

Assessment of ultrasound skills in pre-clinical medical students

Purpose:

While multiple choice knowledge-based questions are an easy and reliable way to assess medical students, hands on skills are more logistically challenging. Additionally, there is little data regarding the feasibility, reliability, or necessity of performing in-person assessment for ultrasound skills. One study found that an up 57% of medical schools offer a POCUS (Point of Care Ultrasound) curriculum while only 38% of schools that have a POCUS curriculum perform any type of hands-one assessment. (1) SOM (School of Medicine) students complete eight hands-on ultrasound didactic sessions during the first year as part of the longitudinal curriculum, but to date there has been no formal assessment of those hands on skills.

Objectives

We sought to assess medical students' ultrasound skills after didactic interventions.

Methods

Pre-clinical second year medical students were given a 45-minute hands-on didactic session in pleural ultrasound and the focused assessment for free fluid exam. Before the didactic session, students received pre-work material covering both topics that consisted of online interactive models. Directly following the hands-on didactic session, they were randomly assigned to perform pleural ultrasound or one portion of the focused assessment for free fluid exam. Students had two minutes to complete the assessment and were not prompted. Students and the ultrasound images were filmed using an iPad continuously. Two independent reviewers assessed the student's ability to obtain adequate images using a structured observation assessment tool validated in other educational settings. (Appendix A) Students were not required to participate, and their participation did not affect their grade. Once the assessment was completed, there was a voluntary debrief.

Results

96 students completed the assessment. 51 students completed the assessment in focused exam for free fluid and 45 completed the pleura assessment. Of those that completed the assessment, 31% scored 6/6 on the assessment in focused exam for free fluid and 9% scored 6/6 on the pleura assessment.

Conclusion

While there is some limited data on assessment of ultrasound skill in UME (Undergraduate Medical Education), this was the first attempt at evaluating CUSOM students using a validated structured observation tool. This formalized attempt at assessment showed that it was feasible and that students can obtain a high score after the didactic intervention.

Next steps would be to determine with an expert consensus of the minimum standard for competency at this level of training in undergraduate medical education and to further refine that standard for the graduating medical student. Further steps would include evaluation of retention of skills."