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APCCMPD Award for Medical Education Research

The **APCCMPD Award for Medical Education Research** recognizes pulmonary, critical care, and pulmonary critical care medicine Training Program Directors, Associate Program Directors, Clinical Faculty, and Fellows-in-Training for their outstanding contributions and commitment to medical education research. The recipient is selected for conducting innovative research focused on undergraduate or graduate medical education in pulmonary, critical care, and pulmonary critical care medicine.

The APCCMPD honors the contributions of all 2024 applicants:

Aiyang Jiang, MD
University of California San Diego

Mira M. John, MD
University of Washington School of Medicine

Jennifer E. Whealdon, MD
NYU Grossman School of Medicine

Congratulations to the 2024 awardee:

Christopher Ghiathi, MD
University of Pennsylvania

Reported Endotracheal Practice Patterns of ABIM-Certified Pulmonary and Critical Care Medicine Physicians

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BACKGROUND

Endotracheal intubation is an essential skill for critical care physicians. Although it is currently mandated in the American Board of Internal Medicine (ABIM) procedural requirements for Pulmonary and Critical Care Medicine (PCCM) and Critical Care Medicine (CCM) programs,[1] there is significant heterogeneity in exposure and training for fellowship graduates.[2,3] As part of a broader effort to update the ABIM procedural requirements to match clinical practice, and ultimately drive standardization of fellowship training, we assessed the intubation practice patterns and perceived importance of fellowship intubation training of ABIM-certified PCCM and CCM physicians.

METHODS

We conducted a cross-sectional survey of all eligible ABIM-certified Pulmonary, PCCM, and CCM practicing physicians in the US via an emailed electronic survey, followed by a mailed survey (with $1 upfront incentive), targeting an embedded probability sample. Respondents were excluded if they were under disciplinary action, inactive, retired or deceased, over age 80, had missing contact information, or reported no intensive care unit (ICU) clinical time (post-hoc exclusion). The survey instrument was designed from expert opinion, group consensus, and through review of existing literature, and survey domains included current intubation practice patterns and perceived importance of intubation in fellowship programs. Responses were combined with ABIM administrative data (age, practice location, gender, and years since initial certification). Descriptive statistics of survey results were reported based on calculated propensity score weights (to adjust for possible non-response bias). We assessed differences between recent (within 5-years of certification) and non-recent graduates using weighted t and x^2 tests, where appropriate (p<0.05 for significance).

RESULTS

There were 1,279 respondents from the probability sample (32% response rate), including 24.7% women (n=315) and spanning all geographic areas. Most respondents practiced in a medical ICU (40%), a general/interdisciplinary ICU (28%) and/or a cardiac ICU (15%), mainly in academic settings (37%) followed by community settings (36%), or private practice (26%). Maintenance of Certification status, years since graduation, region, age, and gender did not differ between respondents and non-respondents (Table 1). 82% (n=1023) of respondents reported routinely performing/supervising endotracheal intubations, which differed between recent versus non-recent graduates (88.9% versus 80.4%, respectively)(Table 2). Respondents reported completing a mean number of 70 intubations (95% CI 65, 76) during fellowship, and 27 (95% CI 25, 30) during the preceding 12-months of clinical practice. Recent graduates performed significantly more intubations during fellowship and in the preceding 12-months of practice compared to non-recent graduates (80.4 versus 66.8 [p=0.002], and 31.9 versus 26.1 [p=0.005], respectively). 88% of respondents felt that intubations should be required for PCCM or CCM training, which did not differ by years in practice.

CONCLUSION

The majority of ABIM-certified PCCM and CCM physicians in our sample routinely perform endotracheal intubation in practice and perceive this to be a necessary component of fellowship training. We noted significant differences in fellowship experience and actual procedure experience in practice based on time from certification (within 5-years vs after 5-years), with recent graduates reporting more intubations during fellowship training and in practice.

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TABLE 1. Demographics of Survey Respondents (Using Prepensity Score Weighted Analysis) Compared to Non-Responders.

Characteristic	Population (N=18,874)	Weighted Analysis Responders (N=1,279)*
Female (%)	24.1	24.7
MOC Status (%)		
Not participating	16.7	14.7
Participating, not paid	38.0	40.6
Participating and paid	45.3	44.7
Age (%)		
<41	25.8	26.7
41-60	48.0	48.8
61-70	18.3	17.7
71+	7.9	6.8
Region (%)		
West	20.9	20.7
Midwest	20.0	20.7
South	34.8	34.0
Northeast	24.4	24.6
Passed initial IM cert on first attempt (%)	90.4	91.2
Recent Graduates (%)	22.1	22.9

*Propensity score weighting w/ post-stratification into quintiles

TABLE 2. Endotracheal Practice Patterns of PCCM and CCM Physicians and Perceived Importance and Endotracheal Training in Fellowship.

Survey Question	All Respondents Estimate (95% CI)	Recent Fellowship Graduates Estimate (95% CI)	Non-Recent Fellowship Graduates Estimate (95% CI)	P-value for Difference
Routinely performing/supervising endotracheal intubation in clinical practice (N=1,246)	82.4% (79.7, 85.0)	88.9% (86.1, 91.7)	80.4% (77.0, 83.7)	<.001
Support requirement for endotracheal intubation in fellowship training (N=1,249)	88.4% (86.1, 90.7)	89.1% (86.4, 91.9)	88.2% (85.3, 91.1)	.66
When working in the intensive care unit, how frequently are you the primary operator (or primary supervisor) performing endotracheal intubations? (N=1,145)				<.001
>75% of the time	54.1% (50.6, 57.6)	69.7% (65.7, 73.7)	49.3% (45.0, 53.7)	
25-74% of the time	16.4% (13.9, 19.0)	15.0% (11.9, 18.1)	16.9% (13.7, 20.1)	
<25% of the time	29.5% (26.1, 32.8)	15.3% (12.0, 18.5)	33.8% (29.5, 38.0)	
During fellowship, approximately how many endotracheal intubations did you perform? (N=1,183)	70.1 (64.5, 75.7)	80.4 (75.4, 85.3)	66.8 (59.6, 74.0)	.002
Approximately how many endotracheal intubations did you perform in the last twelve months? (N=1,298)	27.4 (25.2, 29.7)	31.9 (29.0, 34.8)	26.1 (23.3, 28.9)	.005

Video Recorded Endotracheal Intubations: A Novel Educational Tool in Airway Management Training

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BACKGROUND

Expert airway management is an essential skill for pulmonary and critical care fellows. Providing high quality real-time feedback to trainees performing emergent intubations is often limited due to both the acuity of the situation and the lack of full airway visualization by the supervising provider. We sought to improve the quality of airway management education in a pulmonary and critical care fellowship training program by recording all emergent intubations and systematically reviewing select videos at a regularly scheduled airway management conference.

METHODS

We introduced several modifications to our airway training curriculum including the recording of all fellow-performed emergent tracheal intubations along with a regularly scheduled conference in which selected videos recordings were systematically reviewed utilizing a rubric we developed (Figure 1 and Table 1). A pre- and post-redesigned curriculum survey completed by trainees was utilized to determine the efficacy of the individual curriculum modifications. Paired student, Chi-square, and Kruskal-Wallis tests were used for statistical analysis. A p value< 0.05 was considered significant in all analyses.

RESULTS

After completion of the redesigned curriculum, trainees (100% response rate) demonstrated both improved technical knowledge (p<0.04) and procedural confidence (p<0.04) with regards to airway management. Of the modifications incorporated into the curriculum redesign, fellows ranked the video- recorded intubation review conference as the most beneficial (p = 0.001) compared to other educational interventions.

CONCLUSION

Recording of trainee performed emergent intubations and subsequent review of these videos using a standardized rubric was a highly valued modification to our fellowship airway training curriculum.

