

# Joint Theater Trauma System Clinical Practice Guideline

## BLUNT ABDOMINAL TRAUMA

Original Release/Approval	18 Dec 2004	Note: This CPG requires an annual review.	
Reviewed:	Jun 2012	Approved:	25 Jun 2012
Supersedes:	Blunt Abdominal Trauma, 30 Jun 2010		
<input type="checkbox"/> Minor Changes (or)	<input checked="" type="checkbox"/> <b>Changes are substantial and require a thorough reading of this CPG (or)</b>		
<input type="checkbox"/> Significant Changes	PI monitoring plan added; Potential for non-operative management of stable patients with grade I-III Splenic lacerations		

**1. Goal.** To provide guidance on the management of combat casualties who sustain blunt abdominal trauma (BAT).

### 2. Background.

- a. Unlike penetrating abdominal injuries where the decision to operate is relatively straight forward, those combat casualties that sustain blunt abdominal trauma offer more of a diagnostic and clinical challenge. With the improvements in body armor, truncal injury has decreased despite increasingly more lethal weapon systems. With the advent of Improvised Explosive Devices (IEDs), however, more casualties are presenting with evidence of BAT. While CT scans are available to assist the provider in decision making at a Role 3 facility, providers at far forward surgical units must decide to operate based on physical and Focused Abdominal Sonography in Trauma (FAST) exams.
- a. It is incumbent on the senior surgeon at each facility to ensure the staff understands their resource limitations and the inherent limitations associated with the use of the FAST exam to diagnose a hemoperitoneum. For those patients with a positive FAST, exploratory laparotomy should be undertaken immediately. ***Rarely***, patients with a positive FAST and/or CT scan may be managed non-operatively if they are already at a Role 3 facility that can ensure adequate clinical follow-up and evaluation. ***DO NOT*** aeromedically evacuate patients out of the CENTCOM AOR who have a positive FAST exam and/or CT evidence of hemoperitoneum prior to completely assessing and controlling any and all ongoing intraabdominal hemorrhage. The benefits of non-operative management ***do not*** outweigh the risks of an in-flight hemorrhagic emergency with no potential for therapeutic surgical intervention. Patients who have peritonitis by physical exam warrant exploratory laparotomy.
- b. ***All grade IV-V splenic injuries should undergo splenectomy due to the high risk of failure of non-operative management with or without splenic embolization.*** Lacerated spleens of any grade with active hemorrhage encountered during laparotomy for any reason are best managed by splenectomy. If the tactical situation permits stable grade I-III splenic injuries without active extravasation, pseudoaneurysm, hemoperitoneum on CT scan or other indications for laparotomy that may include, but are not limited to associated injury may undergo attempt of non-operative management under the direct supervision of an experienced trauma surgeon. Ideally, patients undergoing attempted splenic salvage should be monitored in the Role 3 facility for at least 48 hours prior to strategic evacuation out of theater. In Role 3 facilities with interventional radiology capabilities, embolization of grade III splenic injuries may be considered as an adjunct to non-operative management. Embolization is not definitive treatment for splenic injuries so

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these patients must also be monitored for 48 hours following the procedure and prior to strategic aeromedical evacuation from theater. A contrast CT scan should be obtained at 48 hours (and before aeromedical evacuation out of the Role 3) to assess for complications such as pseudaneurysm formation on all patients undergoing non-operative management of splenic injury. Indicators of failure of non-operative management of the spleen include but are not limited to any need for blood transfusion and any hypotensive episode. Patients who fail non-operative management of the spleen require splenectomy at the Role 3 prior to aeromedical evacuation. It must be stressed that placing a patient in the aeromedical environment is akin to discharge from the facility **WITHOUT ACTIVITY RESTRICTION** and without the option of re-admission during the complete inter-facility interval, which in the current AOR must be assumed to be a minimum of 12 hours. Additionally, the patient's history should be discussed between the referring and accepting surgeons prior to evacuation. This is based on a literature review showing 99-100% success rate of non-operative management for grade I-III splenic injuries. Angiography and embolization for blunt injuries of other visceral organs may be used as an adjunctive procedure and should be determined on a case by case basis.

- c. Nothing in this CPG or Appendix precludes the use of exploratory laparotomy for BAT when either the clinical or tactical situation warrants.

