

The CAEP Emergency Ultrasound Curriculum – Objectives and Recommendations for Implementation in Postgraduate Training: Executive Summary

Paul Olszynski, MD, MEd*; Daniel J. Kim, MD†; Jordan Chenkin, MD‡; Louise Rang, MD§

and members of the CAEP Emergency Ultrasound Committee curriculum working group: Donna Lee, MD; Maja Stachura, MD; Justin Ahn, MD; Oron Frenkel, MD; Moritz Haagar, MD; Mark Bromley, MD; Danny Peterson, MD; Ali Turnquist, MD; Chau Pham, MD; Joseph Newbigging, MD; Conor McKaigney, MD; Melissa Hayward, MD; Andrew Healey, MD; Greg Hall, MD; Charisse Kwan, MD; Michael Woo, MD; Paul Pageau, MD; James Worrall, MD; Frank Myslik, MD; Drew Thompson, MD; Behzad Hassani, MD; Heather Hames, MD; Cristiana Oлару, MD; Laurie Robichaud, MD; Joel Turner, MD; Julie St-Cyr, MD; Annie Giard, MD; Marc-Charles Parent, MD; Maxime Valois, MD; Jean-François Lanctôt, MD; David Lewis, MD; Ryan Henneberry, MD; Gillian Sheppard, MD

Emergency Ultrasound (EUS) is now widely considered to be a “skill integral to the practice of emergency medicine (EM).”¹⁻⁴ In 2008, the Royal College of Physicians and Surgeons of Canada (RCPSC) included EUS as a core competency in its EM training standards,⁵ and in 2010, the College of Family Physicians of Canada (CFPC) introduced EUS as a terminal training objective for CFPC-EM programs.⁶ However, there is considerable heterogeneity in the scope of ultrasound training, curricula, and determination of proficiency.⁷⁻⁹

With this in mind, the CAEP Emergency Ultrasound Committee (EUC) formed the EUS Curriculum Working Group, consisting of EUS experts and educators from every EM training site in Canada. This group strives to combine best EUS evidence with contemporary curriculum design processes^{10,11} to create an implementable, evidence-guided core EUS curriculum for 2018 while also setting targets and recommendations for a second iteration in 2020.

The 35 members of the EUS Curriculum Working Group represent all major training institutions from across the country (see Appendix A). To determine

Content of Learning (objectives and outcomes of training), the working group employed a modified Delphi method^{12,13} whereby 80% represented sufficient support for any given EUS application to be included in the core EUS curriculum. Items that received 60-79% support were then re-evaluated by working group members through online discussion and then widespread consultation with the CAEP EUC membership at CAEP16 (Quebec City, June 5, 2016). These applications were then voted on a second time for final consideration.

The following EUS applications met 80% support for inclusion in the core EUS curriculum: FAST, identification of AAA, identification of IUP by transabdominal approach, thoracic ultrasound, Focused Cardiac Ultrasound (FOCUS), and ultrasound-guided vascular access.

The proposed core EUS curriculum objectives lay a strong foundation for quality and growth of EUS in Canadian EM training programs. Similar to other established EUS curricula, this first iteration focuses on emergent and potentially life-saving applications.¹⁴ This aligns well with the concept of Patient Zero,¹⁵

From the *Emergency Department, University of Saskatchewan, Saskatoon, SK; †Department of Emergency Medicine, University of British Columbia, Vancouver, BC; ‡Department of Emergency Medicine, University of Toronto, Toronto, ON; and §Department of Emergency Medicine, Queens University, Kingston, ON.

Correspondence to: Dr. Paul Olszynski, Room 2646, Royal University Hospital, 103 Hospital Drive, Saskatoon, SK S7N 0W8, Canada; Email: p.olszynski@usask.ca

where new graduates of either training stream should be skilled in resuscitation. The CAEP EUC has reviewed the proposed objectives of training and its members have voted in favor of their adoption as the foundation for a core EUS curriculum. Furthermore, the CAEP EUC endorses the following recommendations, as proposed by the Curriculum Working Group¹⁶ and members of the CAEP EUC, as a means of moving forward with the core EUS curriculum project.

CAEP EUC POSITION STATEMENT

- 1) The Core EUS curriculum should include the following skills: FAST, identification of AAA, identification of IUP by transabdominal approach, thoracic ultrasound, Focused Cardiac Ultrasound (FOCUS), and ultrasound-guided vascular access.
- 2) The Royal College of Physicians and Surgeons of Canada and the College of Family Physicians of Canada should explore the adoption of these training objectives into the broader objectives and competency based assessment schemes within their EM residency training programs.
- 3) Residents of CCFP-EM programs should be introduced to EUS prior to their PGY3 year. This could be accomplished by encouraging all successful CFPC EM applicants to undertake EUS training immediately after receiving confirmation of their R3 match.
- 4) Training sites should share their teaching resources with regard to the above curriculum, in order to expedite adoption and minimize duplication. In such a partnership, all work would be attributed to the creators of the learning material (and their respective institutions).
- 5) Training sites should continue to advance patient care and push the boundaries of EUS beyond the core curriculum. This can be accomplished through addition of other EUS applications that are deemed important to the local context.
- 6) Future iterations of this position statement will need to be undertaken frequently to keep pace with the expanding set of EUS skills applicable to emergency care.