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FIGURE 1. A. Deep blade insertion with (*) esophagus and (^) right arytenoid visualized
B. Poor blade control pushing (x) epiglottis into glottic opening obstructing view
C. Mac blade tip placed below epiglottis using miller technique
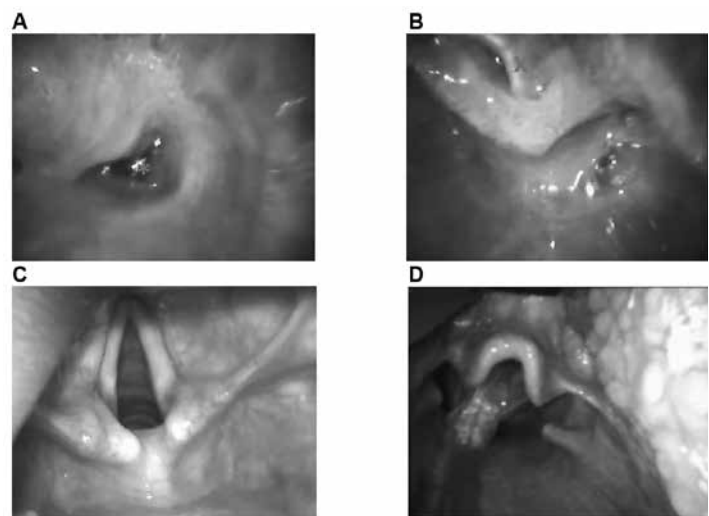**D.** Tube delivery error not backing out rigid stylet after meeting resistance at cricoid.

TABLE 1. Airway Video Review Rubric

	Adequate	Inadequate
Mouth opening	Correct thumb/middle finger technique, adequate space for blade insertion	Did not use right thumb/middle finger technique, inadequate space for blade insertion
Blade Insertion	No difficulty inserting blade, appropriate angle used	Difficulty inserting blade, did not enter from correct angle.
Tongue Control	Blade advanced easily, tongue kept out of way of view and ETT delivery	Blade catching on tongue, tongue impeding tube delivery.
Secretion management	Suctioning adequate to clear secretions and prevent camera smudging	Inadequate suctioning, view impeded requiring second pass
Anatomy recognition	Uvula, epiglottis, chords are identified sequentially	Uvula, epiglottis, chords are not identified sequentially
Blade placement/ Epiglottic control	Blade in vallecula, engaging Hyoepiglottic ligament with good exposure of chords	Blade not in vallecula with poor view, or blade too close to chords.
Tube delivery/securement	ETT passed with ease, utilized ETT rotation/stylet withdrawal techniques	Unable to pass ETT, did not rotate ETT or withdraw rigid stylet, ET tube not secured

Variable Practice, Variable Results: Impact of Post-Interview Communication Practices Among CCM/PCCM Fellowship Applicants and Program Directors

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BACKGROUND

While post-interview communication (PIC) guidelines exist, adherence is voluntary.(1,2,3) There are no studies of PIC practices in Critical Care Medicine (CCM) and Pulmonary and Critical Care Medicine (PCCM) fellowship recruitment. We sought to investigate the frequency, format, goals, and content of PIC between CCM/PCCM applicants and program directors (PD), as well as the impact of PIC on applicant and program rank order lists (ROL).

METHODS

CCM/PCCM applicants and PDs were separately surveyed after the 2022-2023 National Resident Matching Program Specialty Match. Surveys included multiple-choice, Likert-scale, and two free text questions. Thematic content analysis of free text responses was performed.

RESULTS

One-third of eligible participants responded (applicants: n=373, 34%; PDs: n=86, 32%). Applicant respondents applied to CCM (19%), PCCM (69%), or both (12%) and PDs represented CCM (17%), PCCM (57%), or both (26%) programs. Applicant (66%) and PD (49%) respondents reported initiating PIC. PIC did not impact ROL decision for most applicants (73%) or PDs (83%), though 21% of applicants and 17% of PDs moved programs or applicants up on their ROL in response to PIC (Figure 1). A quarter (23%) of applicants strongly-agreed or agreed that PIC was helpful in creating their ROL, 27% strongly-disagreed or disagreed, and 29% were neutral. PIC challenges identified by both groups included time, lack of uniformity, peer pressure, misleading language, and uncertainty about motives, rules, and how to respond.
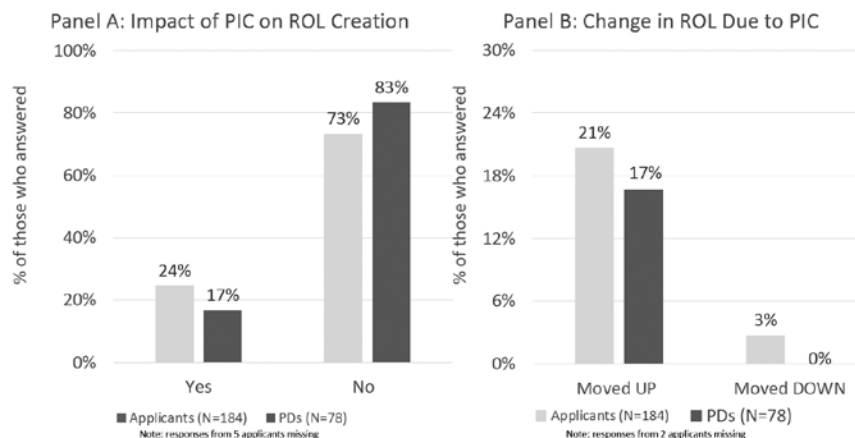
CONCLUSION

PIC is common among CCM/PCCM applicants and PDs. Over half of applicants and a quarter of PDs share ranking intentions via PIC. While PIC did not impact ROL for most applicants and PDs, a minority of applicants moved programs up on their ROL after receiving PIC. Applicants have mixed perspectives on the value of PIC. Applicants and PDs alike desire clear guidance on PIC to minimize ambiguous and misleading communication.

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FIGURE 1. Post-interview Communication Impact on Final Rank Order Lists

Panel A: Impact of PIC on ROL Creation
Applicants (N=184) — Yes 24%, No 73%
PDs (N=78) — Yes 17%, No 83%
Note: responses from 5 applicants missing

Panel B: Change in ROL Due to PIC
Applicants (N=184) — Moved UP 21%, Moved DOWN 3%
PDs (N=78) — Moved UP 17%, Moved DOWN 0%
Note: responses from 2 applicants missing

Factors Considered in Offering Interviews To and Ranking Pulmonary Critical Care Medicine Fellowship Applicants: A Nationwide Program Director Survey

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BACKGROUND

There are over 150 ACGME-accredited Pulmonary/Critical Care Medicine (PCCM) Fellowship programs and over 600 fellowship positions yearly across the United States. However, selection criteria used by PCCM fellowship programs to offer an interview to or rank fellowship applicants have not been well studied. Better elucidation of these factors would help with transparency to potential applicants and allow individual programs to reflect on their selection criteria.

METHODS

A web-based anonymous cross-sectional survey was disseminated 11/2022 by the Association of Pulmonary and Critical Care Medicine Program Directors (APCCMPD) to all PCCM Fellowship Program Directors (PDs). The survey asked demographic information, Diversity, Equity & Inclusion (DEI) considerations in applicant selection, and perceived importance of 19 Electronic Residency Application Service (ERAS) factors in the domains: Academic History; Written Lauds, Leadership, and Awards; Research Experience. The survey also asked perceived importance of 11 advocacy and other factors, and six interview factors.

RESULTS

Fifty-seven of 166 PCCM programs completed the survey (34% response rate). Respondents represented small (19%), medium (44%), and large (37%) programs, with the majority being urban (75%), university-based academic (82%). Applicant factors perceived as "very" or "most important" included: residency program quality (84% of respondents), letters of recommendation (LOR) in general (77%), Internal Medicine PD LOR (68%), LOR from PCCM-specific faculty (68%), 1st/2nd author publication (67%), failed United States Medical Licensing Examination (USMLE) or Comprehensive Osteopathic Medical Licensing Examination (COMLEX) attempt (61%), and Chief resident (60%). Advocacy/other factors perceived as "very" or "most important" included: direct advocacy from the PD's PCCM faculty (61%), underrepresented in medicine candidate (60%), direct advocacy from applicant's PCCM PD (49%), and direct advocacy from PD's PCCM fellows (47%). Interview factors perceived as "very" or "most important" included: negative personality attributes (93%), positive communication skills (91%), positive personality attributes (89%), negative communication skills (89%), and fit with the program's academic strengths (79%). Amongst all factors, the 5 perceived overall as the "most essentially important" by respondents, in decreasing response rate were: positive personality attributes, positive communication skills, quality of the residency program, fit with the program's academic strengths, and negative communication skills. While the majority of PCCM programs (64%) have a DEI Committee, the minority use them for selecting applicants for interviews (23%), interviewing applicants (46%), or ranking applicants (37%). Fifty-seven percent of applicant selection committees and 51% of interviewers undergo bias mitigation training.

