Certificate in Physician Leadership for Hospital Medicine Capstone Project

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Improving Patient Care and Patient Satisfaction Through Education of Point of Care Ultrasound to Hospitalists

Background

Point-of-care ultrasound (POCUS) is becoming an essential clinical skill in the care of hospitalized patients. Multiple studies have demonstrated it to be useful in both improving patient care and increasing patient satisfaction. Specifically, it has been shown to reduce the overall cost of care (1), increase patient safety (by decreasing the number of chest x-rays (CXR) obtained) (2), decrease time to accurate diagnosis (3), and finally increase patient satisfaction (4). In many ways, it has even been found to be superior to CXR and commensurate to chest CT (5, 6). Therefore, POCUS may not just give a similar quality and amount of information as other radiological tests, but even possibly more accurate and more detailed information (e.g., simple vs. complex appearance of pleural effusions.)

Gundersen Health System (GHS) is a health system that employees over 5000 employees, including over 500 physicians and over 400 associate providers. It is located in La Crosse, Wisconsin, and serves the tri-state area of southwest Wisconsin, southeast Minnesota and northeast Iowa. GHS serves its communities with seven critical access hospitals and 37 clinics. Its tertiary care hospital, Gundersen Lutheran (GL), is a community-based academic facility with 325 beds. There are over 80 residents in multiple specialties that train at GHS and multiple medical students from surrounding medical schools, primarily from the University of Wisconsin, Madison. There is currently education in POCUS provided for family medicine, internal medicine, and surgical residents. The expansion of POCUS education has also started for medical students at GHS.

The hospitalist group at GL consists of 23 internal medicine physicians and eight midlevel providers. Only one hospitalist currently has significant experience and regularly utilizes point-of-care ultrasound in patient care and education.

Several issues and opportunities are recognized:

- Instructing the hospitalist group on the use of POCUS has the potential to improve patient care in the following ways: 1. improve time to definitive diagnosis and treatment of medical conditions. 2. Improve patient satisfaction. 3. Decrease risk to the patient by decreasing transportation elsewhere for a test, decreasing radiation, and decreasing contrast dye. 4. Decreasing expenses to the patients by decreasing the number of more expensive radiologic tests. In educating hospitalists on point-of-care ultrasound, we can hope to pass these benefits along to patients at this institution.
- The vast majority of education in POCUS for internal medicine residents is during their POCUS rotation. Whereas the POCUS education on hospitalist and general medicine rotations are markedly less given the majority of the attendings they work with are not proficient in POCUS. Lack of educated

staff creates missed opportunities for the residents to expand their education. Further, when residents do choose to use ultrasound, they do not have guidance as to when it is and is not appropriate. Residents must also spend excess time finding a staff physician who is proficient in POCUS to help interpret the image.

The Scope of this project was to create and initiate a program to both educate and credential hospitalists in POCUS.

The Goals of this project were to

- Set up an educational program for hospitalists to become competent in hospital-based POCUS.
- Create Competency Standards for hospital-based Point-of-care ultrasound.

Ultimately, the end goal is to have hospitalists regularly using POCUS as part of their care of hospitalized patients. The hope then is that regular use of POCUS in the evaluation of patients should ultimately improve time to accurate diagnosis and treatment, improve patient satisfaction, and improve the education of our residents.

Project Objectives and Expected Outcomes

Objectives

1. Increase the number of hospitalists that use POCUS regularly in the hospital
2. Increase the number of hospitalists that teach POCUS to Internal Medicine and Family Medicine residents
3. Train hospitalists to a level of proficiency that their ultrasound findings are 90% congruent with other radiologic images
4. Decrease time to accurate diagnosis and definitive treatment, improve patient satisfaction

Methodology and Timeline

Part 1: Educational Program

Step 1: Obtain an ultrasound unit and a simulation unit:

Sonosim® simulation ultrasound units were purchased for use by the trainees. The trainees received a 30-minute educational session on how to use the unit. This allowed the hospitalists to practice skills and knowledge separate from any classroom education.

Step 2: Purchase the Ultrasound unit

Before the purchase of the ultrasound unit itself, information technology (IT) and environmental engineering assisted in the planning to ensure that images obtained by the probe could be uploaded into the GHS system. After the arrival of the ultrasound units, environmental engineering began setting up the machine to integrate with our system, including our educational radiology storage system.

Funding for the ultrasound units themselves was obtained. This funding was delayed and was not available until October of 2019. A decision was made during the process to obtain funding for Butterfly IQ ultrasound probes instead of a traditional ultrasound unit. These units were chosen because they are more portable, have nearly as good resolution, and were significantly less expensive.

