

# Lung Ultrasound: A valuable assessment tool for the paediatric respiratory physiotherapist

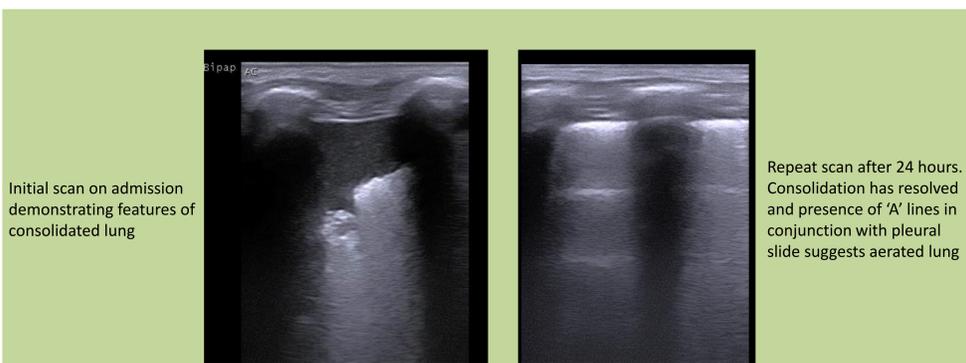
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## Introduction

Point of care ultrasound is a growing field in critical care. Traditionally the ability to perform ultrasound at the bedside has been limited to the medical profession, but the development of advanced nursing and allied health professional roles has seen an increase in non-medical use of ultrasound for assessment. The use of diagnostic ultrasound by physiotherapists in adult critical care has been documented<sup>1</sup> but to date there have been no reports of physiotherapists using ultrasound in the paediatric critical care setting.

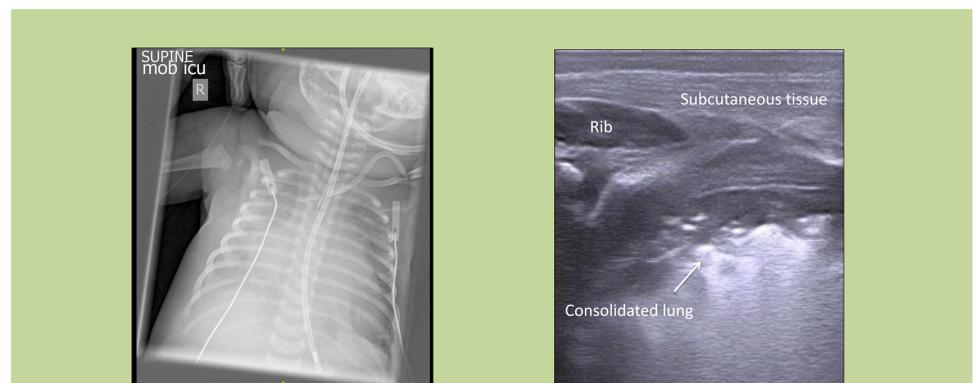
## Method

Following completion of a British Thoracic Society (BTS) “Thoracic Ultrasound” course, the lead physiotherapist in paediatric critical care started using diagnostic lung ultrasound (LUS) as part of physiotherapy assessment. This was limited to situations where there was ambiguity in assessment findings using traditional methods (auscultation, chest x-ray, percussion note), or where it was felt that ultrasound would add clarity to the assessment. Each scan was documented using a standard data collection form as well as being recorded in the medical notes as part of the physiotherapy assessment.



## Case 1

- 1 year old admitted with respiratory distress
- Initial scan showed significant bilateral consolidation
- Serial scans used to track progress over 24 hours following change of ventilation strategy and physiotherapy intervention

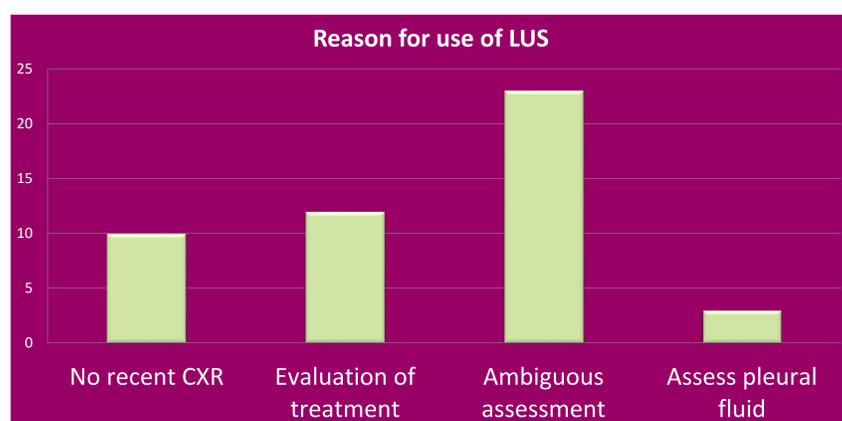


## Case 2

- 2 month old child transferred from outlying centre
- CXR showed ? Effusion, ? Consolidation
- LUS used to clarify aetiology of CXR changes and guide appropriate physiotherapy management.

## Results

- **48 scans performed**
- **No adverse events recorded**
- **Direct influence on physiotherapy intervention in 70% of assessments where LUS was used.**



## Discussion

This service evaluation demonstrates the potential for lung ultrasound to be a safe and valuable component of physiotherapy assessment in paediatric critical care. This mirrors the potential that has been identified in the adult setting<sup>2,3</sup>.

There is currently no formal structure in place for development of competence in LUS, for physiotherapists meaning that solutions are being developed on a local basis. There is a need for development of a nationally agreed supervision and competency structure to support practitioners.

## References

1. Le Neindre A, Mongodi S, Phillipart F, Bouhemad B. Thoracic ultrasound: Potential new tool for physiotherapists in respiratory management. A narrative review. *J Crit Care.* 2016 Feb; 31(1):101-9
2. Leech M, Bissett B, Kot M, Ntoumenopoulos G. Physiotherapist-initiated lung ultrasound to improve intensive care management of a deteriorating patient and prevent intubation: A case report. *Physiother Res Int.* 2015 Jun;20(2):69-75
3. Cavaliere F, Biasucci D, Costa R, Soave M, Addabbo G, Proietti R. Chest ultrasounds to guide manual reexpansion of a postoperative pulmonary atelectasis: A case report. *Minerva Anestesiol.* 2011 Jul;77(7):750-3

