



Complete Summary

GUIDELINE TITLE

ACR Appropriateness Criteria™ for acute chest pain--no ECG evidence of myocardial ischemia/infarction.

BIBLIOGRAPHIC SOURCE(S)

American College of Radiology (ACR), Expert Panel on Cardiovascular Imaging. Acute chest pain - no ECG evidence of myocardial ischemia/infarction. Reston (VA): American College of Radiology (ACR); 2001. 5 p. (ACR appropriateness criteria). [50 references]

COMPLETE SUMMARY CONTENT

SCOPE

METHODOLOGY - including Rating Scheme and Cost Analysis

RECOMMENDATIONS

EVIDENCE SUPPORTING THE RECOMMENDATIONS

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

QUALIFYING STATEMENTS

IMPLEMENTATION OF THE GUIDELINE

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT

CATEGORIES

IDENTIFYING INFORMATION AND AVAILABILITY

SCOPE

DISEASE/CONDITION(S)

Acute chest pain with no electrocardiogram evidence of myocardial ischemia/infarction

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Cardiology
Emergency Medicine
Family Practice
Internal Medicine
Radiology

INTENDED USERS

Health Plans
Hospitals
Managed Care Organizations
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of initial radiologic examinations for acute chest pain without electrocardiogram (ECG) evidence of myocardial ischemia/infarction

TARGET POPULATION

Patients with acute chest pain with no electrocardiogram evidence of myocardial ischemia/infarction

INTERVENTIONS AND PRACTICES CONSIDERED

1. Chest x-ray
2. Ventilation/perfusion (V/Q) scan
3. Resting myocardial perfusion scan
4. Transthoracic echocardiography
5. Transesophageal echocardiography
6. Computed tomography (CT)
7. Aortic magnetic resonance imaging (MRI)/magnetic resonance angiography (MRA)
8. Pulmonary angiography
9. Barium swallow and upper gastrointestinal series
10. Rib x-rays
11. Cervical spine x-rays
12. Thoracic spine x-rays
13. Stress echocardiography
14. Gall bladder ultrasound
15. Peripheral venous ultrasound
16. Electron beam or helical coronary Ca++ computed tomography
17. Thoracic magnetic resonance imaging
18. Pulmonary artery magnetic resonance angiography
19. Cardiac positron emission tomography (PET)
20. Thoracic aortogram
21. Coronary angiography with left ventricular (LV) gram
22. Radionuclide bone scan

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 recent peer-reviewed medical journals, primarily using the National Library of Medicine's MEDLINE database. The developer identified and collected the major applicable articles.

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

Expert Consensus (Delphi Method)
Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

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 to reach agreement in the formulation of the Appropriateness Criteria. 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 (80) percent agreement is

considered a consensus. If consensus cannot be reached by this method, 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.

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 and the Chair of the ACR Board of Chancellors.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria™

Clinical Condition: Acute Chest Pain: No ECG Evidence of Myocardial Ischemia/Infarction

Treatment	Appropriateness Rating	Comments
Chest x-ray	9	
V/Q scan	8	
Resting myocardial perfusion scan	8	
Transthoracic echocardiography	6	
Transesophageal echocardiography	6	
CT	6	

Treatment	Appropriateness Rating	Comments
Aortic MRI/MRA	6	In suspected dissection.
Pulmonary angiography	6	
Barium swallow and upper GI series	4	
Rib x-rays	4	
Cervical spine x-rays	4	
Thoracic spine x-rays	4	
Stress echocardiography	4	Assuming work-up is in the acute phase.
Gall bladder ultrasound	4	
Peripheral venous ultrasound	4	
Electron beam or helical coronary Ca++	4	
Thoracic MRI	4	
Pulmonary artery MRA	4	
Cardiac PET	4	
Thoracic aortogram	4	Depending on results of less invasive tests.
Coronary angiography with LV gram	4	Last choice for evaluation. Only if other equivocal. Depends on non-invasive test.
Radionuclide bone scan	4	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Abbreviations: ECG, electrocardiogram; V/Q, ventilation/perfusion scan; CT, computed tomography; MRI, magnetic resonance imaging; MRA, magnetic resonance angiography; GI, gastrointestinal; PET, positron emission tomography; LV, left ventricular

Summary

Although the history is the most important factor in establishing the etiology in patients presenting to the emergency department with chest pain, other imaging modalities are frequently used. The chest film is almost universally obtained; computed tomography, magnetic resonance imaging, radionuclide studies, barium swallow, spine studies, plain films, and angiography are used when needed.

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

Appropriate selection of radiologic exam procedures for evaluation of acute chest pain with no electrocardiogram (ECG) evidence of myocardial ischemia/infarction

POTENTIAL HARMS

None 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.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American College of Radiology (ACR), Expert Panel on Cardiovascular Imaging. Acute chest pain - no ECG evidence of myocardial ischemia/infarction. Reston (VA): American College of Radiology (ACR); 2001. 5 p. (ACR appropriateness criteria). [50 references]

ADAPTATION

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

DATE RELEASED

1998 (revised 2001)

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

ACR Appropriateness Criteria™ Committee, Expert Panel on Cardiovascular Imaging

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Panel Members: William Stanford, MD; Michael A. Bettmann, MD; Lawrence M. Buxt, MD; Antoinette S. Gomes, MD; Julius Grollman, MD; Martin J. Lipton, MD; Heriberto Pagan-Marin, MD; Joseph F. Polak, MD, MPH; Neil M. Rofsky, MD; David Sacks, MD; Jack A. Ziffer, MD, PhD; Gregory L. Moneta, MD; Michael Jaff, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It updates a previous version: ACR Appropriateness Criteria™ for acute chest pain--no ECG evidence of myocardial ischemia/infarction. Radiology 2000 Jun; 215(Suppl): 79-84.

The ACR Appropriateness Criteria™ are reviewed every five years, if not sooner, depending on the introduction of new and highly significant scientific evidence. The next review date for this topic is 2006.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [American College of Radiology \(ACR\) 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:

- American College of Radiology ACR Appropriateness Criteria™ introduction. Reston (VA): American College of Radiology; 6 p. Available in Portable Document Format (PDF) from the [ACR Web site](#).

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on February 20, 2001. The information was verified by the guideline developer on March 14, 2001. This summary was updated by ECRI on July 31, 2002. The updated information was verified by the guideline developer on October 1, 2002.

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