

Hospital Medicine Point of Care Ultrasound Credentialing: An Example Protocol

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Though the use of point-of-care ultrasound (POCUS) has increased over the last decade, formal hospital credentialing for POCUS may still be a challenge for hospitalists. This document details the Hospital Medicine Department Ultrasound Credentialing Policy from Regions Hospital, which is part of the HealthPartners organization in Saint Paul, Minnesota.

National organizations from internal medicine and hospital medicine (HM) have not published recommended guidelines for POCUS credentialing. Revised guidelines for POCUS have been published by the American College of Emergency Physicians,

though these are not likely intended to guide hospitalists when working with credentialing committees and medical boards.

This document describes the scope of ultrasound in HM and our training, credentialing, and quality assurance program. This report is intended to be used as a guide for hospitalists as they work with their own credentialing committees and will require modification for each institution. However, the overall process described here should assist in the establishment of POCUS at various institutions. *Journal of Hospital Medicine* 2017;12:767-772. © 2017 Society of Hospital Medicine

Ultrasound has been used for decades by radiology, obstetrics-gynecology, and cardiology departments within a comprehensive paradigm in which a physician enters an order, then a trained sonographer performs the study, followed by a physician evaluating and interpreting the images.¹ Unlike the traditional comprehensive paradigm, point-of-care ultrasound (POCUS) is a focused study that is both performed and interpreted by the bedside provider.² POCUS has been demonstrated to improve diagnosis and clinical management in multiple studies.³⁻¹⁵

The scope of practice in POCUS differs by specialty, as POCUS is done to achieve specific procedural aims (eg, direct the needle to the correct location) or answer focused questions (eg, does the patient have a distended bladder?) related to the specialty. POCUS in hospital medicine (HM) provides immediate answers, without the delay and potential risk of transportation to other hospital areas. It may be used to diagnose pleural effusion, pneumonia, hydronephrosis, heart failure, deep vein thrombosis, and many other pathologies.⁵⁻¹⁵ It is important to understand that POCUS performed by HM is a limited study and is not a substitute for more complete ultrasound examinations conducted in the radiology suite or in the echocardiography lab.

POCUS should not be used exclusively in medical decision making, but rather in conjunction with the greater clinical context of each patient, building on established principles of diagnosis and management.

DEFINITIONS

- **Credentialing:** An umbrella term, which incorporates licensure, education, and certification.
- **Privileging:** Used to define the scope authorized for a provider by a healthcare organization based on an evaluation of the individual's credentials and performance.
- **Competency:** An observable ability of a provider, integrating multiple components, such as knowledge and skills. Since competencies are observable, they can be measured and assessed to ensure their acquisition.
- **Certification:** The process by which an association grants recognition to a provider who has met certain predetermined qualifications specified by the association. Competence is distinguished from certification, which is defined as the process by which competence is recognized by an external agency.

All of the above mechanisms work together to provide the highest quality of reliability that a practitioner is providing safe, competent care.¹⁶⁻¹⁸

STATEMENTS FROM MAJOR SPECIALTY SOCIETIES

Acknowledging that there are no published guidelines in the realm of HM POCUS, the development of the credentialing process at our institution is consistent with published guidelines by Emergency Medicine societies (the most established physician users of POCUS) and the American Medical Association (AMA).¹⁹⁻²¹

The use of emergency ultrasound by physicians in the emergency department is endorsed by the American College

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TABLE. Hospital Medicine Portfolio RequirementsCardiac Study (20 studies with the following images per study)^{22,54-76}

Total: 100 images

1. Parasternal long axis view
2. Parasternal short axis view
3. Apical four-chamber view
4. Subcostal long axis view
5. Inferior vena cava longitudinal view

Lung/Pleural Study (5 studies with the following images per study)⁴³⁻⁵³

Total: 20 images

1. Pleural effusion (any size)
2. Sliding lung with A-lines
3. Consolidation
4. B-lines

Abdominal Study (5 studies with the following images per study)²⁷⁻³⁴

Total: 20 images

1. Left kidney longitudinal view with splenorenal space
2. Right kidney longitudinal view with hepatorenal recess
3. Abdominal aorta longitudinal view
4. Bladder transverse view

Vascular Diagnostic DVT Study (3 studies with the following images per study; include right and left legs)³⁵⁻⁴²