Step 3: Creation and implementation of the Hospital-based POCUS Educational Program

Working collaboratively with the Family Medicine department, Cardiology department, and Emergency department, a 2-day hands-on ultrasound course was

created. The curriculum comprised of didactic lectures and hands-on experience (Appendix B). Three GE® LOGIQ™ P9 ultrasound systems were secured from another department for the hands-on training portion of the course. Additionally, live models were hired for the hands-on portion of the curriculum. Six hospitalists and hybrids completed this training, as well as two family practice residents.

After completion of the ultrasound course, learners were instructed to complete an ultrasound portfolio. The requirements for the ultrasound portfolio were created based on recommendations by Mathews and Zwank in 2017 (7) in their proposal for ultrasound credentialing for hospitalists. Additionally, it was based on the decision to include family medicine physicians and residents in training (see Appendix A). The physicians and residents that participated are actively working on completing their portfolio at this time.

Part 2: POCUS Credentialing

An ultrasound committee was created, and we met with stakeholders in ultrasound (other specialties that use point-of-care ultrasound and the radiology dept) to create credentialing criteria and a credentialing document (Appendix C). The credentialing committee is actively evaluating this document. Overall it proposes that credentialing can be attained via one of three pathways: 1. Successful completion of an approved certification in a POCUS certification program through the Society of Critical Care Medicine or the Society of Hospitalist medicine 2. Successful completion of the GHS POCUS course, with proctored ultrasounds, and successful completion of the ultrasound portfolio. 3. Successful completion of an accredited residency program, in which after completion of hands-on training in ultrasound and an ultrasound portfolio, is acknowledged by the program director.

The POCUS committee will also decide on and be responsible for the quality assurance of ultrasounds. This committee is made up of radiologists, cardiologists,

family medicine physicians, emergency medicine physicians and hospitalists. Members of this committee will be charged with reviewing assigned ultrasounds for both the quality of the image and accurate diagnosis. The images will be stored in the Butterfly IQ cloud during training, and then in the NilRead, which is linked to the patient's chart after the provider is certified.

Although we have not yet started this process as no providers have yet completed training, the plan is that this committee will meet quarterly and follow a quality assurance process that has been drawn up and is to be implemented once providers have become credentialled. (Appendix D)

Results and Discussion

There were several successes in this project, but also a number of limitations and delays. Overall, the limitations were primarily a direct result of the delay in funding. Additionally, during this project, I completed my own training of POCUS through the American College of Chest Physicians in their Certification in Critical Care Ultrasound program. Completion of training was in September 2019, after which training in POCUS to learners began

Successes

There were two goals of this project: 1. Set up an educational program for hospitalists to become competent in hospital-based POCUS. 2. Create Competency Standards for hospital-based Point-of-care ultrasound. This project was overall successful as these goals were reached.

The most substantial reason for success was the collaboration on this project with family medicine. In the process of planning the project, Paul Klas, MD, the

program director of the family medicine residency, offered to collaborate on the project. Together, it was felt that we could reach not only the hospitalists with POCUS training, but also the hybrids and primary care physicians in family medicine and internal medicine. He was instrumental, as the expanse of the overall project became enormous. As stated previously, prior to this project, there was no formal method for obtaining training or certification for physicians and associate providers in POCUS at GHS. Through this partnership, we were able to successfully expand training beyond hospitalists.

Together we successfully created a two-day ultrasound course for providers. This course was given on November 1 and 2, 2019. Success was measured by a pre-test, post-test and feedback on the course from the learners. Learners did successfully improve their POCUS knowledge, as evidenced by an increase in their test scores on these tests. The average score of the test in the class increased from 74% to 95%. Feedback from the course was overwhelmingly positive, with two providers requesting that they be allowed to take the course again. They felt that there was so much to learn that repeating the course would improve further their knowledge and skills.

Additionally, the Butterfly IQ probe was available to teach learners how to use this and store their images. A shared cloud was created in the Butterfly IQ cloud, in which invited participants would be able to store images that I will be able to review. Once an ultrasound is signed off as a satisfactory image, the learners can add this image to their portfolio. With the successful completion of this course and an completion of an ultrasound portfolio, the learners will meet the criteria for credentialing in point of care ultrasound.

Credentialling creation for POCUS is nearly complete. We first met with a representative from the credentialing committee who helped guide us through the process of creating and submitting a credentialing document. We obtained example

documents from the radiology department on what is required to obtain credentialing in ultrasound through the department of radiology. The document from radiology, as well as recommendations from Mathews and Zwank (7), guided our creation of the credentialing document (Appendix C). It was decided, after reviewing multiple other materials, to allow for credentialing in different types of POCUS. For example, one could be credentialled in ultrasound of the lung, and not have to be credentialled in ultrasound of the heart. This decision was made due to the fact that we would use this same document over multiple specialties. This document has been submitted to the Credentialling committee and is awaiting review.

