COMMENTARY

Beyond the Stethoscope: Point-of-Care Ultrasound (POCUS) as the New Norm in Family Medicine

Ryan Paulus, DO, Ben Clements, MD, Nicoll Capizzano, MD, Puja Dalal, MD, Nicole Yedlinsky, MD, Ryan Trantham, MD, Brandon Williamson, MD, Joy Shen-Wagner, MD, Varshaben Songara, MD, Natalie Nguyen, DO, and Hiten Patel, MD

Point-of-care ultrasound (POCUS) has seen growing integration into family medicine over the past decade, to the point that POCUS competency is now moving toward inclusion in board eligibility. In parallel, excitement and interest around POCUS are growing at the medical student and residency levels. With its wide array of practical applications in the outpatient setting, POCUS invites us to imagine what family medicine could look like if ultrasound truly became "the new stethoscope" and a routine part of care. This commentary highlights how POCUS can be used accurately and efficiently for abdominal aortic aneurysm (AAA) screening, avoid unnecessary emergency department visits by ruling out deep vein thrombosis (DVT), and change management of soft tissue infections by detecting abscesses. Together, these examples illustrate how POCUS can enhance care in the family medicine clinic. (J Am Board Fam Med 2025;38:962–966.)

Keywords: **Family Medicine, POCUS, Point-of-Care Systems, Standard of Care, Technology, Ultrasonography**

"*If I've heard it once, I've heard it a hundred times. I've heard it from critics and admirers, from radiologists and Non radiologists, from individuals I respect and from those I do not respect. And what they say is: 'Ultrasound is the stethoscope of the future.*'"

– Roy A. Filly, MD, 1988 Radiology[1]

While there were early adopters in family medicine, point-of-care ultrasound (POCUS) did not hit mainstream family medicine until about 30 years after that quote, when it gained attention in the family medicine journals.[2,3] Notably, even before that, in 2014, more than half of US medical schools had already integrated POCUS into their curricula.[4] Several years later in 2024 the Accreditation Council for Graduate Medical Education made POCUS a requirement for family medicine residency training.[5] Looking ahead, the American Board of Family Medicine intends to incorporate POCUS as part of the family medicine blueprint by 2027.

With widespread recognition of the importance of POCUS and rapid growth of POCUS among our learners, it is only a matter of time until it becomes part of the standard of care in family medicine and truly becomes our next stethoscope. What would care in the family medicine clinic look like if POCUS was the standard of practice? Could it support more patient-centered care while reducing health care costs? Might it enable clinicians to arrive at a diagnosis sooner and influence treatment decisions in real time at the bedside? This article will review 3 potential applications of POCUS in family medicine and discuss their impact on patient care.

Case 1: Increase Access - The Abdominal Aortic Aneurysm (AAA) Screening

A 68-year-old male with a history of smoking presented to his primary care provider (PCP) for a Medicare

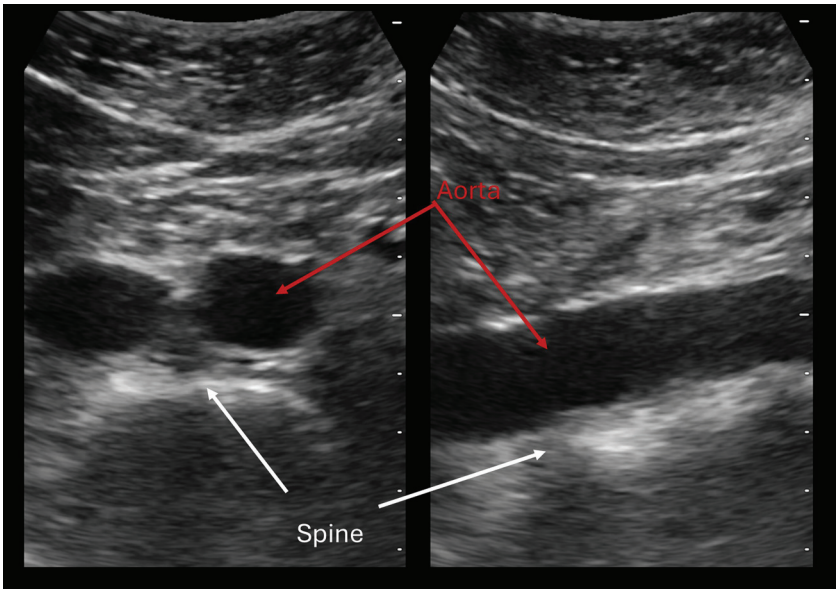
This article was externally peer reviewed.
Submitted 3 June 2025; revised 22 September 2025; accepted 3 October 2025.

