

SPECIAL ARTICLE

Multioctizational Recommendations for Point-of-Care Ultrasound in Family Medicine Residency Education

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ABSTRACT

The Society of Teachers of Family Medicine (STFM) Point-of-Care Ultrasound (POCUS) Education Task Force has concluded the first phase of its work. In this phase, the Task Force has identified 52 unique POCUS applications that should be included in a family medicine (FM) residency POCUS curriculum and organized these applications into five implementation tiers to define priorities for implementation across our discipline. The Task Force releases its final recommendation to the American Board of Family Medicine (ABFM), agreed to by the Task Force and endorsed by the STFM, the Association of Family Medicine Residency Departments (AFMRD), and the Association of Departments of Family Medicine (ADFM) Boards of Directors that competency in Tier 1 applications (cellulitis, abscess, abscess drainage, knee effusion, bladder volume, and fetal presentation) should be achieved by 2028 with implementation of further tiers at a later date. The Task Force's formation, scope of work, and the genesis of this recommendation are further described.

THE NEED FOR A RECOMMENDATION

In mid-2024, momentum for POCUS in FM continued to build. Since 2014, the Council of Academic Family Medicine (CAFM) Educational Research Alliance (CERA) survey data of FM program directors and department chairs documented a steady uptick of POCUS curricular implementation.^{1,2} POCUS curricula in medical schools continued to increase with over two-thirds of medical schools having a curriculum.³ In 2023, the Accreditation Council for Graduate Medical Education (ACGME) revised family medicine residency requirements to include a detailed recommendation that residents should have experience using POCUS. The ABFM announced that POCUS will be included in the upcoming certification blueprint.^{4,5} The ABFM resident data shows over 90% of residencies have at least one resident intending to use POCUS after graduation, and data from practicing physicians 3 years postresidency demonstrate 25% are using POCUS in 2024, which increased from 17% in 2019.⁶

Nationally, FM organizations continued to invest in POCUS education. STFM launched a year-long POCUS Certificate Program⁷ to train FM residency POCUS faculty champions, released a free POCUS module series⁸ for all STFM members, and established a POCUS Collaborative to provide a platform for networking. The American Academy of Family Physicians (AAFP) first published FM POCUS curriculum guidelines in 2016, holds a member interest group, and has released instructional modules.⁹

Despite growing momentum, a key question remains: Which of the many POCUS applications should be taught in FM residency curricula? To date, many programs have relied on emergency medicine (EM) or internal medicine (IM) curricula that emphasize acute and inpatient applications. No evidence-based consensus process has been available to guide curriculum development specifically for FM residency programs.

In August 2024, the STFM Board of Directors voted to support the creation of a task force to conduct Project FOCUS

(Finding CONsensus for POCUS Standards in Family Medicine EdUCation and Competency Based ASsessment), a 3-year project focused on development of FM POCUS education consensus and the creation of resources for programs to use in curricula and assessment.¹⁰ In the fall of 2024, 12 FM POCUS leaders were selected through a competitive application process to serve on the core Task Force group and 13 additional leaders were recruited as POCUS education experts to develop an expert panel of 25 FM POCUS champions to conduct the consensus-based research.

FORMATION OF THE RECOMMENDATION

Using an evidence-based approach with Delphi methodology, the Task Force's first project focused on identifying which clinical POCUS applications should be included in an FM residency POCUS curriculum. Task Force members provided input on all possible applications relevant to FM and voted through three Delphi rounds. Fifty-four of the 257 POCUS applications surveyed met positive consensus and were included as recommended curricular applications. The complete Delphi process is outlined in a separate manuscript.¹¹

Recognizing the barriers to immediately implementing these 54 applications into all US FM POCUS curricula, the Task Force then developed a stepwise approach to scale implementation. This process utilized a modified nominal group technique (mNGT) and a national consensus conference to stratify the applications into different implementation tiers. The process identified five criteria through an mNGT to guide decision-making around which applications to teach and assess first (Table 1). Each criterion was assigned a relative weight of importance, with the impact on patient management carrying the highest weight. These weighted criteria were then applied to the 54 applications to generate a tiered rank list. The list then underwent expert refinement by the Task Force to reach a final consensus, resulting in division of the applications into five implementation tiers and consolidation to 52 applications (Table 2). The complete tiering process is outlined in a separate manuscript currently under review.

