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#400WORDS: CASE SERIES REPORT

## The prospective impact of respiratory physiotherapist training in focused ultrasound in intensive care (FUSIC) within a district general hospital: a case series

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### Introduction

Lung ultrasound (LUS) is increasingly used in the assessment of the lungs in critically unwell patients. It has a high diagnostic rate leading to improved identification and subsequent treatment. LUS has greater diagnostic sensitivity and specificity compared to traditional chest x-ray (CXR) (Tierney *et al.*, 2020) with the advantages of availability and ease of real-time assessment and monitoring (Leech *et al.*, 2014). A clinical 9-point LUS protocol has been shown to strongly correlate with specific Computerised Tomography (CT) findings among a diverse population of mechanically ventilated patients with acute respiratory failure (Tierney *et al.*, 2020). LUS has also shown a significant clinical impact on decision making and clinical management on general wards (Touw *et al.*, 2015, Solomon and Saldana, 2014, Arts *et al.*, 2020).

Physiotherapists are increasingly using LUS to complement traditional respiratory assessment and management (Le Neindre *et al.*, 2021, Le Neindre *et al.*, 2023). The use of LUS as a diagnostic tool is supported by the Chartered Society of Physiotherapy and Health Care Professions Council (Smith *et al.*, 2022).

Focused Ultrasound in Intensive Care (FUSIC) training requires a practitioner to undertake 30 scans for accreditation. The final 10 cases from a physiotherapist training in an eight bedded Intensive Care Unit (ICU), at a district general hospital are presented.

### Case series results

Direct beneficial impact on patient care was noted in all 10 cases (Figure 1). In 8/10 cases LUS was undertaken on patients in the ICU. In two cases the positive impact of LUS was outside of ICU.

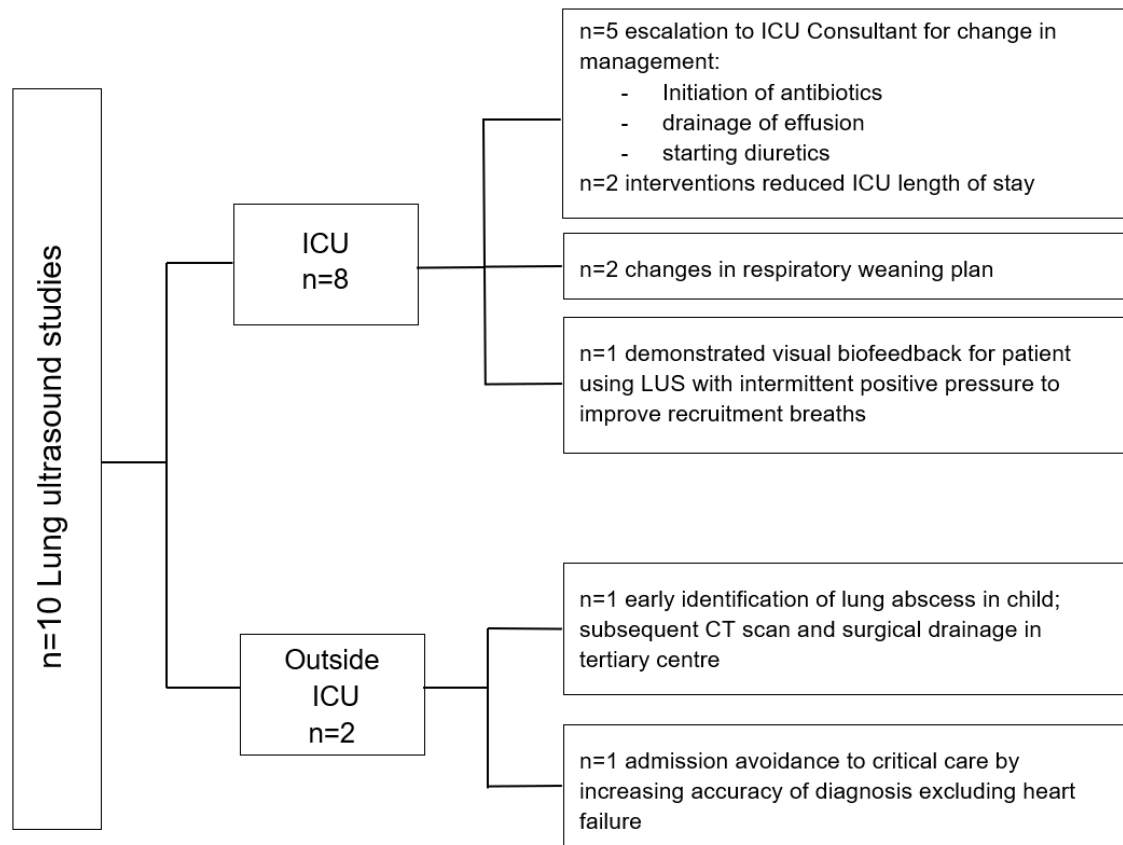


Figure 1: Case series results

3/8 LUS directly influenced physiotherapeutic management. In two patients with tracheostomy LUS improved understanding of the patients' condition and enabled a change in approach to weaning, improving patient experience and multidisciplinary team confidence in the treatment plan. In one patient, real time feedback optimised patient outcomes through increased patient adherence to intermittent positive pressure techniques.

## Discussion

LUS is a valuable addition to respiratory physiotherapists' clinical assessment and the wider multidisciplinary medical management of critical respiratory patients. The skill can be utilised in a district general hospital as a low risk intervention which can improve diagnostic accuracy at the patient's bedside. Benefits to patients' outcomes were noted inside and outside the ICU setting.

## Conclusion

Physiotherapists trained in LUS have the potential to optimise patients respiratory care at the bedside and improve patient flow through ICUs. Consideration is needed to ensure equitability of access for patients throughout the week and within all appropriate areas of the hospital.

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