

Response to the letter of Trovato et al.

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Dear Editor,

We would like to thank Trovato and Musumeci for their letter. We share their opinion that comprehensive training is required for lung ultrasound (LUS). This is exactly why we designed our Intensive Care Ultrasound (ICARUS) curriculum as described in our paper.¹ Alsmas *et al.* even recommend this program in their editorial.²

ICARUS includes basic cardiac ultrasound but this was beyond the scope of our review. However, LUS can differentiate between most causes of dyspnoea,^{1,3} although Bataille *et al.* described significant advantages of an integrative cardiopulmonary ultrasound approach.⁴

We have chosen to follow the BLUE protocol, with its impressive sensitivity and specificity. Of course it should be remembered that this study was performed in dyspnoeic patients in the emergency room. However, the physiological principles of ultrasound artifacts are universal. Lung consolidations may arise at any point, but touch the pleural surface in 98% of cases. Of course, this implies that LUS sensitivity will depend on the extent of scanning. However, most cases (90%) include findings at the PLAPS point,⁵ which is part of the BLUE protocol.

When choosing the optimal probe, bedside trade-offs need to be made between form factor, ergonomics, scanning depth and resolution. For speed and simplicity we tend to use only one probe (1-5 Mhz sector array), generating the obvious artifacts seen in our figures. Its shape allows satisfactory scanning of the intercostal spaces and facilitates cardiac imaging as well. Of course, the vascular probe (10+ Mhz, linear array) and the abdominal probe (1-5 Mhz, curved array) are also useful.¹

Answering clinical questions with LUS enables immediate therapy for potentially lethal conditions. We therefore continue to feel that LUS should be standard practice.

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