

# Digital Hand-held Sonography Utilised for the Focused Assessment with Sonography for Trauma: A Pilot Study<sup>‡</sup>

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## Abstract

**Objective:** To evaluate the accuracy of the focused assessment with sonography for trauma (FAST) exam performed with a digital hand-held ultrasound machine in the emergency evaluation and resuscitation of trauma victims. **Introduction:** The FAST exam is a valuable screening tool in the evaluation of abdominal trauma. New digital ultrasound units have recently become available which can be hand-carried by clinicians responding to the earliest phases of trauma care. **Materials and Methods:** Forty-seven victims of blunt trauma and 3 victims of penetrating trauma underwent FAST examinations performed by an attending trauma surgeon. Scans were performed with a Sonosite<sup>TM</sup> 180, 2.4-kg machine utilising a 5-2 MHz curved array transducer. The results of the hand-held FAST were compared with formal sonographic examinations performed by radiology department personnel, computed tomographic (CT) studies, operative findings and ultimate hospital course. **Results:** In victims of blunt trauma, 7 of 8 true fluid collections were detected, and 38 out of 39 cases without the presence of fluid were correctly excluded. There was 1 false positive and 1 false negative determination, resulting in a sensitivity of 86%, specificity of 97%, positive predictive value of 88%, and a negative predictive value of 97%. The overall accuracy was 96% for victims of blunt trauma. The technique expediently detected intra-peritoneal bleeding in 2 victims of lateral penetrating abdominal trauma. Utilised as the initial component of a diagnostic protocol, no inappropriate management strategies were suggested. **Conclusions:** Digital hand-held sonography by clinicians can accurately allow the early performance of FAST exams. This exam may accurately and safely extend the physical senses of the examining physician.

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**Key words:** Abdominal injuries, FAST, Hand-held ultrasound, Resuscitation, Sonography, Ultrasound

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