 3 4 5 6 7 8 9** **1 = Least appropriate 9 = Most appropriate**		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

For most patients with trauma of the hand, wrist, or both, radiographs provide adequate diagnostic information and guidance for the treating physician. However, in one large study, wrist fractures, especially those of the distal radius and scaphoid, accounted for more delayed diagnoses than any other traumatized region in patients with initially normal emergency room radiographs. Thus, when initial radiographs are equivocal, or in the presence of certain clinical or radiographic findings, further imaging is appropriate. This may be as simple as additional radiographic projections, or it may include sonography, bone scintigraphy, computed tomography (CT), or magnetic resonance (MR) imaging.

As is true for many extremities, a two-view radiographic examination is not adequate for detecting fracture in the wrist, hand, or fingers. In most patients with suspected distal radius fractures, a three-view radiographic examination (posteroanterior [PA], lateral, and 45-degree semipronated oblique) suffices, while a recent study suggests that the routine addition of a fourth projection--a semisupinated oblique projection--would increase the yield for distal radius fractures, which may be visible only on this fourth view. Nevertheless, when high-field or low-field MR imaging is performed in addition to radiographs, radiographically occult fractures of the distal radius as well as unsuspected fractures of the carpal bones are frequently demonstrated. In injured wrists with normal or suspicious radiographs that do not account for the clinical symptoms, performing MR imaging results in a change in diagnosis in 55%, and a change in management in 66%. However, a recent randomized controlled trial showed that routine performance of an immediate, abbreviated, low-field MR imaging study in acutely injured wrists did not predict the need for further treatment any better than the combination of physical examination and radiography. In addition to MR

imaging, multidetector CT can both show radiographically occult carpal fractures and exclude suspected fractures, when initial radiographs are equivocal or when complex fracture-dislocations are present.

Successful treatment of distal radius fractures is predicated on reestablishment of radial length, inclination, and tilt, as well as restoration of the articular surfaces. Less than 2 mm step-off of the distal radial articular surface is considered a congruent reduction necessary for good long-term outcome. When CT examination is performed in addition to radiographs, CT reveals involvement of the radiocarpal and distal radioulnar surfaces, intra-articular displacements and depressions, and comminution more accurately than radiographs. Measurements of articular surface gap and step-off are more reproducible when performed using CT compared with radiographs, and for displacements >2 mm, there is poor correlation between radiographic and CT findings. Thus, in distal radius fractures where there is a high likelihood of intra-articular incongruence (e.g., fractures in young adults, which frequently result from high-energy impact loading), selective or even routine use of CT to supplement the standard radiographic examination is warranted. The distal radial articular surface is best evaluated by multislice CT with multiplanar reformatted images; if multislice CT is not available, direct sagittal images can be obtained, but the imaging process may be difficult if the patient has a cast or external fixator. MR imaging also shows intra-articular extension of distal radius fractures more frequently than does radiography and demonstrates concomitant intra-articular soft tissue injuries--predominantly tears of the scapholunate interosseous ligament--that may affect surgical treatment, although current evidence suggests that MRI performed immediately at the time of injury has no added value for predicting whether additional treatment will be necessary for soft tissue injuries.

The diagnosis of distal radioulnar joint (DRUJ) subluxation is problematic. The symptoms and physical findings are often nonspecific, and the condition is difficult to confirm radiographically. Traumatic subluxation or dislocation of the DRUJ may occur as an isolated injury or be associated with other conditions. If optimum positioning of the wrist is not possible because of the injury or overlying cast, CT scanning is recommended. Both wrists should be scanned for comparison. The wrists should be studied in the pronated and supinated positions. While this examination can also be performed with MR imaging, positioning and repositioning the patient to visualize both wrists are logistically more complex, more time-consuming, and less comfortable with MR compared to CT.