THE RECOMMENDATION FOR FAMILY MEDICINE

Based on the selection of 52 unique POCUS applications and their division into five implementation tiers, the Task Force initially voted to approve a recommendation that graduating residents should achieve competency in Tier 1

applications by 2027 and competency in all five tiers by 2035. This recommendation was sent to the leaders of the Council of Academic Family Medicine (CAFM) for feedback, and in-person discussions were held with the AFMRD and the STFM Board of Directors before revisions were drafted and agreed upon. The Task Force now releases its final recommendation to the ABFM, agreed to by the Task Force and endorsed by STFM, AFMRD, and the ADFM Board of Directors (Box 1).

BOX 1. Task Force Recommendations

The 52 applications represent an aspirational, comprehensive POCUS curriculum that family medicine residency programs should work toward implementing (Table 2). Programs should begin with Tier 1 applications and ensure residents achieve competency in these core skills across multiple clinical settings before progressing to higher tiers. Competency in Tier 1 applications should be considered for the American Board of Family Medicine board eligibility for graduating residents beginning in 2028.

A dedicated working group with broad representation should monitor successes and challenges to ongoing implementation to help inform when additional applications should be incorporated into the ABFM board eligibility requirements.

The Task Force agrees that all 52 applications should be taught during residency with the goal of achieving competency in these skills. However, this does not equate to stating that all 52 applications should be part of the ABFM board eligibility requirements. The Task Force and family medicine organizations agree that future ABFM requirements should extend beyond Tier 1 to include subsequent tiers over time. Until we know the successes and challenges of Tier 1 implementation nationally, it would be unfair to recommend a specific timeline for subsequent tier requirements. Monitoring will be critical with the support of CERA and collaboration with the ABFM on graduate survey data. External factors will also be considered, such as artificial intelligence and its influence and potential augmentation of POCUS education. The designated term of the STFM POCUS Task Force concludes at the end of 2027. At that time, we will evaluate the landscape of POCUS implementation and determine whether additional applications or tiers should be recommended then or designate a working group to continue to monitor implementation.

PROJECT FOCUS—NEXT STEPS

Guidance on forming and running a successful FM POCUS curriculum and competency assessment for these applications is critical. The Task Force anticipates publishing consensus-based curricular guidelines and assessment strategies later in 2026. The Task Force will then transition to Project FOCUS's Phase Two, with a goal of developing a curricular blueprint and validated assessment tools.

NEXT STEPS AS A SPECIALTY: MOVING FORWARD TOGETHER

Prior to Project FOCUS, numerous individuals and groups made remarkable contributions to advancing POCUS in FM. Despite these efforts, the discipline lacked an integrated

TABLE 1. Five Criteria Identified During mNGT for Stratifying Applications into Tiers

Relative ease to learn and achieve proficiency
Beneficial impact on patient management (Reduce resources, narrow differential, change disposition)
Applicability across the broad scope of family medicine (ie, inpatient, outpatient, obstetrics, musculoskeletal)
Relative ease to teach
Prevalence in the continuity of care setting

Abbreviation: mNGT, modified nominal group technique

TABLE 2. 52 POCUS Applications Distributed into the Five Implementation Tiers

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
MSK • Knee effusion OB/GYN • Fetal presentation Renal/bladder • Bladder volume Soft tissue • Abscess • Abscess drainage • Cellulitis / edema	Abdomen • Free fluid in abdomen OB/GYN • Intrauterine pregnancy identification • Fetal heart rate Pulmonary • Pulmonary edema • Pleural effusion Renal/bladder • Hydronephrosis Soft tissue • Foreign body • Foreign body removal Vascular • IVC collapsibility • IVC diameter • Abdominal aortic aneurysm	OB/GYN • Cholelithiasis Cardiac • Pericardial effusion • HFrEF MSK • Knee joint injection and aspiration • Baker's cyst • Ganglion cyst OB/GYN • IUD identification • Pregnancy dating by CRL Pulmonary • Pneumonia • Pneumothorax Renal/bladder • Foreign body in bladder (Foley catheter) Soft tissue • Cyst (epidermal inclusion cyst) • Lipoma Vascular • Lower extremity proximal DVT	Abdomen • Cholecystitis • Gallbladder sludge MSK • Carpel tunnel syndrome • Achilles tear • Fracture OB/GYN • Uterine position • Placental location • IUD placement • Multiple gestation • Amniotic fluid measurement Renal/bladder • Simple renal cyst Soft tissue • Soft tissue mass removal • Hematoma	Abdomen • Paracentesis Cardiac • Right ventricular strain • Left ventricular hypertrophy • Dilated cardiomyopathy • Cardiac tamponade MSK: • Shoulder effusion Ocular • Retinal detachment Renal/bladder • Nephrolithiasis

