Society for Academic Emergency Medicine
FOUNDATION

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"eyeTrainer: Describing the Learning Curve in Bedside Cardiac Ultrasound Interpretation"

The goal of this project is to determine the learning curve in cardiac ultrasound image interpretation to better inform future training guidelines.

Our first aim is to create an online database of cardiac ultrasound studies with a majority of clinically relevant pathologic findings such as cardiogenic shock and tamponade. Our second aim is to determine the average number of scans to achieve 85% diagnostic accuracy in image interpretation by visual assessment. We estimate this will require between 50 –120 studies. Our third aim is to determine if repetition significantly increases skill retention and clinical use of cardiac ultrasound.

We will establish a multi-center collaboration to develop the online cardiac ultrasound database. We will recruit primarily medical students and residents to complete the learning module over a two-week period. Subjects will be asked to perform a visual assessment of cardiac contractility, left ventricular ejection fraction, pericardial effusion or presence of tamponade, and right heart strain. By tracking user performance as subjects complete the module, we will determine the number of ultrasound scans required to become proficient in image interpretation. This database will also enhance existing ultrasound education by employing the flipped classroom technique. Learners can master image interpretation on their own time and use scan shifts to focus on image acquisition and clinical application. In the follow up period, subjects may receive a weekly or monthly quiz to evaluate their image interpretation skills and clinical use of ultrasound.