

SPRING '23

SPOCUS

the ECHO CHAMBER

The Official Newsletter of the Society of Point of Care Ultrasound

From the President...



Welcome, SPOCUS members, to the SPOCUS Echo Chamber Newsletter for Spring 2023!

The Echo Chamber is SPOCUS' quarterly e-publication for news on SPOCUS events, both past and present, as well as a place for us to highlight SPOCUS members, SPOCUS

offerings, and information to help you improve the use of point-of-care ultrasound in your practice.

I'm so happy to invite you into the newsletter as the new President of SPOCUS. Many thanks once again to Daniel Zebedeo, PA-C (graduate of Pacific University PA) and Erica Palmer, PA-S2 (student at Duke University PA) for being the heartbeat of this newsletter! Daniel and Erica have pulled together wonderful info for you here. This issue brings you our Member Highlight, as well as lots of info about Abdominal POCUS skills. Hat tip also to Taylor Fong, PA-S

The Gut Issue

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iSCAN

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SPOCUS Leadership

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(Touro University-Nevada) and Nyssa Seaton (PA-S, University of Washington) for our social media presence! Find us @POCUS_society.

Meanwhile, 2023 is quickly becoming a busy and fun-filled year for SPOCUS. Our big event, iScan, is hosted by the American Academy of Physician Assistants and happening at the Omni Nashville on Tuesday, May 23rd. Forty teams from PA and NP programs across the United States are registered for this friendly competition to see who knows the most POCUS and scans it the best. I encourage any of you who are attending the AAPA conference this year to come see what it's all about. The student engagement, skill and passion for POCUS is absolutely contagious, and motivates me to be the best scanner and teacher I can be... and the number of students who return as iScan educators and judges is so inspiring!

And for those who will be at the AAPA conference this year, come see us at our booth at the AAPA Exhibit Hall—we'll be there to share info on the Train-the-Trainer program for educators, iScan, SPOCUS' work on establishing imaging standards for POCUS applications, and more. SPOCUS is really all about its members—so come share with us what's most important to you in the world of POCUS! We'll be waiting for you.

So happy to be part of this community with all of you!



Cindy Bennett, MD
Associate Professor, Elon University Physician Assistant Program
President, SPOCUS

Dr. Cindy Bennett is a board-certified OB/GYN who attended medical school at The University of North Carolina School of Medicine and residency at the University of Florida/ Shands Teaching Hospital. After leaving clinical practice, Dr. Bennett joined the faculty of Elon University's Department of Physician Assistant Studies, where she is an Associate Professor. Dr. Bennett teaches heavily in the basic sciences, including anatomy, physiology, and pathophysiology, as well as teaching reproductive medicine and surgical skills. Dr. Bennett learned obstetric/ gynecologic ultrasound as a resident and worked with ultrasound actively as a practitioner. She is excited about the possibilities that POCUS education brings for PA students and has loved both training in POCUS herself and teaching her students the many applications of POCUS.

Member Spotlight



Julie Jablonski, PA-C is a physician assistant who currently practices in a cardiac surgery intensive care unit in Springfield, Massachusetts. A winner of the first iScan competition as a PA student, we are incredibly excited to announce that Julie has taken over as director of this year's iScan competition. We asked her questions about how she uses ultrasound in her daily clinic practice, and what she's most excited about for this year's iScan event.

How were you first introduced to point of care ultrasound?

I was introduced to POCUS in PA school. We had a small interest group that would scan after class. We formed a team and went to the first iScan and actually won. I got hooked from there.

Did you have a "lightbulb" moment in which you recognized the value of POCUS in your practice?

Hugely cool "lightbulb" moment was in my Critical Care PA residency. I had a patient with undifferentiated hypotension in the trauma ICU. The patient was a previous GSW to the neck that required vascular repair of their great vessels and a tracheostomy. They were a couple days post op and fairly stable, until they suddenly were not. I put a probe on the patient's chest and they were clearly in cardiac tamponade. I sent my clip to the surgeons and we rushed the patient to the OR where I got to assist (mostly gawk TBH) with opening the chest. The patient had a slow bleed

that caused hemopericardium and eventual tamponade. The patient went home later than month.

How do you employ POCUS in your day-to-day practice, and which applications do you find most useful?