Abbreviations: CRL, crown rump length; DVT, deep vein thrombosis; HFrEF, heart failure with reduced ejection fraction; IUD, intrauterine device identification; IVC, inferior vena cava; MSK, musculoskeletal; OB/GYN, obstetrics and gynecology

effort and national vision until now. Project FOCUS helped unite the specialty and marked a turning point through hosting the first-ever FM POCUS Summit bringing together the FM organizations and POCUS champions across the country. The project further connected us by answering the question, “Which POCUS applications should be taught in a FM residency curriculum?” As POCUS becomes increasingly woven into our specialty, it’s imperative we continue to collaborate around the next critical step: faculty development at scale and implementation of POCUS into the primary care setting.

THE NEED FOR FAMILY MEDICINE-FOCUSED FACULTY DEVELOPMENT

Faculty development in POCUS covers two main domains: cognitive and hands-on skills. POCUS is not only a hands-on skill of image acquisition; it is also a cognitive skill with clinical indications, image interpretation, and clinical reasoning. Hands-on skill development requires a high investment for the learner; training is expensive, resource-intensive, and often requires dedicated time and travel to workshops. Conversely, POCUS’s cognitive skills can be taught asynchronously and virtually, requiring a lower investment from the learner. While it would be ideal for all FM residency faculty to learn both the hands-on and cognitive skills for POCUS, it is not realistic to expect all 800 + programs to invest in comprehensive POCUS training for all their faculty. In an ideal state, every residency program would have a POCUS

champion leading the curriculum, multiple faculty skilled in POCUS (both hands-on and cognitive aspects), and all faculty precepting residents would possess cognitive POCUS skills.

The current resources within FM lack the scale to provide the level of training needed to achieve this ideal state. To address this gap, emerging FM residency learning networks such as the POCUS Research, Innovation, and Medical Education Learning Network ([PRIME POCUS Learning Network™](#))¹² are forming to foster national collaboration and deliver FM-focused training. The STFM POCUS Certificate program, focused on developing POCUS champions, has been a successful program for quality faculty development. A key component to the success of this program is the longitudinal nature with a blend of virtual and hands-on learning. To help provide a similar training for the masses of family medicine, the PRIME POCUS Learning Network™ is utilizing this blueprint to provide a longitudinal training program focused on the clinical use of POCUS.

THE NEED FOR CLINICAL IMPLEMENTATION: RESOURCES AND TRAINING

Many residency programs and community practices have already invested in faculty development and equipment. The barrier for them now reflects an equally important focus for our specialty in POCUS, which is clinical implementation and how to successfully integrate this tool into everyday clinical practice. We can train faculty and residents in POCUS,

but without thoughtful implementation and integration into bedside care, these skills will inevitably decay over time, and our patients will never fully benefit from the potential this tool can offer. Overcoming this barrier will require a collective effort through broader advocacy from the FM organizations and local champions willing to share implementation successes and failures. We need a platform to collaborate on this work to build resources and to provide training. One example could be the PRIME POCUS Network™, whose advisory committee includes representatives from the FM organizations and can provide space for us to collaborate as a specialty around important logistic issues such as image storage, credentialing, quality assurance, and mitigation of risk.

CONCLUSION

POCUS is no longer a matter of *if*, but *how* for family medicine. Residency programs should ensure competency in Tier 1 applications by 2028 with subsequent tiers added over time. This recommendation put forth by the Task Force and the FM organizations not only gives us a structured roadmap and vision, it also demonstrates a shared commitment to advancing POCUS education in FM. As we move forward together, it's essential we continue to do so collaboratively with a focus on lifting each other up, fostering growth, and creating a community that advances POCUS education in family medicine together.

