Australasian College
for Emergency Medicine

Position Statement

Use of hand-held ultrasound devices

The mission of the Australasian College for Emergency Medicine (the College/ACEM) is to promote excellence in clinical diagnosis, research and education with the ultimate goal of ensuring quality care for patients. This position statement aims to provide some guidance and recommendations regarding the use of hand-held ultrasound devices in hospital emergency departments in Australia and Aotearoa New Zealand.

The College welcomes the addition of hand-held ultrasound devices into clinical medicine and although at present they have penetrated only a few areas of medicine, there is no doubt that they will be ubiquitous in clinical care in the near future. Wireless devices are now entering the market and without doubt will be the modus operandi for these devices as technology advances. The miniaturisation of ultrasound machines is not a new concept with hand-held devices being available as far back as 1998. However, with recent technological advances there has been a plethora of these devices that have become accessible to clinicians who use Point of Care Ultrasound (POCUS). Hand-held devices can be used with smartphones and tablets and are continually improving with respect to their image quality, functionality and their affordability for the individual clinician. The sustained efforts through the last decade by the industry to support the needs of clinicians using POCUS has been remarkable.

The European Association of Cardiovascular Imaging acknowledges that the dissemination of appropriate hand-held ultrasound device use is inevitable and desirable, because of its potential impact on patient management.[1]

The American College of Emergency Physicians (ACEP) states that pocket ultrasound devices may add value to the medical system by increasing availability and knowledge of clinical ultrasonography.[2] The European Society of Radiology feels that portable ultrasound devices technology has a variety of applications that may improve patient outcomes and experience.[3] The overall time required for performing an ultrasound examination at the bedside can be considerably reduced if a hand-held ultrasound device is used instead of a cart-based system.

There is little doubt that the role of insonation as part of a clinician's examination is going to play a significant role moving into the future. The College believes that over the last few years balance has been successfully achieved in the form of portability and image quality, and momentum towards further improvement is palpable.

The College guidance for the use of hand-held ultrasound devices is thus provided in order to maximise the opportunity to embrace the use of this technology in enhancing the delivery of quality clinical care in the safest possible manner.

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Document Review

Timeframe for review:	every three years, or earlier if required.
Document authorisation:	Council of Advocacy, Practice and Partnerships
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Document maintenance:	General Manager Governance and Standards

Revision History

Version	Date	Pages revised / Brief Explanation of Revision
V1	November 2020	Position prepared by ED Ultrasound Committee, approved by CAPP
V1	April 2021	Correct typo ('ulstrasound')

Related documents

ACEM Policy on the Use of Focused Ultrasound in Emergency Medicine (P21)

Procedures and actions

Recommendation 1: Scope of use

Hand-held ultrasound devices are designed to perform POCUS (or Focused Ultrasound in ED- FocUSED) examinations and this principle should always be borne in mind. They are not a replacement for conventional high-end radiology cart-based ultrasound systems. The College appreciates that the intrinsic technological capabilities will define the types of examinations that can be performed by individual machines.

Recommendation 2: Diagnostic performance

The technical limitations of hand-held devices must be recognised and accepted. There will be differences in image quality based on the technologies available to various machines and it is the clinician's role to evaluate the various machines and understand each unit's limitations.

Recommendation 3: Clinical setting

Hand-held ultrasound devices can be used to extend the physical exam and include insonation to obtain an overview of relevant anatomy, physiology and for following up of previously diagnosed pathology. In the hands of a trained user, these devices allow a more accurate examination that augments the standard physical examination, often sufficiently to change clinical management and expedite disposition[4,5,6]. The College envisages invasive hitherto anatomically guided procedures such as vascular access, insertion of catheters and regional blocks will increasingly be performed under guidance of these devices.

There is evidence that screening with hand-held ultrasound devices can be associated with improved clinical outcomes in patient care specifically in remote areas where a comprehensive ultrasound scan may not be easily available[7,8]. The use of these devices in the hands of trained prehospital practitioners is promising especially in the setting of trauma as well as in mass casualty incidents.

Users of hand-held devices, whether the device be a personal device or owned by an organisation, must be compliant with the policies and procedures for ultrasound use that is in place at their organisation. The College supports the use of these devices in both emergency department and pre-hospital settings, pursuant to these organisational policies being strictly adhered to, thus ensuring the highest standards of patient safety.

Health professionals should not use personally purchased devices in a clinical setting without approval from the department and institution in which it will be used. Each hospital should establish a process of certifying the use of such units after their appraisal of electronic safety, IT risks and safety issues have been addressed. The College urges hospitals to expedite this process of assessment.

Recommendation 4: Cleaning and disinfection

The equipment used in insonation (i.e. hand-held ultrasound devices, phones, tablets etc.) should follow the same guidelines for cleaning and disinfection that are recommended for all ultrasound equipment that is used at that organisation.

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Recommendation 5: Operators

The requirements for training and certification for hand-held ultrasound devices do not differ from the ACEM recommendations for emergency department POCUS[9]. Appropriately trained operators who are familiar with the technical characteristics of these devices as well as their limitations should be permitted to use these units in clinical settings. The College believes that each hospital should acknowledge the use of these devices and ensure they have a process of governing their use by appropriately credentialed individuals, or clinicians training under the supervision of a credentialed clinician.

Recommendation 6: Reporting and storage

The findings from these devices should be reported either as part of the physical examination under insonation or as a more detailed report under investigation. It is also important that clinicians document the type and model of ultrasound used to obtain the images in the patient's notes. The information should be provided in a clear and comprehensive manner including the name and designation of the operator. It is also crucial that clinicians document any findings that may have a potential clinical impact and when the examination did not offer any additional information due to the limitations of the examination.

Ideally, all POCUS examinations, including those from hand-held devices, should be systematic, DICOM compatible and automatically stored to the hospitals PACS system. These images should be easily accessible for review, feedback and quality assurance and for other units to access both the images and the clinician's interpretation of them (including whether it is a preliminary or final interpretation depending on the credentialing status of the performing/reporting clinician). Both non-cloud and cloud-based storage systems must respect the national data protection regulation. Each hospital must ensure the hand-held ultrasound storage system satisfies their data protection regulations.

References

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