I do a lot of cardiac and lung ultrasound. Evaluating volume status, pleural effusions vs atelectasis in my post op patients, and general LVEF/RV function in cardiogenic shock patients. I also use ultrasound for vascular access. It's all so useful but I've seen massive management changes at times with bedside echo findings.

Of the applications you employ, are there any you believe would be valuable to clinicians in general practice or across multiple specialties?

I am a huge fan of the ultrasound guided IV and think it is widely applicable to most inpatient settings. A well placed ultrasound-guided IV can save the patient from more invasive lines, prevent delays in care, and deliver lifesaving meds.

What barriers to POCUS employment have you encountered or have you seen others encounter and how did you overcome them?

Skeptics and lack of exposure or experience, which often go hand in hand. To overcome my lack of experience and formal POCUS education, I consumed tons of POCUS FOAMed and went to a few workshops. To help at my workplace, I also taught APP residents at Emory for a while. A lot of times it's just a matter over demystifying the machine, having the confidence to give the scan a shot, and being okay with failure. There's are tons of times I can't get good windows and have no idea what I'm looking at.

For the skeptics I work with, I just keep bringing the ultrasound in the room and showing the usefulness and ease. Also crushing vascular access by always using POCUS around the old school landmark folks helps.

Can you share with us three educational/clinical POCUS pearls or some tips for those considering integrating POCUS into their practice?

1- Save your clips and then interpret after you have them captured. Especially with echos, it can

be really challenging to perform the scan and do the higher level interpretation at the same time. It's also helpful to share clips with others involved in the patient's care.

2- Compare your finding with formal ultrasounds or other imaging. Take a stab at estimating EF and then confirm with the formal echo findings.

2- Tell your patients what you are seeing and why you are scanning them. I've found patients generally like to know what you are doing and why. It builds rapport.

What is the biggest thing you are excited about regarding iScan this year?

The size of the event and new people. This will be the biggest event yet with 40 teams! There's a lot of new schools in the mix as well as a ton of new instructors. I've also been really encouraged by all those dedicated to making the trip out year after year to instruct. We've got an awesome crew and it's going to be great.

Julie Jablonski, PA-C is a 2018 graduate of Emory University's Physician Assistant Program and a 2020 graduate of the Emory Critical Care Residency. Her residency ended in April of 2020, so she hit the ground running at the beginning of the pandemic in a very busy med/surg ICU in Atlanta. She worked there for two years before moving back home to western Massachusetts, where she now works at the Baystate Medical Center Cardiac Surgery ICU. She says it has definitely been an adventure learning post-operative care for cardiac surgery patients and mechanical circulatory support, but very rewarding to see patients get better and go home. She has been involved with SPOCUS since she was a PA student as a former iScan champion, and she is excited and humbled to be directing iScan this year.

Outside of clinical life, she is married to her fabulous husband Andrew and they have a 1½ year old daughter named Maisie. She says she's a whirlwind but truly the best thing ever. She loves living in Western Massachusetts and all the area as to offer for food, beer, and outdoor activities.

LIT REVIEW

Literature Review

POCUS Diagnoses of SBO

by: Erica Palmer, PA-S

Bowel obstruction is a common differential diagnosis in patients who present to the emergency department with abdominal pain. Depending on where you work, it is now common practice for all patients who present to the ED with nausea, vomiting, and abdominal pain to automatically get a CT scan. We know it's expensive, time-consuming, and full of radiation, but what's the alternative?

X-ray has been [shown to have](#) a pretty low sensitivity and specificity for bowel obstruction. (Long) But how about ultrasound? Today we'll go over some of the emerging evidence that point-of-care ultrasound may be useful not only in the evaluation of small bowel obstruction (SBO) when CT scan is not available, but also may be indicated as a first step in the evaluation of suspected SBO prior to CT scan.

A POCUS-First Approach

Although formal guidelines and diagnostic criteria have yet to be determined for the use of POCUS in evaluating for SBO, a good amount of research exists on the topic. The [most recent systematic review and meta-analysis](#) looking at the use of POCUS in diagnosing SBO was published in the European Journal of Radiology in 2021 by You-Cheng Lin, et. al. It included a total of 15 observational studies published between 1996 and 2019. The studies varied by country, setting of ultrasound, and operator and included a total of over 4,400 patients. This meta-analysis

was a follow-up to [the study by Michael Gottlieb](#), et. al that was published in the American Journal of Emergency Medicine in 2018. The Lin study included four additional studies that were published between 2017 and 2021, which added over 3,000 patients to the study population.

