An Interdisciplinary Approach to the Introduction of Point-of-Care Ultrasound (POCUS) in an Urban Academic Primary Care Center

The George Washington University School of Medicine and Health Sciences, Washington DC, USA

Sarah E Frasure MD, Rachel Treat MA, Jordan Dow MD, Elizabeth Dearing MD, Luis Dominguez MD, Aaran Drake MD, Kathleen Ogle MD, Maria Portela MD, Joel Willis MD, Keith Boniface MD

Background

POCUS has been shown to shorten length of hospital stay, lower medical costs, provide greater patient satisfaction, avoid unnecessary irradiation, and offer faster, more accurate diagnoses. [1 – 4]

POCUS in Internal Medicine and Primary Care [5, 6]

- Less than half of residents will receive POCUS instruction at their programs
- A single day of training can significantly improve resident ultrasound interpretation capabilities
- POCUS learners are much less likely to scan without expert supervision

POCUS in Primary Care [1, 7 - 9]

- As of 2021, less than 10% of primary care providers report using POCUS in the clinic.
- The number of publications on ultrasound education have quadrupled since 1990
- The American Academy of Family Physicians has endorsed POCUS training for residents

Current POCUS Training and Guidelines [1, 10 - 13]

- The lack of trained faculty is an ongoing barrier to the spread of POCUS, leaving learners with open access online and industry-endorsed educational tools
- There is no universally standardized list of topics and skills for POCUS learners by specialty, although some preliminary content recommendations do exist.

Methods

1. Emergency Ultrasound Fellowship accredited instructors and primary / urgent care learners paired for 8-week course (Table 1).
2. Clinical sites equipped with Butterfly ultrasound transducer
3. Learners given POCUS pre-work to review before sessions
4. Learners complete Formal Objective Standard Clinical Examination (Table 2).
5. Voluntary, anonymous pre- and post-training surveys to assess success of training and utility of POCUS applications.

Table 1. POCUS Training Curriculum

Session 1 - Basic Techniques (3 hours)	Practice core imaging techniques on a standardized patient, supplemented with images/videos of ultrasound pathology.
Session 2, 3, 4 - Emergency Department and IPC Hands-On Image Acquisition (12 hours)	Learner scans patients in the ED, practicing quality image acquisition, documentation, and incorporation of US into workflow.
Session 5 - Objective Standard Clinical Examination of POCUS competence (3 hours)	Learners will demonstrate proficiency in all of the US techniques covered in the bedside rotation in order to be cleared for independent imaging.

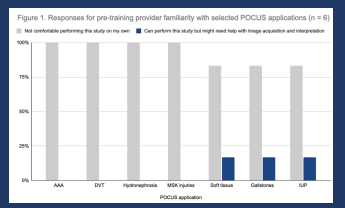
*Learners were also provided the option to join ED providers on their clinical shifts for additional practice during the 8 week training period

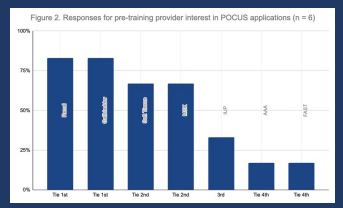
Table 2. OSCE Evaluation Criteria

Selected appropriate probe
Performed appropriate exam type
Attained appropriate anatomical view with full visualization of pertinent structures in all necessary planes
Optimized depth, gain, focus, and color Doppler as needed
Identified presence or absence of appropriate pathology
Measured pertinent structures
Appropriately labeled different views
Quality of images acquired
Appropriate probe maneuvers
Accuracy of interpretation of images
Properly documented scan with video and/or images
Applied clinical knowledge
Performance met criteria for overall competence

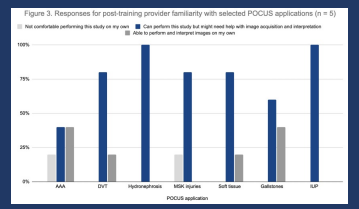
Results

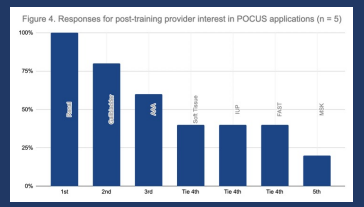
Pre- training survey:

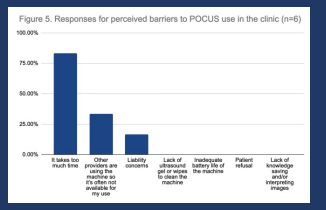


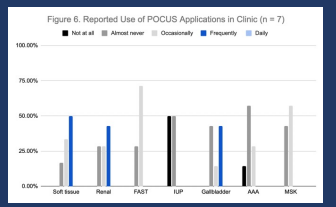


Post- training survey:









Conclusions

- POCUS education in the primary and urgent care settings should focus on applications that are efficient, simple, and high yield, such as renal, gallbladder and soft tissue scans, for a population of providers who are often pressed for time (Figures 1-4, 6).
- Leading barriers to POCUS use by primary and urgent care providers include time constraints, lack of access to an ultrasound device, and liability concerns (Figure 5).

Future Directions

- Longitudinal monthly follow-up training sessions with the ultrasound faculty or sonography student coaches after the 8-week intensive course.
- Single protocol or procedure days for more complicated applications such as AAA screening.

References

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