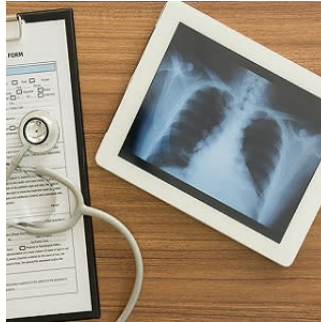


A CT Scanner in Your Pocket?



Lung ultrasound (LUS) is still a young diagnostic tool. However, its use is growing quite rapidly. LUS is an important component of ultrasound courses around the world. It is also incorporated into many shock and hypoxia assessment protocols. LUS is now included as a part of the examination by the National Board of Echocardiography Examination of Special Competence in Critical Care Echocardiography.

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Lung ultrasound has several advantages over other diagnostic modalities for critically ill patients. First of all, LUS has minimum processing requirements. It can be performed using any ultrasound machine. Second, information that is generated from LUS can be provided to the primary clinician in real-time, resulting in faster evaluation. Third, LUS can be freely repeated at the bedside allowing clinicians to track patient response to therapy as well as the monitor the evolution of disease. Fourth, LUS has outperformed chest radiograph (CXR) or physical examination when determining causes of hypoxaemia. Fifth, proficiency in LUS can be obtained with minimal training.

As with any other tool or technique, LUS has some weaknesses as well. First, pathology that does not reach the lung periphery cannot be visualised through LUS. Second, even though proficiency requires minimal training, there are a limited number of practicing clinicians who are comfortable using LUS.

Based on these strengths and weaknesses, the question that needs to be answered is this: can LUS displace CXR in the evaluation of the lungs of a critically ill patient? It is important to compare LUS with CXR to answer this question.

Two research groups (Lichtenstein et al. and Chiumello et al.) have evaluated regional CXR findings to LUS. Patients included in these comparative studies had acute respiratory distress syndrome (ARDS). In both these studies, LUS was found to be superior in terms of sensitivity and specificity across lung-specific and lobe-specific evaluations.

The future of LUS seems quite promising. Some groups are already developing automated algorithms for LUS findings. LUS can be easily taught to nurses, respiratory therapists, and paramedics. Overall, it appears that the role of portable CXR may become limited in the future as LUS continues to demonstrate its superiority.

Source: [Critical Care Medicine](#)

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