The Lin review found that the pooled sensitivity and specificity of POCUS in diagnosing SBO were 92% and 93%, respectively. This was similar to the Gottlieb review four years earlier, which found a 92.4% sensitivity and 96.6% specificity. The Lin study found that the sensitivity varied based on where the study was conducted (non-ED being higher than ED), on which continent the study was done (North American being lower), and who the operator of the machine was (resident being higher than attending). However, the sensitivity did not seem to differ based any factors.

The review concluded that this puts POCUS **similar to CT** and **better than MRI and traditional radiography** in the evaluation of small bowel obstruction.

Benefits

Not only can ultrasound diagnose bowel obstructions faster in a busy ED with limited CT scan space, it is cheaper and saves radiation exposure. The ability for to diagnose SBO via POCUS opens up the possibility of triage and potential diagnosis in an outpatient setting, saving the patient a trip to the ED unless it is necessary. It can also allow for serial examination to assess for SBO resolution when being treated with conservative therapy. In children specifically, the use of POCUS can expedite transfers to facilities that have pediatric surgery capabilities and save radiation in a population in which it should be minimized (although we won't get into peds specifically in this article, look out for a future Echo Chamber issue about pediatric POCUS). [One study](#) projected that a POCUS-first approach for the evaluation of SBO would save an estimated \$30.1 million by avoiding 143,000 CT scans, resulting in a national cumulative decrease of 507,000 emergency room bed hours. (Brower) The same study concluded that the reduction in radiation exposure with this POCUS-first approach could potentially prevent 195 excess annual cancer cases and 98 excess annual cancer deaths.

Diagnostic Criteria

Though the diagnostic criteria for SBO and POCUS has not been formally determined, some markers include the presence of dilated small bowel loops >25mm, back and forth peristalsis (the “to-and-fro of SBO!”), and a visualized transition point of dilated bowel next to compressed bowel. (Check out our Tip & Trick article above if you'd like to see these listed out.)

[One study](#) that looked at 174 patients and compared the outcome with surgical findings determined that the most accurate markers for SBO on ultrasound were the presence of dilated small bowel loops (>25 mm in jejunum or >15 mm in ileum), with a sensitivity and specificity of 94%. (Unlüer) [A three-year study](#) published in the Aca-



U/S showing 3 areas of dilated loops of bowel at 3.99mm with back-and-forth peristalsis consistent with SBO. Rachel Shing, MD, via *The Pocus Atlas*

demic Emergency Medicine Journal in 2017 with 217 patients concluded that the more sensitive sonographic parameters for SBO were small-bowel dilation ≥ 25 mm and abnormal peristalsis, with the more specific being transition point, intraperitoneal free fluid, and bowel wall edema. (Becker)

[A 2020 article](#) in the American Journal of Emergency Medicine published a nomogram to determine the likelihood of a patient having an SBO, taking into consideration the patient's age, the clinician-determined pre-test likelihood of SBO, and the POCUS findings of bowel diameter and the presence of free-fluid. (Shokoohii) Although their sample size was only 125 patients, this is a good introduction to the kind of clinical decision making tools that could be established with the use of POCUS and SBO.

Barriers to Success

As we all know, the ability to achieve the high sensitivity and specificity rates in point-of-care ultrasound is very operator-dependent. However, this scan has been shown to be relatively easy to master (check out our Tips & Tricks section this month for our overview on how we do it). [Unlüer et al.](#) demonstrated that Emergency Medicine residents could identify SBO with POCUS with excellent accuracy after a 6-hour training session.



Dilated Bowel with inefficient peristalsis showing the “keyboard sign,” or the plicae circulares, which will only be present in the small intestine. *Aaron Inoye, PA-C, via The Pocus Atlas*

[Jang et al.](#) determined that after a 10-minute training session followed by 5 practice ultrasound scan, clinicians with amateur ultrasound skills had greater sensitivity and specificity with POCUS than X-ray.

