

Fig. 2. Early diagnosis of acute respiratory failure using Sensium® technology. Legend: HR: heart rate; RR: respiration rate.

detect clinical degradation but also could be incorporated in a predictive clinical strategy to prevent fatal outcome in some patients monitored outside an intensive unit.

List of abbreviations

HR	heart rate
RR	respiration rate
V _m	ventilation minutes
V _t	tidial volume

Availability of data and material

All data analyzed during this study are included in this case presentation. For more details, please contact the corresponding author.

Consent for publication

The corresponding author declare that the patient consent for publication of individual clinical details. The manuscript does not contain individual image or video.

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Competing of interest

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Faculty opinions concerning ultrasound utilization in the emergency department



As point-of-care ultrasound (POCUS) is becoming increasingly pervasive in the emergency department (ED), ultrasound is being incorporated into medical education targeting every stage of training: medical school, residency, and fellowship [1–4]. Previously under-developed, ultrasound education targeting academic emergency medicine faculty (AEMF) is a growing area of interest as hospitals, administrators, and emergency medicine leadership are facing hospital specific ultrasound privileging and credentialing questions [5,6].

Despite the growing interest in the ultrasound competency of AEMF, advanced training and availability of ultrasound technology, the number of faculty who use POCUS and the frequency of its use does not match the growth in training and availability of the devices [4,7,8]. The purpose of this study was to determine the perceived barriers to POCUS utilization experienced by AEMF at an academic

institution. The results of this study may be of use to other institutions as they develop curriculum or plans and will assist with a better understanding of faculty needs to tailor future educational efforts targeting AEMF.

In this cross-sectional study we surveyed all AEMF in an academic ED during the 2016–17 academic year using a new survey instrument, which was developed from recent research findings and included 11 questions. The survey was anonymous and was administered electronically using the SurveyMonkey platform.

The survey was sent to 57 faculty; 44 completed the survey for a 77% response rate. Prior ultrasound training was as follows: 35% (15/43) did not receive US training during residency, 54% (23/43) did receive US training as a part of residency training, and 12% (5/43) had completed or were active in an US fellowship at the time of the study. 98% (42/43) of respondents reported performing or supervising POCUS performed in the ED; 5% (2/44) reported performing or supervising >10 POCUS on average during a shift.

When asked to identify barriers to perform POCUS during clinical shifts in the ED, 71% (31/44) of respondents reported not having time when working clinically. A majority of AEMF were affected by the needs of their consultants. 67% (29/43) identified a consultants' request for a comprehensive ultrasound as a barrier to performing POCUS in the ED. Finally, 61% (27/44) of respondents identified not feeling comfortable operating the machines (i.e. entering patient information, saving clips, etc.) as a barrier to performing POCUS. When asked about lack of comfort obtaining images, interpreting images, and integrating findings into the clinical care of their patients, only a minority of AEMF, identified these as barriers (Fig. 1).

Factors that encourage AEMF to order comprehensive ultrasounds (i.e. done by the department of radiology) after performing POCUS were also specifically assessed. In 37% of the cases a comprehensive ultrasound would have obtained after POCUS. Anticipating consultants' requests for comprehensive ultrasound [86% (38/44)],

availability of images to other services [71% (31/44)], and medicolegal protection [59% (26/44)] were among the most common reasons to order a comprehensive study after completing a POCUS examination.

AEMF were also surveyed to rate their comfort with specific POCUS applications. Findings are summarized in Fig. 2.

Time, the main barrier that AEMF identified in performing or supervising ultrasounds in the ED, will likely remain a challenge for AEMF. It is important for each ED to come up with a streamlined workflow from the ordering of a POCUS to the bedside performance of the ultrasound to enable AEMF to perform ultrasound during their clinical shifts.

Similarly, a substantial percentage of respondents did not feel comfortable operating the machines (i.e. entering patient information, saving clips, etc.). This is a barrier that is easily addressed. Periodic refreshers on how to use the machines, i.e. the 'knobology' of the machines, with new faculty orientation or reviewing the 'knobology' of a newly purchased machine at faculty meeting may present a feasible solution for this barrier. Spending time orienting faculty to the machines in the ED can be a huge asset to the performance of ultrasounds by AEMF in the ED.