CONCLUSION

Multiple factors from ERAS applications, advocacy, and interviews were perceived as very/most important to PCCM programs. However, the most essentially important factors for applicant selection were primarily subjective interview factors. A significant portion of selection committees and interviewers do not engage in bias mitigation training.

APCCMPD Award for Novel Medical Education Implementation

The **APCCMPD Award for Novel Medical Education Implementation** recognizes pulmonary, critical care, and pulmonary critical care medicine Training Program Directors, Associate Program Directors, Faculty, and Fellows-in-Training for their outstanding contributions and commitment to fellowship medical education and training. The recipient is selected for development of novel and innovative curricular development in their training program.

Congratulations to the 2024 awardee:

E. Mirna Mohanraj, MD
Icahn School of Medicine at Mount Sinai

The APCCMPD honors the contributions of all 2024 applicants:

Amy Bellinghausen, MD
University of California San Diego

Avraham Z. Cooper, MD
The Ohio State University

Cassondra Cramer-Bour, MD
Wayne State University School of Medicine

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A Novel, Technology-Driven Health Professions Education Pathway For Cross-Disciplinary Fellows

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INTRODUCTION

Most Health Professions Education (HPE) Pathways target single-specialty resident learners and rely on in-person education. Fellows who aspire to HPE careers may struggle to find community to support their education practice and scholarship. We leveraged technology and system-wide Clinician-Educators (CE) Faculty to implement an HPE Pathway for cross-disciplinary fellows in the Mount Sinai Health System (MSHS).

ABSTRACT PRESENTATION

MSHS is an eight-hospital system with the largest graduate medical education (GME) footprint in the nation spread over three New York City boroughs. In 2020-2021, the authors partnered with system-wide cross-disciplinary CEs to design a Teaching Scholars Curriculum (TSC) for Pulmonary & Critical Care Medicine (PCCM) fellows. Fourteen interactive modules were developed on curriculum design, adult education theory, educator skills, and career advancement. Course delivery over 12 months was 75% asynchronous and 25% synchronous online. Feedback from four PCCM pilot fellows was collated by Kirkpatrick Level (1): coursework was engaging and amenable to self-pacing (Levels 1, 2a, 2b); teaching and self-reflection skills were readily applied and evaluated (Levels 2b, 3); learners partnered with new cross-disciplinary mentors, and course faculty gained digital education skills (Level 4b). In 2022-2023, the TSC served as the foundational coursework for an enhanced HPE pathway including: a formalized Selections Committee; parallel implementation of a medical education scholarship program; biannual networking events with system-wide CE faculty; a multi-tiered mentorship structure (Figure 1); and biannual advisory review. Eight fellows representing six fellowship programs (PCCM, Infectious Diseases, Gastroenterology, Hematology-Oncology, Cardiology, Nephrology) from five hospitals were enrolled. In their exit survey (five-point Likert scale), the learners would recommend that others participate in the TSC (mean 4.875) and felt that the TSC increased their CE skills (mean 4.875) and knowledge (mean 4.875). Overall learner opinions for each module relative to various domains are relayed in a heat map (Figure 2). All eight learners presented scholarship in a rapid-fire abstract session and secured CE faculty appointments; three were retained in the MSHS. 70% of course faculty generated new, interactive teaching modules suitable for standalone or in-course education.
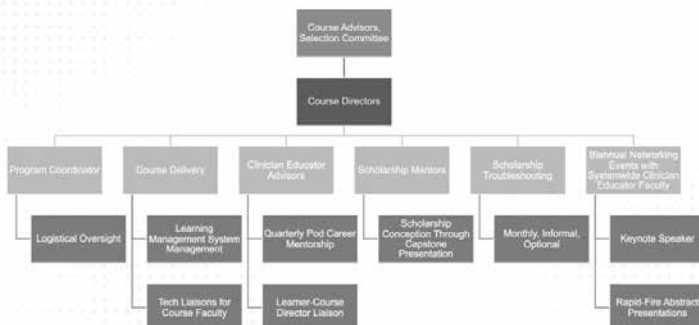
DISCUSSION

HPE Pathways aim to develop a pipeline of future CEs with experience in designing novel curricula, innovative pedagogies, and education scholarship. (2) Learners perceive advantages from remote learning structures including time saved on travel, access to external educators, and self-paced learning. (3) We describe the successful implementation of a technology-driven HPE Pathway that engaged cross-disciplinary fellows and faculty. The blended learning model allowed for the flexible participation of time-constrained, geographically distanced learners. Digital education technologies may improve instructor efficiency, self-directed learning, and knowledge/skill retention. (4) Learners whose home programs lacked a breadth of CE faculty developed an Educator Community. Increased frequency of in-person networking would further strengthen opportunities for professional identity formation. The Pathway provided learners with a structure for generating education scholarship; however, the 12-month duration was insufficient time for wider dissemination. Learners secured desired CE faculty positions. Course faculty developed comfort with digital education skills; the majority added this new element to their career advancement portfolios. The HPE Pathway's technology-driven structure is sustainable, scalable, and resilient in the face of unplanned education disruptors. Future directions may include improved program evaluation via the American College for GME CE Milestones and evolving curricular modules to address newer technologies (ie, artificial intelligence in medical education).
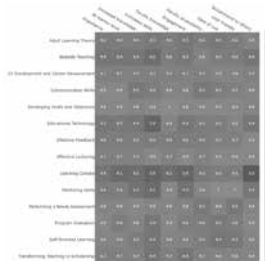
CONCLUSION

This innovative HPE Pathway - anchored by a predominantly asynchronous TSC - attracted cross-disciplinary fellows who gained expertise in the method and practice of teaching healthcare providers, devised novel education scholarship, built a system-wide Educator Community, and secured CE faculty roles. PCCM fellowships who lack a breadth of divisional CE faculty or scholarship mentors may especially benefit from such a cross-disciplinary and technology-driven design.

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FIGURE 1. Health Professions Education Pathway multi-tiered organizational and mentorship structure.

FIGURE 2. Survey results for each module cross-referenced to captured domains in the survey.

Design and Implementation of Resiliency Curriculum Based on ICU Survivor Narratives for Pulmonary and Critical Care Medicine Trainees

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INTRODUCTION

Burnout in critical care trainees, worsened by the recent COVID-19 pandemic, is a severe and pervasive problem.(1,2) Approaches to treating and prevent burnout in ICU physicians have tended to use generic tactics, designed broadly for any physician, rather than a tailored approach to the unique needs of ICU providers.(3) Existing interventions also rarely focus on feelings of moral distress related to perceptions of futility of care that ICU providers experience. We have therefore developed and implemented a novel curriculum that aims to address critical care trainee burnout by utilizing ICU survivor narratives to address feelings of moral distress resulting from perceived futility in providing intensive care.

ABSTRACT PRESENTATION

In collaboration with pulmonary and critical care fellowship leadership, our group, with expertise in critical care and burnout, designed a 4-hour compassion, burnout and resiliency curriculum. This curriculum was presented to trainees in a hybrid live/teleconference fashion, with qualitative feedback solicited after the curriculum.

DISCUSSION

The 4-hour curriculum was implemented successfully, with good trainee engagement. Challenges included coordination of a hybrid video/in-person format, active engagement in an auditorium-like setting and participant fatigue as sessions were held at the end of a three hour weekly educational block (Table 1). Critical care fellows enjoyed the ICU survivor question and answer session and expressed interest in additional hands-on debriefing training. Burnout levels were assessed prior to and after completion of training using the Maslach Burnout Inventory Health Services Survey (Figure 1).

CONCLUSION

Implementation of a burnout curriculum targeted for critical care trainees is feasible and received positive feedback from participants. Burnout levels were stable over the course of the curriculum. Future iterations of the curriculum will measure monthly burnout levels to assess seasonal effects on symptoms.