Total: 24 images

1. Right common femoral vein with compression
2. Left common femoral vein with compression
3. Right common femoral vein at saphenous intake with compression
4. Left common femoral vein at saphenous intake with compression
5. Right superficial femoral vein with compression
6. Left superficial femoral vein with compression
7. Right popliteal vein with compression
8. Left popliteal vein with compression

Adapted from CHEST Critical Care Ultrasonography Program^{18,86}

NOTE: Abbreviation: DVT, deep vein thrombosis.

of Emergency Physicians (ACEP).¹⁹ ACEP, along with the Society of Academic Emergency Medicine (SAEM), recommends that training in the performance and interpretation of ultrasound imaging be included during residency.²⁰ ACEP and SAEM add that the availability of equivalent training should be made available to practicing physicians. The American Society of Echocardiography has supported the use of POCUS and sees this modality as part of the continuum of care.^{23,24}

The AMA has also recognized that POCUS is within the scope of practice of trained physicians.²² The AMA further recommended hospital staff create their own criteria for granting ultrasound privileges based on the background and training of the physician and in accordance with the standards set within specific specialties.^{22,23}

LOCAL POLICY AND PROCEDURE

The provision of clinical privileges in HM is governed by the rules and regulations of the department and institution for which privileges are sought. In detailing our policies and procedures above, we intend to provide an example for HM

departments at other institutions that are attempting to create a POCUS credentialing program.

An interdisciplinary approach was created by our institution to address training, competency, and ongoing quality assurance (QA) concerns due to the increasing popularity of POCUS and variability in its use. We developed a hospital-wide POCUS committee with, among others, members from HM, emergency medicine, critical care, radiology, and cardiology, with a charter to standardize POCUS across departments. After review of the literature,^{16-18,20,21,23-74} baseline training requirements were established for credentialing and developing a unified delineation of privileges for hospital-wide POCUS. The data support the use of a variety of assessments to ensure a provider has developed competence (portfolio development, knowledge-based examination, skills-based assessment, ongoing QA process). The POCUS committee identified which exams could be performed at bedside for credentialed providers, delineated imaging requirements for each exam, and set up the information technology infrastructure to support ordering and reporting through electronic health records (EHR). While the POCUS committee delineated this process for all hospital providers, we will focus our discussion on the credentialing policy and procedure in HM.

STEP 1: PATHWAY TO POCUS CREDENTIALING IN HM: COMPLETE MINIMAL FORMAL REQUIREMENTS

The credentialing requirements at our institution include one of the following basic education pathways and minimal formal training:

Residency/Fellowship Based Pathway

Completed training in an Accreditation Council for Graduate Medical Education–approved program that provided opportunities for 20 hours of POCUS training with at least 6 hours of hands-on ultrasound scanning, 5 proctored limited cardiac ultrasound cases and portfolio development.

Practice Based Pathway

Completed 20 hours of POCUS continuing medical education (CME) with at least 6 hours of hands-on ultrasound scanning and has completed 5 proctored limited cardiac ultrasound cases (as part of CME).

The majority of HM providers had little formal residency training in POCUS, so a training program needed to be developed. Our training program, modeled after the American College of Chest Physicians' CHEST certificate of completion,⁸⁶ utilizes didactic training, hands-on instruction, and portfolio development that fulfills the minimal formal requirements in the practice-based pathway.

STEP 2: PATHWAY TO POCUS CREDENTIALING IN HM: COMPLETE PORTFOLIO AND FINAL ASSESSMENTS (KNOWLEDGE AND SKILLS-BASED)

After satisfactory completion of the minimal formal training, applicants need to provide documentation of a set number of cases. To aid this requirement, our HM department developed the portfolio guidelines in the Table. These are