From the University of North Carolina at Chapel Hill (RP); University of Vermont (BC); University of Michigan (NC); Novant Health (PD); University of Kansas Medical Center (NY); Waco Family Medicine (RT); Texas A&M (BW); Prisma Health (JSW); Cape Fear Vally Health (VS); Kaiser Permanente (NN); Ohio State University (HP).

Funding: None.
Conflict of interest: Dr. Patel consults with GE Healthcare's point-of-care ultrasound team, giving input and feedback on device development and functionality specific to family medicine. Dr. Patel does not have any stock or equity interest in GE Healthcare. Dr. Patel does not have any relevant conflicts of interest from this work in relation to this article.

Corresponding author: Ryan Paulus, DO, University of North Carolina at Chapel Hill, 590 Manning Dr Chapel Hill, NC 27599 (E-mail: ryan_paulus@med.unc.edu).

Figure 1. Normal distal abdominal aorta measurement in short and long axis. Photo Credit: Ryan Paulus, DO.



Annual Wellness visit. In addition to addressing his health questionnaire, advance care planning, medication refills, labs, and vaccines, a review of his care gaps revealed a need for an AAA screening. Prior notes documented expired radiologic ultrasound orders despite repeated contact attempts. The patient stated that he often missed calls, had difficulties driving, and had confusion about new locations. The PCP counseled on the US Preventive Services Task Force (USPSTF) recommendations, the risk of rupture increased with aneurysm size, and the life-saving benefits of early intervention.

Management without POCUS

The patient agreed to try again this year to get the screening, however, he warned it would depend on his daughter's work schedule. The physician reordered the study and hoped for a different conversation next year.

Management with POCUS

His PCP offered an in-office point-of-care screening at his follow-up visit. At checkout, the front desk staff saw the note for AAA screen and reminded him to fast in the morning. When the patient and his daughter presented at his follow-up, the nurse prepared the examination room with the ultrasound machine, gel, and towels. After a discussion about his lab results and blood pressure (BP) control, the PCP transitioned to the ultrasound. While the patient and daughter watched the scan, the PCP discussed the relationship between smoking and cardiovascular disease and the benefits of early identification. The patient's aorta measured less than 3 cm throughout, and the images were documented in the patients electronic health record (see figure 1 for normal view of distal aorta).

The case highlights how POCUS can expand in-office capabilities and patient-centered screenings in real time. Despite the USPTF recommendations, the Society of Vascular Surgery cites screening rates for male smokers are 21.2%.[6] Factors that correlate with lower screening rates include living outside of a metropolitan area and race.[7,8] Barriers to attending radiology performed AAA screening exams included inconvenient timings or location of screening, lack of awareness of AAA, and primary languages other than English.[9] Other studies have found that patients do not remember receiving the invitation or simply forget about the appointment.[10] Notably, the most consistent predictor of completing screening was having a PCP.[8]

Available data confirms that primary care physicians can accurately perform POCUS for AAA screening. A meta-analysis of 11 studies showed that non-radiologists had a sensitivity of 98% and specificity of 99% for detecting AAA when compared with radiologist diagnosis.[11,12] Another study indicated that non-radiologist physicians, including family physicians, achieved sensitivity and specificity rates comparable to those of radiologists.[11] Studies have found that completing an aorta ultrasound in Primary Care can take on average 4 to 5 minutes.[13,14] Compared with radiology performed aorta ultrasound, POCUS is unanimously preferred by patients and is more cost-effective, typically costing about half as much.[13]

Case 2: Reduce Emergency Department (ED) Visits - The Swollen Lower Extremity

A 44-year-old female with a history of obesity presented to the clinic on a Friday afternoon with a 2-day history of left leg swelling, localized primarily to the calf. She initially attributed the swelling to a recent work-related road trip, during which she drove up to 6 hours without breaks. Despite attempting rest and leg elevation, her symptoms persisted. She reported no associated pain, redness, or systemic symptoms. She was not taking any medications and had no prior history of thromboembolic disease. Physical examination revealed nonpitting edema of the left lower extremity, most prominent in the calf, without erythema, and pain with passive dorsiflexion. The right leg appeared normal. Given the localized, unilateral swelling and relevant risk factors, deep vein thrombosis (DVT) was high on the differential.