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FIGURE 1. Pre- and post-Maslach burnout inventory scores in pulmonary critical care fellows before and after resiliency curriculum participation.
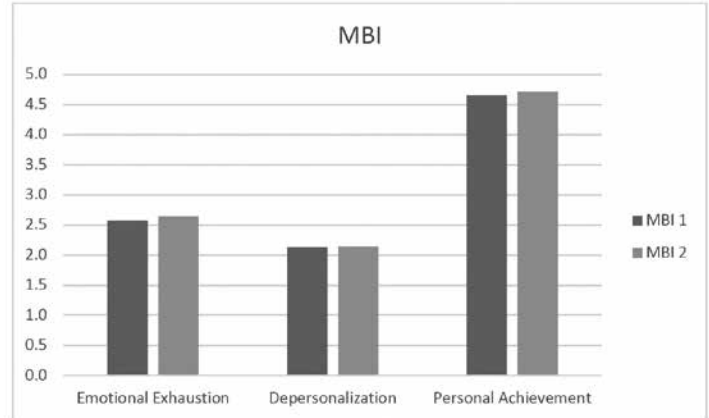
TABLE 1. Resiliency Curriculum Structure

	Details	Rationale	Instructor
Week 1			
Background and Building Resiliency	Education on the impact of burnout in providers – results in poor self-care and poor patient care.	Providers often underestimate the impact of burnout. Education will aim to increase buy-in.	Intensivist (Auth or AB)
Mindful Self-Compassion Info & Brief Practice	Guided mindfulness practice and education on self-guided practice	Improves provider wellbeing and decreases burnout[11]	Clinical Psychologist with mindfulness training
Week 2			
Burnout and Moral Distress	Education of the role of moral distress in causing burnout symptoms	Response to concerns of superficiality of burnout interventions. Basis of need for ICU survivor stories.	Intensivist (Author AB)
ICU Survivor Stories with Live Q&A	In-person and image-based stories of critical illness survivors and families*	Personal and colleague experiences of improved ability to cope with difficult cases through highlighting positive outcomes	Author AB and ICU Survivor
Week 3			
Debriefing: Beyond the Basics	Training session by hospital's debriefing team on how to conduct effective debrief sessions.	Housestaff have cited debriefing programs as an important social and emotional support.[12]	Licensed Clinical Social Worker & Licensed Marriage and Family Therapist
Second Victim Syndrome and Empathic Distress	Case based training in targeted interventions to improve team processing of negative outcomes. Improving provider recognition of empathic distress and its impact on critical care providers.	Discussion of the vicious cycle of burnout → errors → burnout as well as the psychological toll of witnessing ongoing suffering.	Intensivist (Author AB)
Week 4			
Resiliency and Burnout Reduction Strategies	Psychoeducation and creation of a personalized wellness plan; resources available at UCSD	Shown to decrease depersonalization in resident trainees[13]	Psychologist (Author AI)
Wrap up and feedback	Structured feedback session from residents regarding their perceptions of the curriculum and suggestions	Basis of future revisions to curriculum	Intensivist (Author AB)
*An example of an ICU survivor story produced by UCSD TV can be found at: https://www.youtube.com/watch?v=IBO9oGFdQYw			

Emotional Intelligence Coaching at the Beginning of Fellowship

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INTRODUCTION

Physician coaching is an increasingly utilized resource in medical education. Coaching in medical education aligns along four archetypes: academic coaching, skills-building, developmental coaching, and at-risk/remediation. (1) Certified (executive) coaches offer skills development for both faculty and trainees in multiple domains, including interpersonal communication, leadership, navigating career transitions, and emotional intelligence (EI). EI reflects the ability to understand and manage one's own emotions to resolve conflict, reduce stress, empathize with others, and communicate effectively. (2) In graduate medical education contexts, EI contributes to the interpersonal and communication skills competency. While executive EI coaching offers opportunities to understand and regulate one's emotions, programs do not routinely offer this resource to residents and fellows outside of remediation. Instead, published professional development coaching interventions have mostly focused on academic faculty.(3) We believe that EI coaching during periods of career transition, such as the beginning of a training program, is an underutilized resource to help new fellows build emotional resilience, navigate transitions in training, and foster positive adaptive behaviors.

ABSTRACT PRESENTATION

In July 2022, we implemented an EI coaching program focused on helping new Pulmonary and Critical Care Medicine fellows manage transitioning to their new role. Each new fellow met for one hour during their orientation with a certified executive physician coach, discussing EI and ways to manage stressors and well-being. The fellows received brief preparatory reflective work to complete ahead of time, focused on identifying their dreams for an ideal future, and discussed those reflections during the coaching session. The coach helped each fellow identify activities and strategies to manage chronic stress, such as paying attention to what brings them joy and inspiration and expressing gratitude on a routine basis. Fellows could establish a longitudinal relationship with the coach if they desired. A second cohort of fellows participated in the coaching intervention in July 2023. We surveyed the first two classes of participating first-year fellows, 14 fellows in total. Fellows entering our program in July 2022 were surveyed in January 2023, six months after the coaching intervention; fellows entering our program in July 2023 were surveyed in August 2023, one month after the coaching intervention. We queried whether fellows had utilized strategies covered in the coaching session; in what ways EI coaching at a time of transition may have benefited them early in fellowship; in what ways the coaching experience could have been improved; and whether they intend to engage in executive coaching in the future. Five fellows responded to the survey (four in 2022, one in 2023). All five fellows reported a positive experience with their EI coaching session, and all fellows indicated an interest in receiving executive coaching in the future. Each fellow's responses to questions about positive renewal strategies learned in the coaching sessions, and how executive coaching was beneficial to them, are summarized in the accompanying Table 1.

DISCUSSION

Based on our experience, we believe that EI coaching at times of transition has the potential for substantial benefits for graduate medical education trainees. First and foremost, it demonstrates via a positive "hidden curriculum" that the program expects that trainees will have and/or cultivate high levels of emotional intelligence. It also offers trainees an opportunity for deliberate self-reflection, followed by tangible strategies and resources provided by the coach to manage their emotions, build adaptive and healthy habits, and thrive professionally during a time of transition. Finally, the fellows can establish longitudinal relationships with an executive coach during their training, if desired.

CONCLUSION

Pulmonary and Critical Care Medicine Program Directors should consider implementing executive EI coaching for new fellows, if available at their institutions.

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TABLE 1.

Fellow respondent (year)	What positive renewal strategies have you implemented since your coaching session?	In what ways was executive coaching beneficial to you early in fellowship?
1 (2022)	Increased exercise	Nice to be intentional about renewal strategies rather than trying to come up with something on the fly
2 (2022)	Music, meditation, exercise, spending time with loved ones	It gave me some tools to use to recharge when I am feeling burned out. It allowed me to reflect on priorities in my life and what makes me happy. It gave me strategies to live a more balanced life
3 (2022)	Exercise	It was nice to create a plan
4 (2022)	Taking walks, being intentional at home to focus on living outside of work. Expressing gratitude at the dinner table. Sharing in other's successes	Having the meeting forced a self-reflection both before and after the meeting
5 (2023)	Connecting with the humanity of my patients, finding time to thank my residents and nurses, dancing, daily gratitude practice, living authentically without hiding the parts that don't fit the image of a pulm-crit fellow (uncertainty, grief)	Reinforced my existing strategies

Pulmonary Hypertension Curriculum for Pulmonary & Critical Care and Cardiology Fellows: A Case-based and Flipped Classroom Model

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INTRODUCTION

Pulmonary hypertension (PH) is a complex disease which if left untreated, progresses to right heart failure and death. There is often a delay in early recognition and management of these patients(1). In one cross-sectional study of referrals to a PH center, almost a quarter of patients were misclassified, and a significant portion started on medications contrary to published guidelines(2). Pulmonologists and cardiologists will frequently encounter PH throughout their careers and yet there is a dearth of curriculum guided towards the early recognition and appropriate diagnostic workup of PH during fellowship training. Our objective was to design a multidisciplinary standardized case-based curriculum to initiate appropriate diagnosis of PH for cardiology and pulmonary and critical care (PCCM) fellows.

