

Use of point of care sonography by emergency physicians

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EXECUTIVE SUMMARY

Point of care sonography by emergency physicians in the emergency department can be an effective aid in the diagnosis and management of patients presenting with a variety of medical and traumatic conditions. Its use can improve patient outcomes, enhance patient safety, speed patient disposition and save lives.¹⁻⁹ CAEP supports the use of point of care sonography.

CURRENT POLICY

The CAEP Position Statement on Ultrasound in the Emergency Department was last published in May of 2006.¹⁰ Since that time, the use of point of care sonography in Canada and around the world has increased dramatically, with newer applications identified and supporting evidence being published at an ever-increasing rate.

INTRODUCTION

The use of point of care sonography in the emergency department has expanded substantially in the last three decades. It has become a routine and integral part of care provided by emergency physicians not only in Canada, but in many other countries as well. Moreover, emergency medicine training programs now incorporate point of care sonography training. This position statement serves as an update on CAEP's previous recommendations with regards to the use of

point of care sonography in Canada. Furthermore, CAEP acknowledges that emergency medicine and point of care sonography are continually evolving and that any recommendation in this position statement may not accurately reflect current practice.

RECOMMENDATIONS

1. *Availability*

Emergency departments choosing to utilize point of care sonography should strive to have sonographic evaluation by emergency physicians trained in its use available 24 hours a day.

2. *Resources*

In emergency departments choosing to utilize point of care sonography, equipment should be immediately available in the emergency department and possess appropriate functionality and quality for sonographic evaluations.

3. *Scope of Practice*

The use of point of care sonography by appropriately trained emergency physicians is within their scope of practice. Sonography can be used in—but is not limited to—the clinical situations listed below. When using sonography as a diagnostic tool, the clinician should be attempting to answer a specific predetermined question.

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CJEM 2012;14(2):106-112

DOI 10.2310/8000.CAEPSS

Basic Applications

- Cardiac arrest^{9–12}
- Assessing for pericardial effusion^{9,13–16}
- Thoracoabdominal trauma^{3,17–20}
- Early pregnancy^{4,6–8,21–23}
- Abdominal aortic aneurysm^{24,25}
- Central vascular access^{2,26–38}

Advanced Applications

- Evaluation of left ventricular function^{39–42}
- Volume depletion^{43–45}
- Jugular venous distention^{46,47}
- Undifferentiated hypotension, shortness of breath, chest pain^{13,48,49}
- Gallbladder disease^{50–60}
- Hydronephrosis, bladder volume^{61–66}
- DVT^{67–71}
- Thoracic pathology (pneumothorax, pleural effusion)^{72–83}
- Ocular pathology and elevated intraocular pressure^{84–90}
- Testicular pain^{91,92}
- Joint effusion and tendon rupture^{93,94}
- Peripheral vascular access^{95,96}
- Procedures that benefit from the assistance of ultrasound:
 - Thoracentesis^{97–104}
 - Paracentesis^{105–107}
 - Pericardiocentesis,^{108–110} lumbar puncture¹¹¹
 - Cutaneous^{112,113} and peritonsillar abscess¹¹⁴ drainage
 - Foreign body removal^{115–117}
 - Pediatric bladder catheterization¹¹⁸
 - Joint aspiration^{80,81}
 - Temporary pacemaker placement¹¹⁹
 - Regional anesthesia¹²⁰
 - Confirmation of endotracheal tube placement¹²¹

4. *Training*

Emergency physicians should possess appropriate training (including hands-on experience) in image acquisition and interpretation, indications for imaging, and limitations of point of care sonographic imaging. Specific training requirements should be established and monitored by emergency departments based on available evidence^{19,20,122–125} and accepted standards suggested by experts in the discipline.^{126–128} The Royal College of Physicians and Surgeons of Canada and the Canadian College

of Family Physicians have both recognized point of care sonography as a key skill in the practice of Emergency Medicine and have incorporated it into their most recent Objectives of Training. Training of practicing emergency physicians can be obtained through a number of established courses and training pathways offered across Canada and North America. Numerous excellent textbooks are also available for self-study.^{129–131}

5. *Leadership*

Local leaders should be designated and responsible for development and maintenance of the emergency ultrasound program.

6. *Self-Governance*

Emergency departments should adopt specific guidelines for the use of point of care sonography. These guidelines should address, but not be limited to, equipment maintenance, documentation, training, quality assurance, and program oversight.

7. *Documentation*

Point of care sonographic findings should be documented in writing.

- Image capture may be used for quality improvement but is not mandatory.
- Documentation should only include findings relevant to the specific indication for the scan.
- Scans that are indeterminate should be so documented and not used in clinical decision-making.

8. *Quality Improvement*

A strong quality improvement program is integral to the safe practice of emergency department point of care sonography and should be incorporated into the overall emergency department quality improvement program.¹²⁸

9. *Continuing Medical Education*

Continuing education and experience in point of care sonography is strongly encouraged.¹²⁸

10. *Research*

Research in the field of point of care sonography is strongly encouraged.

CONCLUSION

Within the practice of emergency medicine, the use of *point of care sonography* by emergency physicians in the emergency department is an effective aid in the management of patients presenting with any one of a variety of medical and traumatic conditions. The practice of point of care sonography in Canada continues to evolve and expand, and builds on a proven history in other countries. *It is well acknowledged that point of care sonography is different from the sonographic imaging performed in the radiology department by technologists and radiologists. It is not meant to alter the established indications for, or replace the use of, comprehensive diagnostic imaging studies performed by Diagnostic Imaging.*

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