Despite clear time and financial savings by both the healthcare system and the patients, the routine use of POCUS in things like abdominal pain requires extra time taken by busy providers to not only track down the ultrasound machine but to perform the exam. Not only does the use of POCUS in bowel obstruction need to be recognized as a diagnostic tool by the literature, it also needs to be invested in by hospitals and healthcare systems.

Summary

In summary, a POCUS-first approach to evaluating bowel obstruction may be indicated to rule in SBO, monitor response to conservative treatment, and evaluate a patient with recurrent

SBOs (particularly common in malignancy). It may be especially pertinent in patients who are hemodynamically stable, in pediatric patients, and in hospitals where CT is not readily available. CT might still be warranted to rule out SBO if the U/S is negative and there is still a high clinical suspicion or for surgical planning if SBO has been diagnosed but the patient is not responding to conservative measures.

More research needs to be done on the optimal training for a provider to be comfortable diagnosing an SBO with POCUS, the use of a POCUS-first approach on pediatric patients suspected of having SBO, and with the use of POCUS to rule in/out SBO in clinical settings other than the ED (such as hospital floors or outpatient clinics). In addition, a formal inclusion and exclusion criteria for POCUS-first SBO approach and specific diagnostic criteria should be established.

Until then, we challenge all of you to pull out that ultrasound probe while you're waiting for those CT scan results to come back (if not before). You might just find something and be able to start conservative treatment hours earlier or expedite a patient's surgical consult, saving time, saving money, providing better care, and making everyone happier.

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Tips & Tricks

Probing into Abdominal Pain

by: Daniel Zebedeo, PA-C, Erica Palmer, PA-S

You're having a quiet day at work when a patient comes in with undifferentiated abdominal pain. You'd love to get out your probe and put your ultrasound to use, but where do you even start?

Here we'll go over some general tips to performing abdominal scans, in addition to some diagnostic criteria for some of the most common pathologies you might find in the abdomen. Happy scanning!

General Tips for Abdominal POCUS

- 1- Curvilinear probe will be the probe of choice (though see our caveat on appendicitis below).
- 2- Have the patient bend their knees. This will relax their abdominal muscles.
- 3- When looking in the R and L upper quadrants, have the patient raise their arm above their head. Also have them take a deep breath and hold it. This will open up the rib spaces to get a better view. You can also rotate your probe obliquely to fall within the rib spaces.
- 4- Remember you can use the bladder as an acoustic window when you're in the lower quadrants.
- 5- If bowel gas is in your way, try having the patient rotate a bit or use the probe to push and jiggle the gas to help move it out of the way.
- 6- Don't forget that the transvaginal probe is the best way to assess the adnexae, uterus and rectovaginal space, and may be indicated in a patient with abdominal pain!

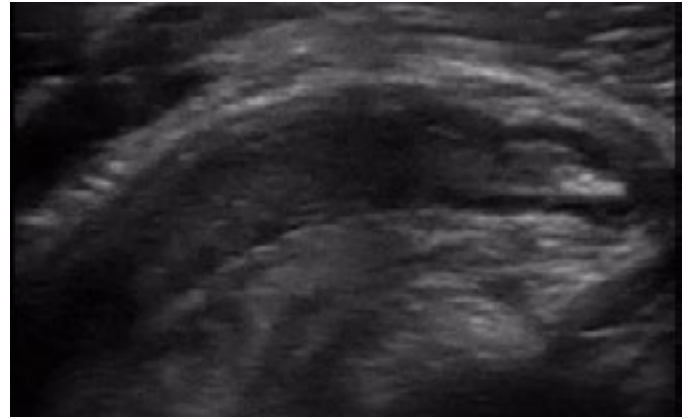
Appendicitis

Probe:

Use linear probe/superficial setting for children or thin adults. Use curvilinear probe/abdominal setting for patients with large body habitus.

Technique:

Ask the patient where it hurts the most (aka point of maximal tenderness”) and start there with your probe. In some scenarios, the appendix can be brought closer to the abdominal wall by having the patient cross the right leg over the left leg.



An 8mm dilated, non-compressible appendix in longitudinal view with a fecalith in the blind end, signifying appendicitis. Drs. Sathya Subramaniam and Bryan Jarret via The POCUS Atlas.

Tips:

While you're at it, use the probe to check for rebound tenderness on the sly (sonographic Murphy's sign). This may be less obvious than if the patient knows you're about to push on their belly and check for pain.

