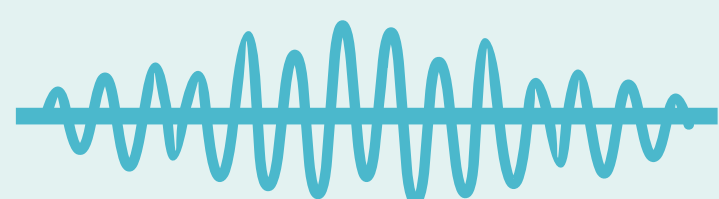


# Lung ultrasound in decompensated heart failure



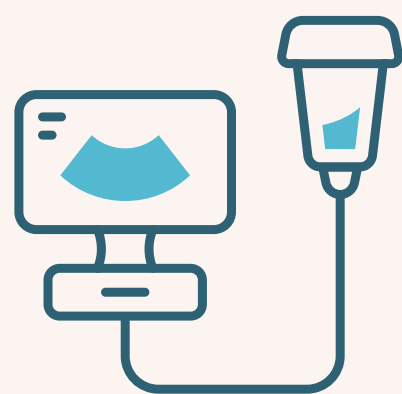
## Why lung ultrasound (LUS)?

Lung ultrasound is non-invasive, repeatable & it can be done at the bedside without delay



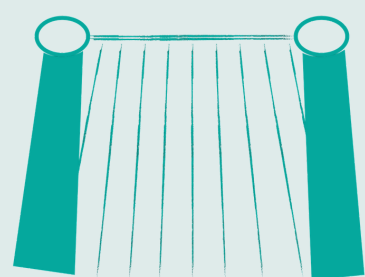
### 1 LUS competency can be achieved relatively quickly

Studies support rapid acquisition of skill in as little as 25 exams (1).



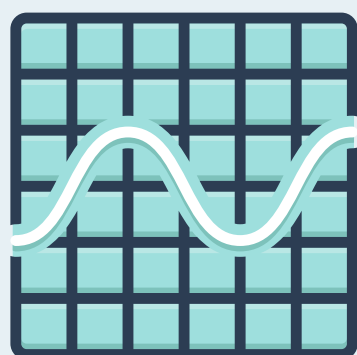
### 2 LUS readily detects decompensated heart failure

Lung ultrasound has a sensitivity of 88% and a specificity of 90% for pulmonary edema (2). B-lines are the primary sonographic finding and they can manifest early in the course of volume overload when the CXR may be negative.



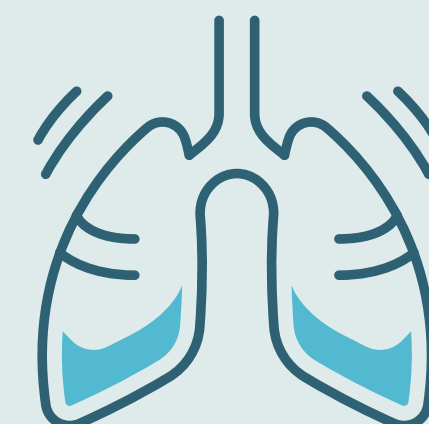
### 3 LUS enables monitoring response to therapy

Effective control of pulmonary congestion leads to appreciable changes in lung pathology (3).



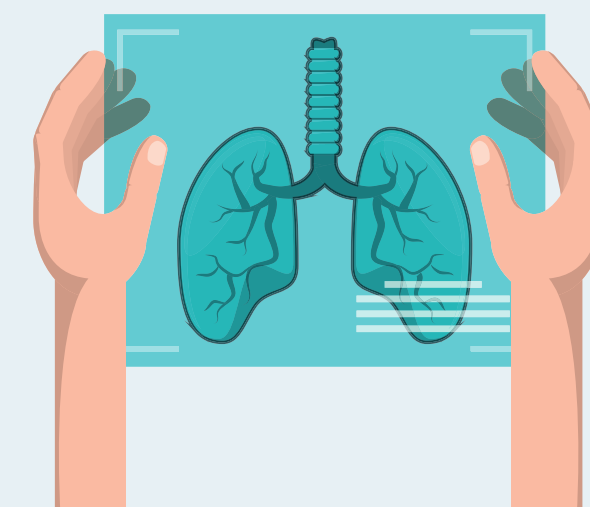
### 4 LUS enables accurate & rapid detection of pleural effusions

Studies show that LUS is nearly 100% sensitive and 100% specific for pleural effusions and is superior to CXR (4).



### 5 LUS offers a comprehensive picture at the point-of-care

LUS can also detect parenchymal changes related to pneumonia, pneumothorax, viral pneumonitis (i.e. COVID) (4).



## References

1. Arbelot et al (2020) Lung Ultrasound in Emergency and Critically Ill Patients: Number of Supervised Exams to Reach Basic Competence. *Anesthesiology* 132:899–907.
2. Maw et al. (2019). Diagnostic Accuracy of Point-of-Care Lung Ultrasonography and Chest Radiography in Adults With Symptoms Suggestive of Acute Decompensated Heart Failure. *JAMA Network Open*, 2(3), e190703.
3. Araiza-Garaygordobil et al (2020) A randomized controlled trial of lung ultrasound-guided therapy in heart failure (CLUSTER-HF study). *American Heart Journal* 227:31–39.
4. Xirouchaki et al (2011) Lung ultrasound in critically ill patients: Comparison with bedside chest radiography. *Intensive Care Medicine* 37:1488–1493.

