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Areas for Growth in an Emergency Medicine Procedural Simulation Curriculum: A Needs Assessment

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15 Seeing the System: A Needs Assessment for an Equity-Centered Patient-Flow Dashboard

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Background: Emergency Department (ED) boarding is a system-wide operational challenge associated with worse clinical outcomes. Understanding patient flow through the hospital is essential to address factors that contribute to downstream boarding. Digital dashboards can enable early recognition of these factors and reveal gaps in equitable care. This study aimed to assess the need for a dashboard in a busy public hospital.

Methods: We conducted 30-minute interviews with department managers, administrative staff, physicians, and nurses across the acute care continuum. Audio files were transcribed and analyzed using qualitative thematic analysis.

Results: Interviews with 21 participants noted that fragmented data limits the ability to understand hospital-wide patient flow that contributes to complex focal issues. Participants emphasized that a centralized, easily interpretable dashboard could provide trusted data, creating a common reference point for factors that contribute to ED boarding. By making complex system dynamics visible in a clear format, participants felt dashboards could align stakeholders around shared goals and support more coordinated problem-solving. Importantly, respondents highlighted that shared visualization also enables an equity lens, allowing teams to jointly recognize disparities and ensure interventions avoid worsening them. Ultimately, participants viewed purposeful, action-oriented dashboard design as a critical tool for addressing the root cause of complex challenges such as ED boarding.

Conclusion: This needs assessment demonstrates that visualization of hospital-wide data is essential for understanding and addressing a focal problem such as ED boarding, which arises from a myriad of interrelated factors. A centralized, easy-to-use dashboard can foster collaboration, align teams, and support equity-informed decision-making to tackle this critical issue. These findings will guide the development of a purposefully designed dashboard to enable coordinated, system-level solutions to ED boarding.

16 Training Ultrasound Image Acquisition: Traditional Didactic Methods vs Butterfly's Scanlab Application

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Background: Scanlab, an AI-powered ultrasound

(US) teaching tool, has been proposed to be an effective alternative to traditional didactic ultrasound instruction, but currently there is little evidence to showcase this. While Point of Care Ultrasound (POCUS) is typically taught through in-person lectures and practice, virtual methods show promise in expanding access to places lacking the required infrastructure. Butterfly's Scanlab offers live US instruction without instructors or additional materials. We aim to evaluate Scanlab's efficacy as an alternative to traditional didactic methods in teaching POCUS techniques.

Methods: Undergraduate students from UCI School of Medicine's Emergency Medicine Research Associates Program were trained on acquiring selected cardiac US views: parasternal long axis view (PLAX), parasternal short axis view (PSAX), apical 4 chamber view (A4C), and subxiphoid/subcostal view (SUBX). 30 participants (>18 years old) were randomized into two groups: one trained using Butterfly's Scanlab application and the other with a traditional US curriculum. After training, participants created an US video clip for each cardiac view with a standardized patient. Videos are graded by US-trained physicians and fellows using ACEP's Emergency US Standard Reporting Guidelines and modified established rubrics. Participants also completed a confidence survey prior to and after training. Participants were tested again four weeks later in a retention assessment. After another four weeks, the groups switched training modalities and repeated instruction, assessment, and retention reassessment. In total, participants completed 2 trainings and 4 assessments over 12 weeks.

Results: Preliminary data analysis suggests similar scores between the Scanlab and Traditional training groups. Average scores after initial instruction are 0.938 and 1.03 respectively. After 4 weeks, average scores are 1.1 and 0.967 respectively. Further data analysis and discussion is pending video clip grading by US-trained physicians for inter-rater reliability.

Conclusion: We hypothesize that Scanlab is an effective alternative to traditional methods for teaching US image acquisition. Research challenges included a limited number of US probes and participant/physician availability. Future results may assess its efficacy for medical students, advanced practice providers, and professional workshops to contrast our findings at all levels.

17 Areas for Growth in an Emergency Medicine Procedural Simulation Curriculum: A Needs Assessment

Jack Basse, MD, Ashley Vuong, MD

Background: Procedural simulation is a valuable tool in Emergency Medicine education, but the cost of simulation centers and models limits use and prevents standardization across residencies. The objective of our study was to identify

perceived areas of need in a current simulated procedural curriculum that can be addressed in a novel, low-cost manner.

