



Canadian Association of Radiologists
L'Association canadienne des radiologistes

Position Statement on the Use of Point of Care Ultrasound

(Approved June 2013)



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This statement was peer reviewed by the Diagnostic Imaging Committee and endorsed by the Society of Obstetricians and Gynaecologists of Canada. It is also endorsed by the Canadian Interventional Radiology Association and the Canadian Society of Echocardiography.

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Introduction

Preamble

All CAR Position Statements and Advisories are a means of providing direction for physicians and medical staff regarding issues of concern relevant to protection of the public. They are derived from the data or literature available at the time of their creation and may need to be modified as new information is generated. These documents are not to be construed as standards of care. All decisions regarding the care of a patient should be made by the physician in consideration of all aspects of the patient's specific medical circumstances.

Definitions

Point of Care Ultrasound

Point of Care Ultrasound (POCUS) is an ultrasound examination provided and performed by the primary care physician (or their designate) of the patient, usually as an adjunct to the physical examination, to identify the presence or absence of a limited number of specific findings. POCUS is considered a different examination than a comprehensive or limited sonographic evaluation of a patient performed in a dedicated imaging facility or department in a consultative process between the physician providing primary or specialty care for the patient and the consulting imaging specialist. POCUS can at times be invaluable at the point of care to clarify uncertain findings of the physical exam, identify important conditions in the context of acute care of the unwell patient, or provide image guidance that improves the success and safety of many procedures in the acute care setting, particularly when time saving for diagnosis or treatment is absolutely critical.

Consultative Diagnostic Ultrasound

It is important to distinguish the POCUS examination from the imaging consultant's examination, which is usually carried out at the request of a non-imaging primary care or specialist physician. The consultative sonographic exam aims to systematically map out normal and disordered anatomy, assess function and dysfunction in the body or provide guidance for a wide range of interventional procedures. Necessary components for a consultative sonographic exam include: a professional mastery of the imaging technology, a systematic approach that results in a thorough diagnostic imaging assessment of the patient to include image recording and an interpretation of the exam provided in a well documented and recorded report of the findings and conclusions. Consultative sonographic examinations may involve comprehensive or limited diagnostic examinations depending on the referral question. Fundamentally, the limited consultative sonographic examination is distinctly different from the POCUS examination whose purpose is to identify the presence or absence of one or several specific findings. The American Society of Echocardiography has outlined this important distinction as it relates to cardiac ultrasound and echocardiography, however these concepts can be generalized to all diagnostic ultrasound specialties. The imaging consultant's scope of expertise will be based on specialty training in ultrasound as it relates to evaluation of the patient. These specialists receive training in all manner of issues related to diagnosis and intervention based on imaging investigations.

History/Rationale

From its original applications in fetal and maternal imaging, ultrasound imaging technology has evolved steadily to provide useful imaging of every part of the body. For much of the past 50 years diagnostic radiologists, obstetricians and cardiologists, in their specialty areas, have had a prominent role in research and development, training, utilization and management of ultrasound imaging in institutions and clinics. For decades physicians have been involved in training and supervising technologists as physician extenders, now known as sonographers. Sonographers work within the regulatory framework of their professional organizations to guarantee the range of training and expertise that is applied to much of medical ultrasound imaging today. Dedicated training, assessment and quality assurance programs have ensured that these individuals and groups maintain the highest standards in performance and interpretation of sonographic exams.

In 2011, leaders of Canadian provincial radiology associations assembled via teleconference to discuss the emerging phenomenon of “non imager” use of sonography. Provincial leaders stressed the importance of quality assurance, appropriate levels and standards for training, peer review and continued recognition of the importance of radiologists and other fellowship level trained physicians as experts in the field. The CAR has therefore proposed coordinating a collaborative initiative with other imaging specialists from the Society of Obstetrics and Gynecology of Canada (SOGC) and Canadian Society of Echocardiography (CSE) to create a statement and recommendations to all medical colleagues, healthcare managers and government agencies.

