POCUS

Not just a fancy tool
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• No conflicts of interest to disclose
Stethoscope 1816

Medical ultrasound 1940s
Cardiology 1960s
OB 1970s now standard of care
ER 1980s - standard
Critical Care 1990s
Anesthesia, IM 2000s
FM? On the way
Why POCUS: eliminating the gaps

- See patient, Ask? Order
- Technician acquires images
- Radiologist interprets selected images
- Get report, Decide, Act

Personal gap
Time gap
Knowledge gap
Care gap
Why POCUS: What we learned from the COVID-19 pandemic

- Use of POCUS significantly increased
- 1/2 COVID patient in hospital has cardiac abnormality, 1/3 POCUS lead to change of management
- Decrease personal and equipment exposure, decrease time to correct diagnosis/treatment
Better physician-patient alliance, improve patient understanding of the disease and compliance. Olson et. Al Southern Medical Journal • Volume 111, Number 7, July 2018

Physician’s opinion based on survey: use of POCUS improve patient care, decrease time to correct diagnosis. Fuchs et, al. PLOS ONE | https://doi.org/10.1371/journal.pone.0242084 November 20, 2020


Systemic review for POCUS in general practice shows that is can be safely used in wide range of clinical settings to aid diagnosis and improve patient care. Sorensen and Hunskaar Ultrasound J (2019) 11:31
Why POCUS?

AAFP issued new residency curriculum guideline

Half of medical school provide some US training.
• 2.5 MHz: deep abdomen, OB/Gyn (deep and big)

• 15.0 MHz: superficial structures, musculoskeletal imaging (superficial and small)
B mode: 2 dimensional image
Doppler/Color doppler
Safety

In general, very safe

Potential thermal and non-thermal (cavitation) injuries can occur

Use the ALARA (As low As Reasonably Achievable) principle
What am I looking at? Orientation
What am I looking at?
Adjusting depth
What am I looking at?
Adjusting gain
When to use it?

To get a good answer, ask a good question.
What Can I use it for? Soft tissue

Cystic vs solid mass

US guided aspiration/biopsy
64 yo male with 2 artificial valves, Afib on coumadin here for arm pain after some yard work
38 yo female here for fatigue, right side of her neck is always more prominent than the left.
36 yo male with a lump on back bothering him for years
What Can I use it for?  MSK the rotator cuff
What Can I use it for? MSK

Achilles tendinosis

Increased vasularity with power Doppler
Abdominal Pain in the office

Is POCUS helpful?
What am I looking for?
History and physical is the key.
FAST Scan (Focused assessment with sonography in trauma)
What Can I use it for? Pulmonary

Pulmonary edema
Pleural effusion
Pneumothorax
Lung consolidation
Lung and pleura

B lines

A lines
Cardiac

Several high yield view to answer the most common questions:

- LV enlargement
- LV systolic dysfunction
- LV hypertrophy
- LA enlargement
- Pericardial effusion
- RA pressure elevation
Subcostal 4 chamber and IVC view
Parasternal mid-ventricular short axis view
Apical 4 chamber view
Vascular

DVT ?
US guided procedure/injections

Foreign body removal

Posterior tibial nerve block

Soni, Et. Al, Point-of-care Ultrasound
US guided procedure/injections

Soni, Et. Al, Point-of-care Ultrasound
How much does it cost?

• Monthly payment rent to own: several hundred $
• Handhold: starting 2500$ - 40K
• What kind of study are you doing?
• What kind of probe do you need?