Be sure that what you're looking at is the appendix--the appendix should be a blind-ended structure with a lack of peristalsis.

Positive Findings:

Diameter >6mm, non-compressible (can be compressed in perforation), lack of peristalsis.

Note: Diameter may be smaller in infants – therefore need to look for secondary findings for confirmation.

Secondary Findings:

Wall thickness > 3 mm

Target Sign: hypoechoic center (fluid) surrounded by hyperechoic ring (mucosa/submucosa), surrounded by hypoechoic ring in axial view

Increased echogenicity of adjacent periappendiceal fat/omentum

Enlarged mesenteric lymph nodes

Thickening and hyperechogenicity of overlying peritoneum

Dilated, hypoactive small bowel

Thickening of apical cecal pole or adjacent small bowel

Small Bowel Obstruction

Probe:

Curvilinear

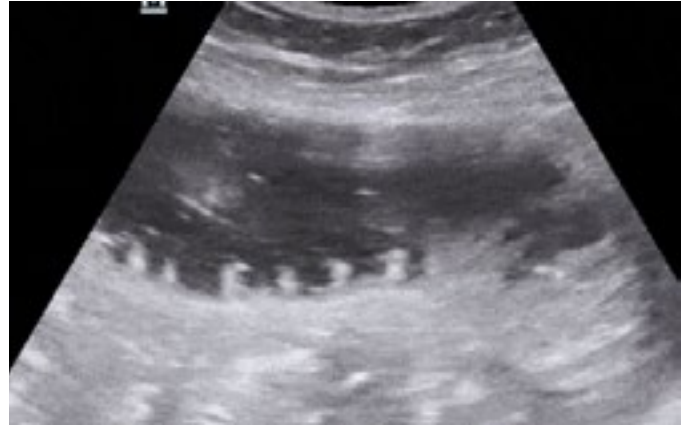
Technique:

Start where the patient hurts the most and lawn-mower your way around. At times you may have to scan the majority, or the entire abdomen - just keep scanning until you find something.

Findings:

Although a specific diagnostic criteria hasn't been set yet, there is some general consensus that dilated bowel loops >25mm, and a back-and-forth peristalsis, are pretty indicative of SBO ("the to-and-fro of SBO!"). Secondary findings may include a thickening of the bowel wall, and intraperitoneal fluid accumulation. Bonus points if you can find the transition point and see dilated bowel segments next to collapsed bowel.

Tip: Look for the "keyboard sign," or the plicae circulares, if you aren't sure if you are visualising the large or small bowel. Although it won't always be visible, if it is you can be sure you're in the small bowel.



Dilated Bowel with inefficient peristalsis showing the "keyboard sign," or the plicae circulares, which will only be present in the small intestine. Aaron Inoye, PA=C, via *The Pocus Atlas*

Gallbladder

Probe:

Curvilinear

Technique:

Have the patient in the left lateral decubitus position - or start scanning in supine position and switch to the LLD position mid-scan to visualize any movement of gallbladder contents (stones or sludge). Find gallbladder by looking 7cm to the R of the xiphoid process along the costal margin (the "X-7" rule).

Findings of Acute Cholecystitis:

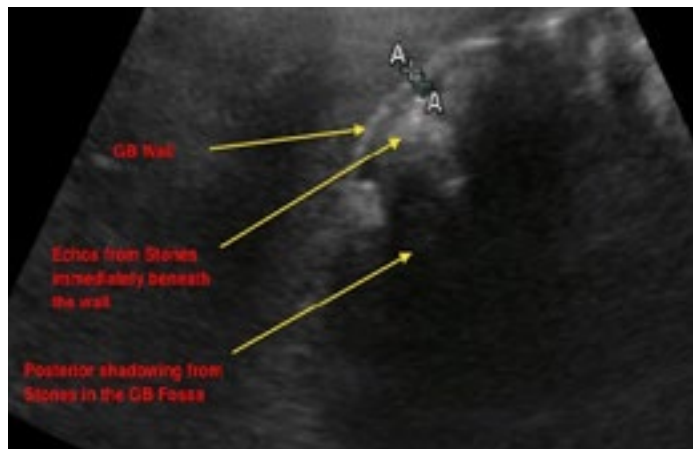
- Gallbladder wall thickening >3mm
- +/- impacted stone with distended gallbladder
- Pericholecystic fluid (seen as an anechoic rim around the gallbladder)
- A positive sonographic Murphy sign

Tip:

You can differentiate a polyp from a gallstone by the presence of acoustic shadowing below the stone and or movement of the stone with a position change, both of which will be absent with a polyp.