The work undertaken by this initiative supports the CAR strategic objective of *improving the uptake and appropriate use of technology in Imaging*. This statement is created to bring this issue to attention and encourage appropriate measures be taken to insure the highest quality and standards in the utilization of sonography for diagnosis and intervention guidance. Ultimately, this is to ensure the safety and wellbeing of Canadians. This position paper was developed to provide recommendation to all physicians, medical associations and their governing bodies as well as health provider governing bodies, all of which may be involved in decision making, quality evaluation and patient safety in Canada. This is not intended to be prescriptive on how and when sonography could or should be utilized in medical practice, but rather to encourage further steps to be taken, in consultation with imaging experts, to ensure safe and appropriate utilization of POCUS.

Concerns

Diagnostic sonography is widely accepted to be the most “user dependent” mode of imaging, requiring significant training and experience. Recently, technological advances in miniaturization have resulted in a proliferation of sonography equipment that is more available, portable and user friendly. These features, among others, have resulted in a rapid increase in the number and variety of previously non-imager healthcare professionals who have incorporated this modality into their bedside practice. There is no question of the value of sonographic evaluation in medical imaging, if used appropriately by properly trained healthcare professionals. However, as more physicians choose to use this valuable modality in their daily practice, concerns rise regarding their ability to appropriately utilize this modality in a manner that is objective, standardized and of the utmost quality on a continuing basis. Nurse practitioners and other healthcare providers may also be involved in the practice of point of care ultrasound and therefore should also be included in the discussion points of this position statement. Utilization of new equipment for tasks for which practitioners may not have received adequate training and supervision could result in less than favorable diagnostic and management outcomes of their patients.

Recommendations

Indications

As mentioned above, POCUS is an ultrasound examination provided and performed at the point of care by the primary care physician to clarify uncertain findings of the physical exam, identify important conditions in the context of acute care of the unwell patient, or provide image guidance that improves the success and safety of many procedures in the acute care setting, particularly when time saving for diagnosis or treatment is absolutely critical.

POCUS can also be performed in various settings, and can be performed for diagnostic purposes or interventional procedure guidance. There are a wide variety of practice settings where POCUS can be applied. As the field is continually evolving it is beyond the scope of this document to provide a comprehensive list within this document. The comments in this document apply to all uses of POCUS. Typically, the assessment is goal-orientated to add immediate information to the clinical examination. Other medical specialties may use POCUS at the bedside directly relevant to their area of expertise to efficiently diagnose certain conditions in patients presenting with particular symptoms and signs. POCUS can also potentially be used in remote communities where access to diagnostic sonography by certified imaging specialists is limited; however it should not be used in this role as a substitute for a comprehensive or limited consultative sonographic examination.

Contraindications

Sonography equipment in the hands of an operator who is not well versed in the specific scope of examinations that are to be performed, has an increased likelihood of being more harmful than beneficial to all involved, particularly the individual receiving the evaluation/treatment.

Access and Documentation

It is essential that representative images of the findings and written interpretations of the POCUS exam be recorded in the patient's medical record to ensure the proper communication with other health care professionals and to ensure the appropriate management of the patient. Documentation and image capture and recording will also allow peer review and quality analysis similar to that now utilized by imaging specialists in their day to day practice. The [CAR Standard for Communication of Diagnostic Imaging Findings](#) defines the process for documentation and content of a report to facilitate the communication of results accurately and in a timely fashion in order to optimize patient management and the quality of care.

DISCLOSURE OF INTENT:

In many situations, POCUS is not a replacement for an imaging consultative exam. Sonography exams are prevalent in the medical community and much of the public has a perception of their value to medical diagnosis and treatment. It is important that patients understand that there may be a significant difference between a POCUS exam and the dedicated imaging evaluation that they may have or will receive from a sonography specialist. Patients on whom POCUS is performed should be informed of this distinction, and that the POCUS exam does not compare to, or replace a diagnostic examination performed by a qualified imaging specialist. This is not to downplay the importance of the POCUS exam, but rather to clarify the scope and differences between the two. Experience plays a vital role in the development of interpretive and exam performance skills of the examiner. If a practitioner of POCUS extends scanning beyond the scope of their usual practice pattern, the likelihood of medical misadventure may increase. POCUS evaluations should be limited to the scope of exam types included in the training of those individuals performing the exam.

Training Standards

As with any medical act or procedure, it is of critical importance that the practitioner be properly and adequately trained and licensed. Practitioners must be registered in good standing with their appropriate regulatory body.

