



GUIDELINES FOR PROFESSIONAL ULTRASOUND PRACTICE



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PURPOSE

It is MMDC's role, to ensure that the public has access to quality sonographic services and promote and advocate for best practice in medical sonography through the provision of guidelines and appropriate benchmarks for performance and documentation of high quality ultrasound examinations. These Standards of Practice are to be followed in conjunction with the Code of Conduct for medical practitioners as the two together set the standards expected of sonographers who work in diagnostic practice or undertake research.

INTRODUCTION

Ultrasound is a widely used diagnostic tool and is currently being widely used by many medical Specialists in addition to radiologists as a tool in examinations on patients referred to them for their clinical opinion as a direct extension of their clinical examination or to assist in practical procedures. There are frequent situations arising in clinical practice where rapid bedside assessment using focused ultrasound techniques can help with the assessment and treatment for patients such as focused assessment with sonography in trauma. In this situation, rapid ultrasound assessment by a competent non-radiological clinician may be more appropriate than waiting for the radiologist and aids the clinician's practice and greatly improve patient pathways.

In spite of advances in technology, the medical use of ultrasound remains highly operator dependent, and the patient is best served by the provision of an ultrasound service which offers the maximum clinical benefit with appropriately trained personnel using equipment of appropriate quality.

Those who provide ultrasound services are ethically and legally vulnerable if they are not adequately trained and guidelines are necessary to ensure properly trained personnel perform the examination.

Medical practitioners other than radiologists would deliver only those aspects of ultrasound particularly relevant to their clinical practice and the training for medical non-radiologists should be to the same standard as those for radiologists, though restricted to the relevant and particular area of their clinical expertise. Whereas radiological training provides for the practice of ultrasound across a broad range of medical and surgical specialties, patients should be aware of the differences in the comparative depth and breadth of training, and hence ultrasound skills, between trained radiologists and trained medical non radiologists.

Mutual support should be fostered between radiological and non-radiological medical practitioners and ideally a radiologist would continue to act as a mentor for a medical non-radiologist undertaking ultrasound and in addition, regular multidisciplinary meetings should continue to ensure an integrated approach.



The responsibility to be adequately trained and to maintain those skills by ensuring that regular ultrasound sessions are undertaken and that there is an adequate range of pathology seen in their practice lies with the individual practitioner and regular and relevant continuing professional development should be undertaken.

STANDARDS OF PRACTICE FOR QUALITY ULTRASOUND EXAMINATIONS

1. All diagnostic ultrasound examinations should be conducted at the request of a registered medical practitioner
2. Ultrasound examinations should be performed by a registered medical practitioner who have competence in the specific examination they undertake
3. Ultrasound examinations should provide the required diagnostic information at minimum exposure
4. The ultrasound practitioner must practice with proficiency and professionalism and practise lawfully, safely and effectively
5. The ultrasound practitioner should have a thorough understanding of the indications and guidelines for ultrasound examinations
6. The ultrasound practitioner should be familiar with the basic physical principles and limitations of the technology of ultrasound imaging
7. The ultrasound practitioner should be familiar with alternative and complementary imaging and diagnostic procedures and should be capable of correlating the results of the other procedures with the ultrasound examination findings
8. The ultrasound practitioner has a professional responsibility to ensure that he/she is appropriately trained and qualified to work within a particular scope of practice.
9. The ultrasound practitioner must not engage in clinical practice of a type that is outside his or her experience or training, or provide services that he or she is not qualified to provide, unless appropriately supervised
10. The ultrasound practitioner should refer to others for examinations that are outside their personal scope of practice
11. The ultrasound practitioner must prior to commencing the examination, meet the appropriate standards for ensuring the correct patient identification, correct side of examination and the correct type of examination
12. The ultrasound practitioner must remain sensitive to the needs of the patient through good communication and patient assessment and monitoring
13. The ultrasound practitioner must be fully familiar with the principles of informed consent and be familiar with the policies, procedures and protocols of the workplace and adhere to them
14. When conducting an intimate examination, the ultrasound practitioner should act with propriety and professionalism ,use a chaperone when appropriate and respect the patents right to dignity and privacy
15. The ultrasound practitioner must not knowingly provide services or care to patients while suffering from a physical or mental impairment or disorder (including an addiction to alcohol or a drug,) that places or is likely to place patients at risk of harm.

