



## Complete Summary

---

### GUIDELINE TITLE

Clinical policy: critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma.

### BIBLIOGRAPHIC SOURCE(S)

Clinical policy: critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma. Ann Emerg Med 2004 Feb;43(2):278-90. [47 references] [PubMed](#)

### GUIDELINE STATUS

This is the current release of the guideline.

Clinical policies are scheduled for revision every 3 years; however, interim reviews are conducted when technology or the practice environment changes significantly.

## 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  
DISCLAIMER

## SCOPE

### DISEASE/CONDITION(S)

Acute blunt abdominal trauma

### GUIDELINE CATEGORY

Evaluation

### CLINICAL SPECIALTY

Emergency Medicine  
Family Practice  
Internal Medicine  
Radiology

## **INTENDED USERS**

Physicians

## **GUIDELINE OBJECTIVE(S)**

- To present evidence-based recommendations regarding the accuracies of computed tomography (CT), diagnostic peritoneal lavage, and focused abdominal sonography for trauma (FAST) in identifying various intra-abdominal injuries
- To address the following critical questions:
  - What is the diagnostic performance of CT in diagnosing significant intra-abdominal injuries requiring intervention in blunt abdominal trauma?
  - Does oral contrast improve the diagnostic performance of CT in blunt abdominal trauma?
  - What is the diagnostic performance of FAST in diagnosing hemoperitoneum in blunt abdominal trauma?
  - What is the diagnostic performance of diagnostic peritoneal lavage in diagnosing significant intra-abdominal injuries requiring intervention in blunt abdominal trauma?

## **TARGET POPULATION**

Nonpregnant adult patients presenting to the emergency department with blunt force injuries to the abdomen (e.g., falls, direct abdominal blows, motor vehicle collisions)

These guidelines are not intended for use in the following types of patients:

- children
- pregnant women
- victims of penetrating abdominal injuries

## **INTERVENTIONS AND PRACTICES CONSIDERED**

### **Diagnosis/Evaluation**

1. Computed tomography (CT) with and without oral contrast
2. Focused abdominal sonography for trauma (FAST)
3. Diagnostic peritoneal lavage

## **MAJOR OUTCOMES CONSIDERED**

Sensitivity, specificity, and prognostic value of diagnostic tests

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)  
Hand-searches of Published Literature (Secondary Sources)  
Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A MEDLINE search for articles published between January 1966 and June 2002 was performed using the terms "abdominal injuries" and "abdominal trauma" in combination with the following: diagnosis, ultrasonography, peritoneal lavage, diagnostic peritoneal lavage, lavage, laboratory testing, and trauma panel. Other MEDLINE searches for articles published during the same time interval were performed using the following key words: tomography (x-ray computed); wounds (nonpenetrating); and injuries, in combination with the following key words: kidney, pelvis, ureter, and bladder. Searches were limited to English-language sources. Additional articles were reviewed from the bibliography of articles cited. Recent journals and standard texts were also examined for additional sources.

### NUMBER OF SOURCE DOCUMENTS

Not stated

### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

#### Literature Classification Schema<sup>^</sup>

#### Class 1

- *Therapy\**: Randomized, controlled trial or meta-analyses of randomized trials
- *Diagnosis\*\**: Prospective cohort using a criterion standard
- *Prognosis\*\*\**: Population prospective cohort

#### Class 2

- *Therapy\**: Nonrandomized trial
- *Diagnosis\*\**: Retrospective observational
- *Prognosis\*\*\**: Retrospective cohort; case control

#### Class 3

- *Therapy\**: Case series; case report; other (e.g., consensus, review)
- *Diagnosis\*\**: Case series; case report; other (e.g., consensus, review)

- *Prognosis*\*\*\*: Case series, case report; other (e.g., consensus, review)

^ Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

\* Objective is to measure therapeutic efficacy comparing  $\geq 2$  interventions

\*\* Objective is to determine the sensitivity and specificity of diagnostic tests

\*\*\* Objective is to predict outcome including mortality and morbidity

## **METHODS USED TO ANALYZE THE EVIDENCE**

Review of Published Meta-Analyses  
Systematic Review with Evidence Tables

## **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

All articles used in the formulation of this policy were classified by the subcommittee members into 3 classes on the basis of design of study, with design 1 representing strongest evidence and design 3 representing weakest evidence for therapeutic, diagnostic, and prognostic clinical reports, respectively. Reports were then graded on 6 dimensions thought to be most relevant to the development of a clinical guideline: blinded versus nonblinded outcome assessment, blinded or randomized allocation, direct or indirect outcome measures, biases (e.g., selection, detection, transfer), external validity (generalizability), and sufficient sample size. Articles received a final grade (I, II, III) on the basis of a predetermined formula taking into account design and grade of study. Articles with fatal flaws were given an "X" grade and not used in the creation of this policy.

