

Clinical accuracy and reliability of point-of-care ultrasound for perioperative diaphragmatic assessment: a scoping review

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INTRODUCTION

- Diaphragmatic dysfunction is a key contributor to perioperative respiratory morbidity
- POCUS allows bedside assessment of diaphragmatic function, but its diagnostic accuracy and measurement reliability in the perioperative setting remain unclear

METHODS

- Scoping review
- Databases searched: MEDLINE, Embase, Scopus, Web of Science, and Cochrane databases
- Inclusion: studies evaluating diaphragmatic ultrasound in adult or pediatric surgical patients during the perioperative period
- Outcomes mapped:
 - Diagnostic accuracy against reference standards
 - Correlation with physiological measures
 - Inter- and intra-observer reliability.



19 studies included (712 patients)



Diaphragmatic ultrasound is a reliable bedside tool for assessing diaphragm function in perioperative patients



Standardised scanning techniques and diagnostic thresholds are needed to improve consistency and clinical application

RESULTS

- Most studies were prospective observational and published after 2015
- In adults, diaphragmatic ultrasound was correlated with:
 - spirometry
 - transdiaphragmatic pressure
 - neuromuscular recovery indices
 - arterial blood gas–based weaning criteria
- Excursion and thickening fraction demonstrated good to excellent inter- and intra-observer agreement, including among operators with limited focused training
- In pediatric populations, ultrasound showed high diagnostic accuracy and strong agreement with fluoroscopy

