Introduction

Bedside ultrasound represents a paradigm shift for improving accessibility to bedside diagnosis and improved safety for procedures. Point of Care Ultrasound (POCUS) refers to the use of ultrasound in primary care and emergency department settings. More than 1,500 Canadian Physicians have taken the Emergency Department Echo (EDE) course developed by Dr. Ray Wiss. The EDE course was translated into a longitudinal series of activities within the undergraduate medical program at the Northern Ontario School of Medicine.

POCUS in the NOSM program

EDE-POCUS was deployed as a pilot in Years 1 and 2 of the 4-year NOSM MD program. The focus in Year 1 was on small group learning with a clinician instructor to learn how to use the US equipment and conduct basic scans. In Year 2 the focus was on clinical skills and problem-based learning sessions. Although POCUS was popular with learners, the logistics of supporting such a venture for all learners presented significant challenges, as has the integration of POCUS into an already packed program. During the pilot, learners were assessed on a formative basis only using checklists which listed the procedures performed by learners in their sessions, as well as a statement confirming professional behavior. The results of the pilot were then reviewed.

Study

A study was conducted to explore the impact of EDE-POCUS in Years 1 and 2. The study questions were:

1. How well did EDE-POCUS translate to the NOSM MD program context?
2. What were the experiences of the NOSM learners and faculty involved in the EDE-POCUS sessions?
3. How well did EDE-POCUS align with learners’ studies and the rest of the program as a whole?

Data was collected using surveys, interviews, and module evaluations.

The most recent learner survey (in April 2014) had a 89% response rate. From these results we identified that:
- 84% of respondents found POCUS easy to learn
- 97% found POCUS sessions well-organized
- 89% found POCUS to be a good use of their time
- 95% enjoyed POCUS sessions

A review of all of the data identified a number of advantages and disadvantages:

Advantages
- Enthusiastic and well-run sessions
- Increased knowledge of anatomy
- Ultrasound knowledge perceived as providing an edge over learners from other programs
- Tangible benefits for learners going to more rural distributed sites (e.g. potentially helping other physicians and ultrasound technicians)

Disadvantages
- 53% thought POCUS sessions made sense in terms of their other studies
- Curriculum alignment: e.g. when the body system being scanned did not align with the body system being studied in the rest of the curriculum. In some situations learners did not know what they were looking at in a POCUS session
- Higher cost of sessions, due to number of standardized patients, instruction, and educational materials required
- EDE model is more staff and time-intensive
- There were greater challenges in standardized patient recruitment with significant conditions that can be seen with ultrasound
- Introducing EDE-POCUS displaced other curriculum content that was not picked up elsewhere

In the end the final recommendation was to discontinue the EDE-POCUS pilot.

Conclusions

Based on initial findings, it appears that there was strong interest and support from learners in acquiring skills in reading and interpreting ultrasound imaging. The EDE-POCUS model is one way of providing instruction, and other medical schools have utilized alternate approaches. Based on completing a cost/benefits analysis, NOSM determined that the EDE-POCUS model does not currently provide a cost effective and pedagogically sound approach to ultrasound instruction that fits within the NOSM undergraduate curriculum.

The 24-month pilot project was evaluated. A report based on the evaluation recommended that the pilot not be merged into the mainstream Year 1 and Year 2 curriculum, and that the EDE-POCUS course be discontinued.

The comprehensive cost/benefits analysis (including a comparison of financial costs) were considered alongside the many positive characteristics associated with POCUS instruction. It did not fit within the body systems, the learning objectives, and content of the learning modules, and although evidence suggests that the learners still benefitted from the skills acquisition, since the learners did not have the basic knowledge and understanding of the features being imaged, the learning was somewhat compromised.

Although the introduction of EDE-POCUS was not considered to be appropriate, it was recognized that having NOSM learners exposed to ultrasound at different times throughout their undergraduate medical education could be a valuable experience, especially during specific events such as Academic Week and Boot camps in the undergraduate program, or establishing a special interest group (EDE) through the Student Society, and having an EDE-POCUS Elective in residency – Emergency Medicine/Internal Medicine.