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Expert Consensus

## **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

This policy is a product of the American College of Emergency Physicians (ACEP) clinical policy development process, including expert review, and is based on the existing literature; where literature was not available, consensus of emergency physicians was used.

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

Clinical findings and strength of recommendations regarding patient management were made according to the following criteria:

### **Strength of Recommendations**

**Level A recommendations.** Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on

"strength of evidence class I" or overwhelming evidence from "strength of evidence class II" studies that directly address all the issues)

**Level B recommendations.** Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence class III" studies)

**Level C recommendations.** Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence or, in the absence of any published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, strength of prior beliefs, and publication bias, among others, might lead to such a downgrading of recommendations.

## **COST ANALYSIS**

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

## **METHOD OF GUIDELINE VALIDATION**

External Peer Review  
Internal Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

Expert review comments were received from emergency physicians, members of the American College of Emergency Physician's (ACEP's) Trauma Care and Injury Control Committee, leaders of ACEP's Section of Trauma and Injury Prevention, leaders of ACEP's Section of Emergency Ultrasound, and physicians from specialty societies, including individual members of the American College of Surgeons Committee on Trauma and the American Academy of Family Physicians. Their responses were used to further refine and enhance this policy.

# **RECOMMENDATIONS**

## **MAJOR RECOMMENDATIONS**

Definitions for the strength of evidence (Class I-III) and strength of recommendations (A-C) are repeated at the end of the Major Recommendations.

**What is the diagnostic performance of computed tomography (CT) in diagnosing significant intra-abdominal injuries requiring intervention in blunt abdominal trauma?**

- **Level A recommendations.** None specified.
- **Level B recommendations.** When either liver or spleen injury is suspected, CT can reliably exclude injuries that require emergent operative intervention. CT alone cannot be used to exclude either bowel, diaphragm, or pancreas injury.

Abdominal CT accurately identifies hemoperitoneum among patients with blunt abdominal trauma.

- **Level C recommendations.** None specified.

#### **Does oral contrast improve the diagnostic performance of CT in blunt abdominal trauma?**

- **Level A recommendations.** None specified.
- **Level B recommendations.** Oral contrast is not essential to the evaluation of blunt abdominal trauma.
- **Level C recommendations.** None specified.

#### **What is the diagnostic performance of focused abdominal sonography for trauma (FAST) in diagnosing hemoperitoneum in blunt abdominal trauma?**

- **Level A recommendations.** None specified.
- **Level B recommendations.** FAST is useful as an initial screening examination to detect hemoperitoneum in blunt abdominal trauma patients.
- **Level C recommendations.** None specified.

#### **What is the diagnostic performance of diagnostic peritoneal lavage in diagnosing significant intra-abdominal injuries requiring intervention in blunt abdominal trauma?**

- **Level A recommendations.** None specified.
- **Level B recommendations.** Diagnostic peritoneal lavage can be used to exclude hemoperitoneum in blunt abdominal trauma patients. Diagnostic peritoneal lavage does not define the extent of injury, has a 1 to 2% complication rate, and may lead to nontherapeutic laparotomies.
- **Level C recommendations.** On the basis of consensus and current practice patterns, the initial choices for the evaluation of blunt abdominal trauma are CT and FAST, depending on the patient's hemodynamic stability.

#### **Definitions:**

#### **Literature Classification Schema<sup>^</sup>**

##### **Class 1**

- *Therapy\**: Randomized, controlled trial or meta-analyses of randomized trials
- *Diagnosis\*\**: Prospective cohort using a criterion standard
- *Prognosis\*\*\**: Population prospective cohort

## Class 2

- *Therapy\**: Nonrandomized trial
- *Diagnosis\*\**: Retrospective observational
- *Prognosis\*\*\**: Retrospective cohort; case control

## Class 3

- *Therapy\**: Case series; case report; other (e.g., consensus, review)
- *Diagnosis\*\**: Case series; case report; other (e.g., consensus, review)
- *Prognosis\*\*\**: Case series, case report; other (e.g., consensus, review)

^ Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

\* Objective is to measure therapeutic efficacy comparing  $\geq 2$  interventions

\*\* Objective is to determine the sensitivity and specificity of diagnostic tests

\*\*\* Objective is to predict outcome including mortality and morbidity

## Strength of Recommendations

**Level A recommendations.** Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on "strength of evidence class I" or overwhelming evidence from "strength of evidence class II" studies that directly address all the issues)

**Level B recommendations.** Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence class III" studies)

**Level C recommendations.** Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence or, in the absence of any published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, strength of prior beliefs, and publication bias, among others, might lead to such a downgrading of recommendations.

