

Enhancing emergency medicine faculty development: A strategic approach to bridging clinical skill gaps

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Abstract

Background: Emergency medicine (EM) is a dynamic field requiring continual procedural proficiency, particularly in high-acuity, low-occurrence (HALO) procedures such as cricothyrotomy and transvenous pacemaker placement. Despite the importance of these skills, many EM faculty members face challenges maintaining proficiency due to limited time and exposure.

Objective of the Innovation: This faculty development initiative aimed to address skill degradation in HALO procedures and other critical clinical pathways among mid- and senior-career EM faculty.

Development Process and Implementation: Targeting 56 faculty members across a four-year EM training program, the initiative incorporated anonymous needs assessments and feedback from residents and consulting services. Over four years (2019–2023), eleven interactive sessions were delivered during faculty meetings and retreats, blending didactic presentations with hands-on practice.

Outcomes: Participation rates were high, with five topics achieving attendance over 100% through voluntary session repeats and spaced repetition. One-on-one workshops provided advanced training in airway management and ultrasound-guided procedures, with 49 faculty members attending. Feedback was overwhelmingly positive, with faculty endorsing continued participation in future sessions. As a result, participation in at least one session per year is now tied to value-based incentive compensation.

Conclusions: While challenges remain, such as expanding access and incentivizing attendance, the initiative underscores the critical importance of targeted faculty development to ensure ongoing competency in evolving clinical skills and procedures.

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NEED FOR INNOVATION

Emergency medicine (EM) continually enhances patient care through advancements in science, technology, and procedural expertise. EM practitioners are trained to manage a wide spectrum of medical emergencies at any given moment. As a result, academic EM faculty play a crucial role in imparting these essential skills to others, sometimes requiring them to teach techniques or procedures with which they have limited experience. These include high-acuity, low-occurrence (HALO) procedures, such as cricothyrotomy, which represent critical, potentially life-saving interventions that benefit greatly from regular and deliberate practice.^{1,2} While residents often eagerly embrace opportunities to refine these skills and engage with technological advancements during their training, faculty members may face challenges in maintaining or updating their own proficiency due to constraints in time, resources, or exposure.³

Effective faculty development in EM must prioritize deliberate and targeted initiatives aimed at acquiring and refining specific knowledge, techniques, and procedural skills. This approach ensures that faculty members remain competent and capable of teaching the latest advancements to the next generation of EM practitioners.^{4,5}

BACKGROUND

Faculty development has gained recognition as essential within academic EM, reflecting its inclusion in the Accreditation Council for Graduate Medical Education (ACGME) requirements.⁶ In addition, maintenance of certification focuses in part on supporting physicians' "intrinsic drive to engage in ongoing lifelong learning and practice improvement,"⁷ and maintaining American Board of Emergency Medicine certification is associated with fewer state medical board disciplinary actions.⁸ Physician education in the form of faculty development is commonly provided at the institutional or national level. However, the structure and focus of these programs vary widely across institutions. Recent literature has highlighted a national need for enhanced education-specific faculty development, particularly in the supervision of resident clinical care.⁹

In contrast to structured benchmarks for trainee competency, there is considerable variability in how EM educators' procedural skills are monitored and maintained.¹⁰ In fact, it is likely that a minority of programs have a structured curriculum in place. While some pediatric EM departments have successfully implemented procedural "boot camps" to address this need,¹¹ similar initiatives tailored for adult EM faculty are less documented.

OBJECTIVE OF INNOVATION

The primary objective of our faculty development initiative was to establish a comprehensive clinical skills program aimed at addressing skill degradation in HALO procedures, development of new technical skills like transesophageal echocardiography, and implementation of

novel clinical pathways such as utilization of coronary CT angiography within our EM faculty cohort. This initiative was driven by feedback from both residents and faculty indicating a perceived deficiency in these critical skills, particularly among mid-career (5–10 years from terminal training) and senior faculty members (11 or more years from terminal training).