Wall-Echo-Shadow Sign:

If you are unable to find the fluid filled gallbladder, you might be looking at a contracted gallbladder filled with stones which distorts the classic US image of the gallbladder and can be misinterpreted as bowel loop. "wall-echo-shadow sign" (WES sign) helps us discern the gallbladder in this scenario; it is demonstrated as a bright hyperechoic line closest to the probe which indicates a GB wall with a hyper-echoic line just beneath it that represents the calculi with posterior shadowing.



The WES Sign showing gall stones within a decompressed gall bladder. Emory University School of Medicine

POCUS Saves

Where we discuss real-life-inspired cases where POCUS made a positive impact on patient outcomes.

A Case of RLQ Pain in Clinic

by: Kirk Stonick, PA-C

Setting:

This case takes place in a rural family medicine clinic with limited resources. The nearest emergency department is an hour and a half drive away.

History:

A 29-year-old female with no significant medical history presents to clinic with focal RLQ pain that began spontaneously before dinner the night before and has persisted with only minor fluctuations in intensity. The only associated symptom is decreased appetite. She states that she has work responsibilities on her family's farm and is very averse to making the 1.5 hour drive to the nearest emergency department, stating, "I'm not going unless you tell me that I'll die otherwise."

She states that the pain is a moderate, stabbing pain and that she would have ignored it except that she does have some concern for appendicitis. Her history reveals no fever, diarrhea, constipation, nausea or vomiting. She has no urinary symptoms, no vaginal discomfort or discharge,

and is not sexually active. She also denies a history of abdominal or pelvic surgeries. She is currently not taking any prescription or OTC medications or supplements.

Physical exam:

The exam is relatively unremarkable, except for mild tenderness with deep palpation of the RLQ but no rebound tenderness. Special testing was all negative, including the heel jar and psoas tests. Vitals were all within normal limits.

Labs:

Urine hCG testing was negative. Non-point-of-care testing such as CBC takes several days for results for this practice and was not done for this patient.

POCUS:

The primary care provider's background happened to be as an ultrasound tech. He decided to use the practice's Butterfly iQ to evaluate for evidence of appendicitis or right ovarian pathology. With an adult habitus (patient's BMI of 30), it can be particularly difficult or impossible to visualize the appendix, particularly if it is not inflamed. However, the provider was in luck as the appendix was lying in an ideal position, crossing over the iliac vessels.

The appendix measured 4.5mm in diameter and was compressible. There were no secondary inflammatory findings, including no enlarged lymph nodes, no periappendiceal fluid, and no inflammatory changes to the visualized mesenteric fat. The right kidney was briefly assessed and no hydronephrosis was noted. The right ovary was not initially visualized, so the provider had the patient drink water while he saw another patient. He shortly thereafter was able to utilize the full bladder to visualize a normal-appearing right ovary and noted no evidence of tubo-ovarian abscess. He noted only a trace amount of free fluid located in the posterior cul-de-sac (a common benign finding).

A/P and follow up:

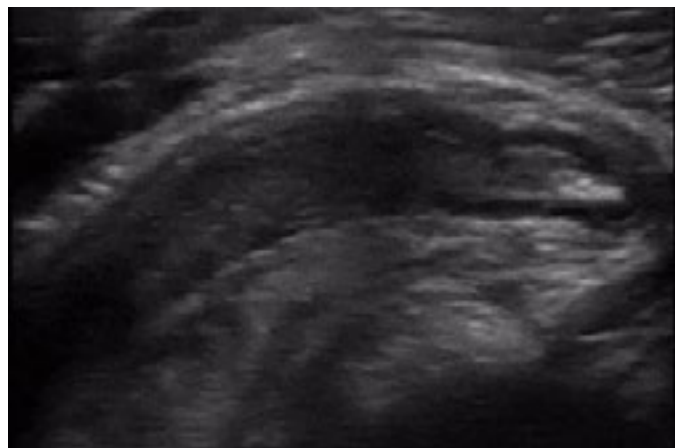
With the benign findings on POCUS and physical exam coupled with reassuring vitals, the provider was confident enough to rule out appendicitis and discharge the patient home in stable condition with the caveat, as always, to follow up in clinic or the ER if new or worsening symptoms develop. The next morning her symptoms had not resolved, prompting the patient to visit the ER where she received a CT abdomen/pelvis that was read as unremarkable. The patient later reported to the provider that her symptoms spontaneously resolved while she was in the ER, and she was discharged without a cause determined.

