# Trauma Center Practice Management Guideline

*Iowa Methodist Medical Center — Des Moines*

| ***Blunt Abdominal Trauma Management*** | |
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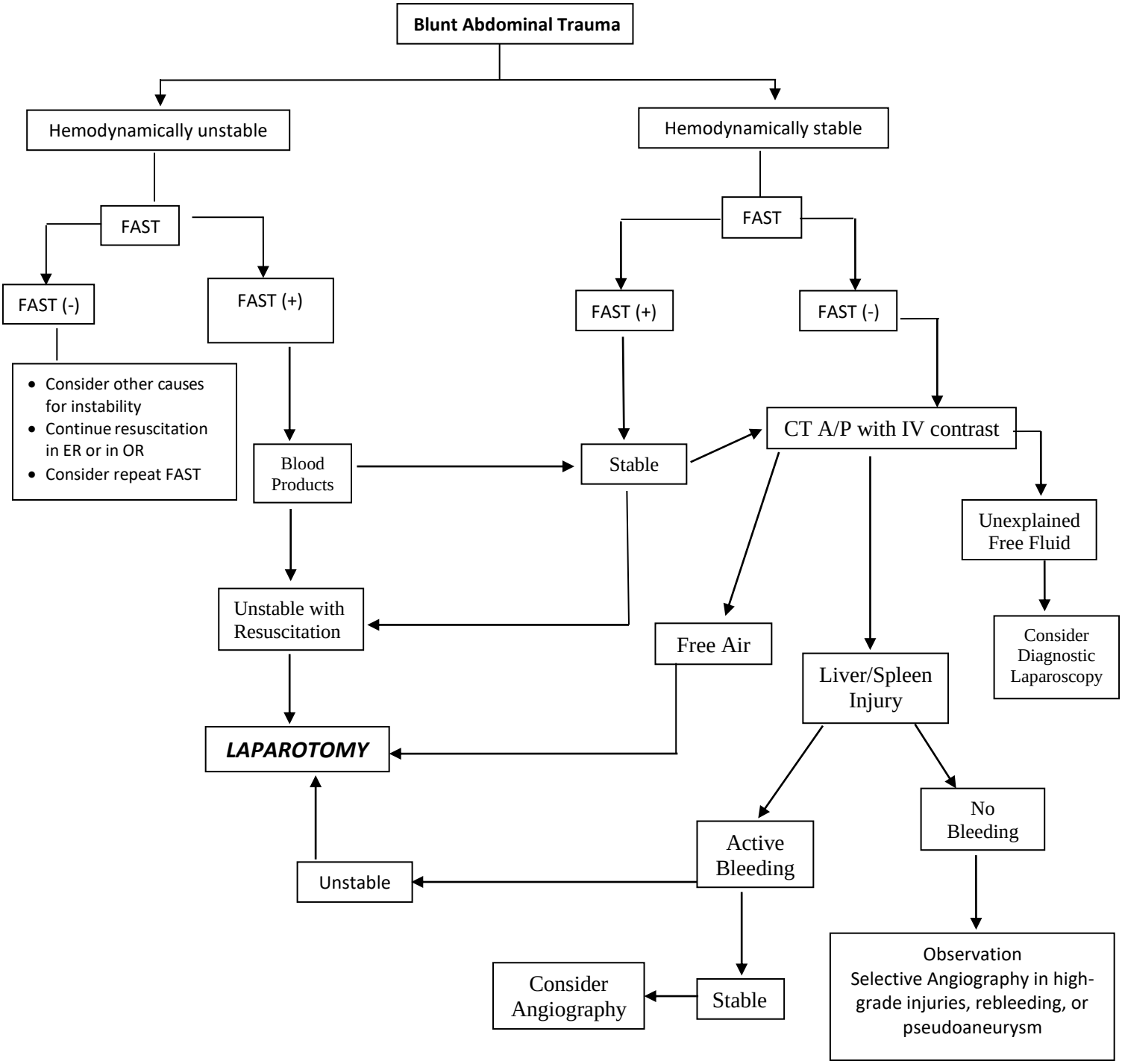
| **ADULT**<br>**Practice Management Guideline** | **Effective: 04/2014** |
| **Contact: Trauma Center Medical Director** | **Last Reviewed: 04/2024** |