Limitations

The limitations were primarily due to the delayed funding. A decision was made not to initiate the two-day ultrasound course until an ultrasound machine was available. If the training course was given before any ultrasound units were available, then there would be no way for the learners to practice what they had learned or to create their portfolios.

Initially, it was planned that a machine would be secured in January of 2019. However, the funding for this machine was withheld due to budget constraints. We continued to work with management to push for funding. Ultimately this led to researching less expensive alternatives. It was at this time that the new technology of the Butterfly IQ was discovered. Quotes from this corporation were obtained, and funding was approved.

The substitution of a purchase of the Butterfly IQ units over the original traditional ultrasound unit selected, led to additional unexpected favorable outcomes. A single Butterfly IQ unit is substantially less expensive than traditional units; therefore, the purchase of ten units was made instead of one. Having additional units will

allow for multiple providers to ultrasound throughout the institution simultaneously. Further, due to the increased portability of the Butterfly IQ ultrasound units, physicians can carry them on their person instead of having to transport them into a patient care area when needed. Both of these advantages will ultimately will lead to more patients receiving POCUS in the course of their care.

Given the delay in the procurement of the ultrasound units, the course could not be given until the beginning of November 2019. Therefore, the original goal of having providers who were credentialled for POCUS and actively using it for the care of their patients has not yet come to fruition. Therefore, the effectiveness of ultrasound on either the quality of care provided to the patients or the impact on patient satisfaction has not yet been able to be measured.

Finally, we are in the early stages of the quality review process, but this has not yet begun. The plan is to initiate a quality assurance process, as stated in the methods above. However, as there are not yet any learners who have completed their portfolios or approval of the credentialing document, there are no credentialled providers performing POCUS.

Conclusion and Recommendations

Through hard work and collaboration, a process for training in and becoming credentialled in POCUS has been created at GHS. Importantly, the initial goals outlined in the proposal were met, but the objectives were too expansive in the timeframe for this capstone project. It was difficult to gauge the timeline for this capstone project, having never worked through a process of procuring funding of a big-ticket item in our institution before. Therefore, it took longer than expected. However, even had the funding been available, it appears that providers will be taking longer to complete their ultrasound portfolios than initially expected. With

their busy schedules, they anticipate taking 6-12 months to complete the portfolio. Therefore, even with earlier funding, there likely would have been far fewer providers credentialled by the completion date of this capstone project than was initially planned.

To complete the initial goals and advance this project, hospitalists and hybrids will continue to be trained moving forward in additional two-day courses. This training can continue this training indefinitely, as future credentialed providers can continue training in the future. There are future meetings scheduled for the ultrasound committee, including working on the formation of the quality improvement process. This process will start once providers have been credentialled.

Ultimately, the goal is to complete the original objectives:

1. Increase the number of hospitalists that use POCUS regularly in the hospital
2. Increase the number of hospitalists that teach POCUS to Internal Medicine and Family Medicine residents
3. Train hospitalists to a level of proficiency that their ultrasound findings are 90% congruent with other radiologic images
4. Decrease time to accurate diagnosis and definitive treatment, improve patient satisfaction

Given the results of this project, these are recommendations for future projects of this type:

1. Collaborate with another department. The workload for a project of this magnitude is enormous, and it is only through collaboration with family medicine that we were able to have the successes we did.

2. Secure ultrasound units before initiating the project. The timeline for funding for the ultrasound units is not predictable. Therefore, these units must be available before any project can begin.
3. The lead instructor of POCUS and reviewer of POCUS portfolios should obtain extensive training in POCUS ultrasound before initiating the project. When I initiated this project, the certification course in which I was enrolled was not yet complete. This could have also delayed training had the ultrasound units arrived earlier. Further, the extensive training received directly contributed to the success of the ultrasound course.