DEVELOPMENT PROCESS

Our program targeted 56 faculty members across a 4-year EM training program spanning multiple clinical sites with varying patient acuities. Faculty participants represented a range of seniority levels, spanning from junior faculty in their first year as attendings to senior faculty with over 20 years of experience, with responsibilities split between supervising trainees and direct patient care. A needs assessment via anonymous surveys sent to all faculty members and departmental program evaluations identified a mandate to enhance faculty competencies beyond basic regulatory requirements.

Topics were chosen based on informal needs assessment of faculty, residents, consulting services, department quality improvement cases (morbidity and mortality), and the operations division. Airway management and cricothyrotomy were prioritized, supported by trauma and otolaryngology teams as part of an airway improvement initiative that included monthly case reviews. Ultrasound-guided nerve block training was developed with input from regional anesthesiology, orthopedics, and ultrasound faculty and was monitored by the ultrasound section.

Curriculum design was informed by faculty requests and vetted by the development committee. Volunteer leaders facilitated sessions, and planning occurred during committee meetings. Given the urgency of addressing competency gaps, baseline assessments were not conducted prior to program implementation.

THE IMPLEMENTATION PHASE

From December 2019 to December 2023, the program delivered 11 interactive sessions on key topics, addressing identified faculty needs and evolving clinical advancements (Table 1). Sessions were integrated into monthly meetings and biannual retreats to facilitate both hands-on skills and knowledge updates. Procedural topics began with a 15-min didactic primer, followed by hands-on practice, particularly effective during retreats where practice could occur throughout the day.

Cricothyrotomy training was offered three times formally at retreats and reinforced through one-on-one sessions, ensuring proficiency via spaced repetition. Clinical knowledge sessions were presented as brief, 15-min "quick hits" during meetings or expanded to 30-min segments at retreats for complex subjects. Because it is considered a cornerstone of EM practice, advanced airway skills training was delivered in multiple formats: via didactic and hands-on sessions during retreats and in 2-hour one-on-one simulation lab

TABLE 1 Overview of faculty development sessions.

Topic	Objective	Format	Number of faculty participants (percent)
Advanced airway	Reinforce known skills in advanced airway management; develop new skills and gain familiarity with state-of-the-art airway techniques and equipment	Didactic + hands-on skills session; one-on-one simulation lab practicals	39 (70%)
Cricothyrotomy	Reinforce cognitive and procedural skills in the use of cricothyrotomy to manage the failed airway	Didactic + hands-on skills sessions	91 (163%) ^a
Femoral nerve blocks	Develop cognitive and procedural skills in femoral nerve blocks for pain control in patients with femur fractures	Didactic + hands-on skills session	86 (154%) ^a
Coronary CT angiography	Introduce and implement new clinical pathway using coronary CT angiography in the evaluation of low-risk chest pain patients	Didactic	43 (77%)
Evaluation of the injured athlete	Understand the nuances of emergency medicine for the injured athlete, with special attention to the differential diagnosis of the unresponsive athlete	Didactic	32 (57%)
Superficial cervical plexus blocks	Understand the indications for superficial cervical plexus blocks; develop cognitive and procedural skills in superficial cervical plexus blocks	Didactic + hands-on skills session	72 (129%) ^a
Clinical documentation updates	Understand and apply the new CMS guidelines for documentation and billing in emergency medicine	Didactic	66 (118%) ^a
Utilization of head and cervical spine CT in trauma	Understand and apply the validated clinical decision rules for obtaining CT imaging in head and C-spine trauma; analyze and evaluate our own local practice as far as how decision rules may reduce our CT imaging	Didactic	91 (163%) ^a
Neonatal resuscitation	Understand and apply the principles of neonatal resuscitation as described by the neonatal resuscitation program	Didactic	46 (82%)
Transesophageal echocardiography in cardiac arrest	Understand the applications of transesophageal echocardiography in cardiac arrest; review the primary views obtained in transesophageal echocardiography in cardiac arrest; develop the procedural skills to obtain the appropriate views	Didactic; one-on-one simulation lab practicals	55 (98%)
Compression venous ultrasonography of the lower extremity	Understand the indications for compression venous ultrasound of the lower extremity; develop the cognitive and procedural skills to obtain and interpret images	Didactic + hands-on skills session	37 (66%)

^aPercentages greater than 100% reflect the number of faculty who repeated sessions over time based on an average total number of 56 faculty.

sessions. These simulations allowed faculty to repeatedly practice techniques, enhancing muscle memory.