Keywords: emergency medicine, ultrasound, point of care ultrasound, curriculum, post graduate training, residency

Acknowledgments: The committee members would like to acknowledge the diligent work of Dr. Genevieve Dallaire in completing the French translation of this position statement.

SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit <https://doi.org/10.1017/cem.2018.35>

REFERENCES

1. Thomas HA, Binder LS, Chapman DM, et al. The 2003 model of the clinical practice of emergency medicine: The 2005 update. *Ann Emerg Med* 2006;8:e1-17.
2. Canadian Association of Emergency Physicians. Ultrasonography in the emergency department, 1999 position statement; 1999. Available at: <http://caep.ca/resources/position-statements-and-guidelines/ultrasonography-ed-1999> (accessed July 12, 2016).
3. Emergency Department Targeted Ultrasound Interest Group, Canadian Association of Emergency Physicians. Emergency department targeted ultrasound: 2006 update. *CJEM* 2006;8:170-1.
4. Henneberry RJ, Hanson A, Healey A, et al. Use of point of care sonography by emergency physicians. *CJEM*. 2012;14:106-12.
5. Royal College of Physicians and Surgeons of Canada. *Objectives of training in the specialty of emergency medicine*. Ottawa: Royal College of Physicians and Surgeons of Canada; 2014. Available at: <http://www.royalcollege.ca/cs/groups/public/documents/document/y2vk/mdaw/~edisp/tztest3rcpsced000895.pdf> (accessed July 12, 2016).
6. Mackey DS, Steiner IP, eds. *National guidelines: Family medicine-emergency medicine residency programs*. Mississauga: The College of Family Physicians Canada; 2010. Available at: [http://www.cfpc.ca/uploadedFiles/Education/FamilyMed-EMResidencyPrograms\(1\).pdf](http://www.cfpc.ca/uploadedFiles/Education/FamilyMed-EMResidencyPrograms(1).pdf) (accessed July 12, 2016).
7. Kim DJ, Theoret J, Liao MM, et al. The current state of ultrasound training in Canadian emergency medicine programs: Perspectives from program directors. *Acad Emerg Med* 2012;19:1073-8.
8. Woo MY, Nussbaum C, Lee AC. Emergency medicine ultrasonography: National survey of family medicine-emergency medicine program directors. *Can Fam Physician* 2009;55:1010-1.e1-4.
9. Kim DJ, Theoret J, Liao MM, Kendall JL. Experience with emergency ultrasound training by Canadian emergency medicine residents. *West J Emerg Med* 2014;15:306.
10. Grant J. Principles of Curriculum Design. In: *Understanding Medical Education: Evidence, Theory and Practice* (ed. Swanwick T). Oxford: Wiley-Blackwell; 2010, 1-15.
11. Atkinson P, Bowra J, Lambert M, Lamprecht H, Noble V, Jarman B. International Federation for Emergency Medicine point of care ultrasound curriculum. *CJEM* 2015;17:161-70.
12. Keeney S, Hasson F, McKenna H. Consulting the oracle: Ten lessons from using the delphi technique in nursing research. *J Adv Nurs* 2006;53:205-12.

13. Stansfield E, Woo MY, Tam R, Pugh D, McInnes M, Hamstra SJ. Designing a multi-disciplinary undergraduate medical school ultrasonography curriculum. *U Ottawa J Med* 2014;4:49-54.
14. Akhtar S, Theodoro D, Gaspari R, et al. Resident training in emergency ultrasound: Consensus recommendations from the 2008 council of emergency medicine residency directors conference. *Acad Emerg Med* 2009;16:S32-6.
15. Collaborative Working Group on the Future of Emergency Medicine in Canada. *Emergency Medicine training and practice in Canada: Celebrating the past and evolving for the future*; 2016. Ottawa: The Canadian Association of Emergency Physicians, the College of Family Physicians Canada, and the Royal College of Physicians and Surgeons of Canada.
16. Olszynski P, Kim D, Chenkin J, Rang L. The core emergency ultrasound curriculum project: A report from the Curriculum Working Group of the CAEP Emergency Ultrasound Committee. *CJEM* 2018;20(2):176-82, doi:10.1017/cem.2017.44.