Image Acquisition Checklist

Step-by-step guide for systematic EASy MAP image acquisition | Target: < 5 minutes

Pre-Scan Setup

- [ ] Confirm indication: MAP < 65 mmHg or hemodynamic instability
- [ ] Select phased array (sector) transducer
- [ ] Set cardiac preset — depth 15-20 cm, single focal zone
- [ ] Position patient supine (or semi-recumbent if tolerated)
- [ ] Apply gel generously to subxiphoid region
- [ ] Ensure clip recording is active (3-5 second loops)

View 1: Subcostal 4-Chamber

- [ ] Place probe 2 cm inferior to xiphoid process
- [ ] Orient marker toward patient's LEFT (3 o'clock position)
- [ ] Use overhand grip — trap small skin fold for contact
- [ ] Angle probe tail caudally toward patient's right shoulder
- [ ] Flatten probe against abdomen — use liver as acoustic window
- [ ] Identify all 4 chambers: LA, LV, RA, RV
- [ ] Assess LV size and contractility (squeeze)
- [ ] Assess RV size — compare RV:LV ratio
- [ ] Check pericardium for effusion (anechoic space)
- [ ] Save clip (minimum 3 cardiac cycles)

View 2: Subcostal IVC

- [ ] Remove probe entirely from skin
- [ ] Rotate marker to point CEPHALAD (12 o'clock)
- [ ] Replace at same subxiphoid location
- [ ] Identify IVC entering right atrium
- [ ] Angle slightly toward patient's LEFT to see aorta
- [ ] Positively identify BOTH IVC and aorta
- [ ] Measure IVC diameter (normal 0.9-2.1 cm)
- [ ] Assess respiratory variation / collapsibility
- [ ] Look for hepatic vein draining into IVC for confirmation
- [ ] Save clip showing full respiratory cycle

View 3: Right Upper Lung

- [ ] Move to 2nd intercostal space, RIGHT midclavicular line
- [ ] Orient marker cephalad (12 o'clock)
- [ ] Slide or tilt to minimize rib shadowing

- ☐ Identify pleural line between two ribs
- ☐ Confirm lung sliding is present (shimmering at pleural line)
- ☐ Count B-lines per intercostal space (0, 1-2, or 3+)
- ☐ A-lines (horizontal) = dry/normal; B-lines (vertical) = wet/edema
- ☐ Save clip (include at least 2 respiratory cycles)

View 4: Left Upper Lung

- ☐ Mirror position: 2nd ICS, LEFT midclavicular line
- ☐ Same orientation and technique as View 3
- ☐ Confirm lung sliding presence
- ☐ Count B-lines and compare to right side
- ☐ Note any asymmetry between sides
- ☐ Save clip

View 5: Right Pleural / PLAPS

- ☐ Move to right MIDAXILLARY line (same horizontal plane)
- ☐ Marker cephalad (12 o'clock)
- ☐ Identify liver as acoustic window
- ☐ Visualize diaphragm as bright curvilinear line
- ☐ Look ABOVE diaphragm for fluid (anechoic stripe)
- ☐ Check for spine sign (vertebral bodies visible above diaphragm = effusion)
- ☐ Assess for consolidation (tissue-like pattern above diaphragm)
- ☐ Note curtain sign (normal lung sliding over diaphragm)
- ☐ Save clip

View 6: Left Pleural / PLAPS

- ☐ Move to left POSTERIOR AXILLARY line
- ☐ Same orientation — marker cephalad
- ☐ Use spleen as acoustic window (smaller window than liver)
- ☐ Repeat same assessment as View 5
- ☐ Left effusions may be harder to visualize — adjust position
- ☐ Save clip

Post-Scan Documentation

- ☐ Record identified hemodynamic phenotype (P1-P10)
- ☐ Document IVC status: small/collapsing vs plethoric vs normal
- ☐ Document lung findings: A-lines vs B-lines, bilateral vs unilateral
- ☐ Note any additional findings (effusions, pericardial fluid, RV dilation)
- ☐ Assign quality score (see Quality Scoring System)
- ☐ Share findings with clinical team and document in chart

Reference: Howell-Clark et al. *JoVE* 2025 | easypocus.net