

# Abdominal ultrasound image acquisition and interpretation by novice practitioners after minimal training on a simulated patient model

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## CLINICIAN'S CAPSULE

### What is known about the topic?

Focused assessment with sonography (FAST) could be used by prehospital systems but the optimal training regimen has not been established.

### What did this study ask?

Can paramedics interpret FAST in trauma as well as emergency physicians after a 1 hour didactic training session.

### What did this study find?

FAST interpretation was comparable between the two groups with accuracy of 85.6% and 87.5% for paramedics and emergency physicians respectively.

### Why does this study matter to clinicians?

Determination of effective, cost effective training programs is important when considering incorporating FAST examinations in prehospital systems.

care paramedics were mostly ultrasound-naïve whereas the emergency physicians all had ultrasound training. The correct interpretation of FAST scans was comparable between the two groups with accuracy of 85.6% and 87.5% ( $\Delta 1.79$  95%CI -33.85 to 21.82,  $p = 0.90$ ) for paramedics and emergency physicians respectively.

**Conclusions:** This study determined that critical care paramedics were able to use ultrasound to detect free fluid on a simulated mannequin model and interpret the FAST exam with a similar accuracy as experienced emergency physicians following a one hour training course. This suggests the potential use of prehospital ultrasound to aid in the triage and transport decisions of trauma patients while limiting the financial and logistical burden of ultrasound training.

## RÉSUMÉ

**Contexte:** L'évaluation d'un trauma par échographie ciblée (acronyme anglais : FAST) est un examen rapide visant à mettre en évidence des signes d'hémorragie abdominale. Peu d'études portent sur l'exactitude de l'évaluation FAST, pratiquée par des ambulanciers paramédicaux, et ce qui suscite la controverse est la durée de la formation. L'étude avait donc pour but d'évaluer l'exactitude de l'interprétation de l'examen FAST pratiqué par des ambulanciers paramédicaux après une heure de formation théorique.

**Méthode:** Un examen FAST a été pratiqué sur un mannequin contenant 300 ml de liquide libre après une heure de formation théorique, puis les résultats de l'interprétation de l'examen pratiqué par des ambulanciers paramédicaux ont été comparés à ceux obtenus par des médecins. La comparaison reposait sur le test du chi carré, et l'écart entre les taux d'exactitude était jugé significatif si  $p < 0,05$ .

**Résultats:** Quatorze ambulanciers paramédicaux navigants, spécialisés en soins intensifs et 4 urgentologues, tous volontaires, ont participé à l'étude. Les ambulanciers paramédicaux spécialisés en soins intensifs étaient, pour la plupart, novices

## ABSTRACT

**Background:** The Focused Assessment with Sonography in Trauma (FAST) exam is a rapid ultrasound test to identify evidence of hemorrhage within the abdomen. Few studies examine the accuracy of paramedic performed FAST examinations. The duration of an ultrasound training program remains controversial. This study's purpose was to assess the accuracy of paramedic FAST exam interpretation following a one hour didactic training session.

**Methods:** The interpretation of paramedic performed FAST exams was compared to the interpretation of physician performed FAST examinations on a mannequin model containing 300ml of free fluid following a one hour didactic training course. Results were compared using the Chi-square test. Differences in accuracy rate were deemed significant if  $p < 0.05$ .

**Results:** Fourteen critical care flight paramedics and four emergency physicians were voluntarily recruited. The critical

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