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.
Basic Applications
- Cardiac arrest9–12
- Assessing for pericardial effusion13–16
- Thoracoabdominal trauma3,17–20
- Early pregnancy4,6–8,21–23
- Abdominal aortic aneurysm24,25
- Central vascular access26–38

Advanced Applications
- Evaluation of left ventricular function39–42
- Volume depletion43–45
- Jugular venous distention46,47
- Undifferentiated hypotension, shortness of breath, chest pain11,48,49
- Gallbladder disease50–60
- Hydronephrosis, bladder volume51–66
- DVT67–71
- Thoracic pathology (pneumothorax, pleural effusion)72–83
- Ocular pathology and elevated intraocular pressure84–90
- Testicular pain91,92
- Joint effusion and tendon rupture93,94
- Peripheral vascular access95,96
- Procedures that benefit from the assistance of ultrasound:
  - Thoracentesis97–104
  - Paracentesis105–107
  - Percutaneous,108–110 lumbar puncture111
  - Cutaneous112,113 and peritonsillar abscess114 drainage
  - Foreign body removal115–117
  - Pediatric bladder catheterization118
  - Joint aspiration119,120
  - 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 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.

REFERENCES