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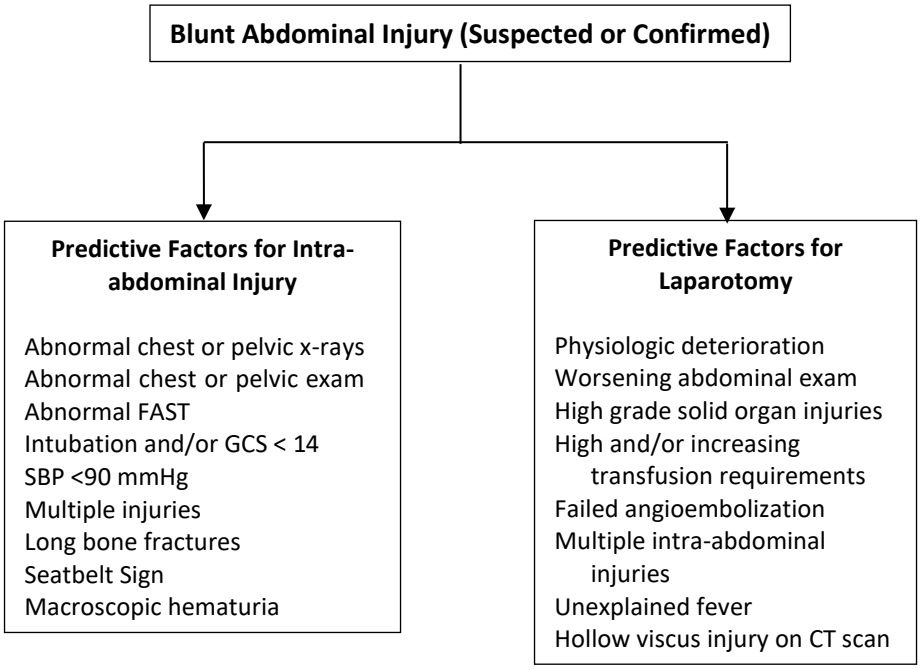

# Trauma Center Practice Management Guideline

*Iowa Methodist Medical Center — Des Moines*

## *Blunt Abdominal Trauma Evaluation and Management Guideline*

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| **ADULT**<br>**Practice Management Guideline** | **Effective: 04/2014** |
| **Contact: Trauma Center Medical Director** | **Last Reviewed: 4/2024** |

**PURPOSE**

To address the evaluation of patients presenting after blunt abdominal trauma.

**BACKGROUND**

A carefully performed physical exam, while being cognizant of the limitations imposed by individual patient factors such as diminished mental status, remains central to decision making in the trauma bay. Appropriately selected adjunct diagnostic studies are used to minimize the risk of missed injury. A clinician deciding on which studies to recruit in the evaluation of a trauma patient will need to be cognizant of the hemodynamic stability of the patient. A modified hemodynamic instability scoring system cited in the Western Trauma Association Splenic Trauma Algorithm Guidelines provides a useful framework for classifying a trauma patient's hemodynamic status, with blunt abdominal trauma patients exhibiting Grade 4 and 5 hemodynamic instability generally requiring immediate laparotomy.

Focused Abdominal Sonography for Trauma (FAST) has come to occupy a dominant role as the initial imaging study of choice in evaluating a blunt abdominal trauma patient, with reported sensitivities and specificities of 73 - 88% and 89 – 100% respectively. A positive study usually indicates the presence of a minimum of ~ 200 - 300ml of free fluid. The sensitivity and specificity of FAST imaging improves with user experience, and physician trauma providers at IMMC are encouraged to make use of FAST a routine part of their evaluation of trauma patients. If FAST results are equivocal, alternative diagnostic options should be pursued. CT scan imaging has become the *de facto* "gold standard" imaging modality in the evaluation of a blunt abdominal trauma patient, with a reported sensitivity of 92 – 97.6% and specificity of 98.7%. In spite of significant improvements in CT scan imaging technology, a notable weakness of CT imaging is in detection of hollow organ injury. Although rare in the blunt trauma patient, delays in diagnosis can result in significant patient morbidity and mortality. To be weighed against the risk of missed injury is the morbidity associated with non-therapeutic laparotomies.