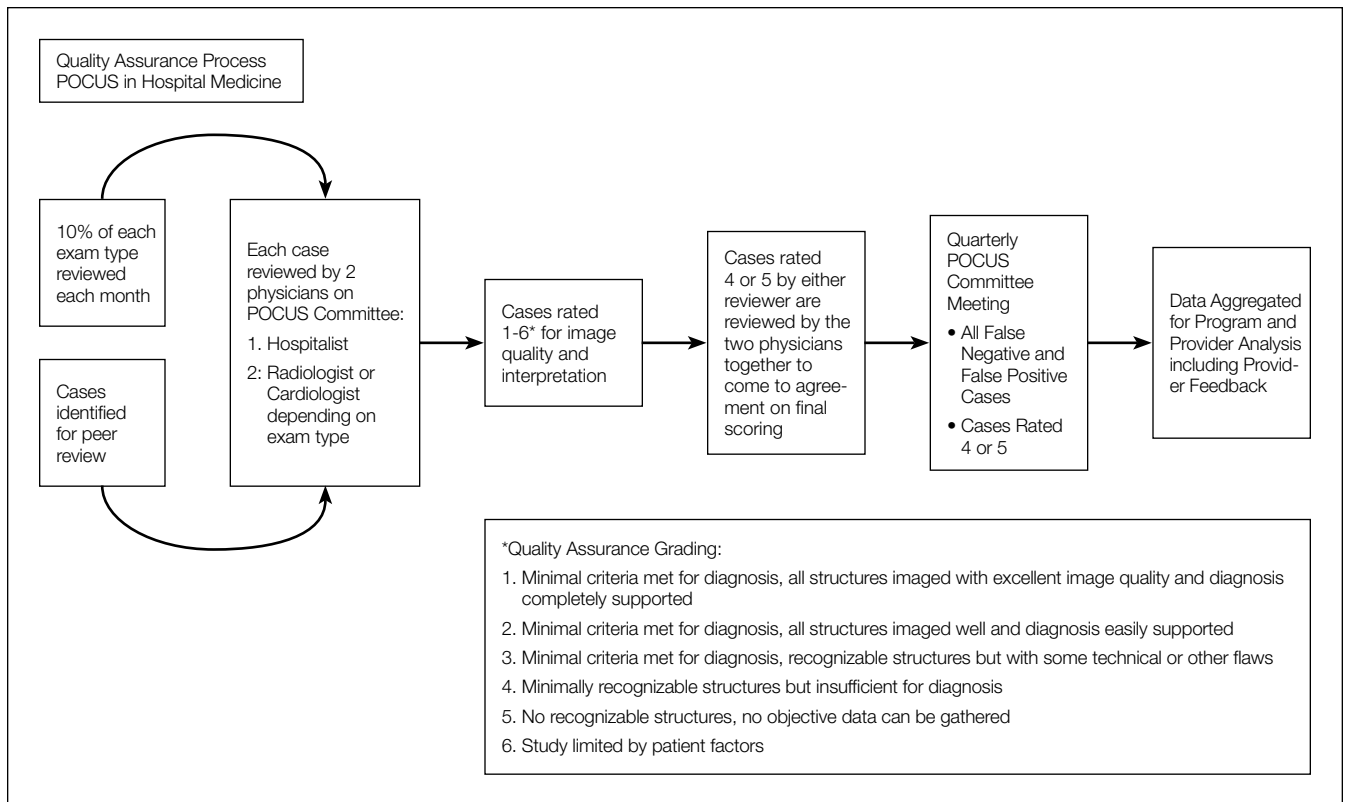


FIG. Quality Assurance process. NOTE: Abbreviation: POCUS, point-of-care ultrasound.

minimum requirements, and because of the varying training curves of learning,⁷⁶⁻⁸⁰ 1 hospitalist may need to submit 300 files for review to meet the standards, while another may need to submit 500 files. Submissions are not accepted unless they yield high-quality video files with meticulous attention to gain, depth, and appropriate topographic planes. The portfolio development monitors hospitalists' progression during their deliberate practice, providing objective assessments, feedback, and mentorship.^{81,82}

A final knowledge exam with case-based image interpretation and hands-on examination is also provided. The passing score for the written examination is 85% and was based on the Angoff methodology.⁷⁵ Providers who meet these requirements are then able to apply for POCUS credentialing in HM. Providers who do not pass the final assessments are required to participate in further training before they reattempt the assessments. There is uniformity in training outcomes but diversity in training time for POCUS providers.

Candidates who complete the portfolio and satisfactorily pass the final assessments are credentialed after review by the POCUS committee. Credentialed physicians are then able to perform POCUS and to integrate the findings into patient care.

MAINTENANCE OF CREDENTIALS

Documentation

After credentialing is obtained, all POCUS studies used in patient care are included in the EHR following a clearly de-

finer workflow. The study is ordered through the EHR and is retrieved wirelessly on the ultrasound machine. After performing the ultrasound, all images are wirelessly transferred to the radiology Picture Archiving and Communication System server. Standardized text reports are used to distinguish focused POCUS from traditional diagnostic ultrasound studies. Documentation is optimized using electronic drop-down menus for documenting ultrasound findings in the EHR.