An additional fourth radiographic projection--an elongated PA view with approximately 30 degrees of cephalad beam angulation and the wrist positioned in 10 to 15 degrees of ulnar deviation--is recommended as a routine whenever there is clinical suspicion of a scaphoid fracture. However, scaphoid fractures are notoriously difficult to see on initial radiographs (regardless of the views), being radiographically occult in up to 20% of cases. Standard practice in patients with clinically suspected scaphoid fractures but normal initial radiographs is to apply a cast and to repeat the radiographs in 10 to 14 days, when resorption at the fracture line may make previously occult fractures visible. If the clinical or radiographic findings are still equivocal at that time, imaging with bone scintigraphy, CT, or MR will likely be needed. Additionally, recent studies have evaluated the role of tomography, ultrasonography, scintigraphy, CT, and MR imaging (with standard equipment or a dedicated, extremity-only scanner), in

initially uncertain cases at the time of or shortly after the initial injury. If one or more of these studies is sufficiently sensitive and specific, presumptive casting can be eliminated in normal cases, and definitive care can be instituted earlier for fractures.

A tomographic wrist examination using a Panorex machine has been suggested to help clarify cases where the initial four-view radiograph is suspicious, but the panoramic study requires a custom-built adaptor for the wrist, which limits its applicability. Bone scintigraphy, with either delayed images or blood pool images, can be used to identify or exclude radiographically occult fractures, but this use of scintigraphy has been largely replaced by MR imaging in facilities where MR imaging is readily available. MR imaging is both more sensitive and more specific than scintigraphy for scaphoid fractures; scintigraphic false positive diagnoses of carpal fractures occur due to bone contusions, osteoarthritis, avascular necrosis, and osteomyelitis, any of which may be radiographically occult. MR imaging evaluation for radiographically occult scaphoid fractures can be performed with high-field or low-field equipment, using a whole-body imaging system and appropriate local coil, or using a dedicated extremity MR scanner. Not only can MR imaging accurately show scaphoid fractures, but in cases where no scaphoid fracture is present, the MR images often demonstrate other, unsuspected fractures of the distal radius or carpus, or soft tissue injuries. In this role, MR imaging may be cost-effective, especially if immediate MR examination is performed in lieu of presumptive casting, if MR imaging is done with a limited protocol and at a reduced charge, and if the total cost of presumptive care, including productivity lost from work, is included in the analysis. Ultrasonography with high-frequency transducers can identify some cases of radiographically occult scaphoid fractures; however, the current evidence does not support the routine use of sonography in these cases. Ultrasound (US) examination is not sensitive enough to preclude presumptive casting when no fracture is seen. Furthermore, US only interrogates the dorsal scaphoid waist, while a large proportion of wrists with clinically suspected occult scaphoid fractures in reality have a fracture of the distal radius or other carpal bone (or another portion of the scaphoid); all these cases would be missed if a negative ultrasound examination were used to avoid casting.

In patients with a strong clinical suspicion of a scaphoid fracture but normal radiographs, the panel feels that either presumptive casting with repeated radiographs in 10 to 14 days or immediate MR imaging are equally acceptable strategies. The choice will depend on the age, hand dominance, and activity level of the patient, the availability of MR imaging, and local preferences.

For the scaphoid bone, not only is identification of the fracture important, but many surgeons recommend immediate operative intervention for displaced scaphoid fractures. As little as 1 mm of displacement is important, resulting in a higher rate of nonunion and avascular necrosis. Dorsal tilting of the lunate on a lateral radiograph may be an indirect sign of scaphoid fracture displacement. In cases where the position of the scaphoid fracture fragments is suspect despite normal radiographs, CT imaging is recommended. Similarly, the panel recommends CT examination when there is a question about the age of a scaphoid fracture or its healing.

Compared with the scaphoid, the diagnosis of other carpal bone injuries is less problematic. In specific circumstances, however, supplemental studies in addition to the standard wrist examination are useful. Pisiform fractures are best seen on semisupinated AP or carpal tunnel projections, which project the pisiform volar to the rest of the carpus. The same projections may also demonstrate fractures involving the hook of the hamate that are not visible on the standard radiographs. However, if radiographs fail to show a hamate fracture that is strongly suspected clinically, axial CT examination is indicated.

A standard three-view radiographic examination will reveal most fractures and dislocations of the metacarpals and phalanges. CT may be useful for surgical planning in fracture-dislocations of the carpometacarpal joints. For phalangeal injuries, some practices include a PA examination of the entire hand, while others limit the entire examination to the injured finger. An internally rotated oblique projection in addition to the standard externally rotated oblique may increase diagnostic confidence for phalangeal fractures. Unlike the case for the wrist, low-field MR imaging is less sensitive than radiographs for hand and finger fractures.

