

ASA position statement: Definition of Point of Care Ultrasound



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- The range of clinical ultrasound applications and mobility of equipment being used for ultrasound imaging are rapidly expanding.
- New definitions of ultrasound must meet the challenge of being practical in the clinical setting; be reflective of the medical ultrasound continuum; and be valid in government and education frameworks.
- ASUM's discussion paper proposes useful definitions for the performance of medical ultrasound in current clinical applications.
- Direct therapeutic use of ultrasound, as distinct from the use of ultrasound to guide therapeutic interventions, is not considered here.

Point of Care Ultrasound (POCUS) is ultrasound performed as clinical adjunct such as in emergency situations, within consultations; and in conjunction with clinical intervention, is a fast-growing area [1].

Background and Context

The changing face of diagnostic medical ultrasound

Medical ultrasound has previously been the domain of sonographers and sonologists (physicians trained in ultrasound imaging), who acquire images during structured, protocol-driven examinations. Demand for this type of ultrasound continues to grow, but ultrasound is increasingly being used by other health and medical professionals. Real-time imaging without ionising radiation, combined with advances in image quality and equipment portability, make ultrasound an attractive imaging modality for many clinicians. It is particularly useful to confirm diagnoses and assist rapid clinical decision-making in the following settings:

- Critical care assessment
- Interventional procedures
- Medical and allied health consultations

This use of ultrasound, where the performance of ultrasound is secondary to a consultation or procedure, is now widespread. The term Point of Care Ultrasound (POCUS) is now commonly used, particularly in the critical care context. However, the

range of ultrasound applications and various locations where ultrasound is now being used, mean that current terminology may not adequately describe the medical ultrasound continuum in contemporary healthcare settings.

Proposed definitions for ultrasound

Based on terms introduced by the American Society of Echocardiography [2], the following ultrasound definitions have been proposed by ASUM:

- **Comprehensive** – Following a recognised protocol to obtain good quality images that are interpreted by a physician who has undertaken advanced training in ultrasound. Usually would be associated with a comprehensive report.
- **Limited** – An examination performed using the skill and equipment suitable for a comprehensive examination but not undertaking the full protocol of a comprehensive examination.
- **Focused** – Used in specific clinical settings to recognise a narrow list of potential diagnoses. As such, these examinations may have lower requirements for training and equipment, and can often be performed more quickly.

The ASA broadly supports these definitions, but encourages further examination. Together these definitions describe not just one aspect, but the broader continuum of medical ultrasound. For each definition, the role/s of the ultrasound practitioner should be considered in addition to the clinical setting.