Minimum Number of Examinations

Maintenance of credentials will require that each hospitalist perform 10 documented ultrasounds per year for each cardiac and noncardiac application for which credentials are requested. If these numbers are not met, then all the studies performed during the previous year will be reviewed by the ultrasound committee, and providers will be provided with opportunities to meet the minimum benchmark (supervised scanning sessions).

Quality Assurance

Establishing scope of practice, developing curricula, and credentialing criteria are important steps toward assuring provider competence.^{16,17,22,74} To be confident that providers are using POCUS appropriately, there must also be a development of standards of periodic assessment that encompass both examination performance and interpretation. The objective of a QA process is to evaluate the POCUS cases for technical competence and the interpretations for clinical accuracy, and

to provide feedback to improve performance of providers.

QA is maintained through the interdisciplinary POCUS committee and is described in the Figure.

After initial credentialing, continued QA of HM POCUS is done for a proportion of ongoing exams (10% as per recommendations by ACEP) to document continued competency.² Credentialed POCUS providers perform and document their exam and interpretations. Ultrasound interpretations are reviewed by the POCUS committee (every case by 2 physicians, 1 hospitalist, and 1 radiologist or cardiologist depending on the study type) at appropriate intervals based on volume (at minimum, quarterly). A standardized review form is used to grade images and interpretations. This is the same general rubric used with the portfolio for initial credentialing. Each case is scored on a scale of 1 to 6, with 1 representing high image quality and support for diagnosis and 6 representing studies limited by patient factors. All scores rated 4 or 5 are reviewed at the larger quarterly POCUS committee meetings. For any provider scoring a 4 or 5, the ultrasound committee will recommend a focused professional practice evaluation as it pertains to POCUS. The committee will also make recommendations on a physician's continued privileges to the department leaders.⁸³

BILLING

Coding, billing, and reimbursement for focused ultrasound has been supported through the AMA Physicians' Current Procedural Terminology (CPT) 2011 codes, which includes CPT code modifiers for POCUS.⁸⁴ There are significant costs associated with building a HM ultrasound program, including the education of hospitalists, ultrasound equipment purchase and maintenance, as well as image archiving and QA. The development of a HM ultrasound billing program can help justify and fund these costs.^{19,85}

To appropriately bill for POCUS, permanently retrievable images and an interpretation document need to be available for review. HM coders are instructed to only bill if both components are available. Because most insurers will not pay for 2 of the same type of study performed within a 24-hour period, coders do not bill for ultrasounds when a comprehensive ultrasound of the same body region is performed within a 24-hour period. The workflow that we have developed, including ordering, performing, and documenting, allows for easy coding and billing.

BARRIERS AND LIMITATIONS

While POCUS has a well-established literature base in other specialties like emergency medicine, it has been a relatively recent addition to the HM specialty. As such, there exists a paucity of evidence-based medicine to support its use of POCUS in HM. While it is tempting to extrapolate from the literature of other specialties, this may not be a valid approach.

Training curves in which novice users of ultrasound become competent in specific applications are incompletely understood. Little research describes the rate of progression

of learners in ultrasound towards competency. We have recently started the QA process and hope that the data will further guide feedback to the process.

Additionally, with the portfolios, the raters' expertise may not be stable (develops through experience). We aim to mitigate this by having a group of raters reviewing each file, particularly if there is a question about if a submission is of high image quality. A notable barrier that groups face is support from their leadership regarding POCUS. Our group has had support from the chief medical officer who helped mandate the development of POCUS standards.

LESSONS LEARNED

We have developed a robust collaborative HM POCUS program. We have noted challenges in motivating all providers to work through this protocol. Development of a POCUS program takes dedicated time, and without a champion, it is at risk for failing. HM departments would be advised to seek out willing collaborators at their institutions. We have seen that it is useful to partner with some experienced emergency medicine providers. Additionally, portfolio development and feedback has been key to demonstrating growth in image acquisition. Deliberate longitudinal practice with feedback and successive refinements with POCUS obtain the highest yield towards competency. We hope our QA data will provide further feedback into the credentialing policy and procedure.

SUMMARY

It is important that POCUS users work together to recognize its potential and limitations, teach current and future care providers' best practices, and create an infrastructure that maximizes quality of care while minimizing patient risk.

We are hopeful that this document will prove beneficial to other HM departments in the development of successful POCUS programs. We feel that it is important to make available to other HM departments a concise protocol that has successfully passed through the credentialing process at a large tertiary care medical system.

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