Consultants requesting a comprehensive ultrasound are the next largest barrier identified in AEMF performing POCUS in the ED. We speculate that as POCUS in general becomes increasingly familiar to other services it is likely that findings will become more clinically integrated without the acquisition of a comprehensive ultrasound. The expansion of ultrasound training within the hospital to specialties other than EM will help promote comfort with POCUS among consultants and expand the applications on which clinical decisions are made. Additionally, we postulate that making POCUS images available to everyone in the hospital may lead to a reduction in duplicate ultrasounds being performed after the acquisition of POCUS.

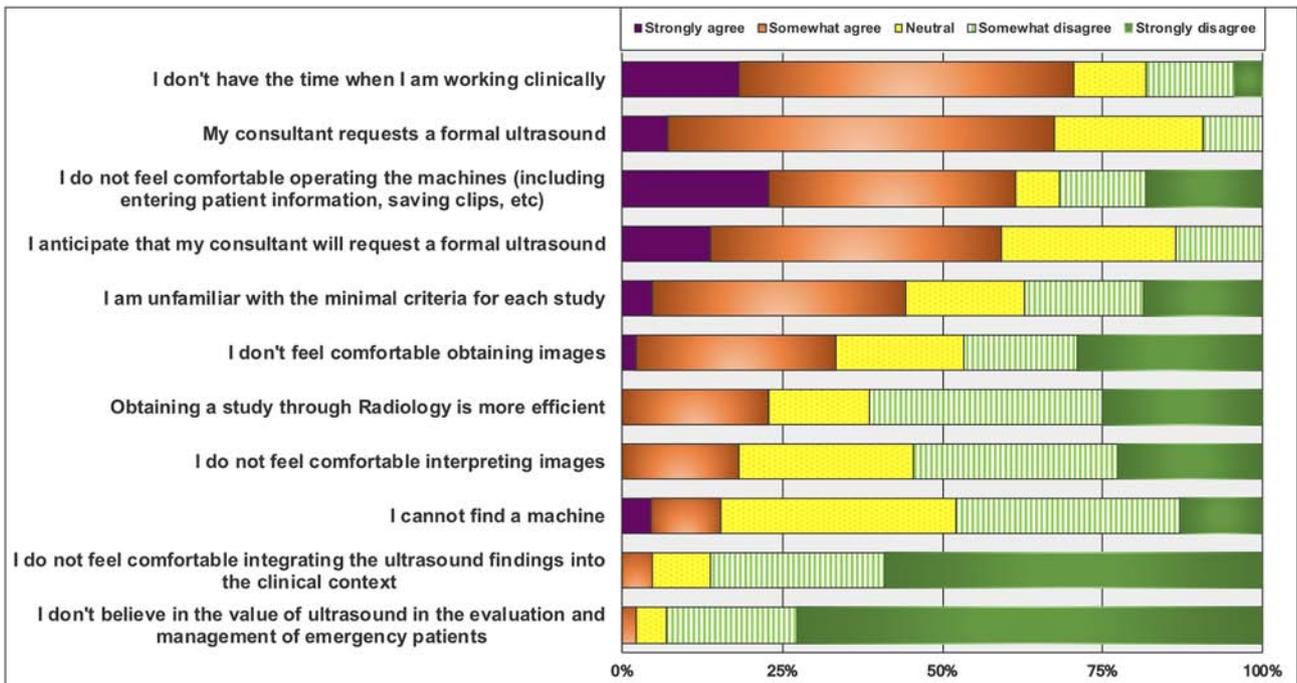


Fig. 1. Barriers identified by the academic EM faculty on performing POCUS during their clinical ED shifts.