Methods: A needs assessment was performed at a large academic residency program. 59 residents were sent an electronic survey. 10 medical education faculty were invited for interviews. Survey questions assessed perspectives on procedural simulation and confidence performing specific procedures on 5-point Likert scales; results were descriptively analyzed. Interviews were assessed using a thematic approach over two rounds by two independent reviewers. Discrepancies were reconciled via consensus.

Results: 37 residents responded (62.7%). Five eligible faculty were interviewed (50%). Residents strongly agreed that procedural simulation is effective for teaching (median 5, interquartile range [IQR] 4-5), helps them learn new procedures (median 5, IQR 5-5), and improves confidence performing procedures in real life (median 4, IQR 4-5). They felt most confident with paracentesis (median 5, IQR 4.5-5) and intubation (median 4, IQR 3.5-5), and least confident with resuscitative hysterotomy and pericardiocentesis (median 1, IQR 1-1 each), as well as uterine packing and variceal tamponade (median 1, IQR 1-2 each). Faculty highlighted procedural simulation as important for initial teaching, individualized feedback in a safe environment, and maintaining skills for rare procedures. They desired realistic models but identified price and reusability as limitations. Frequently cited areas for improved models included chest tubes and obstetric and orthopedic emergencies.

Conclusions: Residents and faculty believe simulation is effective for procedural education. Important educational approaches and perceived areas for growth were identified. These findings can inform the development of a novel, standardized, low-cost procedural curriculum.

18 Examining the Experiences of Ultrasound Standardized Patients Involved in Medical Education

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Background: Ultrasound standardized patients (USPs) remain an important aspect of medical education. In their role, USPs are often placed in vulnerable conditions, underscoring the importance of ensuring comfort and modesty. Literature pertaining to ultrasound training protocols primarily focuses on the training's effectiveness, largely failing to explore its impact on USPs themselves. Literature that does emphasize the experience of standardized patients rarely includes specific references to ultrasound training. This quantitative survey intends to address this gap by examining the experiences of USPs in order to better inform training protocols.

Methods: The survey addresses demographics, USP comfort levels being scanned, ultrasonographer conduct, and overall sentiment on USP work performed. The majority of questions have scaled-response answer selections to allow for quantitative analysis. The survey was distributed to qualifying standardized patients at participating medical schools. To meet the inclusion criteria, participants must be at least 18 years of age, have participated as an ultrasound standardized patient, and be English-speaking. The survey was administered online through the UCI Research Electronic Database Capture program.

Results: Preliminary results were obtained (n=25). Participants ranged in age (range=18-66+) and gender [male(n=9), female(n=15), other(n=1)]. 96% (n=24) of participants were not students of the participating institution. 40% (n=10) did not sign a written consent form every time working as a USP. Despite that, 100% (n = 25) of participants did not feel pressured to expose body parts that they were not comfortable with, and 92% (n=23) felt comfortable asking for more coverage as needed. 92% (n=23) felt that their ultrasonographers treated them with dignity and respect and that their conduct remained professional during every experience.

Conclusions: Overall, USPs did not report negative experiences surrounding comfort levels or perceptions regarding ultrasonographer conduct and communication. 100% (n=25) of participants were willing to continue serving as a USP. Limitations of this study include insufficient sample size and potential sampling bias due to a lower likelihood that USPs with negative experiences continued working with institutions that the surveys were sent to.

19 Impact of a Low-Cost Ballistic Gel Phantom on Trainee Confidence in Ultrasound-Guided Fascia Iliaca Block

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Background: Ultrasound-guided fascia iliaca block (FIB) is an effective, opioid-sparing analgesic technique for hip pain in the emergency department (ED), yet many emergency medicine trainees receive limited hands-on procedural exposure. Low-cost simulation models may help address this educational gap. We evaluated the impact of a low-cost ballistic gel phantom model on emergency medicine trainee block-specific procedural self-efficacy in performing the ultrasound-guided fascia iliaca block.

Methods: We developed a reusable ballistic gel phantom incorporating 3D-printed pelvic anatomy for FIB training. Emergency medicine residents and fellows participated in a one-hour curriculum consisting of a brief didactic followed by supervised hands-on ultrasound scanning and in-plane needling practice. Learner outcomes were assessed using pre-