To support ultrasound-guided procedures, one-on-one sessions with a departmental technologist were also available, providing individualized practice opportunities. Participation in these sessions demonstrated strong faculty engagement and commitment to skill mastery, with many opting to repeat sessions.

OUTCOMES

Our primary outcome was faculty participation in development sessions. Attendance for didactic topics was tracked during departmental

meetings, retreats, and one-on-one workshops. With an average faculty size of 56, overall attendance exceeded 50% for all sessions. Five of the 11 topics (cricothyrotomy, femoral nerve blocks, superficial cervical plexus blocks, clinical documentation updates, and CT utilization in trauma) saw over 100% attendance due to voluntary repeats and spaced repetition offerings. Additionally, 49 faculty attended individual development workshops, including advanced airway (39 sessions) and transesophageal echocardiography (18 sessions) simulation.

Secondary outcomes included informal feedback, which was overwhelmingly positive. Faculty frequently requested regular sessions to maintain competency after the initial offerings, prompting repeated and one-on-one training opportunities, particularly for ultrasound-guided procedures. Faculty enthusiasm was

demonstrated by high attendance rates and requests for ongoing HALO workshops to sustain and enhance procedural skills.

To incentivize participation, the department tied a portion of value-based incentive (VBI) compensation to attending at least one session annually, aligning with the college of medicine's continuing medical education (CME) tracking requirements. Future plans include focusing VBI on a different HALO procedure each year while continuing annual airway management refreshers. This approach ensures ongoing skill development and simplifies CME documentation. Feedback consistently affirmed the program's value and its role in promoting skill retention and faculty engagement.

REFLECTIVE DISCUSSION

While participation remains voluntary, the program highlights the challenge of maintaining procedural readiness within systems where additional training is not mandated by medical staff requirements, licensure, or specialty boards. These modules provide opportunities for faculty to assess their readiness, update on equipment changes, and adopt best practices. Though one session may not create expertise, it fosters continual competency and may prompt faculty to reconsider their clinical practice setting.⁴

Rooted in self-determination theory,¹² the program aims to enhance faculty motivation through competence, autonomy, and connectedness. While well received, especially in procedural competency and clinical pathways, topics like test utilization and documentation were felt to be better served through alternate delivery methods such as virtual didactics. Variability in participation reflected differing faculty experience levels and topic familiarity. Areas for improvement include expanded offerings, personalized sessions, and exploring compensation models for sustained engagement.

LIMITATIONS

Initially untied to incentives or CME, attendance tracking was inconsistent, limiting outcome assessment. Participation at faculty meetings and retreats was tracked through calendar invite responses or mandatory signoffs in small-group sessions, while one-on-one sessions were meticulously documented. Additionally, the implementation of this program coincided with the peak of the coronavirus pandemic, which temporarily limited in-person participation and likely affected attendance rates during that period. Ultimately, we acknowledge the limitation that mere participation in these sessions does not equate to competency. For future iterations of this curriculum, we plan to incorporate pre- and postimplementation competency assessments to further assess efficacy.³

The success and potential for replication of this faculty development program are notable. Given the national data indicating a

widespread need for enhanced faculty development in EM,^{4,5,7} our initiative serves as a model for other institutions seeking to bridge similar skill gaps. Essential to sustainability is continued buy-in from faculty and departmental leadership, potentially supported by incentives or penalties linked to participation.

CONCLUSIONS

In conclusion, our innovative faculty development initiative underscores the critical role of ongoing skill refinement in emergency medicine education. By prioritizing intentional skill acquisition and adapting to institutional needs, emergency departments can elevate standards of patient care and educational excellence amidst evolving health care demands.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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