Management without POCUS

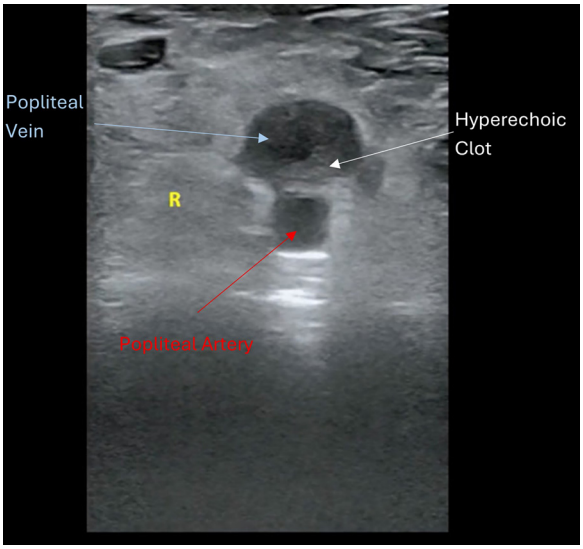
Due to the late hour and lack of access to same-day diagnostic ultrasound, the patient was referred to the emergency department. She spent several hours in the waiting room, was diagnosed with a DVT, and discharged with a prescription for anticoagulant at midnight. No pharmacy was open in her small town at that hour, and she worried about filling her medications the next day.

Management with POCUS

Instead of sending the patient to the ED, a POCUS examination was performed in clinic. Compression ultrasonography of the left lower extremity revealed a noncompressible left popliteal vein, confirming the diagnosis of a popliteal DVT (figure 2). The patient was given education on a DVT and was given a prescription for an anticoagulant. She picked up the prescription at the pharmacy and started therapy the same day.

This case highlights the utility of POCUS to arrive at a timely diagnosis, which avoided unnecessary emergency department referral, reduced health care costs, and minimized disruption to the patient's personal and professional responsibilities. POCUS is an accurate and rapid tool to diagnose DVT. A systematic review of over 2500 scans demonstrated that POCUS has a sensitivity of 90% and specificity of 95% in diagnosing DVT while in contrast, a meta-analysis showed radiology performed whole leg DVT ultrasound has a sensitivity of 94% and specificity of 97%.[15,16] Nevertheless, a common concern when performing POCUS for DVT is if the family physician has the skills to perform the scan or may miss a DVT.

Figure 2. Blood clot in the popliteal vein. Point-of-care ultrasound (POCUS) uses compression ultrasound to visualize complete collapse of the vein (signaling no clot), but sometimes, if the clot is old enough you can see a hyperechoic clot. Photo Credit: Ben Clements, MD.



A large multicenter study of over 1100 patients compared general practitioners and experts in vascular ultrasound, finding good agreement in accuracy between the 2 groups.[17] In this study, with limited training over 2 months, general practitioners had a sensitivity of 90% and specificity of 97% in diagnosing DVT.[17] Despite the high accuracy, performing a 3-point compression ultrasound has been shown to take less than 7 minutes on average.[18]

Case 3: Quicker Diagnosis – The Soft Tissue Infection

A 10-year-old male presented to the resident clinic with 5 days of progressively enlarging rash on his right leg. The patient reported that an insect may have bitten him. He denied fever, chills, drainage, or systemic symptoms. On examination, the patient was well appearing and the right anterior thigh had a 2.5 cm erythematous area with tenderness, warmth, and slight induration, but no fluctuance.

Management without POCUS

The resident was more suspicious of cellulitis since no fluctuance was appreciated on examination. She proposed treatment with antibiotics and follow-up 48 to 72 hours later. At follow-up, the area of erythema had not

improved. The resident was concerned about failed outpatient antibiotics and recommended the family to present to the emergency department for admission for IV antibiotics.

