

TIPS & TRICKS

TO PERFORM RESPIRATORY MUSCLE ULTRASOUND IN ICU PATIENTS

PATIENT POSITION



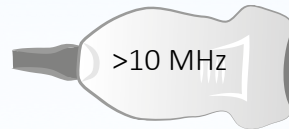
Diaphragm



Diaphragm
Expiratory muscles

Use same position for repeated measurements

PROBE HANDLING



Muscle thickness
B-mode



Diaphragm excursion
M-mode

- Perpendicular to skin
- Mark probe location

TIMING



- Best during T-piece SBT
- Measurements at start and end of SBT can be compared

VENTILATOR

Muscle thickness

- All settings, no NMBAs
- TFdi: SBT / low support

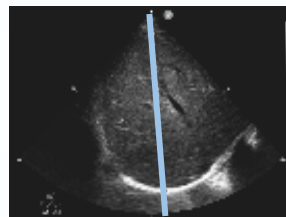
Diaphragm excursion

- No support
- No PEEP

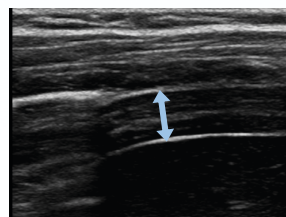
PATIENT COOPERATION

If patient can follow instructions:
Ask for a maximal breath

MEASUREMENTS



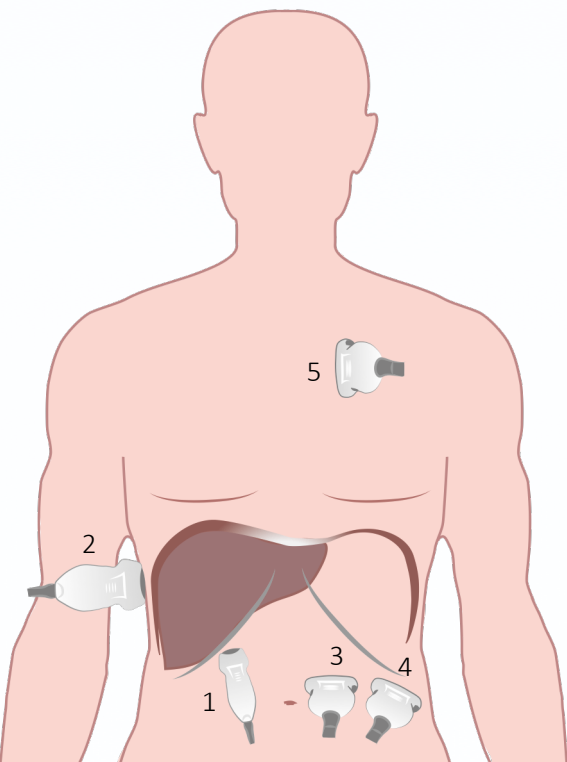
Diaphragm excursion
M-line parallel to
diaphragm movement



Thickness
Calipers between fascia
& perpendicular to
fiber direction

SYMMETRY

No asymmetric diaphragm dysfunction?
*Right hemidiaphragm can be used as proxy
for whole diaphragm*



1. Diaphragm excursion; 2. Diaphragm thickness and TFdi; 3. Rectus abdominis;
4. External & internal oblique, transversus abdominis; 5. Parasternal intercostal