References

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Appendix A

Ultrasound Portfolio

- Lung, Pleura
  - 5 ultrasounds of normal lung with lung sliding
  - 5 ultrasounds of consolidation
  - 5 ultrasounds of Diaphragm and spleen
  - 5 ultrasounds of Diaphragm and liver
- Heart
  - 10 ultrasounds of parasternal long axis
  - 10 ultrasounds of parasternal short axis
  - 10 ultrasounds of apical 4 chamber
  - 10 ultrasounds of subcostal 4 chamber
  - 10 ultrasounds of IVC
- Lower extremity vascular
  - 10 ultrasounds of the right/left common femoral vein with/without compression
  - 10 ultrasounds of the right/left common femoral vein with greater saphenous with/without compression
  - 10 ultrasounds of the right/left popliteal vein with/without compression
- Abdominal aorta
  - 5 ultrasounds of the proximal transverse aorta
  - 5 ultrasounds of the mid transverse aorta
  - 5 ultrasounds of the distal transverse aorta
  - 5 ultrasounds of the longitudinal aorta
- Soft tissue
  - 10 soft tissue ultrasounds including US of lymph nodes and abscess and cellulitis and cystic structures
- Renal Ultrasound
  - 5 Complete ultrasounds of the right and left kidney using longitudinal and transverse views
- FAST exam
  - 5 ultrasounds of Liver/kidney/Morrisons pouch
  - 5 ultrasounds of Spleen/kidney
  - 5 ultrasounds of Bladder transverse
  - 5 ultrasounds of Bladder sagittal
- OB Ultrasound (Optional for family medicine)
  - 5 ultrasounds of first-trimester heartbeats
  - 5 ultrasounds of third-trimester fetal head position
  - 5 ultrasounds of amniotic fluid index

Appendix B

GHS Point-of-Care Ultrasound Course

Day 1:

0730-0800: Registration/Breakfast

0800-0900: Intro/Pretest: *Hawker*

0900-0945: Lung/Pleural: *Hawker*

0945-1000: Break

1000-1100: Skills/Practice: *Hawker, Klas, Lee*

1100-1200: Soft Tissue/Renal: *Klas*

1200-1300: Lunch

1300-1400: Cardiac/IVC: *Hawker*

1400-1500: Skills/Practice: *Hawker, Darrah, Witcik*

1500-1515: Break

1515-1600: eFAST: *Orozco, Klas*

1600-1730: Skills/Practice/eFAST: *Hawker, Klas, Orozco*

Day 2:

0730-0800: Breakfast

0800-0900: DVT/Aorta*: Klas*

1000-0900: Skills/Practice: *Hawker, Klas, Lee*

1000-1015: Break

1015-1100: BLUE Protocol Lecture: *Hawker*

1100-1200: Abnormal images-Blue/Lung/Cardiac: *Hawker*

1200-1300: Lunch

1300-1400: RUSH: *Klas*

1400-1500: Sonosim/Skills/Practice: (RUSH/FAST): *Klas*

1500-1700: Post Test/Credentialing and Billing: *Hawker, Klas*

Appendix C

Proposed credentialing form

PRIVILEGE REQUEST FORM FOR
POINT OF CARE ULTRASOUND

To be able to request privileges for ultrasound the practitioner must meet the following minimum threshold criteria:

EDUCATION: MD, DO, PA, NP

OTHER: Current unrestricted license to practice in Wisconsin/Iowa/Minnesota as applicable

DELINEATION OF PRIVILEGES:

REQUESTED	**PULMONARY AND PLEURAL ULTRASOUND:**	APPROVED

	Initial Privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	  • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training, exams and simulation in:
	  ➢ 5 ultrasounds of normal lung with lung sliding
	  ➢ 5 ultrasounds of consolidation
	  ➢ 5 ultrasounds of Diaphragm and spleen
	  ➢ 5 ultrasounds of Diaphragm and liver
	  • Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar.
	Renewal of Privilege:
	• Evidence of performance of at least 5 complete pulmonary ultrasounds over 24 months	

	• Applicant must participate in Gundersen Health System's quality assurance process in Point of Care Ultrasound • Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.	

REQUESTED	**<u>LIMITED CARDIAC:</u>**
	Initial Privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	  • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation in:
	  ➢ 10 ultrasounds of parasternal long axis
	  ➢ 10 ultrasounds of parasternal short axis
	  ➢ 10 ultrasounds of apical 4 chamber
	  ➢ 10 ultrasounds of subcostal 4 chamber
	  ➢ 10 ultrasounds of IVC
	  • Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar.
	Renewal of Privilege:
	• Evidence of performance of at least 10 limited cardiac ultrasounds over 24 months
	• Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound
		APPROVED

	• Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.	