Most fractures of the thumb will be visible on a two-view radiographic examination, although there is a slight increase in diagnostic yield with the addition of an oblique projection, which can be obtained together with a PA examination of the whole hand. Tears of the ulnar collateral ligament of the thumb metacarpophalangeal joint (gamekeeper injury) represent a special problem. Unless there is an associated bony avulsion of the distal metacarpal or proximal phalangeal base, the injury will be radiographically occult. In these cases, a stress examination of the joint with manually applied abduction stress (which can be applied by the patient or the examiner) may show subluxation compared to the contralateral, uninjured side, although there is a theoretical risk of converting a nondisplaced ulnar collateral ligament tear into a displaced one by a stress examination. More important for treatment planning is whether the adductor aponeurosis has become interposed between the torn, displaced ligament and its osseous attachment site--a so-called Stener lesion. Torn ligaments with a Stener lesion require operative repair, while most nondisplaced tears without an interposed aponeurosis will heal with conservative treatment. Conventional arthrography, ultrasound, MR imaging, and MR arthrography have each been advocated to distinguish ulnar collateral ligament tears with and without Stener lesions. The choice of which modality to use will depend on local availability and expertise.

Abbreviations

- AP, anterior-posterior
- CT, computed tomography
- MRI, magnetic resonance imaging
- NUC, nuclear medicine
- PA, posteroanterior
- US, ultrasound

CLINICAL ALGORITHM(S)

Algorithms were not developed from criteria guidelines.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on analysis of the current literature and expert panel consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Selection of appropriate radiologic imaging procedures for evaluation of patients with acute hand and wrist trauma

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those exams generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Personal Digital Assistant (PDA) Downloads

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Rubin DA, Dalinka MK, Daffner RH, DeSmet AA, El-Khoury GY, Kneeland JB, Manaster BJ, Morrison WB, Pavlov H, Schneider R, Steinbach LS, Weissman BN, Haralson RH III, Expert Panel on Musculoskeletal Imaging. Acute hand and wrist trauma. [online publication]. Reston (VA): American College of Radiology (ACR); 2005. 8 p. [47 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1998 (revised 2005)

GUIDELINE DEVELOPER(S)

American College of Radiology - Medical Specialty Society

SOURCE(S) OF FUNDING

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria®.

GUIDELINE COMMITTEE

Committee on Appropriateness Criteria, Expert Panel on Musculoskeletal Imaging

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Panel Members: David A. Rubin, MD (*Principal Author*); Murray K. Dalinka, MD (*Panel Chair*); Richard H. Daffner, MD; Arthur A. De Smet, MD; George Y. El-Khoury, MD; John B. Kneeland, MD; B.J. Manaster, MD, PhD; William B. Morrison, MD; Helene Pavlov, MD; Robert Schneider, MD; Lynne S. Steinbach, MD; Barbara N. Weissman, MD; Robert H. Haralson III, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American College of Radiology (ACR), Expert Panel on Musculoskeletal Imaging. Acute hand and wrist trauma. Reston (VA): American College of Radiology (ACR); 2001. 7 p. (ACR appropriateness criteria).

The appropriateness criteria are reviewed annually and updated by the panels as needed, depending on introduction of new and highly significant scientific evidence.

GUIDELINE AVAILABILITY

Electronic copies: Available (in Portable Document Format [PDF]) from the American College of Radiology (ACR) Web site.

ACR Appropriateness Criteria® *Anytime*, *Anywhere*™ (PDA application). Available from the ACR Web site.

Print copies: Available from the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- ACR Appropriateness Criteria®. Background and development. Reston (VA): American College of Radiology; 2 p. Electronic copies: Available in Portable Document Format (PDF) from the American College of Radiology (ACR) Web site.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on May 6, 2001. The information was verified by the guideline developer as of June 29, 2001. This summary was updated by ECRI on July 31, 2002. The updated information was verified by the guideline developer on October 1, 2002. This NGC summary was updated by ECRI on January 4, 2006. The updated information was verified by the guideline developer on January 19, 2006.

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Date Modified: 9/22/2008


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