## CLINICAL ALGORITHM(S)

None provided

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

## TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

- This guideline may help physicians in the evaluation of adult patients presenting to the Emergency Department (ED) with acute blunt abdominal trauma.
- Refer to the original guideline document for evidence tables outlining sensitivities, specificities, and prognostic values of diagnostic tests discussed in this guideline.

### POTENTIAL HARMS

- **False-negative results.** Computed tomography (CT), focused abdominal sonography for trauma (FAST), and diagnostic peritoneal lavage can produce false-negative results.
- **False-positive results.** The false-positive rate for diagnostic peritoneal lavage is between 13 and 54%.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

Recommendations offered in this policy are not intended to represent the only diagnostic and management options that the emergency physician should consider. The American College of Emergency Physicians (ACEP) clearly recognizes the importance of the individual physician's judgment. Rather, this guideline defines for the physician those strategies for which medical literature exists to provide support for answers to the crucial questions addressed in this policy.

## 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  
Timeliness

## IDENTIFYING INFORMATION AND AVAILABILITY

### **BIBLIOGRAPHIC SOURCE(S)**

Clinical policy: critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma. Ann Emerg Med 2004 Feb;43(2):278-90. [47 references] [PubMed](#)

### **ADAPTATION**

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

### **DATE RELEASED**

2004 Feb

### **GUIDELINE DEVELOPER(S)**

American College of Emergency Physicians - Medical Specialty Society

### **SOURCE(S) OF FUNDING**

American College of Emergency Physicians

### **GUIDELINE COMMITTEE**

American College of Emergency Physicians (ACEP) Clinical Policies Subcommittee on Acute Blunt Abdominal Trauma

ACEP Clinical Policies Committee

### **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

*Members of the Clinical Policies Subcommittee on Acute Blunt Abdominal Trauma:* John M. Howell, MD (Chair); B. Tilman Jolly, MD; Thomas W. Lukens, MD, PhD; Roland Clayton Merchant, MD

*Members of the Clinical Policies Committee:* William C. Dalsey, MD (Chair, 2000-2002, Co-Chair 2002-2003); Andy S. Jagoda, MD (Co-Chair 2002-2003); Wyatt W. Decker, MD; Francis M. Fesmire, MD; Steven A. Godwin, MD; John M. Howell, MD; Alan H. Itzkowitz, MD (EMRA Representative 2000-2001); Shkelzen Hoxhaj, MD (EMRA Representative 2002-2003); J. Stephen Huff, MD; Edwin K. Kuffner, MD; Thomas W. Lukens, MD, PhD; Benjamin E. Marett, RN, MSN, CEN, CNA, COHN-S (ENA Representative 2001-2003); Thomas P. Martin, MD; Jessie Moore, RN, MSN, CEN (ENA Representative 2000-2001); Barbara A. Murphy, MD; Devorah Nazarian, MD; Scott M. Silvers, MD; Bonnie Simmons, DO; Edward P. Sloan, MD, MPH; Robert L. Wears, MD, MS; Stephen J. Wolf, MD (EMRA

Representative 2001-2002); Robert E. Suter, DO, MHA (Board Liaison 2000-2001); Susan M. Nedza, MD, MBA (Board Liaison 2001-2003); Rhonda R. Whitson, RHIA, Staff Liaison, Clinical Policies Committee and Subcommittees

## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

Not stated

## **GUIDELINE STATUS**

This is the current release of the guideline.

Clinical policies are scheduled for revision every 3 years; however, interim reviews are conducted when technology or the practice environment changes significantly.

## **GUIDELINE AVAILABILITY**

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

Print copies: Available from the American College of Emergency Physicians, P.O. Box 619911, Dallas, TX 75261-9911, or call toll free: (800) 798-1822.

## **AVAILABILITY OF COMPANION DOCUMENTS**

None available

## **PATIENT RESOURCES**

None available

## **NGC STATUS**

This NGC summary was completed by ECRI on April 21, 2004. The information was verified by the guideline developer on May 27, 2004.

## **COPYRIGHT STATEMENT**

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions. For more information, please refer to the [American College of Emergency Physicians \(ACEP\) Web site](#).

## **DISCLAIMER**

### **NGC DISCLAIMER**

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

© 1998-2008 National Guideline Clearinghouse

Date Modified: 11/3/2008