The trauma physician must remain aware of the fact that overly liberal use of x-ray and CT scan imaging exposes patients to long term risks of radiation exposure. For this reason, predictive factors for intra-abdominal injuries have been proposed to guide the clinician's decision-making for or against CT scanning. In patients for whom the merits of CT imaging are not immediately clear, the trauma physician may choose to review these predictive factors.

**PROCEDURE STATEMENTS**

1. ATLS precepts will guide the initial evaluation and management of trauma patients at IMMC.

2. Patients who are hemodynamically unstable or who have diffuse peritonitis after blunt abdominal trauma should be taken urgently for laparotomy.

3. A patient's initial hemodynamic status and early response to resuscitation will dictate/determine the parameters within which the trauma team must act in planning the patient's subsequent workup and injury management.

4. A FAST (+) patient who requires aggressive ongoing resuscitation (i.e. Grade 4 or 5 instability) should be triaged to the OR. Extremely rare exceptions to this guideline may exist (e.g. assessing for futility due to brain injury, assessing for pelvic hemorrhage that may be more amenable to angioembolization).

5. A negative FAST in a hemodynamically unstable patient reliably rules out the abdomen as the source of hemodynamic instability, although FAST may need to be repeated during the patient's resuscitation before this conclusion can be arrived at with appropriate certainty.

6. In patients with Grades 4 and 5 instability in whom there is reason to doubt intra-abdominal hemorrhage as the source for the instability, the trauma team should consider continuing resuscitation in the OR while further evaluation of refractory shock is continued.

7. In the blunt abdominal trauma patient in whom intra-abdominal injury is suspected, FAST exam cannot reliably rule out injury and more definitive imaging by CT scan with contrast is recommended. CT of the abdomen and pelvis in blunt trauma does not require the use of oral contrast.

8. Suspected or confirmed splenic and hepatic injuries should be managed according to their respective management protocols.

9. Patients with active contrast extravasation on abdominal CT should generally be promptly referred for angioembolization or triaged to the OR.

10. Free intra-abdominal fluid in the absence of identifiable solid organ injury should raise a concern for hollow viscus injury.

11. Gross hematuria in a trauma patient mandates a further workup of the patient's genitourinary system for injury, with bladder perforation from pelvic fractures being of particular concern. Microscopic hematuria, on the other hand, does not necessarily mandate performance of CT imaging. Hemorrhage at the urethral meatus, or abnormalities on digital rectal exam, will establish the need for imaging modalities such as pelvic x-ray, retrograde urethrography and CT cystoscopy.

12. DPL has had a diminishing role in the identification of traumatic intra-abdominal hemorrhage. DPL may reveal findings that are absolute indications for laparotomy, such as the presence of particulate matter or bacteria in lavage fluid. Other criteria that constitute a positive DPL include >10ml of gross blood, >100,000/mm3 RBC, >500/mm3 WBC, amylase > 20, alkaline phosphatase > 3.

13. The role and limitations of serial abdominal examination in the assessment of a blunt abdominal trauma patient needs to be determined on a case-by-case basis.

14. Factors that may warrant laparotomy for a patient undergoing serial abdominal examination for blunt abdominal trauma, include worsening abdominal exam, increasing WBC, decreasing hemoglobin, fever, persisting acidosis, or worsening imaging findings.

15. A patient's global suspected and/or confirmed injury burden may necessitate deviations from the customary management of specific injuries. For instance, in a patient with severe pulmonary contusions on initial imaging, a decision for early surgical intervention may be a prudent course of action since the patient may develop surgically prohibitive ventilator requirements.

16. There is good evidence that a normal-appearing CT may negate the need to admit a patient to the hospital for observation. In a select group of patients who sustain trivial trauma and in whom the physician has a low index of suspicion for injury, a negative ultrasound may be adequate basis to consider discharging a patient from the ER.

17. Christoph Güsgen, Jessica Breuing, Barbara Prediger et al. Surgical management of injuries to the abdomen in patients with multiple and/or severe trauma – A systematic review and clinical practice guideline update, 04 April 2024, PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-4177013/v1]

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