IMPLEMENTING POINT-OF-CARE ULTRASOUND (POCUS) TRAINING INTO A FAMILY MEDICINE RESIDENCY CURRICULUM

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PROBLEM
Lack of formal Point-of-care ultrasound curriculum and training in the Advocate Aurora Family Medicine residency program.

BACKGROUND
Point-of-care ultrasound (POCUS) is well recognized as an essential tool used daily by physicians in emergency and critical care departments. The use of POCUS is now becoming increasingly valuable as a tool for primary care physicians and used in a variety of applications to help physicians increase accuracy of clinical assessments. POCUS in primary care has been shown to decrease emergency department visits and specialist referrals, lower costs of care, and can decrease the need for additional imaging. However, in many programs the limitation to incorporation of POCUS into a didactic component followed by a hands-on training component.

SOLUTION
A series of three 2-hour POCUS workshop sessions were held during scheduled didactic time between Nov-Dec 2022. Sessions were led by a PGY3 family medicine resident with formal sonographic training who is an active registrant in sonography. Workshop topics were curated based on ease of instruction as well as usefulness in primary care and were divided into a didactic segment followed by a hands-on training component.

Methods
A series of three 2-hour POCUS workshop sessions were held during scheduled didactic time between Nov-Dec 2022. Sessions were led by a PGY3 family medicine resident with formal sonographic training who is an active registrant in sonography. Workshops were open to all residents and faculty in the Advocate Aurora Family Medicine Residency program.

Five handheld ultrasound devices (GE Vscan Extend) were available for training purposes. Workshop topics were curated based on ease of instruction as well as usefulness in primary care and were divided into a didactic segment followed by a hands-on training component.

Session topics included:
1. Introduction to ultrasound physics principles and device orientation
2. Applications for evaluation for deep vein thrombosis (DVT)
3. Guidance for outpatient procedures (e.g. incision & drainage; joint injections)

All attendees were invited to complete a voluntary pre-training survey at the beginning of the first training session attended and a post-training survey after the last training session. Survey responses were linked with a non-identifiable code. Final data set was analyzed using paired T-testing. Pooled survey data was analyzed using descriptive statistics with the assistance of a biostatistician.

RESULTS
Participation: 27 residents and 8 faculty participated in at least one POCUS training session and completed a pre-training survey (35 pre-surveys in total). 14 post-surveys were completed. Only 11 of 14 post-surveys were able to be linked to a pre-survey. Not every participant was able to attend all three workshop sessions due to schedule limitations.

Prior Experience and Interest: All pre-survey respondents expressed interest in POCUS education. Over two-thirds of pre-survey respondents had no prior experience with POCUS (Figure 1).

Perception of POCUS as a valuable tool in primary care: Most pre-survey respondents (89%) believed POCUS was a valuable tool in primary care prior to training sessions. The remaining respondents (11%) were unsure of the value of POCUS. One “unsure” respondent with a linked post-survey stated they believed POCUS was a valuable tool after attending at least one training session.

Familiarity & Confidence Using POCUS: Significant increases in both familiarity with primary care applications of POCUS and confidence in using POCUS were observed among respondents that attended at least one training session and had linked pre- and post-surveys (Figure 2).

CONCLUSIONS
Overall, there is substantial interest in POCUS training within the Advocate Aurora Family Medicine residency program. Current exposure to POCUS among residents and faculty is limited. POCUS training sessions with a content expert led to improvement in resident and faculty familiarity with POCUS primary care applications and confidence in performing POCUS.

Limitations of this study include varying ability of participants to attend all three POCUS training sessions, low post-survey response rates, overall low number of pre- and post-survey respondents, and limited ability to link pre- and post-surveys for more robust analysis of results.

Next Steps: Our results support continued development of a broad, longitudinal POCUS education plan for incorporation into residency program curriculum using a content expert-led model. However, the only internal content expert currently available to our program is a graduating PGY3 resident. Considerations to develop a sustainable POCUS curriculum could include:

- Hiring content expert faculty to focus on training current residents.
- Providing support for training current faculty externally who then become internal content experts.

REFERENCES

Figure 1: Experience with POCUS Prior to Didactic Sessions

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<thead>
<tr>
<th>Perceived Experience</th>
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<tbody>
<tr>
<td>Residents (n=27)</td>
</tr>
<tr>
<td>Faculty (n=8)</td>
</tr>
<tr>
<td>Prior Experience</td>
</tr>
<tr>
<td>70%</td>
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<tr>
<td>75%</td>
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<tr>
<td>No Prior Experience</td>
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<td>30%</td>
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<td>25%</td>
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Figure 2: Percentage of Respondents "Somewhat" or "Very" Familiar/Confident with POCUS

<table>
<thead>
<tr>
<th>Familiarity</th>
<th>Confidence</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Pre-Survey</td>
<td></td>
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<tr>
<td>Post-Survey</td>
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Familiarity (n=11) Confidence (n=11)