16. The ultrasound practitioner must be aware of their responsibilities in infection control and follow accepted best practice to minimise the risk of cross infection between patients and should take steps to ensure that infection control standards within the workplace, comply with acceptable standards.
17. The ultrasound practitioner should check that equipment is functioning properly and within the specifications and take appropriate action in the case of faulty functioning and operation.
18. The ultrasound practitioner should engage in continuing education to include their area of practice to enhance patient care, knowledge and technical competence
19. The non-medical use of ultrasound for entertainment, only to view the foetus, or obtain a picture of foetus etc without a medical indication is inappropriate and in contradiction to responsible medical practice

TRAINING RECOMMENDATIONS

Three levels of minimum training requirements are proposed in this document. These 3 levels are regarded as a guide to different levels of competence and expertise. At least Level 1(basic) should be obtained by anyone performing unsupervised diagnostic imaging.

Clinical speciality ultrasound training should include 3 steps: theoretical training, practical training and at the end of the training period, the competency level should be assessed by the appointed trainers

Step 1: Theoretical

The theoretical training should include basic ultrasonography, the physics of ultrasound, levels and sophistication of equipment, image recording, reporting, artefacts and the relevance of other imaging modalities to ultrasound.

Step 2: Practical

Under formal supervision the trainee should learn how to perform ultrasound examinations and how to document and report findings. This step must include maintenance of a log book or an audit to document that the ultrasound examinations were performed and reported in a standardized way.

Step 3: Assessment

At the end of the training, the trainee should be assessed for their theoretical knowledge and undertake a practical assessment of the technical skills learnt. Different trainees will have different timing of acquiring skills and they should be judged by the assessment of their individual competency level and it must be recognized that not all trainees have the aptitude to undertake ultrasound scanning skills and that some despite undergoing training, may not acquire the appropriate skills to ever practise independently.

MINIMUM TRAINING SYLLABUS REQUIREMENTS

The training Syllabuses should include:

- Ultrasound physical principles
- Effects on tissues of pulsed- and continuous-wave ultrasound beams: biological, thermal and non-thermal
- Safety of diagnostic ultrasound and contrasting agents
- Transducer technology
- Ultrasound artefacts
- Doppler ultrasound
- Sonographic biometry (linear, circumference, area and volume)
- Anatomy of the relevant body systems
- Pathology of the relevant body systems
- Ultrasound findings in the normal condition
- Ultrasound findings in the pathological condition
- Scan interpretation
- Image recording, storage and analysis
- Medico legal aspects of ultrasound
- Quality control processes

General skills

During ultrasound training the following general skills should be acquired:

- Awareness of consent and what information to give to a patient to obtain consent
- Awareness of latex sensitivity/allergy and the cleaning/disinfection of transducers
- How to enter patient-identification data into the ultra-sound machine
- Understanding ultrasound systems, the various transducers used and techniques required to optimize images
- Experience in selecting and manipulating the various transducers to achieve optimal views
- Interpretation of the resultant ultrasound images
- Experience in measuring distances and areas and recording these
- Experience in storing a set of standard images and sending measurements and images to an associated database where available
- Structured reporting of the ultrasound examination
- Counselling the patient before, during and after an ultrasound examination
- Knowing when supervision or a second opinion for confirmation of findings is required



LEVEL 1 (BASIC) TRAINING:

Within some medical specialties, the training required for this level of practice would be gained during postgraduate specialist training programmes

Practice at this level would usually require the following abilities:

- To understand basic functions of USG and optimal utilization
- To understand the relationship between ultrasound imaging and other diagnostic imaging techniques
- To perform common examinations safely and accurately
- To recognise and differentiate normal anatomy and pathology and diagnose common abnormalities within certain organ systems
- To recognise when a referral for a second opinion is indicated

Criteria of Level 1 Competency:

- 1-Completion of an approved residency programme, fellowship or postgraduate training that includes 6 months of diagnostic ultrasound training in the area they practise under the supervision of a qualified trainer
2. Documented evidence of at least one ultrasound list per week over a period of 6 months, with approximately 5–10 examinations performed under supervision per session. A minimum of 250 examinations should be undertaken.
3. For breast and vascular ultrasound, training should involve at least two ultrasound lists per week over a period of no less than three months and up to 6 months, with approximately four to six examinations performed under supervision per session and a minimum of 100 examinations should be undertaken
- 4.Cranial ultrasound practical training should involve at least one session per week over a period of no less than three months, with approximately five scans per session performed by the trainee (under supervision of an experienced practitioner).
5. Focused emergency ultrasound Training and practice should involve regular emergency department or radiology department ultrasound, with approximately five examinations performed under supervision per week.
6. For doctors without formal fellowship or post graduate training, they must show documented evidence of 2 years of ultrasound experience during which at least 500 ultrasound examinations were performed, supervised and interpreted



LEVEL 2 (INTERMEDIATE) TRAINING;

The training required for this level of practice would be gained during or after a period of speciality or subspecialty training which may either be within or after the completion of a specialist training programme assuming that part of the final year of subspecialty training had involved ultrasound.