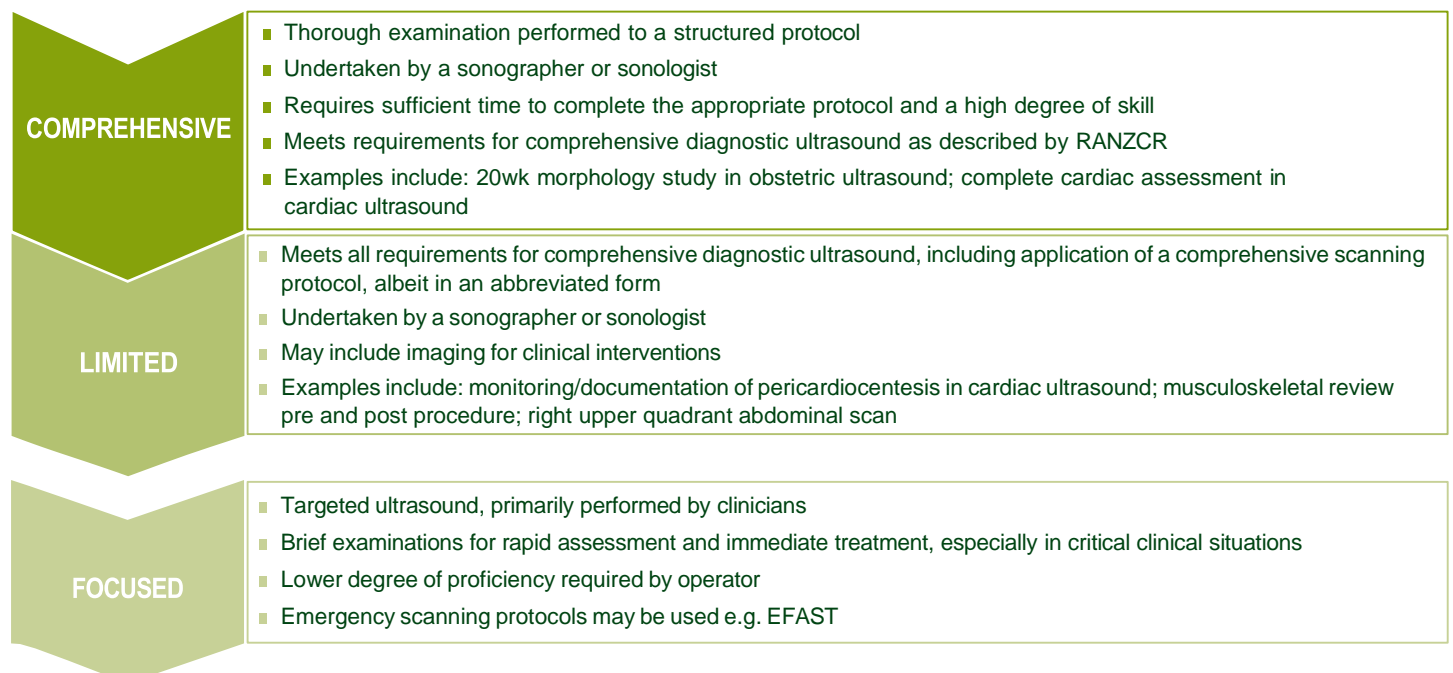


Figure 1. Application of proposed definitions to the medical ultrasound continuum

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Examination of the proposed definitions

- **Comprehensive** – *The Position Statement on the Definition of Diagnostic Ultrasound* [3] by the Royal Australian and New Zealand College of Radiologists (RANZCR) outlines the following six components, without which an examination “should not be considered a comprehensive diagnostic ultrasound examination”.

- Referral and service
- Qualifications and equipment
- Protocol
- (Personnel) performing the ultrasound scan
- Evaluation and report
- Image storage

The ASA agrees that these components should be considered part of a comprehensive ultrasound examination. The use of a thorough, structured protocol plus the qualifications, competence and experience of the person performing the examination are key points. These are more critical for the definition of ‘comprehensive’ ultrasound than the type of ultrasound equipment used or the physical location where it takes place.

- **Limited** – In some circumstances, an abbreviated version of a comprehensive scanning protocol may be clinically indicated. In such cases the required imaging, and the decision to perform a limited study, demands the skills and knowledge of a proficient ultrasound practitioner. For this reason, limited ultrasound examinations should meet all the requirements for comprehensive examinations despite the abbreviated protocol performed.
- **Focused** – Targeted ultrasound as an immediate assessment tool is now used in a wide range of situations. This is generally referred to as ‘point of care’ ultrasound (POCUS) as it is used to guide treatment without delay. Focused ultrasound differs from other forms of ultrasound in that it:
 - Does not include the application of a comprehensive scanning protocol
 - Is primarily used to guide treatment rather than provide a complete diagnostic assessment

Comprehensive and limited studies are frequently performed at the bedside rather than in dedicated imaging departments. Therefore ‘bedside’ ultrasound should not be confused with focused ultrasound or POCUS.

Sonographers’ role in ultrasound

Different ultrasound practitioners can be involved in all levels of ultrasound, where their roles depend on their areas of mastery (Fig. 2). As the experts in ultrasound performance, sonographers make significant contributions across the ultrasound continuum.

- **Comprehensive** – Sonographers are qualified and highly-skilled medical imaging professionals with an essential role in the provision of quality comprehensive ultrasound services. The RANZCR statement recognises that sonographers have the “training and skills to perform and document the ultrasound examination”. However, this statement does not fully recognise the critical thinking involved in sonography:
 - The real-time analytical skills required to tailor an examination according to each patient and clinical situation
 - The diagnostic acumen underlying these skills
 - The extent to which these are reflected in sonographers’ reports.
- **Limited** – Sonographers may perform limited studies in:
 - Critical care settings
 - Serial monitoring
 - Guidance and documentation of procedural intervention
 - Screening programs
 - Resource-limited settings.
- **Focused** – Sonographers have an important role to play in:
 - The training, supervision and assessment of other ultrasound users
 - Program management, including the development of protocols and frameworks to support training, assessment and quality assurance in different settings
 - Support of clinicians by undertaking focused scanning protocols in certain circumstances e.g. disaster response.