### 3. Recommendations. See [Appendix A](#).

### 4. Performance Improvement (PI) Monitoring.

- a. Intent (Expected Outcomes).
  - 1) All patients with Splenic lacerations grade IV-V will have splenectomy prior to theater evacuation
  - 2) All patients with blunt abdominal trauma who remain unstable after initial resuscitation will undergo exploratory laparotomy
- b. Performance/Adherence Measures.
  - 1) All patients with grade IV-V Splenic lacerations underwent splenectomy prior to transport out of theater
  - 2) All blunt abdominal trauma patients who remained unstable after initial resuscitation underwent exploratory laparotomy
- c. Data Source.
  - 1) Patient Record
  - 2) Joint Theater Trauma Registry (JTTR)
- d. System Reporting & Frequency.

The above constitutes the minimum criteria for PI monitoring of this CPG. System reporting will be performed annually; additional PI monitoring and system reporting may be performed as needed.

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The system review and data analysis will be performed by the Joint Theater Trauma System (JTTS) Director, JTTS Program Manager, and the Joint Trauma System (JTS) Performance Improvement Branch.

**5. Responsibilities.** It is the trauma team leader's responsibility to ensure familiarity, appropriate compliance and PI monitoring at the local level with this CPG..

**6. References.**

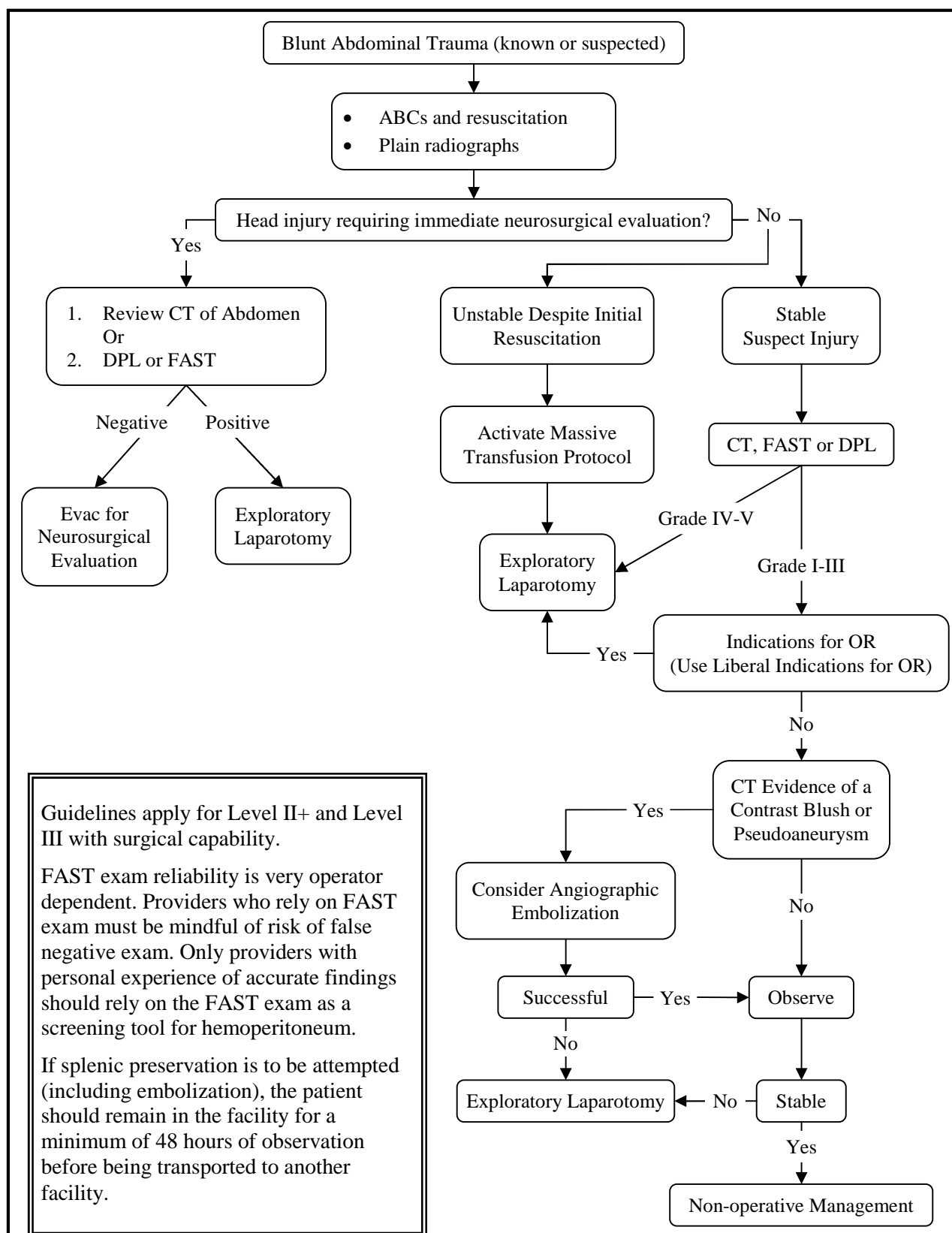
- <sup>1</sup> *Emergency War Surgery Handbook*
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- <sup>3</sup> Marmery H, et al. Correlation of Multidetector CT Findings with Splenic Arteriography and Surgery: Prospective Study in 392 patients. *JACS*. 2008;206:685-693.
- <sup>4</sup> Killeen KL, et al. CT Findings after Embolization for Blunt Splenic Trauma. *J Vasc Interv Radiol*. 2001;12:209-214.
- <sup>5</sup> McCray VW, et al. Observation for Nonoperative Management of the Spleen: How Long is Long Enough? *J Trauma*. 2008;65:1354-1358.
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- <sup>7</sup> Mohr AM, et al. Angiographic Embolization for Liver Injuries: Low Mortality, High Morbidity. *J Trauma*. 2003;55:1077-1082.
- <sup>8</sup> Holden A. Abdomen--Interventions for Solid Organ Injury. *Int J Care Injured*. 2008;39:1275-1289.
- <sup>9</sup> Zonies, D, Johannigman, J, Esatridge, B: Combat management of splenic injury: trends over a decade of conflict. *J Trauma*. (In press)

