*This document has been provided by the ACEM and EMUGs Collaboration Working Group to assist Clinical Leads in Ultrasound in developing ED ultrasound training programs. The suggestions outlined are not required for accreditation for the FACEM Training Program. Due to the variation in size and resources available at sites throughout Australia and Aotearoa New Zealand, the guidance provided in this document may or may not be appropriate for your site.*

**Assessments:**

During a formative or summative assessment, the candidate must demonstrate the ability to:

* acquire adequate ultrasound images of all the appropriate anatomical structures;
* identify any relevant artefacts or pathology present during real time scanning and/or on recorded scans and/or hard copies of scans;
* recognise an inadequate scan; and
* demonstrate an understanding of the indications and limitations of ultrasound examination for the condition in question.
* demonstrate appropriate machine care, image labeling and documentation of their findings; and
* integrate their findings into the overall clinical picture and generate appropriate treatment recommendations if appropriate.

**Formative Assessment: (at least 2 required)**

* The purpose of the formative assessments is to directly supervise the candidate performing an ultrasound examination in order to provide feedback and guidance for ongoing self-directed learning.
* The supervisor may prompt, guide and give feedback during the assessment.
* The first formative assessment should be completed soon after commencing scanning in any given modality. The second one should occur at a later stage, at least one week apart, and not on the same day as the summative assessment.

**Summative Assessment: (at least 1 required)**

* The purpose of the summative assessment is to directly supervise the candidate performing an ultrasound examination in order to determine competence.
* The supervisor should provide minimal (if any) prompting, guidance or feedback during the examination.
* The summative assessment should be completed after at least 75% completion of the logbook and can be counted towards the logbook.
* This assessment may be undertaken simultaneously as a Direct Observation of Procedural Skills (DOPS) assessment by ACEM trainees.

# Formative and Summative Assessment Form – Lung

|  |  |  |
| --- | --- | --- |
| **Hospital name:** | **Candidate First Name:** | **Assessor First Name:** |
| **Date:** | **Candidate Last Name:** | **Assessor Last Name:** |
| **Formative Assessment □**  **Summative Assessment □** | **Overall: Competent / Not yet competent**  **(Circle one)** |  |
| **Assessor comments:** | | |

**LUNG ASSESSMENT**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Component** | **Criteria** | **Not yet competent** | **Competent** | **Assessor notes** |
| **Relevant Clinical Information**Able to explain indication(s) and clinical question(s) | Breathless or Shocked patient:A line pattern (normal / indicates dry lungs)Lack of pleural side? (Generates DDx: PTx, adhesions, fibrosis, apnoea etc).B-pattern? (Interstitial fluid DDx)Consolidation / Hepatisaition / Shred sign? (DDx)Pleural fluid? |  |  |  |
| **Preparation** | Verbal Informed consent (focused scan only) |  |  |  |
| Machine prepared (cleaned, battery charged/plugged in)Suitable positioningPatient privacy & dignity maintainedLights dimmed if possible |  |  |  |
| **Practical Aspects**Uses machine controls appropriately | Patient demographics (3 identifiers e.g. medical record number, Full Name, DOB)Probe:Linear array for investigating pleural based abnormalitiesCurvilinear for investigating interstitial / deeper abnormalitiesDepth: 10-18cm for B-lines, 3-5cm for pleural slidingHarmonics: understands its effect on lung US.e.g. Turns tissue harmonics and spatial compounding:off for artifacts (eg B lines),On for actual pathology (eg consolidation, pleural fluid)Image labelling, at least ‘R’, ‘L’Able to demonstrate use of M-mode. |  |  |  |
| **Image Acquisition**Captures adequate minimum image set. (2-4s Cineloops.)All must be labelled at least ‘R’ or ‘L’4 areas minimum, on each side of thorax. Additional images/clips as depending on clinical situation. | **Pleural slide** Captures the least dependent point on the thorax to detect pleural sliding (exact location will be affected by the patient’s position).Images in at least two rib spaces (+/- M mode) on each side (R, L). |  |  |  |
| **Pleural fluid**Captures the most dependentUsually lower thorax, PLAPS or R4/L4, typically including liver/spleen. |  |  |  |
| Right thorax: at least one other site |  |  |  |
| Left thorax: at least one other site |  |  |  |
| **Artefacts**Able to recognise the following: | Normal anatomy including: ribs, costal cartilages, pleural surface, diaphragm, liver, spleen, heart |  |  |  |
| **Artefacts**Able to recognise common artifacts, patterns and clinical correlation (Note: assessor may need to use library images of pathology) e.g. TPA (thepocusatlas.com) | Scatter from air |  |  |  |
| Acoustic shadowing (ribs and costal cartilages) |  |  |  |
| Pleural sliding: B-mode and M-mode |  |  |  |
| Lung pulse: B-mode and M-modeUnderstands the significance of positive lung pulse *without* pleural sliding. |  |  |  |
| A-lines (reverberation artifact) |  |  |  |
| Pleura: sliding (B-mode and M-mode) |  |  |  |
| Pleura: lung point (B-mode and M-mode) |  |  |  |
| Pleural space: fluid |  |  |  |
| Pleural line abnormalities e.g., thickening and irregularity |  |  |  |
| Interstitial: B-lines /B pattern (including causes) |  |  |  |
| Interstitial: consolidation e.g., subpleural consolidation, shred sign, hepatisation (including causes) |  |  |  |
| **Interpretation**Able to explain limitations and pitfalls | Unable to rule out the following: small PTX, microconsolidation, pulmonary embolism, consolidation that does not reach the pleura |  |  |  |
| **Clinical Integration** | Appropriately integrates PoCUS findings with remainder of clinical assessment (history, examination, investigations).Able to explain how a positive/negative scan will affect patient management. |  |  |  |
| **Documentation**Completes minimum documentation in clinical record (using institution’s template if available) | Documentation should address the following:IndicationFocused question(s) addressedFindings/ Adequacy of images/clipsImpression / Clinical recommendationOperator name, role (eg FACEM, trainee)Operator credentialed in this modality Y/N |  |  |  |
| **Machine care** | Ends the examination on the machineWipes off excess gel and cleans probe and machine appropriately Returns machine to storage area and places on charge |  |  |  |