Practice at this level would usually require most or all of the following abilities:

-To recognise and correctly diagnose almost all conditions within the relevant organ system and to have sufficient understanding of ultrasound depiction of pathology to optimise the referral of the patient if the condition falls outside of the practitioner's skills

-To perform common non-complex ultrasound-guided invasive procedures

-To teach ultrasound to trainees

Criteria of Level 2 Competency:

1-Requires at least one year of experience at level 1 with regular ultrasound sessions of at least one session per week.

For focused emergency ultrasound, the practical training should involve at least one year of experience at Level 1 with an average of three to five scans/week.

2-Able to recognise and correctly diagnose almost all pathology within the relevant organ systems and to recognize when a second opinion is needed from a level 3 trainer

3-Be able to teach, accept and manage referrals from the Level 1 trainees

4-To be a supervisor of training, one should have achieved at least level 2 competence and/ or with at least 2 years' experience at that level

5- Should be able to conduct some research on ultrasound (where applicable)

6-Training for interventional techniques should include observation initially followed by performance of the examination and/or procedure under close supervision. When competence has been acquired, procedures may be undertaken alone but with support close to hand. A logbook of diagnostic and interventional procedures performed should be kept with pathological correlation

LEVEL 3 (ADVANCED) TRAINING: - This is an advanced level of practice, which includes some or all of the following abilities: The training requisite to this level of practice would be gained during the period of subspecialty training, which may either be within or after completion of the specialist training

Practice at this level would usually require the following abilities

-Ability to perform highly skilled specialised ultrasound examinations

-Ability to perform advanced ultrasound-guided invasive procedures

-To teach ultrasound at all levels

-To conduct substantial research in ultrasound

-To accept tertiary referrals

- Should be able to conduct some research on ultrasound (where applicable)



CONTINUOUS PROFESSIONAL DEVELOPMENT

Following training regular ultrasound sessions should be undertaken to maintain those skills learned and to ensure that adequate range of pathology is seen in their practice and should participate in regular and relevant continuing professional development

In medical practice, a clinician scanning at Level 1 should perform at least one ultrasound session per week and a minimum of 150 examinations per year and have regular discussions and mentoring from radiological colleagues

DOCUMENTATION AND REPORTING

- Adequate, accurate and comprehensive documentation is an essential component of quality patient care. A final interpretation of the ultrasound examination should be included in the patient's medical record which documents findings indicating whether normal appearances or pathology have been detected. If abnormalities are detected, the characteristics, location and extent of the pathology should be recorded
- Any diagnostic limitations in the examination must be recorded
- Focused sonograms, as all sonograms, require appropriate documentation. The analysis of findings on FAST examinations is limited to those areas assessed and imaged. In particular, a FAST analysis may not allow the diagnostic evaluation of all abnormalities in the chest, abdomen, or pelvis.
- Must follow the workplace policies and protocols in relation to communicating findings and reporting
- In all circumstances where the ultrasound practitioner, considers it necessary or advantageous to provide results directly to a patient, consider whether it is appropriate that the information be given by him/her and whether the patient is able to comprehend the information. It is more appropriate that the sonographer gives the results directly to the referring practitioner, particularly if there is a need for the patient to seek medical attention or advice as the patient, on being given the results by the sonographer, may decide that follow up with the referring practitioner is not required



Contents of the Documentation/ report of the ultrasound examination should include and not limited to:

- Patient name and other identifying information
- Name of patient's health care provider
- Facility identifying information
- Date of ultrasound examination
- Relevant clinical information
- Specific type of ultrasound examination
- Organ or anatomic region of image
- Appropriate anatomic and sonographic terminology should be used, variation from normal size should be accompanied by measurements when appropriate (organomegaly, mass)
- Pertinent commonly utilized anatomic measurements should be listed
- Comparison with prior relevant imaging studies if available
- Recommendations including appropriate follow up studies, an impression or conclusion, specific diagnosis or differential diagnosis should be included
- Limitation of the examination
- Final report should be signed by the ultrasound practitioner

REPORTING OF URGENT EXAMINATIONS

In situations where immediate patient management is required, a preliminary report of the ultrasound results may be conveyed directly to the patient's referring health care provider before the final report. The preliminary report contains limited information and may not contain all of the results that will subsequently be found in the final report

If results of the ultrasound examination are considered by the interpreting physician to be important and unexpected, or require urgent intervention to ensure appropriate patient care, communication should occur directly between the interpreting physician and the patient's health care provider.



References;

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Signature
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