ABSTRACT PRESENTATION

The curriculum was presented to PCCM and cardiology fellows across all levels of training (N=25). A baseline knowledge assessment was performed including Likert scales to assess confidence in interpreting pulmonary artery catheter (PAC) waveforms and initiating a diagnostic workup. Two pre-recorded videos were created using an internet-based educational editing and viewing platform, Edpuzzle.com. One video provided an overview of how to interpret PAC waveforms with a simulated model and embedded quizzes (10:21 minutes long). The second video provided an overview of the pathology of PH and updated definitions, as well as a detailed look into a diagnostic algorithm and echocardiographic findings of PH (14:53 minutes long). The use of the videos allowed the curriculum to be structured in a "flipped classroom" model wherein classroom didactic time was reserved for case-based learning and small group discussion. After viewing the videos, the fellows gathered for a 1-hour case-based discussion where five unique patient cases were reviewed, representing idiopathic pulmonary arterial hypertension, heart failure, interstitial lung disease, chronic thromboembolic PH, and acute right heart failure. The fellows worked through the undifferentiated patient cases together following a structured rubric. Finally, fellows participated in a second 1-hr. lecture reviewing echocardiographic findings in real patients with PH as well as a literature review of treatment and risk assessment tools. A post-training knowledge assessment and confidence survey was conducted four weeks later.

DISCUSSION

In August 2023, 25 PCCM and cardiology fellows participated in the curriculum. The total duration of the curriculum (including the pre-recorded videos) was two hours and 25 minutes. The mean score on the pre-test was 8.8 (53.6%) ± 4.3 across all levels of training. The mean score on the post-test was 13.4 (84.2%) ± 2.1 with a p-value of 0.0001 showing a significant improvement in knowledge (Figure 1). There was a significant improvement in the Likert assessment of PAC waveform analysis confidence and ability to initiate a diagnostic workup for PH (see Table 1). In a subgroup analysis stratified by post-graduate year (PGY), each level showed improvement in knowledge but only the PGY-4 year showed a significant benefit (p = 0.01).

CONCLUSION

This standardized case-based curriculum improved the medical knowledge and confidence of PCCM and cardiology fellows in the accurate diagnosis of PH. The curriculum used asynchronous hybrid computerized and flipped class learning methods giving opportunities for learners with limited flexibility and busy training schedules with limited classroom time. The curriculum allowed fellows to learn in multidisciplinary teams which is essential in real-life patient care. The significant improvement in knowledge and confidence in the appropriate diagnosis of PH using this novel curriculum among PCCM and cardiology fellows is promising and requires further validation for generalizability and effectiveness in improving patient outcomes.

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FIGURE 1. Mean and standard deviation of pre- and post-training knowledge assessment scores of pulmonary and critical care and cardiology fellows who participated in the pulmonary hypertension curriculum.
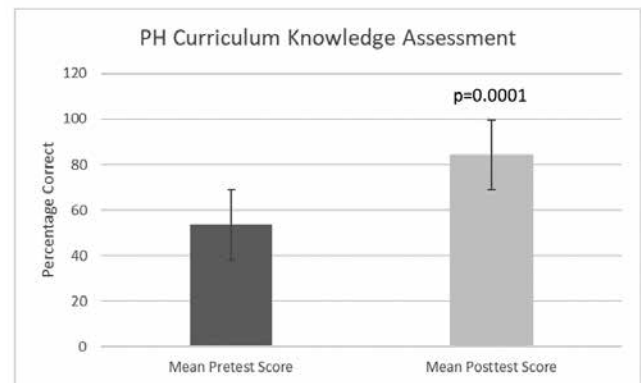

TABLE 1. Pre and Post Curriculum Assessment Scores. Mean and standard deviation of pre- and post-training survey using 5-point Likert scale, with 5 as 'extremely confident' in listed domains. Subgroup analysis of mean and standard deviation of knowledge assessment score pre- and post-training. * = p<0.05, PGY = post-graduate year. N = number of participants on sign-in sheet, one participant did not list their PGY level.

	Pre-training Mean ± SD	Post-training Mean ± SD
Likert PAC Waveform Analysis Confidence Score	2.3 ± 1.1	3.3 ± 0.8 *
Likert Initiate PH Diagnostic Workup Confidence Score	2.9 ± 1.2	3.9 ± 0.8 *
Knowledge Assessment Score Means (Percentages)		
Total (N = 25)	8.8 (53.6) ± 4.3	13.4 (84.2) ± 2.1*
PGY-4 (N = 9)	7.6 (42.7) ± 3.9	12.7 (79.2) ± 2.5*
PGY-5 (N = 9)	9.0 (56.3) ± 4.1	13.3 (82.8) ± 2.5
PGY-6 (N = 6)	9.8 (61.5) ± 5.5	14.7 (91.7) ± 7.2

TextBytes for Smarter Practice: Revolutionizing Tobacco Use Disorder Treatment Education for Physicians

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INTRODUCTION

Tobacco use is a leading cause of preventable deaths worldwide and in the U.S. Healthcare systems and individual clinicians are crucial in reducing these harms through tobacco use disorder treatment (TUDT).(1) A recent study revealed that training in TUDT for most clinicians is limited, lacks competency assessment, and receives minimal evaluation in certification exams, despite its essential nature in medical training.(2) We conducted a survey at Temple University Hospital that revealed that, on average, 70% of providers in Internal Medicine, Pulmonary and Critical Care, and Family Medicine felt comfortable treating tobacco use disorder and around 85% counseled patients on smoking cessation. However, despite their self-reported comfort levels, notable gaps in knowledge were discernible, particularly concerning the accurate prescription of pharmacotherapy dosing and duration. Continuing medical education for physicians is hindered by challenges such as time constraints, work-life balance, and the need to stay updated in a rapidly evolving medical field. In response to the informational voids uncovered by the survey, innovative methodologies for the dissemination of readily comprehensible knowledge were explored. Among the promising approaches, text message-based learning has exhibited efficacy across various healthcare and educational domains.(3-4)

METHOD

We designed a 13-day text series aimed at educating internal medicine residents and pulmonary/critical care fellows and attendings on Tobacco Use Disorder Treatment (TUDT) through succinct messages. Each message included reference links for the information provided. We evaluated physicians' confidence in TUDT before and after the series using a self-reported 1 to 100 scale. The text series operated on an opt-in basis, allowing participants to subscribe voluntarily and providing them the option to unsubscribe at any time.

RESULTS

A total of 34 individuals were recruited, with 22 completing the questionnaire regarding their initial confidence in TUDT and subsequently enrolling in the series. The distribution of participants based on their level of training is presented in Table 1. Prior to intervention, the overall level of confidence in TUDT across all training levels was 59.3. All enrolled participants completed the series and no participants unsubscribed. Upon the series' conclusion, we received responses on confidence level from 16 participants, along with comments and feedback. Notably, four participants did not respond to the follow-up message, and two participants were still actively enrolled in the series at the time of this submission. The average confidence level at the series' conclusion increased to 84. Reference links provided in the messages were accessed 67% of the time, indicating engagement with additional resources. A selection of the comments received can be found in Figure 1.

DISCUSSION

Participating in ongoing medical education as a physician can be quite challenging, especially when time and training constraints loom large.(5) Thus, it is imperative to seek out innovative teaching and learning approaches to keep pace with the demands of a rapidly evolving healthcare environment. Microlearning, a method that dissects educational content into easily digestible units, has proven to be a successful approach in enhancing learning retention and engagement.(4) Our utilization of microlearning to educate physicians on the vital yet often overlooked topic of TUDT yielded remarkably positive results. This approach was well-received by both trainees and attending physicians, emphasizing the significance of innovative learning tools that seamlessly integrate into the demanding lives of busy learners.

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**FIGURE 1.** Participant feedback

Text based format made it easy to learn in an efficient manner
This series absolutely increased my comfort level with treating tobacco use disorder. I found the text messages simple and focused and a great learning platform. I pinned the text chain and each day a text came in I was excited to read it. I even went back to it when I had a question. Loved it.
The texts are awesome. Very informative short and to the point.
Definitely feel more comfortable after the series and will incorporate this to my practice. Add visual aids next time! Not sure if that would be possible but otherwise no critique!
I found the concise, synthesized recommendations especially helpful!
Made me realize I was not using the correct dosing for nicotine! Thanks for teaching, I keep going back to it.
This is so innovative! Don't stop, do some other topic next!!
I have been opening the text thread in clinic instead of hunting through uptodate for answers! Thank you!

