

Formalizing POCUS Education for Internal Medicine Residents with a Hypothesis Driven Longitudinal Curriculum



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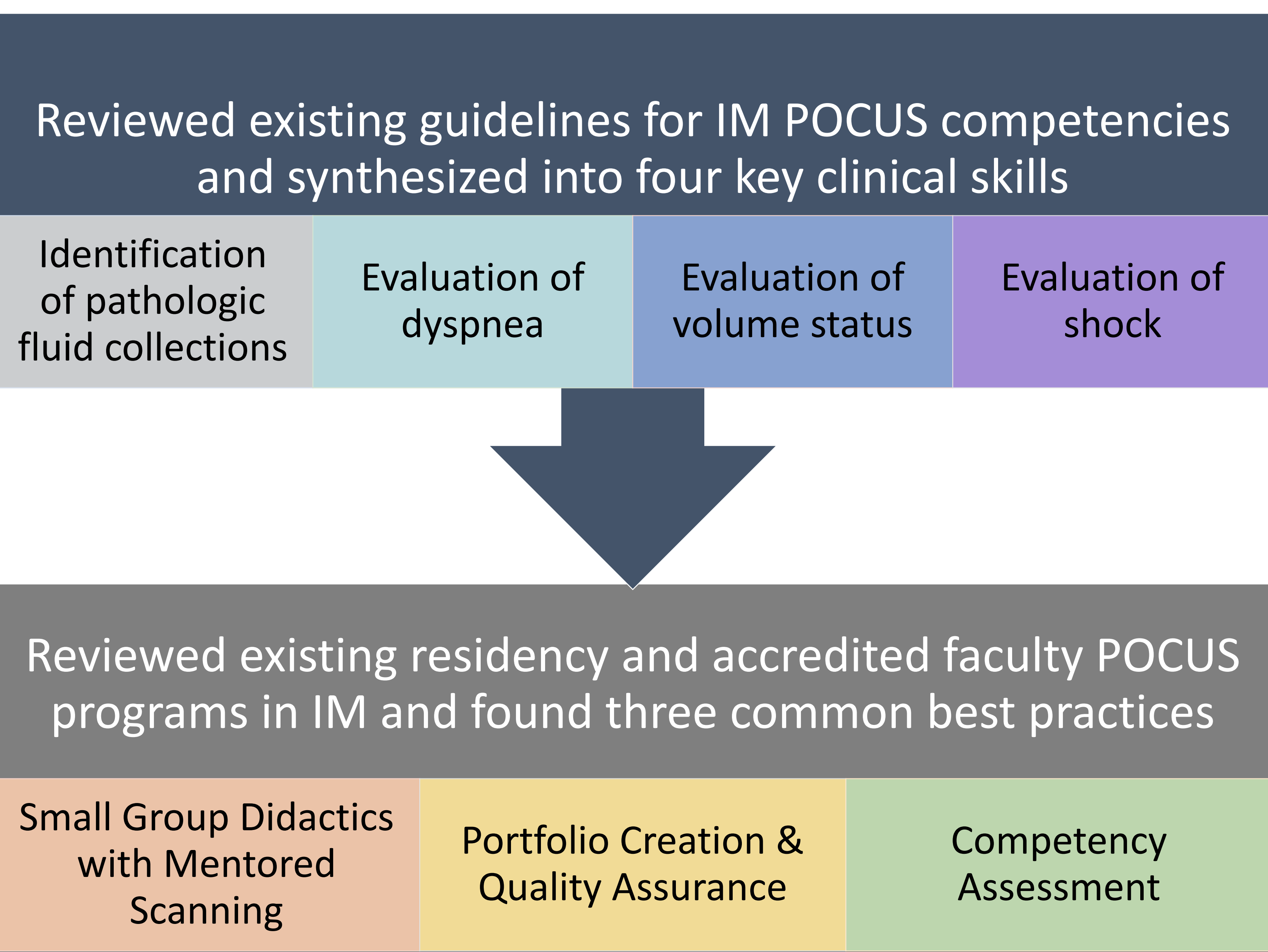


Educational Objective: To create a sustainable POCUS curriculum for IM residents that will foster the knowledge and skills necessary to safely incorporate POCUS into their clinical practice.