Management with POCUS

The resident recalled that soft tissue POCUS can change management 10 to 20% of the time in the setting of infection.[19,20] *She also recalled that performing a soft tissue POCUS scan does not take much time, and thus requested to perform POCUS with attending supervision.*[21] *The POCUS examination revealed a 1.5 cm fluid collection with positive swirl sign and surrounding subcutaneous cobblestoning. The fluid collection did not track elsewhere in both the long and short axis. Incision and drainage (I&D) of the abscess was performed at the bedside with purulent fluid expressed. Repeat POCUS evaluation of the area revealed the abscess was appropriately drained. The resident checked in with the family 72 hours later and they reported significant improvement of the rash and were very satisfied with the care provided.*

This is another case highlighting how POCUS supplements the clinical assessment and can lead to changes in management at the bedside. In the acute case of soft tissue infection, POCUS can differentiate between cellulitis, abscess, and lymphadenitis, which can guide procedural management on the decision to perform an I&D. On ultrasound, cobblestoning of subcutaneous tissue without fluid collection is consistent with cellulitis. Figure 3 represents an image of what an abscess would look like with mixed echogenicity within the abscess and posterior acoustic enhancement due to an abscess being filled with fluid.

Several meta-analyses and systematic reviews have shown POCUS has a sensitivity of 94 to 97% and specificity of 80 to 85% for diagnosing abscesses.[19,22,23] Performing a soft tissue POCUS scan can take less than 5 minutes.[21] Specifically, in pediatric patients, POCUS can change management in 20% of cases, which is critical when deciding to perform an I&D in this population.[20] POCUS may also alter the approach and technique for I&D.[21]

Summary

These are all scenarios we have or will encounter in the primary care clinic. In those moments, having an additional diagnostic tool can help clinicians arrive at a diagnosis more efficiently. POCUS will never replace the physical examination, however, these cases illustrate how POCUS can enhance care by augmenting the examination and provide immediate bedside diagnostic information to support rapid clinical decisions. As demonstrated, POCUS can help eliminate barriers related to transportation or time for completing recommended screenings, reduce ED referrals and associated costs, support real-time bedside management, and decrease the time to diagnosis.

Figure 3. Soft tissue abscess with mixed echogenicity within the abscess and posterior acoustic enhancement due to an abscess being filled with fluid. Photo Credit: Ben Clements, MD.

Importantly, these cases represent only a fraction of POCUS's potential in the outpatient setting. Imagine being able to screen for heart failure during the office visit, use a handheld tool to assist with volume assessment, identify gallstones in a patient with Right Upper Quadrant (RUQ) pain, use a tool at the bedside to evaluate lungs with greater diagnostic accuracy than a chest radiograph, and enhancing your bedside examination of tendon injuries, joint effusions, ligament tears, small fractures, and foreign bodies.[24]

It is only a matter of time until ultrasound becomes part of the standard of care in family medicine. Filly finished his 1988 editorial by describing ultrasound as, "used by many, understood by few."[1] Thirty-seven years later, we have a better understanding of ultrasound, but as a specialty, we need

to continue to develop and understand POCUS training pathways, practice guidelines, and research its effectiveness in the continuity setting before it becomes the standard of care.