REQUESTED	**<u>VASCULAR ULTRASOUND FOR DVT:</u>**
	Initial Privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	  • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation in:
	  ➢ 10 ultrasounds of the right/left common femoral vein with/without compression
	  ➢ 10 ultrasounds of the right/left common femoral vein with greater saphenous with/without compression
	  ➢ 10 ultrasounds of the right/left popliteal vein with/without compression
	  • Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar.
	Renewal of privilege:
	• Evidence of performance of at least 5 complete Vascular DVT ultrasounds over 24 months
	• Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound
	• Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.
		APPROVED

REQUESTED	**Abdominal Aorta Ultrasound:**
	Initial privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	  • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation in:
	  ➢ 5 ultrasounds of the proximal transverse aorta
	  ➢ 5 ultrasounds of the mid transverse aorta
	  ➢ 5 ultrasounds of the distal transverse aorta
	  ➢ 5 ultrasounds of the longitudinal aorta
		APPROVED

	• Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar. Renewal of privilege: • Evidence of performance of at least 5 complete abdominal aorta ultrasounds over 24 months • Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound • Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.	

REQUESTED	**<u>SOFT TISSUE ULTRASOUND:</u>**
	Initial privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	• Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation in:
	  ➢ 10 soft tissue ultrasounds including US of lymph nodes and abscess and cellulitis and cystic structures
	  • Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar.
	Renewal of privilege:
	• Evidence of performance of at least 10 completed soft structure ultrasounds over 24 months
	• Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound
	• Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.
		APPROVED

REQUESTED	**<u>RENAL ULTRASOUND:</u>**
	Initial Privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	• Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation in:
	  ➢ 5 Complete ultrasounds of the right and left kidney using
		APPROVED

	longitudinal and transverse views • Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar. Renewal of Privilege: • Evidence of performance of at least 5 complete renal ultrasounds over 24 months • Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound • Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.	
REQUESTED	**<u>LIMITED OB ULTRASOUND:</u>** Initial Privilege: • Applicants must show evidence of either: • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation in: ➢ 5 ultrasounds of first-trimester heartbeats ➢ 5 ultrasounds of third-trimester fetal head position ➢ 5 ultrasounds of amniotic fluid index • Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar. Renewal of Privilege: • Evidence of performance of at least 5 limited OB ultrasounds over 24 months	APPROVED

	• Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound • Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.	

REQUESTED	**<u>FAST EXAM:</u>**
	Initial Privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	  • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation in:
	  ➢ Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar.
	• Applicants for initial privilege must show evidence of 5 complete proctored FAST exams to include:
	  ➢ Liver/kidney/Morrisons pouch
	  ➢ Spleen/kidney
	  ➢ Bladder transverse
	  ➢ Bladder sagittal
	  ➢ Subcostal 4 chamber if not certified in limited cardiac
	Renewal of Privilege
	• Evidence of performance of at least 5 FAST ultrasounds over 24 months
	• Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound
	• Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.
		APPROVED

REQUESTED	**<u>BLUE PROTOCOL FOR ACUTE DYSPNEA:</u>**
	Initial Privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	  • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation
	  • Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar.
	• Applicants for initial privilege must show evidence in
	  • Certification in Pulmonary and vascular DVT
	Renewal of Privilege:
	• Maintenance of certification in pulmonary and Vascular lower extremity DVT ultrasound
	• Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound
	• Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.
		APPROVED

REQUESTED	**<u>RUSH:</u>**
	Initial Privilege:
	• Applicants must show evidence of either:
	  • Certification in Residency or Fellowship with letter of reference from the program director of the applicant's training program regarding competency
	  • Minimum of 20 hours of CME in POCUS including evidence of proctored hands-on training and simulation
		APPROVED

	• Completion of Certification in Point of care ultrasound by the American College of Chest Physicians, SHM, or similar. • Applicants for initial privilege must show evidence in • Certification in limited cardiac, pulmonary, FAST, Lower Extremity Vascular DVT and Abdominal aorta Renewal of Privilege: • Maintenance of certification in limited cardiac, pulmonary, FAST, Vascular DVT and Abdominal aorta ultrasound • Applicant must participate in Gundersen Health systems quality assurance process in Point of Care Ultrasound • Evidence of Participation of 5 hours of CME in general Point of Care ultrasound in the last 24 months.	

Appendix D

Quality Assurance Process for hospitalist POCUS

I. Review 5% of all hospitalist POCUS exams each month and any cases identified by peer review

II. Each case will be reviewed by either a hospitalist, radiologist, or cardiologist depending on the exam type. Cardiologists can review cardiac ultrasounds, and radiologists can review all but pulmonary ultrasounds. Hospitalists can review any ultrasound.

III. Cases will be rated on the following scale

1. excellent images, accurate diagnosis
2. technical errors or flaws in images, accurate diagnosis
3. images are uninterpretable, cannot ascertain the diagnosis
4. images are interpretable, incorrect diagnosis

IV. Feedback sent on cases rated 1 or 2 as they are reviewed

V. Cases rated a 3 or 4 will be reviewed together by the committee quarterly

VI. Data aggregated and review of consensus submitted to the provider as feedback.