CLINICIANS

Mastery: applying ultrasound findings

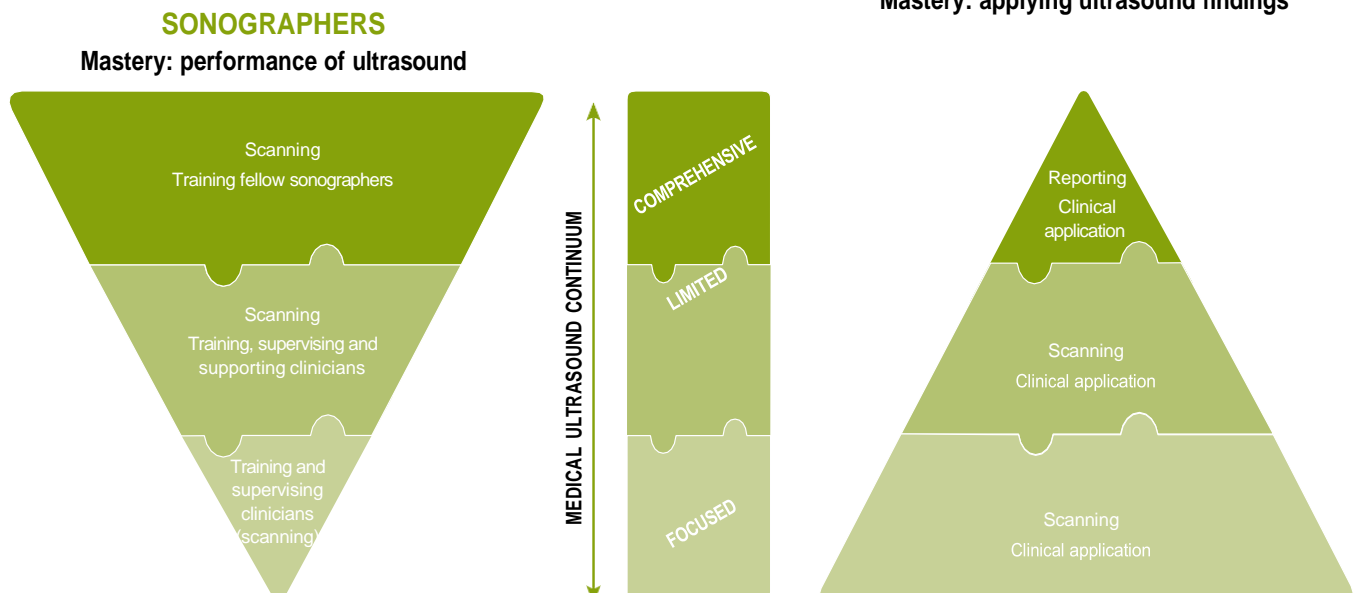


Figure 2. The roles of ultrasound practitioners across the medical ultrasound continuum

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Risks of POCUS

It is also essential that practitioners recognise the risks of POCUS and that it can potentially be a significant technology healthcare hazard. Limited oversight of POCUS – including when and how to use it - may place both patients and health care systems in jeopardy [5].

Therefore, consideration of a POCUS risk assessment framework [6] and an appropriate level of training for practitioners undertaking POCUS is crucial. Training should include correction of unrealistic expectations of skill mastery over a short time period and enable practitioners to understand the limitations of ultrasound and the devices they are using [7].

Underqualified or overconfident practitioners can lead to increased risks to the patient, placing them at risk of harm. Risks can include: false-negative POCUS examinations that lead to delayed treatment or increased rates of false positive diagnoses; errors of interpretative omission or exclusion that may result in the withholding of potentially life saving therapies; or misinterpretation that leads to unnecessary invasive procedures with a risk of complications [2, 7].

The ASA's position and recommendations

- The ASA broadly agrees with the ultrasound definitions proposed by ASUM, however these define the entire spectrum of medical ultrasound, not just clinician-performed ultrasound.
- The ASA recognises that POCUS is primarily clinician-performed and focused in nature.
- POCUS is not a modality but the application of ultrasound as an imaging modality.
- Ultrasound practitioners (clinicians or sonographers) may be involved in any level of ultrasound, with their primary role being determined by their area of mastery.
- The ASA considers the structure of an examination protocol plus the qualifications, competence and experience of the person performing the ultrasound examination, to be more relevant to the definition of ultrasound than the physical location where it takes place or the equipment used.

- Sonographers are experts in the performance of ultrasound, and their roles and contributions across all levels of ultrasound must be recognised.
- Programs training clinicians in ultrasound should highlight the risks of POCUS and involve sonographers in training, supervision and program management roles.
- As the peak body for sonographers, the ASA should be consulted on any framework or approach submitted to government representatives on this matter.

References

1. Australasian Society for Ultrasound in Medicine. *Discussion Paper: Definition of Point of Care Ultrasound (POCUS)*. 2017.
2. Spencer KT, Kimura BJ, Korcarz CE, Pellikka PA, Rahko PS, Siegel RJ. Focused cardiac ultrasound: Recommendations from the American society of echocardiography. *J Am Soc Echocardiogr* [Internet]. Elsevier Inc; 2013;26(6):567–81. Available from: <http://dx.doi.org/10.1016/j.echo.2013.04.001>
3. Royal Australian and New Zealand College of Radiologists. *Position statement on the Definition of Diagnostic Ultrasound*. 2019.
4. Ultrasound Training Solutions. *Discussion Paper: Definition of Point of Care Ultrasound (POCUS)*. 2017.
5. ECRI Institute. *Special Report: Top 10 Health Technology Hazards for 2020: Expert Insights from Health Devices*.
6. Conlon TW, Yourself N, Mayordomo-Colunga J, Tissot C. Establishing a risk assessment framework for point-of-care ultrasound *European Journal of Paediatrics*. (2022) 181, 1449-1457. Available at: <https://doi.org/10.1007/s00431-021-04324-4>
7. Kirkpatrick JN, Grimm R, Johnri AM, Recommendations for Echocardiography Laboratories Participating in Cardiac Point of Care Cardiac Ultrasound (POCUS) and Critical Care Echocardiography Training: Report from the American Society of Echocardiography