References

1. Filly RA. Ultrasound: the stethoscope of the future, alas. Radiology 1988;167:400.
2. Bornemann P, Barreto T. Point-of-care ultrasonography in family medicine. Am Fam Physician 2018; 98:200–2.
3. Bornemann P, Jayasekera N, Bergman K, Ramos M, Gerhart J. Point-of-care ultrasound: coming soon to primary care? J Fam Pract 2018;67:70–80.
4. Bahner DP, Goldman E, Way D, Royall NA, Liu YT. The state of ultrasound education in U.S. medical schools: results of a national survey. Acad Med 2014;89:1681–6.
5. Accreditation Council for Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Family Medicine. Effective July 1, 2025. Available at: https://www.acgme.org/globalassets/pfassets/programrequirements/2025-reformatted-requirements/120_familymedicine_2025_reformatted.pdf.
6. B Jain P, DiMuzio P, Nooromid M, Salvatore D, Abai B. Trends, risk factors, and outcomes of selective screening for abdominal aortic aneurysms in at-risk patients. J Vasc Surg 2025;81:877–86.e3.
7. Ho DVT, Tran K, George EL, et al. Most privately insured patients do not receive federally recommended abdominal aortic aneurysm screening. J Vasc Surg 2023;77:1669–73.e1.
8. Anjorin AC, Greiner MA, Vemulapalli S, et al. Underutilization of guideline-based abdominal aortic aneurysm screening in an academic health system. Ann Vasc Surg 2022;83:184–94.
9. Ahmad M, Reading K, Gannon MX. Improving abdominal aortic aneurysm (AAA) screening uptake through patient engagement-analysis and outcomes of strategies to improve uptake at a regional program level. Ann Vasc Surg 2021;72:488–97.
10. Mansoor SM, Jørgensen JJ, Grønvold T, et al. Determinants for non-attendance in abdominal aortic aneurysm (AAA) screening. JVS Vasc Insights 2024;2: 100070.
11. H Cade N, Granath B, Neher JO, Safranek S. Can family physicians accurately screen for AAA with point-of-care ultrasound? J Fam Pract 2021;70:304–7.
12. Concannon I, McHugh E, Healy S, et al. Diagnostic accuracy of non-radiologist performed ultrasound for abdominal aortic aneurysm: systematic review and meta-analysis. Int J Clin Pract 2014; 68:1122–9.
13. K Geer B. Point-of-care ultrasound for abdominal aortic aneurysm screening in the primary care setting. Nurse Pract 2025;50:33–9.
14. Sisó-Almirall A, Kostov B, Navarro González M, et al. Abdominal aortic aneurysm screening program using hand-held ultrasound in primary healthcare. PLoS One 2017;12:e0176877.
15. Hercz D, Mechanic OJ, Varella M, Fajardo F, Levine RL. Ultrasound performed by emergency physicians for deep vein thrombosis: a systematic review. West J Emerg Med 2024;25:282–90.
16. Bhatt M, Braun C, Patel P, et al. Diagnosis of deep vein thrombosis of the lower extremity: a systematic review and meta-analysis of test accuracy. Blood Adv 2020;4:1250–64.
17. Mumoli N, Vitale J, Giorgi-Pierfranceschi M, PRACTICUS Study Investigators, et al. General practitioner-performed compression ultrasonography for diagnosis of deep vein thrombosis of the leg: a multicenter, prospective cohort study. Ann Fam Med 2017;15:535–9.
18. Ahmed El-Gazzar E, Alkafafy A, El-Salam Fathi H, Helmi T, Abd-Rabo A. Sensitivity and specificity of three-point compression ultrasonography test performed by emergency physicians for diagnosis of lower limbs deep venous thrombosis. Egyptian J Anaesth 2021;37:517–22.
19. Gottlieb M, Avila J, Chottiner M, Peksa GD. Point-of-care ultrasonography for the diagnosis of skin and soft tissue abscesses: a systematic review and meta-analysis [published correction appears in Ann Emerg Med 2022 79:90. doi: 10.1016/j.annemergmed.2021.10.020.]. Ann Emerg Med 2020;76: 67–77.
20. Adams CM, Neuman MI, Levy JA. Point-of-care ultrasonography for the diagnosis of pediatric soft tissue infection. J Pediatr 2016;169:122–7.e1.
21. Greenlund LJS, Merry SP, Thacher TD, Ward WJ. Primary care management of skin abscesses guided by ultrasound. Am J Med 2017;130:e191–e193.
22. Jeffers K, Keim SM, Long B, Gottlieb M, Adhikari SR. What is the utility of point-of-care ultrasound for diagnosis of soft tissue abscess vs. cellulitis? J Emerg Med 2025;72:121–8.
23. Subramaniam S, Bober J, Chao J, Zehtabchi S. Point-of-care ultrasound for diagnosis of abscess in skin and soft tissue infections. Acad Emerg Med 2016;23:1298–306.
24. Arnold MJ, Jonas CE, Carter RE. Point-of-care ultrasonography. Am Fam Physician 2020;101:275–85.