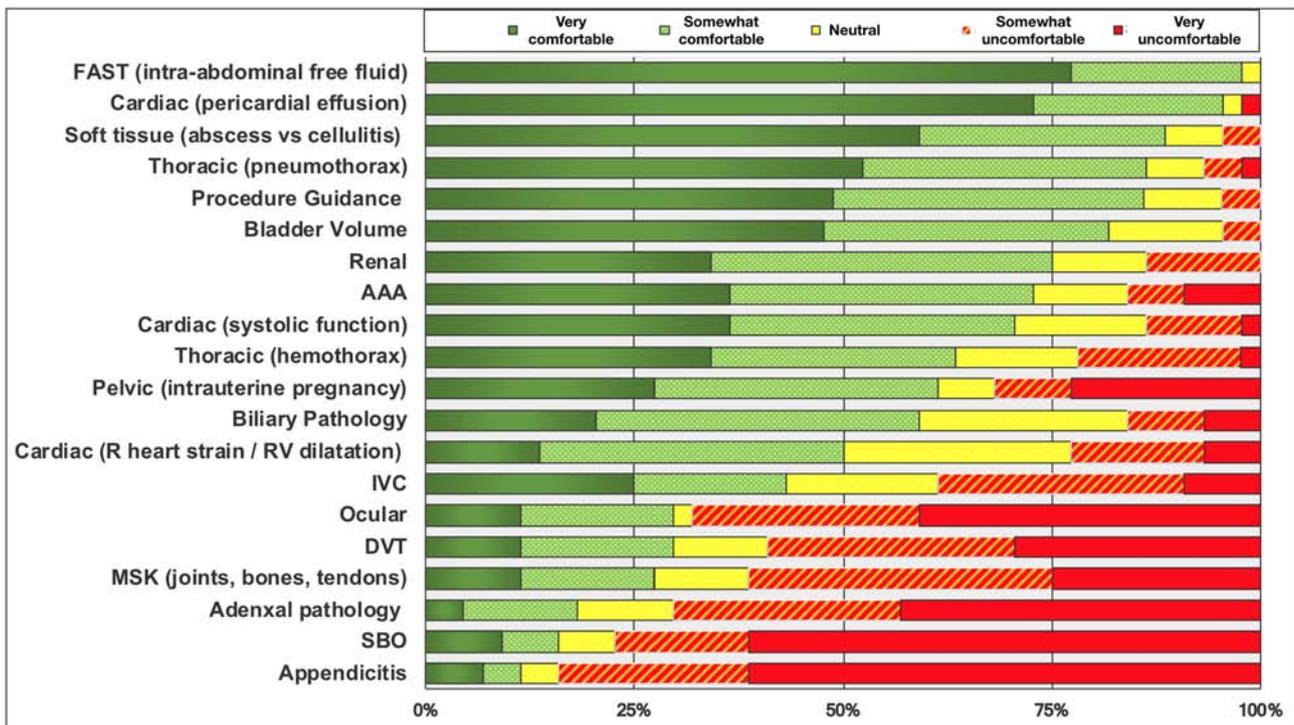


Fig. 2. Academic EM faculty comfort level with various POCUS applications.

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Conflicts of interest

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Aortic dissection occurring while driving and road traffic accidents



Some human activities such as strenuous exercise and sexual intercourse are known to trigger spontaneous aortic dissection (AD) in vulnerable subjects [1]. In contrast, driving in itself is unlikely to trigger AD. Rather, most drivers who sustained AD just happened to be a driver by chance [2,3]. Nevertheless, information on the clinical picture of AD occurring while driving may be useful to emergency physicians, considering that drivers who sustain AD may cause road traffic accidents (RTAs) and potentially cause property damage, injury, or death to the driver or others on the road. The behavioral response of afflicted drivers, i.e., how often drivers experiencing AD were able to avoid RTAs, has rarely been reported in the literature. After approval by our Institutional Ethics Committee, we conducted a single-center retrospective observational study to document the clinical characteristics, including behavioral response, of patients who sustained an AD while driving. We used a dataset of 417 non-traumatic AD patients (273 men and 144 women; mean age, 67.6 ± 13.2 years) who were admitted to our