TABLE 1. Individual breakdown of participants

Subject	Department	Level of traning	Pre confidence	Post confidence
1	IM	1	50	70
2	PCCM	4	50	70
3	PCCM	4	40	75
4	IM	2	30	No response
5	PCCM	5	80	100
6	IM	1	25	75
7	PCCM	5	40	80
8	PCCM	5	83	100
9	PCCM	6	60	85
10	PCCM	6	75	90
11	PCCM	4	50	85
12	IM	3	65	No response
13	IM	2	70	No response
14	IM	2	60	90
15	PCCM	6	55	90
16	PCCM	4	60	85
17	IM	3	75	No response
18	PCCM	Attending	47	70
19	PCCM	6	75	90
20	PCCM	Attending	80	90
21	PCCM	Attending	60	On going
22	PCCM	Attending	75	On going

Building a Groundwork for Change: A Sustainable Diversity, Equity, and Inclusion (DEI) Fellowship Curriculum in Pulmonary and Critical Care

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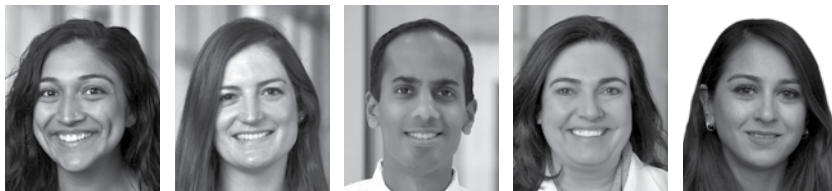
INTRODUCTION

Patients with pulmonary disease face systemic barriers to care. Trainees may not be aware of the historical disadvantages that have created these disparities. Furthermore, they are not equipped to clinically manage barriers due to a lack of formal education. In the wake of increasing recognition of racial disparities in 2020, our program perceived a need to provide a DEI curriculum to thoughtfully approach how social determinants of health impact pulmonary and critical care medicine. This curriculum aims to improve Pulmonary and Critical Care Medicine (PCCM) Fellows' knowledge of structural causes of inequity and ability to execute best practices when caring for historically disadvantaged patients.

ABSTRACT PRESENTATION

An initial needs assessment of the 2021-2022 PCCM fellows addressed questions of racial disparities, based on the initial intent of the program to address these topics. This survey revealed that 17/18 (94.4%) fellows believed that race is a significant contributor to disparities in healthcare access and equity. 16/18 (88.9%) agreed that racial bias contributes to healthcare inequities specific to PCCM. Fellows were split when asked if race is genetic, with 4/18 (22.2%) fellows agreed, 7/18 (38.9%) neither agree or disagreed, and 7/18 (38.9%) disagreed. While the initial plan was to focus on racial disparities, ongoing conversations and clinical exposures prompted an expansion to other aspects of health disparities and the content was expanded beyond topics of race. To address gaps identified, we have created a three-year curriculum that addresses pulmonary and critical care topics through a lens of health equity. In the 2022-2023 academic year, three workshops were created and delivered to fellows on topics of "Person First Healthcare," "Race and Spirometry," and "Reframing Pulmonary Disease using a Health Equity Framework." In 2023-2024, we plan to grow our content to include workshops to include "The Rural/Urban Divide in Critical Care," and "Pulmonary Care for Incarcerated Patients." For 2024 –2025, we will have workshops on "Disparities in Lung Transplant" and "Care of the Patient with Sickle Cell Disease." We aim to revise and repeat these sessions in a three-year cycle, to take advantage of the three-year fellowship curriculum. After our first programmatic year, surveys were sent to 19 trainees to assess trainee attitude, with 11 responding (57% response rate). Nine of 11 (82%) fellows agreed that a patient's ethnic and racial identity can affect their pulmonary testing and treatment. Ten of 11 (91%) fellows agreed that PCCM fellowship should provide them with the tools to provide high quality care to patients from historically underprivileged groups. Seven of 10 (70%) noted that they were engaged in efforts to reduce health disparities outside of fellowship.

DISCUSSION

Equity and inclusion in PCCM remains an aspirational idea; however, based on our experience, providing trainees repeated exposure to relevant topics through this important lens provides an avenue to educate and create a culture committed to change. Our most recent survey highlights that fellows acknowledge race is a factor that can dictate the quality of care and that fellowship programs have an obligation to provide meaningful education and support for this topic. We are hopeful that the curriculum will continue to promote and reinforce DEI education in our fellowship.

CONCLUSION

While ongoing programmatic assessment will be used to further assess curricular efficacy, an iterative, longitudinal PCCM specific DEI curriculum can be successfully integrated into a PCCM fellowship to provide fellows with knowledge and tools to grapple with inequity.

Anatomy-based Chest CT Interpretation Curriculum For Pulmonary Fellows

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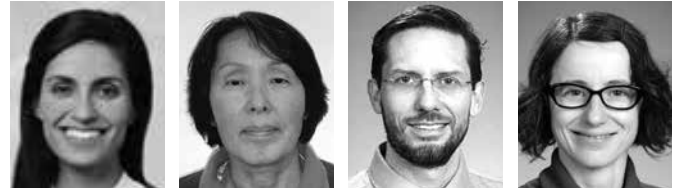
INTRODUCTION

Chest computed tomography (CT) interpretation is a key competency for pulmonary fellows. There are many resources intended for radiologists, but very few for pulmonary fellows. We created a high-yield resource to connect CT patterns of disease to underlying pulmonary anatomy and provide algorithms to develop differential diagnoses. The components of the final curriculum can be seen in Figure 1.

ABSTRACT PRESENTATION

We assembled a team of two pulmonologists, one radiologist, and a fellow with computer drafting software experience. We reviewed available chest CT interpretation teaching materials,(1-9) outlined the content, and developed learning objectives. We collected original CT images exemplifying key patterns of disease, created illustrations of the key anatomy and patterns of disease (Figure 2), and outlined an approach to identify chest CT patterns and build differential diagnoses.(1-9) We presented the material to three classes of first year pulmonary and critical care medicine (PCCM) fellows at our institution. The first year this was as a 1.5-hour interactive power point presentation. For subsequent years, we created a series of five short videos and 18 practice cases with answer keys, to be reviewed asynchronously, with a one-hour in-person review session facilitated by a chest radiologist. We created a survey to assess learner comfort before and after reviewing the material, knowledge after reviewing the material, and solicit feedback.

DISCUSSION

Eighteen fellows in three cohorts reviewed the curriculum. Verbal feedback described the material as the best CT teaching, they had experienced. Eight fellows completed the survey. There was a significant improvement in comfort with mean difference + 1.27-points, p-value<0.05. Seven of eight fellows agreed the videos alone were enough to gain confidence in their understanding. All fellows reported that practice cases and the session contributed to their learning. The webpage hosting the curriculum has been viewed over 680 times from February 2022 to August 2023. Despite fellows being assigned to complete the curriculum during their lightest clinical rotation, they did not all study the asynchronous material before the review session and very few completed the survey.

CONCLUSION

This self-guided interactive curriculum provides a structured approach connecting key lung anatomy to patterns of disease. Fellows who completed the whole curriculum reported finding it very helpful. Nonetheless, in order to complete it, fellows needed regular reminders.

**FIGURE 1.** Components of the curriculum with overview of the content of each

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FIGURE 2. A compilation of illustrations of anatomy and key disease processes produced as part of the curriculum.
A) random nodules
B) comparison of nodular patterns
C) centrilobular nodules
D) mosaicism due to air trapping
E) secondary lobule
F) central artery, bronchi and acini
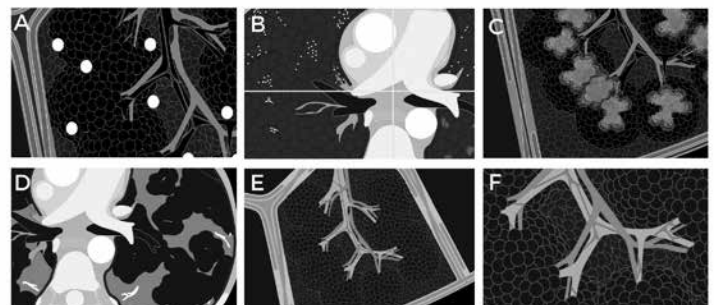
Impact of a Regional Virtual Critical Care Fellowship Core Curriculum

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INTRODUCTION

Though critical care fellowship program directors (PDs) aim to provide fellows with the best possible training, limited resources hinder what individual programs provide. Each program has strengths and limitations, such as expertise and number of faculty members. To address this challenge collectively, six institutions within a shared geographic region collaborated on development and implementation of a longitudinal curriculum, the DC-Baltimore Critical Care Common Core Curriculum (DC5). A two-year curriculum was established by PD consensus and qualified speakers were carefully selected to provide weekly virtual lectures, which were recorded. After completing the two-year curriculum, we assessed the impact of DC5 on fellows and PDs.

