Reflections on the Development of a Multidisciplinary Point of Care Ultrasound Program: Idealism vs Reality

A Smith, T Renouf
Discipline of Emergency Medicine, Memorial University

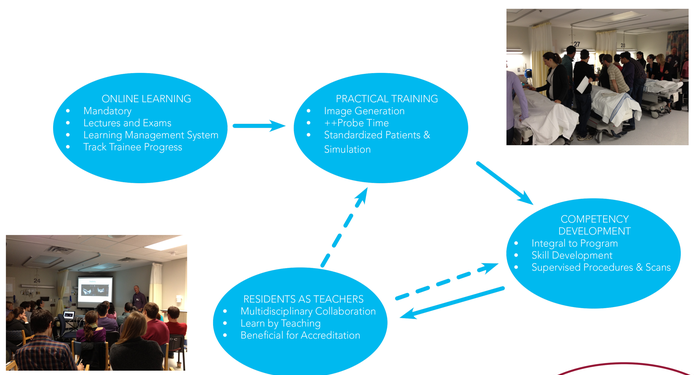
INTRODUCTION

In 2012, Memorial University implemented a cost-efficient, multidisciplinary Point of Care Ultrasound (PoCUS) training program focused on training residents discipline-specific ultrasound skills.

The training program consists of 2 streams:

1) Introductory PoCUS skills training (PGY1 only)
2) PoCUS Central Line training (PGY1-5)

The program is modular consisting of online education, practical training, competency development, and subsequent knowledge transfer by incorporating residents as teachers.



RESOURCES & SETUP

You can't do this alone without a good supporting team

- Program director & 4 stipended positions
- Engage staff from multiple disciplines
- Dedicated administrative assistant for co-ordinating & scheduling
- Lines training linked to residents ICU rotation
- Use existing hospital & university ultrasound equipment
- Gel block - 1
  Standardized Patients - 1-10
  Consumables - lines kits, gel, towels, IV's, ect
  Central Line simulators - 2

Simulators placed in ICU & ER for resident practice 24/7

There are ultrasound machines all over the place. Move the trainee's to the equipment, not vice versa.

COMPETENCY DEVELOPMENT

By far the most labour intensive and most challenging aspect

- Approximately 50 supervised scans per area
- Each trainee paired with an instructor for 1:1 training & mentorship
- Develop select discipline-specific skills
- Image generation on patients in ER after obtaining verbal consent
- Standards similar to Canadian Emergency Ultrasound Society[1] with key differences
- Visual exam and program director sign-off prior to independent work
- Residents train peers

Abdominal FAST exam:	50 scans
Pneumothorax exam:	10 scans
Hemothorax/Pleural Effusion exam:	25 scans + abdominal FAST scans
Aorta exam:	50 scans
Transabdominal Pelvic exam:	50 scans
IVC exam:	25 scans + SubXiphoid Cardiac scans
SubXiphoid Cardiac exam:	50 scans
Parasternal Long Cardiac exam:	25 scans + SubXiphoid Cardiac scans
Apical 4-Chamber exam:	25 scans + SubXiphoid Cardiac scans

Table 1. Supervised training requirements

	Introductory Training (PGY1 only)	Central Line Training (PGY1-5)
Internal Medicine	8	15
General Surgery	4	13
Obstetrics & Gynecology	3	5
Rural Family Medicine	4	1
Emergency Medicine	4	8
Other	0	17
Total	23	59

Table 2. Distribution of trainee's by residency program for introductory skills and central line training.

FOCUS GROUP EVALUATION

A focus group was conducted to explore resident perceptions of the strengths and weaknesses of the PoCUS training program. Seven residents participated representing all disciplines with the exception of rural family medicine. Thematic analysis was used to examine and summarize the data.

Select key themes:

- A multidisciplinary approach is feasible, enjoyable, meets the needs of different disciplines, and enables collaboration.
- Protected time devoted to development of PoCUS skills is important. The residency programs need to provide support.
- Defined resident training standards should be in place for all PoCUS applications.
- Residents are excited about and very interested in teaching PoCUS however a 'Teach-the-teacher session' is important.

Favorite Quote:

"When I got to do it, it was fun cause I thought it really mattered."

LESSONS LEARNED

Implementation of a cost-efficient multidisciplinary PoCUS program is feasible and a realistic objective provided the disciplines support the PoCUS program's curriculum. Aligning the interests of the different disciplines can be quite tedious and challenging. Regular communication regarding resident progress, training approaches & standards, as well as general education is critical as many staff physicians have limited knowledge of point of care ultrasound.

Ensuring adherence to defined training standards is integral to the success of a new or established program. Trainee's that practice outside set standards are exposing themselves to increased medico-legal risk should a complication occur, as per CMPA and the College of Physicians and Surgeons of Newfoundland and Labrador.

Specific to ultrasound guided central line placement, moving away from the age-old practice of 'see-one, do-one, teach-one,' to one of established minimum training standards has been particularly difficult despite evidence that this is no longer acceptable.[2] Though anecdotal in nature, it is clear that Canada lags behind other nations, such as the US and Britain, in moving towards safer central line placement .

The need for administrative support cannot be understated as scheduling busy residents and instructors for dedicated training time is a time-consuming process.

MOVING FORWARD

- Planning is currently underway for the incoming residents training
- Addition of a monthly 'drop-in' scanning session in near future
- Quarterly lecture on various advanced topics as well as research updates
- Conduct faculty development sessions and CME
- Ongoing mixed-methods evaluation of the PoCUS program

REFERENCES

1. Canadian Emergency Ultrasound Society. http://www.ceus.ca/ Accessed March 2013.
2. Dent JA Harden RM. A Practical Guide for Medical Teachers. Edinburgh; Toronto: Elsevier Churchill Livingstone, 2009. p 86-95.

This project was supported by a grant from the Medical Research Foundation, Memorial University