The specifics of training and evaluation for POCUS practitioners are beyond the scope of this document. However, in developing or adopting a training program for individuals engaged in POCUS, consideration should be given to evidence that demonstrates which interventions have proven effects on behaviour; e.g., whether didactic and/or practical sessions assist effectiveness. Therefore training and credentialing guidelines are important considerations regarding ethical and legal requirements for the performance of POCUS. Documentation of the training completed by the practitioner, including Continuing Professional Development, is recommended.

Training protocols established by health authorities, regulatory bodies or employers should include a significant number of didactic courses. The topics should include, but not be limited to: physics of ultrasound, anatomy related to the scan indications, appropriateness of examination choice and outcomes expectation, image concept and interpretation. Practical experience over a period of time must be included, where the healthcare professional can be exposed to a significant number of supervised scans with successful, audited results.

Any training protocol should also include areas of competency that can be assessed and documented in a fashion similar to other specialty procedures. Training outcome evaluation and ongoing continuing professional development (CPD) and evaluation such as Peer Review are critical to ensuring quality and safety. This will help to ensure that individuals have appropriate abilities to apply this modality to their practice to ensure optimum results for their patients. Development of a structured training process for any healthcare worker with appropriate evaluative process is considered essential in this process.

As an example, the [2010 Canadian Cardiovascular Society/Canadian Society of Echocardiography Guidelines for Training and Maintenance of Competency in Adult Echocardiography](#) provide guidance to assist in standardizing training. These are written specifically to point of care adult echocardiography, but the concept may be applicable to POCUS in general.

Quality Assurance

EQUIPMENT:

Users of medical devices have a responsibility to follow procedures that guarantee the ongoing safety and efficacy of the devices and their utilization. In particular, the use of an endocavitary probe requires specific cleaning protocols to prevent infection being passed from one patient to the next, as outlined, for example, in the AIUM [Guidelines for Cleaning and Preparing Endocavitary Ultrasound Transducers between Patients](#). Ultrasound units destined for POCUS applications should be subject to documented periodic inspection and maintenance. Equipment specifications and performance shall meet all provincial and federal guidelines, including Health Canada guidelines. In addition, update of the hardware and software on a timely basis according to manufacturers' recommendations is important. Service performed to correct system deficiencies shall also be documented and service records maintained by the site. Specific documents related to such quality assurance are available on the CAR website.

PRACTITIONERS:

Sufficient documentation of the POCUS exam and interpretation related to the patient care should be entered into the patient medical record to allow peer review of individual performance of the POCUS examiner and enhance communication with healthcare workers to facilitate patient care. POCUS practitioners should include self-audit and continuing education in their plan for improving and maintaining POCUS skills.

QUALITY IMPROVEMENT PROGRAMS

Facilities should maintain and regularly update procedure manuals. Procedures should be systematically monitored and evaluated as part of the overall quality improvement program of the facility. Monitoring should include the evaluation of the accuracy of interpretation as well as the appropriateness of the examination. Incidence of complications and adverse reactions should be recorded and periodically reviewed in order to identify opportunities to improve patient care. Data should be collected in a manner which complies with the statutory and regulatory peer review procedures in order to protect confidentiality of the peer review data.

Conclusion

Advancing technology has made ultrasound an accessible and valuable technology for frontline diagnosis and treatment. At the same time it is important to realize that POCUS is not a replacement for a dedicated diagnostic sonographic exam performed by an imaging specialist. This is why it is essential to limit the use of POCUS to specific situations, with appropriately trained personnel. Those individuals who would use ultrasound for medical purposes for diagnosis and intervention without adequate training may cause a potential detrimental effect on diagnosis, treatment and patient care. The CAR, SOGC, and CSE recognize that if POCUS is used properly and limited for specific and appropriate indications by trained personnel, the opportunities for negative outcomes are reduced and the procedure may improve the timeliness and certainty of clinical diagnosis.

It is recommended that POCUS be recognized as a valuable tool for the medical assessment and treatment guidance of patients. This is a tool that deserves much respect. However, application of POCUS exams has the possibility of negative outcome if not properly applied. Much work needs to be done to ensure that the practitioners of POCUS be well trained in their scope of utilization of this tool with application of quality assurance measures. Although there is literature available on POCUS, we believe that further detailed documents are needed as described above. The CAR, SOGC and CSE are committed to furthering efforts towards completion of documents to ensure proper application and utilization of POCUS in Canada.

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