

Point-of-care ultrasound clinical workflow pilot: design and adoption of a simplified automated workflow within EHR for all clinical settings



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Background:

Point-of-care ultrasound (PoCUS) offers clinical diagnostic, procedural and reassessment guidance in both the acute and non-acute care setting. However, implementation of a PoCUS program is challenging to put into practice as it requires custom design through a collaborative effort from various stakeholders in a hospital system such as clinical, IT, credentialing, Biomed, infectious control, compliance and billing that needs to work in various clinical settings.

Objective:

Our goal was to create and implement a clinically inspired but IT-driven PoCUS workflow solution within an EHR that maximally supported a clinicians' intuitive workflow, while automatically archiving images that were easily shareable, and produced clear documentation with automatic billing capability in all types of clinical settings.

Materials and Method:

We used an iterative design process that stressed intuitive clinical workflow, maximal use of existing systems, data reuse and automatic billing. Creation of this clinical PoCUS workflow required the use of ultrasound machines, PoCUS middleware software and EHR-provided tools, vendor-neutral archive and custom programming.

Results:

We developed a PoCUS clinical workflow that requires the clinician to only interface with the ultrasound machine and the EHR system, bypassing the need to directly interface with a third-party PoCUS middleware software. This order-based clinical workflow allows for the immediate storage of all PoCUS images in a vendor-neutral archive and creates an associated image link for real-time access in the EHR for shareability with other clinicians. All interpretation and documentation to support images are attached to images, and accessible in the EHR within day-of-service notes through customized smart forms. Each completed smart form will automatically generate a charge for the appropriate PoCUS exam. This solution was put into a live environment in our emergency department in May 2023 with 35 individual PoCUS orders and the introduction of 10 combination PoCUS orders that were symptom-based PoCUS order sets. Over the first month, this solution was utilized 750 times by 67 different clinicians with 17 individual PoCUS orders and 4 combination PoCUS orders. The number of compliant and billable PoCUS studies performed and captured in our emergency department without any additional administrative follow-up rose from an average of 390 to 675 studies per month.

Conclusion:

As a strong advocate for safe and efficient PoCUS utilization in clinical care, we developed and deployed a clinically inspired but IT-driven PoCUS workflow solution that was adopted and used over X times a month. Key success elements include an emphasis on clinical workflow simplicity, real-time ability to share images within the EHR, automatic billing and an effective training effort at go-live.

Keywords:

point-of-care ultrasound, PoCUS, electronic health record, middleware solution