Approved by CENTCOM JTTS Director,  
JTS Director and CENTCOM SG

Opinions, interpretations, conclusions, and recommendations are those of the authors and are not necessarily endorsed by the Services or DoD.
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## APPENDIX A



## APPENDIX B

### ADDITIONAL INFORMATION REGARDING OFF-LABEL USES IN CPGs

1. **Purpose.** The purpose of this Appendix is to ensure an understanding of DoD policy and practice regarding inclusion in CPGs of “off-label” uses of U.S. Food and Drug Administration (FDA)–approved products. This applies to off-label uses with patients who are armed forces members.
2. **Background.** Unapproved (i.e., “off-label”) uses of FDA-approved products are extremely common in American medicine and are usually not subject to any special regulations. However, under Federal law, in some circumstances, unapproved uses of approved drugs are subject to FDA regulations governing “investigational new drugs.” These circumstances include such uses as part of clinical trials, and in the military context, command required, unapproved uses. Some command requested unapproved uses may also be subject to special regulations.
3. **Additional Information Regarding Off-Label Uses in CPGs.** The inclusion in CPGs of off-label uses is not a clinical trial, nor is it a command request or requirement. Further, it does not imply that the Military Health System requires that use by DoD health care practitioners or considers it to be the “standard of care.” Rather, the inclusion in CPGs of off-label uses is to inform the clinical judgment of the responsible health care practitioner by providing information regarding potential risks and benefits of treatment alternatives. The decision is for the clinical judgment of the responsible health care practitioner within the practitioner-patient relationship.
4. **Additional Procedures.**
  - a. **Balanced Discussion.** Consistent with this purpose, CPG discussions of off-label uses specifically state that they are uses not approved by the FDA. Further, such discussions are balanced in the presentation of appropriate clinical study data, including any such data that suggest caution in the use of the product and specifically including any FDA-issued warnings.
  - b. **Quality Assurance Monitoring.** With respect to such off-label uses, DoD procedure is to maintain a regular system of quality assurance monitoring of outcomes and known potential adverse events. For this reason, the importance of accurate clinical records is underscored.
  - c. **Information to Patients.** Good clinical practice includes the provision of appropriate information to patients. Each CPG discussing an unusual off-label use will address the issue of information to patients. When practicable, consideration will be given to including in an appendix an appropriate information sheet for distribution to patients, whether before or after use of the product. Information to patients should address in plain language: a) that the use is not approved by the FDA; b) the reasons why a DoD health care practitioner would decide to use the product for this purpose; and c) the potential risks associated with such use.