Takeaways

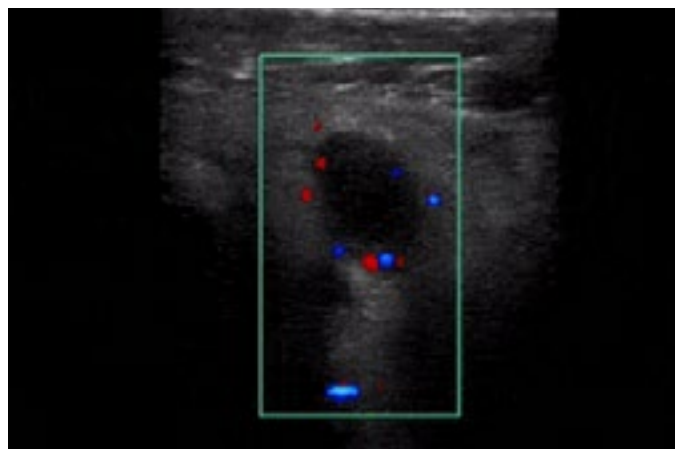
- » Always have your differential in mind before using POCUS. Are you looking for cholecystitis? A retained foreign body? A retinal detachment? Placing the transducer down in the area of symptoms simply hoping to see “something abnormal” is not a fruitful practice. Always have a detailed “walkthrough” of what you are looking for and/or scanning.
- » When evaluating RLQ pain in the patient with ovaries, don't forget to do a quick scan around for the right ovary. Anecdotally, the provider in this case (a former ultrasound tech) per-



A normal appendix in longitudinal view measuring 5.4mm from wall to wall. *Dr. Sathya Subramaniam via The POCUS Atlas.*



An 8mm dilated, non-compressible appendix in longitudinal view with a fecalith in the blind end, signifying appendicitis. *Drs. Sathya Subramaniam and Bryan Jarret via The POCUS Atlas.*



The “ring of fire” sign of appendicitis. *Dr. Sathya Subramaniam via The POCUS Atlas.*

formed many ultrasounds of the appendix in patients with hemorrhagic ovarian cysts - and vice versa - many pelvic ultrasounds in patients with appendicitis. Always know the anatomy of surrounding structures and pathology you should not miss when scanning if applicable.

- » In the recalcitrant patient, POCUS can serve as real-time patient education to help encourage them to follow up as necessary - which in this case was very inconvenient for her (driving the 1.5 hours to the ER) and she was adamant about not doing unless completely necessary. For example, had the POCUS findings been concerning for appendicitis (see details on this below), the provider would have urged the patient to find someone to drive her to the ER and/or call an ambulance for her. These positive findings seen on POCUS can be shown and explained to the patient which gives them real-time evidence on the anatomy being evaluated in their body.
- » An important note when scanning: be careful, as the lack of findings (especially in regards to the US of the appendix) can give a false sense of security to the provider and/or patient. Always know the evidence and positive vs negative POCUS findings on what you are evaluating, and always remember to give the patient discrete, tangible indications for returning to the ED or clinic.

Appendicitis Findings

- » Noncompressible diameter $>6\text{mm}$ (or $>7\text{mm}$, depending on source) is a common primary metric, though this can be found in an uninfamed appendix that has intraluminal air or an appendicolith.
- » There are multiple secondary markers that are often utilized, including evidence of increased vascularity with color/power doppler, peri-appendiceal free fluid, enlarged lymph nodes, and poor compressibility of the appendix.



An 8mm dilated appendix in transverse view with surrounding free fluid, signifying appendicitis. Drs. Sathya Subramaniam and Bryan Jarret via *The POCUS Atlas*.