MOMENT OF GRATITUDE

The leadership, perseverance, and expertise of the members of the STFM POCUS Task Force, POCUS education experts, and the research team at the University of North Carolina were essential to the success of Project FOCUS. The Task Force is deeply grateful to STFM for its support and belief in the vision behind Project FOCUS and to the ABFM Foundation for funding and leadership support.

Most importantly, to everyone who played a role and provided so much of their time for this project (Table 3), thank you to each and every one of you for making this project a success.

CONFLICT OF INTEREST STATEMENT

This research is funded by the American Board of Family Medicine (ABFM) Foundation and the Society of Teachers of Family Medicine (STFM) (the sponsors). Dr Ryan Paulus received honoraria from STFM as core faculty in the separate STFM Family Medicine Educator's POCUS Certificate Program. Outside of the Task Force funding and facilitation, neither ABFM or STFM had roles in the design, analysis, or publication of this study.

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TABLE 3. POCUS Task Force Members, POCUS Education Experts, and Project FOCUS Key Collaborators

Name	Program name	Program location	Task force role
Ryan Paulus, DO	University of North Carolina	Chapel Hill, NC	Task force lead
Juana Nicoll Capizzano, MD	University of Michigan	Ann Arbor, MI	Task force member – curriculum workgroup colead
Puja Dalal, MD	Novant Health	Cornelius, NC	Task force member – summit workgroup lead
Nicholas LeFevre, MD	University of Missouri	Columbia, MO	Task force member – research workgroup lead
Natalie Nguyen, DO	Kaiser Permanente	Los Angeles, CA	Task force member – curriculum workgroup colead
Hiten Patel, MD	The Ohio State University	Columbus, OH	Task force member – assessment workgroup lead
William Hui, MD	Stanford University	Palo Alto, CA	Task force member
Anthony Recidoro, DO	Naval Medical Center Camp Pendleton	Camp Pendleton, CA	Task force member
Joy Shen-Wagner, MD	Prism Health	Greenville, SC	Task force member
Varshaben Songara, MD	Cape Fear Valley Health	Coats, NC	Task force member
Johnny Tenegra, MD	Southern Illinois University	Springfield, IL	Task force member
Ryan Trantham, MD	Waco Family Medicine	Waco, TX	Task force member
Paul Bornemann, MD	University of South Carolina School of Medicine	Columbia, SC	Education expert
Benjamin Bryden, MD	University of Montana	Missoula, MT	Education expert
Rachel Carter, MD	Naval Medical Center Camp Lejeune	Camp Lejeune, NC	Education expert
Matt Chan, MD	Oregon Health Sciences University	Scappoose, OR	Education expert
John Doughton, MD	University of North Carolina	Chapel Hill, NC	Education expert
Kyle Flattery, MD	Brown University	Pawtucket, RI	Education expert
Bradley Green, MD	Gadsden Regional Medical Center	Gadsden, AL	Education expert
Jerica Johnson, MD	University of New Mexico	Albuquerque, NM	Education expert
Andrea Lewis, DO	Southern Colorado Family Medicine	Pueblo, CO	Education expert
Daniela Lobo, MD	Indiana University	Indianapolis, IN	Education expert
Alex McDonald, MD	Kaiser Permanente	Fontana, CA	Education expert
Summer Scavone, MD	University of Virginia	Charlottesville, VA	Education expert
Nick Weida, MD	Lawrence Family Medicine Residency Program	Lawrence, MA	Education expert
April Davies, MPH	Society of Teachers of Family Medicine	Leawood, KS	STFM representative
Sally Bobbitt-Hartwell	University of North Carolina	Chapel Hill, NC	Research coordinator
Carolyn Christ, MS2	University of North Carolina	Chapel Hill, NC	Research coordinator
Philip Sloane, MD	University of North Carolina	Chapel Hill, NC	Research advisor
Sheryl Zimmerman, PhD	University of North Carolina	Chapel Hill, NC	Research advisor

Abbreviations: FOCUS, (Finding COnsensus for POCUS Standards in Family Medicine EdUcation and Competency Based ASsessment); POCUS, point-of-care ultrasound