

Attitudes, Knowledge, and Clinical Application of Point of Care Ultrasound: A Needs Assessment of Interns in Internal Medicine

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Background

Many medical schools across the United States are implementing undergraduate Point of Care Ultrasound (POCUS) curricula. As a result, internal medicine (IM) residency programs have incoming interns with varying levels of POCUS knowledge and skill.

Methods

A 57-item survey and knowledge assessment was distributed to 52 interns during intern orientation in June 2017. The survey explored attitudes, prior training, and confidence in using POCUS. The knowledge assessment assessed baseline knowledge of ultrasound physics, cardiac and pulmonary ultrasound, and clinical application. Comparisons between categorical variables were made using Chi-Square and ANOVA tests, and between numeric variables using t-tests. Reliability of the assessment was measured using Cronbach's alpha.

Results

51 interns completed the assessment. Ten percent of interns received some formal training in POCUS during medical school, mostly through ultrasound elective and emergency medicine rotation. Forty-six percent strongly agreed that diagnostic POCUS is an important part of the physical exam and medical management. Although 70% were not confident in using POCUS, 23% expressed high levels of confidence in evaluating abnormal POCUS findings.

The overall mean on the knowledge assessment was 57.5 (SD 14.4, range 24.0-86.0) with the highest sub-score in structure identification and lowest sub-score in image interpretation and application. There was no statistically significant difference in the total score between interns that received formal ultrasound training and those who did not (63.0, SD 12.1 vs 56.8, SD 14.7; $p=0.31$). More confident interns recognized systolic function and pericardial effusions accurately, but did not outperform less confident interns in other knowledge areas. The knowledge assessment was highly reliable with a Cronbach's alpha of 0.79.

Conclusions

This knowledge assessment was highly reliable. Internal medicine interns express low levels of confidence in their POCUS skills, yet desire competence by the end of residency training. Formal POCUS training during undergraduate medical training did not result in significantly higher overall knowledge scores. Confidence in identifying abnormal POCUS findings correlated well with performance on knowledge-based questions but not in clinical application. These findings reinforce the need to develop formal curricula in POCUS with emphasis on clinical application.