Mesenteric fat stranding on a transverse view of the appendix consistent with appendicitis. Via *The POCUS Atlas*.

- » In addition to these, there is a lesser-known but very useful secondary marker of appendicitis: mesenteric fat inflammation. This is the equivalent of CT's "fat stranding," but is less commonly taught to look for on US. Multiple studies have noted a higher sensitivity and specificity for this secondary marker compared to the others, and it can also serve as "smoke to indicate a fire" when you're getting close to an inflamed appendix.

This page from the POCUS side of the Emory school of medicine website talks through the evaluation of appendicitis.

In the Literature

[This 2016 literature review](#) notes the benefit of secondary findings as reliable diagnostic corollaries in pediatric appendicitis, with inflamed mesenteric fat noted to have a particularly high positive predictive value. (Reddan)

[This 2017 study](#) in the Academic Emergency Medicine journal and [this 2021 meta-analysis](#) in the International Journal of Surgery found the sensitivity and specificity of bedside ultrasound in the ED for acute appendicitis was >90 and 95% respectively. (Gungor, Shen) However, [this 2022 systematic review and meta-analysis](#) published in the same journal gave it a sensitivity and specificity of 0.85% and 0.63%. (Becker) Feel free to look into these studies to see what the differences are.

Either way, as long as the operator is clear about the evidence and positive and negative findings, we believe POCUS can be a very useful addendum to physical exam +/- CT scan in the evaluation of acute appendicitis in any setting.

In case you missed it, check out a quick how-to on POCUS evaluation of an appy in this issue's Tip and Trick article just before this one.

As always, we'd love to hear if you've got anything cool to share! Do you have any cases where you've diagnosed (or ruled out) a medical condition with point-of-care ultrasound? Tell us about it [here](#), or submit using this QR code!



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FOAMed

Free Open Access to Medical Education.

This month we're highlighting some POCUS FOAMed resources all about the abdomen. We've got The Pocus Atlas, which is a collection of hundreds of user-submitted POCUS clips, Pocus101, which has diagrams and protocol, the American College of Emergency Physicians, which has tons of videos on what specific findings look like, and of course 5-Minute Sono, which has short, less than five minute videos to get you started. Happy scanning!

- [5-Minute Sono - Gallbladder](#): X-7 marks the spot!
- [5-Minute Sono - Appendicitis](#): A 3-minute vid that will change your evaluation of appys.
- [5-Minute Sono - SBO](#): Lawnmower technique in action.
- [The POCUS Atlas - Gastrointestinal](#): A massive, user-submitted image library with dozens of real-life abdominal cases.
- [POCUS101 - Abdominal Ultrasound Guide](#): A comprehensive overview of indications, findings, etc. for all the uses of abdominal POCUS.
- [American College of Emergency Physicians - Gallbladder](#): An in-depth scanning guide with tons of video footage of all the pertinent findings.
- [American College of Emergency Physicians - SBO](#): A full guide with clips including the To-and-Fro of SBO.
- [American College of Emergency Physicians - Appendicitis](#): Really great walk through of appendicitis scanning along with ways to overcome pitfalls.

Ready to nerd out on more FOAMed resources? Visit our [FOAMed page](#) on the SPOCUS website to connect with 30+ sites we've compiled that all offer FREE POCUS resources.

YES I



Join us in Nashville in May for the biggest iScan competition yet.

Forty (!) student teams will show down in the Music City on May 23 at the annual [iScan competition](#) at AAPA. Armed with only a transducer, these teams will compete for the ultimate scanning bragging rights, all the while receiving instruction and feedback from some of the nation's best scanners. Will we see you there?



Want to bring some POCUS into your #meded?



The Society of Point of Care Ultrasound's [Train the Trainer program](#) is a FREE, self-paced clinical ultrasound education program designed to help you integrate point-of-care ultrasound into your students' medical curriculum. We pair PA/NP/UME faculty members with experienced POCUS mentors and remotely teach ultrasound applications in an asynchronous fashion. The goal is that these faculty members can decide how best to implement ultrasound into the curriculum of their PA/Medical school/NP program and further POCUS education. Learn more here and sign up!

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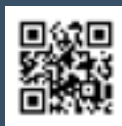
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Or, submit an interesting tip, case, or member spotlight nomination [here](#).



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