ABSTRACT PRESENTATION

Two surveys were created to assess DC5 from both fellows' and PDs' perspectives. The authors developed survey items and iteratively improved the survey until consensus regarding content and organization was achieved. Subsequently, the survey was pilot tested among representative fellows and faculty and further modifications were made based on their feedback. The survey was disseminated via SurveyMonkey to 96 critical care fellows and 10 PDs by emailing links to PDs and relying on PDs to distribute them to their respective fellows. Response rates were 30% for fellows and 80% for PDs. Most fellows were Internal Medicine trained (79%). Over 50% of fellows attended at least half of the lectures (Figure 1), 55% rewatched lectures, and 58.6% watched at least one lecture they missed. Most fellows (83%) felt lectures were pertinent to clinical practice and 96.5% felt they impacted patient care (Figure 1). For the PD survey, most PDs (62.5%) have held their position for 4-7 years. Most PDs (62.5%) attended over 10 lectures (Figure 1). The preponderance (87.5%) felt it improved their ability to provide didactics (Figure 1) and 75% reported saving time in curriculum development and implementation. Most PDs (87.5%) highlight DC5 in fellowship recruitment. All PDs attested to the time-saving benefits of DC5 (Figure 1), with 62.5% stating that it saved more than 20 hours of work. Lastly, all PDs affirmed that the collaboration expanded their medical education peer network.

DISCUSSION

Both fellows and PDs found DC5 valuable. Fellows recognized the benefit of weekly lectures from expanded faculty and how it translated to patient care. PDs felt the quantity and quality of education offered, while also saving administrative time. On average we account for 40 to 45 individual logins per lecture, with some of those logins representing groups of fellows tuning in together. The rise of the virtual platform has allowed us to recruit speakers from across the region and the nation, thus providing excellent education without burdening solely one institution.

CONCLUSION

Our collaborative efforts are expanding and can serve as a fellowship education model to other programs. Rather than competing as single entities, communities of medical educators can collaborate and provide fellows with an enhanced experience.

FIGURE 1. Fellow and Attending Responses to DC5 Survey Questions
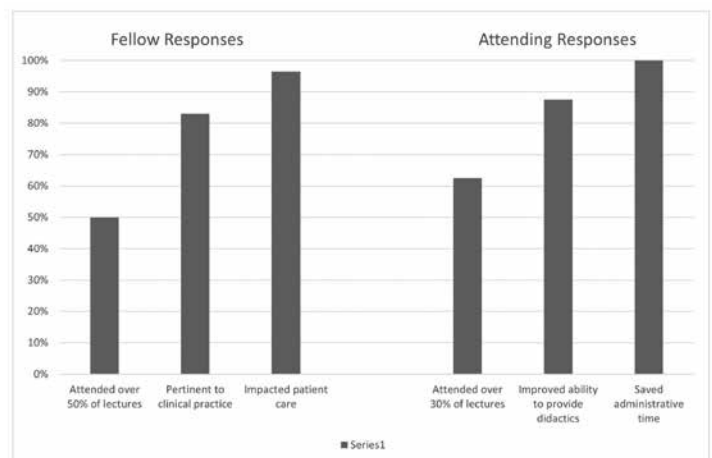
Lung Transplant Knowledge Requirements for Pulmonary and Critical Care Medicine Fellows: A Delphi Survey Study

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INTRODUCTION

According to the Scientific Registry of Transplant Recipients (SRTR) data, there are currently 75 lung and 53 heart-lung transplant centers in the United States with a growing number of lung transplants performed each year necessitating an increased number of pulmonologists skilled in care of these complex patients.(1) In the United States, the training pipeline often begins in a combined Pulmonary and Critical Care Medicine (PCCM) fellowship. However, fellowships across the country do not universally require their fellows to complete a rotation in lung transplantation. In addition, there is a large gap in transplant education when comparing fellowship programs based in transplant centers vs those not; transplant curriculum was offered in 94% of fellowships with an associated transplant center compared to only 41% of fellowships without an associated transplant center.(2) Currently, there is no national, standardized lung transplant curriculum for PCCM fellowship. Here, we describe an outline for such curriculum development achieved through electronic Delphi methodology.

ABSTRACT PRESENTATION

We developed expert consensus on "must know" lung transplant topics and sub-topics ("items") for a graduating PCCM fellow through three rounds of electronic Delphi methodology from July 2023-October 2023. Our panelists were a homogenous group of transplant pulmonologists from academic medical centers with an interest in medical education from the United States and Europe. Panelists were self-identified after a recruitment email was sent to the American College of Chest Physicians Transplant Network (ACCP) list-serv and to a separate group of International Society for Heart Lung Transplantation (ISHLT) network members interested in lung transplant education. Panelists received a personalized Qualtrics questionnaire links for each round and were asked to rank items as "must-know", "nice to know" or "not necessary to know". Panelists were also allowed to submit new items for ranking in round one which were reviewed by the authors for duplication, uniqueness to transplant medicine, and relevance to learner level before being included in subsequent rounds for ranking. Item consensus was defined as having > 50% of responses as "must-know". If an item had tied responses that included "must know", it was submitted for re-ranking in the subsequent round.

A total of 33 panelists were sent questionnaire links in each round. Survey response and completion rates across rounds were 58%-70% and 96%-100% respectively. Of the 23 panelists who responded to the item on location of practice, 12 were from institutions in the United States and three were from Europe. Of the 22 respondents to the item on educational leadership role, 13 (59%) identified as core faculty members, 4 (18%) identified as program directors of a lung transplant fellowship and 3 (14%) identified as medical directors of a lung transplant program. In round one, panelists were provided eight topics and 30 sub-topics for initial ranking. Panelists generated 82 new items in this round, of which 19 were included in round two for ranking along with one item from round one that did not achieve consensus. From round two, only two items required re-ranking, and these items comprised round three (Figure 1). The following seven topics were identified as "must-know" – "transplant immunology", "evaluation of a lung transplant candidate", "surgical and peri/post operative management", "rejection", "immunosuppression", "infections", and "other complications" along with 36 sub-topics (Table 1).

DISCUSSION

Dissemination of this work is the first step in creating a standardized, nation-wide curriculum for lung transplantation which is necessary given the large educational gap between programs that are and are not affiliated with a transplant center and the pace of innovation in the field. Less than 10% of fellowship programs report using online resources so this should be explored as future instructional design methods.(2)

CONCLUSION

Self-identified lung transplant experts were able to obtain consensus on seven "must know" topics and 36 sub-topics in lung transplant for graduating PCCM fellows.

