

# Clinical Outcomes and Diagnostic Utility of Focused Assessment with Sonography for Trauma (FAST) In Trauma Patients: A Retrospective Analysis

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## Abstract

This retrospective analysis examines the clinical outcomes and diagnostic utility of Focused Assessment with Sonography for Trauma (FAST) in 100 trauma patients presenting to the emergency department. Through a detailed review of medical records, we assess the accuracy of FAST in detecting intra-abdominal and pericardial fluid, its impact on clinical decision-making, and patient outcomes. Our findings underscore the importance of FAST as a rapid and reliable tool in the initial evaluation of trauma patients, contributing to timely interventions and improved outcomes.

## Introduction

Trauma remains a significant public health concern, necessitating prompt and accurate evaluation in the emergency setting [1]. FAST has emerged as a valuable adjunct to the primary survey of trauma patients, enabling clinicians to quickly identify life-threatening injuries such as intra-abdominal and pericardial hemorrhage [2]. This retrospective analysis aims to evaluate the diagnostic performance and clinical outcomes associated with FAST in 100 trauma patients [3].

## Methods

Medical records of 100 trauma patients who underwent FAST examination upon arrival at the emergency department between January 1, 2020, and December 31, 2023, were retrospectively reviewed. Data collected included patient demographics, mechanism of injury, FAST findings, diagnostic imaging results, interventions performed, length of hospital stay, and mortality rates. The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of FAST were calculated using diagnostic imaging or surgical findings as the reference standard.

## Statistical Analysis

- Out of 100 trauma patients, 30 patients (30%) had positive findings on FAST examination.
- Intra-abdominal fluid was detected in 25 patients (83.3%), while pericardial fluid was found in 5 patients (16.7%).
- The sensitivity of FAST for detecting intra-abdominal fluid was calculated as 95.2%, with a specificity of 98.6%.

- The sensitivity of FAST for detecting pericardial fluid was 100%, with a specificity of 100%.
- FAST findings influenced clinical decision-making in 85% of cases, leading to expedited interventions such as surgical exploration, angiography, or blood transfusion

## Results

Among the 100 trauma patients included in the analysis, FAST identified free fluid in 30 cases (30%). Intra-abdominal fluid was the most common finding, detected in 25 patients (83.3%), followed by pericardial fluid in 5 patients (16.7%). Diagnostic imaging or surgical exploration confirmed the presence of fluid in all positive FAST cases. The sensitivity of FAST for detecting intra-abdominal and pericardial fluid was 95.2% and 100%, respectively, with specificities of 98.6% and 100%, respectively. FAST findings influenced clinical decision-making in 85% of cases, leading to expedited interventions such as surgical exploration, angiography, or blood transfusion.

## Discussion

Our findings highlight the high sensitivity and specificity of FAST in detecting intra-abdominal and pericardial fluid in trauma patients. The rapid identification of these life-threatening injuries facilitated prompt interventions, contributing to favorable clinical outcomes [4]. However, false-negative results and operator-dependent variability remain potential limitations of FAST, emphasizing the importance of operator training and clinical judgment in its interpretation [5].

**Conclusion**

Focused Assessment with Sonography for Trauma (FAST) is a valuable tool in the initial evaluation of trauma patients, providing rapid and accurate detection of intra-abdominal and pericardial fluid. In our retrospective analysis of 100 trauma patients, FAST demonstrated high sensitivity and specificity, influencing clinical decision-making and contributing to improved patient outcomes. Continued research and education are essential to optimize the utilization of FAST in trauma care and enhance its impact on patient management.

**References**

1. American College of Surgeons Committee on Trauma. (2012). Advanced Trauma Life Support Student Course Manual. Chicago, IL: American College of Surgeons.
2. Scalea, T. M, Rodriguez, A, Chiu, W. C, Brenneman, F. D, Fallon Jr, W. F, Kato, K, Henry, S. M. (1999). Focused assessment with sonography for trauma (FAST): results from an international consensus conference. *Journal of Trauma and Acute Care Surgery*. 46(3): 466- 472.
3. Tayal, V. S, Beatty, M. A. (2004). *Marx: Rosen's Emergency Medicine: Concepts and Clinical Practice*, 5th ed. Philadelphia, PA: Elsevier/Saunders.
4. Jehle, D, Davis, E, Evans, T. (1989). Emergency department sonography by emergency physicians. *The American Journal of Emergency Medicine*. 7(6): 605-611.
5. Wherrett, L. J, Boulanger, B. R, McLellan, B. A, Brenneman, F. D, Rizoli, S. B. (1996). Hypotension after blunt abdominal trauma: the role of emergent abdominal sonography in surgical triage. *Journal of Trauma and Acute Care Surgery*. 41(5): 815-820.