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## Point of care ultrasound in respiratory and critical care: consolidation and expansion of imaging skills

We thank Drs Sikachi and Agrawal [1] for their response to our article [2] and wholeheartedly agree that point of care ultrasound imaging has a valuable role to play across a range of organ systems and disease presentations [3], including those of relevance in COVID-19 disease.

The real value in ultrasound imaging is premised upon the competency and experience of the operator in terms of performing and interpreting the sonographic images [4]. Mechanisms to gain and demonstrate competency in multi-organ imaging within a critical care setting are well established in the UK via bodies such as FUSIC (Focused Ultrasound in Intensive Care) and FAMUS (Focused Acute Medicine Ultrasound).

In our article [2] we presented mechanisms by which a sub-set of these skills could be rapidly gained by clinicians with a range of pre-existing ultrasound imaging and/or respiratory and critical care experience. Ensuring that an ultrasound operator works within their area of competency is a cornerstone of safe and effective practice [4]. In identifying a narrow remit and application of ultrasound imaging in COVID-19 disease, our publication empowers the deployment of workforces to address one of the principle organs compromised by COVID-19 disease.

As the peak of the pandemic curve starts to flatten, the opportunity presents itself to re-evaluate the skill set and configuration of healthcare workforces. In the UK, vascular technologists already provide a highly skilled service in specific clinical scenarios, including critical care. In the same way, we postulate that a 'lung ultrasound' workforce to provide dedicated services in this area could be a highly valuable addition to respiratory and critical care.

In parallel, upskilling of point-of-care clinicians in lung, as well as multi-organ system, imaging should be seen as a high priority. However three essential elements must be addressed, regardless of the professional background of the individual or the healthcare configuration into which point-of-care ultrasound imaging is incorporated. In each case the scope of sonographic practice should be clarified and this should reflect the necessary governance requirements; alignment with the training undertaken and demonstrable competency must be assured [4].

The scope of sonographic practice incorporates the imaging performed, the findings communicated and the subsequent clinical inferences derived from them. By omission, they crucially also exclude tissue or

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disease processes not within scope and for which the scan cannot be relied upon to identify, confirm or exclude. Governance considerations include awareness by other members of the care pathway regarding the limitations of the scan and are framed by what is permissible for that individual or profession to undertake, along with litigation considerations.

Alignment with the education undertaken and demonstrable competency underpin all of the above.

Essential considerations include fundamental physics as applied to ultrasound imaging, including limitations of the modality. Directly supervised scanning experience with a suitably experienced mentor and formal assessment of competency are other essential components, as is access to a second opinion, self-awareness of limitations and scanning audit. Within all of the above we strongly encourage point-of-care scanning clinicians to work in partnership with ultrasound imaging specialists (such as radiologists, career sonographers, vascular technologists, etc) to elevate the standard of imaging across the board [5].

One 'silver lining' of the pandemic might therefore be more widespread, shared cross-disciplinary learning.

Therefore whilst we endorse the view of Drs Sikachi and Agrawal that "consideration be given to the consolidation of skills and expertise to a whole body approach to point of care ultrasound", we urge individuals and professions to ensure that consolidation and expansion of point of care ultrasound is framed by quality and rigour.

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