Background

- Point of care ultrasound (POCUS) is a powerful tool for improving diagnostic evaluation of common medical problems
- Professional organizations have established guidelines for POCUS training of IM residents
- POCUS is expected to be included in future ACGME milestones
- Thus, POCUS training has become a mandatory component of a successful IM residency program (IMRP)

Program Development



Resource Evaluation

Assessed the resources required to implement all three components of the designed curriculum including,

- Faculty, housestaff, and administrative time
- Equipment and software needs

Didactics & Mentored Scanning	Portfolio Creation & Quality Assurance	Final Competency Assessment
<ul style="list-style-type: none"> Maximum 3-4 housestaff per faculty = 16 groups 5 half-day faculty led sessions per intern Dedicated faculty at all three clinical sites 	<ul style="list-style-type: none"> 4 half-day self-led sessions per intern Faculty to review ~20 images per skill per intern POCUS equipment at all clinical sites Cloud based storage for images 	<ul style="list-style-type: none"> 2 half-day faculty led sessions per intern Can be accomplished with large group WES sessions

Didactics & Mentored Scanning	
Faculty Led Sessions = 16 groups of 3-4 interns x 5 half days =	80 half-days
Preparation = 2 hours/small group session x 80 sessions = 160 hours	40 half-days
Portfolio Creation & Quality Assurance	
Image Review: 3m x 20 images x 4 skills x 50 PGY-1 = 12000m → 200 hrs	50 half-days
Overall Feedback: 30m/skill x 4 skills x 50 PGY-1 = 6000m → 100 hrs	25 half-days
Final Competency Assessment	
2 WES half-days/group x 2 WES groups x 3 faculty =	12 half-days
Totals	207 half-days

Stakeholder Engagement and Funding Proposal

In formulating our funding proposal, we focused on highlighting educational goals of our proposal that would resonate with key financial stakeholders including,

- Requiring a competency assessment to ensure patient safety concerns
- Overcoming barriers related to hospital clinical privileges
- Bolstering our competitiveness in residency recruitment and fellowship placement.

	AY 2020-21	AY 2021-22	AY 2022-23
Faculty			
POCUS Faculty	0.6	0.6	0.6
Program Lead	0.1	0.1	0.1
Total	0.7 FTE	0.7 FTE	0.7 FTE
Equipment			
8 Phillips Lumify ultrasounds	\$32,000		
4 Android tablets	\$2400		
QPath – cloud-based storage	\$18000	\$14000	\$14000
Total	\$52400	\$14000	\$14000
IMRP Administrative Time	192 hours	96 hours	96 hours

Discussion

The development of this curriculum highlights importance of stakeholder engagement. Building an evidenced-based, competency-centered curriculum across multiple sites is labor and resource-intensive. Nevertheless, acquiring those resources is possible when the educational goals of the curriculum intentionally align with those of key financial stakeholders.

- Resources:
- LoPresti CM, et. al. *Am J Med* 2019;132:1356-60.
 - Kessler C, Bhandarkar S. *J Clin Ultrasound* 2010;38:401-8.
 - Ma I, et.al. *J Gen Intern Med.* 2017 Sep;32(9):1052-105.
 - LoPresti CM, et. al. *Ultrasound J* 2019;11:10.
 - Schnobrich DL., et.al. *JGME.* 2013 Sep;5(3):498-502.
 - Soni N, et.al. *JHM.* 2017 Sep;12(9):775-776.

Curricular Timeline

Intern Year Months 1-4 (1 st Trimester)			Intern Year Months 5-8 (2 nd Trimester)			2 nd Trimester		Intern Year Months 9-12 (3 rd Trimester)		
Skill #1: Fluid Collections			Skill #2: Evaluation of Dyspnea			Skill #3: Evaluation of Volume Status		Skill #4: Evaluation of Shock		
Didactics and Mentored Scanning Topics Knobology, Pleural Effusions, Ascites, Pericardial Effusions Methods • Online Content • Small group (3:1) When: • Clinic Block	Didactics and Mentored Scanning Topics Lung ultrasound, parasternal cardiac views Methods • Online Content • Small group (3:1) When: • Clinic Block	Self-guided Practice with Portfolio Methods • Self-directed • Faculty review with electronic feedback When: • WES	Didactics and Mentored Scanning Topics Lung ultrasound, parasternal cardiac views Methods • Online Content • Small group (3:1) When: • Clinic Block	Self-guided Practice with Portfolio Methods • Self-directed • Faculty review with electronic feedback When: • OBMT	Knowledge and Skills Assessment Topics • Skills #1-2 Methods: • Written exam • Hands on exam When: • WES	Didactics and Mentored Scanning Topics JVP, IVC, subxiphoid Methods • Online Content • Small group (3:1) When: • Clinic Block	Self-guided Practice with Portfolio Methods • Self-directed • Faculty review with electronic feedback When: • OBMT	Didactics and Mentored Scanning Topics • All cardiac views, LVEF, right heart strain Methods • Online Content • Small group (3:1) When: • Clinic Block	Self-guided Practice with Portfolio Methods • Self-directed • Faculty review with electronic feedback When: • WES	Knowledge and Skills Assessment Topics • Skills #1-4 Methods: • Written exam • Hands on exam When: • WES