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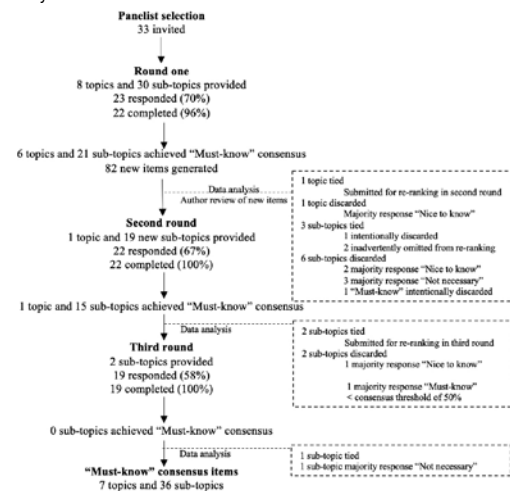
FIGURE 1. Study Flow

TABLE 1. Must-know topics and sub-topics

	"Must-know" Percentage (%)
Infections	100.0
CMV infection (viremia, organ manifestations, prophylaxis, resistance)	90.9
Fungal infections	86.4
Infections < 1 year post-transplant	81.8
Prophylaxis (anti-fungal, viral, bacterial prophylaxis)	77.3
EBV and CMV serostatus	72.7
Infections > 1 year post-transplant	68.2
Donor derived infections	59.1
Immunosuppression	90.9
Classes of medications (including dosing schedule)	95.5
Side effects	86.4
Drug interactions	72.7
Induction	54.6
Rejection	86.4
Chronic lung allograft dysfunction	81.8
Acute cellular rejection	77.3
Antibody mediated rejection	68.2
Hyperacute rejection	63.6
Evaluation of a transplant candidate	81.2
Timing of referral for specific disease states (COPD, ILD, PAH, CF)	95.5
Contraindications and risk factors for transplant	77.3
Management of patients awaiting transplant (periodic status assessment, PFTs, rehab)	77.3
Evaluation process (testing, financial approval)	68.2
Ethics, gender, and racial inequities surrounding selection	63.6
Frailty	59.1
Indications for re-transplant	54.6
Timing of listing	50.0
Transplant immunology	68.2
Innate (cellular) immune response	63.6
Adaptive (humoral) immune response	59.0
HLA system and highly HLA sensitized patients	50.0
Mechanism of pre-transplant cross-match	50.0
Other complications	63.6
Airway (stenosis, malacia, dehiscence)	68.2
Pulmonary vein thrombosis	54.6
Cardiovascular and vascular	50.0
Hyperammonemia syndrome	50.0
Malignancy (skin, solid organ)	50.0
Surgical and peri/post-operative management	59.1
Bridge to transplant (including ECMO indications)	90.9
Mechanical ventilation strategies in immediate post-op period	72.7
Primary graft dysfunction	68.2
Overview of immediate post-operative management	59.1

Table 2. All topics and sub-topics listed achieved "Must-know" consensus after three survey rounds

Innovative Restructuring: Enhancing Outpatient Pulmonary Training Through a 3+1 Block Schedule in PCCM Fellowship Program

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INTRODUCTION

In 2006, the Association of Program Directors in Internal Medicine (APDIM) recognized the need for a transformation in medical education, with patient-centered longitudinal care as one of its pivotal aspects. This vision prompted numerous residency programs to adopt block scheduling, where residents alternate between non-ambulatory and ambulatory rotations. This innovative approach differed significantly from the traditional schedule, which allocated only half a day per week to clinics, regardless of the current rotation. Several block schedule formats emerged, including the 3+1 and 4+1 models. Extensive studies in residency programs demonstrated that block scheduling minimized conflicts between inpatient and outpatient care and enhanced the overall outpatient experience. However, this promising approach has yet to be fully embraced by fellowship programs, leaving a significant gap in understanding the potential benefits and challenges of its implementation in the fellowship context. In the Pulmonary and Critical Care Medicine program (PCCM) at SUNY Upstate Medical University, the conventional schedule aimed to separate inpatient and outpatient responsibilities within the same block. However, a survey involving 20 current and former fellows revealed several challenges (Table 1). These included irregular clinic follow-ups, concern over continuity of care, inconsistent education in clinic, inconsistent attendance at subspecialty clinics, limited flexibility in pursuing elective rotations, and a lack of periodic downtime to combat burnout.

ABSTRACT PRESENTATION

To address the identified issues and enhance the outpatient pulmonary training experience, a hypothesis was formulated: implementing a block schedule would introduce structure into the ambulatory educational experience, promote learning, allow for regular precepting faculty rotation, improve fellows' clinic and elective rotation involvement, and ultimately mitigate burnout. This abstract outlines the intervention of implementing a novel 3+1 block schedule (Table 2) into the PCCM program for 12 Pulmonary fellows. Each block spanned two weeks, with three inpatient blocks encompassing ICU, night ICU coverage, bronchoscopy, pulmonary consults, and elective rotations. The fourth block, focused on the outpatient setting, included clinics with subspecialty clinics and clinics with electives. This initiative represents a pioneering step in integrating a 3+1 block schedule into a fellowship training program, striking a balance between inpatient and outpatient experiences. The goal is to conduct follow-up surveys with fellows one year after implementation to assess their satisfaction and burnout levels. Additionally, a comparison of outpatient clinical experience metrics will be conducted, including continuity of care in the clinic, the proportion of follow-up visits handled by the same fellow as the previous one, and the distribution of subspecialty clinic exposure among fellows.

DISCUSSION

The shift to a 3+1 block schedule in the PCCM program acknowledges the complexities and challenges that traditional schedules posed for fellows. By adopting this innovative approach, the program aims to create a more structured, engaging, and enriching outpatient training experience for fellows. The separation of inpatient and outpatient blocks addresses the identified issues related to clinic follow-up, subspecialty clinic attendance, elective rotations, and burnout.

CONCLUSION

The implementation of the 3+1 block schedule within the PCCM fellowship program at SUNY Upstate Medical University is a forward-looking initiative that seeks to improve outpatient pulmonary training and enhance the fellowship experience. While the full impact of this intervention is yet to be assessed, the expectation is that it will lead to increased fellow satisfaction, improved focus on outpatient pulmonary education and decreased burnout. The effort aligns with the evolving landscape of medical education and healthcare, recognizing the significance of structured, innovative scheduling in the training of future medical professionals. The forthcoming follow-up results will provide essential insights into the long-term effects of this scheduling model on fellow education and well-being, offering valuable lessons for both the institution and the broader medical community.

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TABLE 1. Pulmonary and Critical Care Fellowship Outpatient Survey

TABLE 2.

Multimodal Interdisciplinary Mechanical Ventilation Education for Critical Care Trainees: A Pilot Curriculum

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INTRODUCTION

Management of mechanical ventilation (MV) is a core competency in critical care (CC) training. Over half of CC trainees are dissatisfied with their mechanical ventilation education and perform poorly on related assessments. (1) We implemented a longitudinal, multimodal MV curriculum for pulmonary and CC trainees and assessed its impact on trainee confidence, knowledge, and skills in managing MV.

ABSTRACT PRESENTATION

Informed by a pre-curriculum needs assessment of our learners, CC faculty educators compiled goals, learning objectives, and a skills checklist. A yearlong MV curriculum was implemented from 2022-2023 and included lectures on MV principles, bedside MV clinical skills sessions with faculty, and weekly online ventilator waveform quizzes. Skills taught included maneuvers for respiratory mechanics, adjusting peak pressure alarms, and performing a positive-end-expiratory pressure titration. Fellows additionally participated in an immersive one-on-one session with an intensive care unit-based respiratory therapist (RT), and a case-based ventilator simulation session with CC faculty and an RT educator. Trainees completed post-curriculum surveys at the end of the academic year, which queried their comfort in MV skills and assessed MV knowledge (six questions). Faculty intensivists were surveyed to validate the questionnaire. Faculty responses were compared to fellow responses. We performed descriptive statistics on all surveys. Pre- and post-curriculum trainee surveys were analyzed with paired, two-tailed t-tests with an alpha level of 0.05 for significant differences. Quantitative data analysis was performed with StataCorp 17.

DISCUSSION

Twenty fellows (67%) completed the pre-curriculum survey, 18 fellows (60%) completed the post-curriculum survey, 13 fellows (43%) completed the RT immersive session, and 10 CC faculty (37% of those queried) completed the validation survey. Fellows were least confident in waveform interpretation and connecting ventilator mechanics to pathophysiology. Following the longitudinal curriculum, confidence improved for all skills queried (Table 1). The greatest change was seen in comfort with waveform interpretation. First year fellows had relatively less comfort with all skills queried compared to senior fellows. There were statistically significant improvements for the eight fellows whose pre- and post-curriculum surveys could be linked in MV terminology (p=0.03) and pressure control waveform interpretation (p=0.01). They had an improvement in mean pre- versus post-curriculum survey knowledge questions answered correctly (average correct responses: 3 vs. 4.75, p<0.01). The RT immersive session improved comfort with basic skills (eg, checking respiratory mechanics, performing in-line suctioning) and advanced skills (eg, performing positive end-expiratory pressure titration or performing and interpreting a cuff leak test). Faculty performed better than the fellows with the knowledge questions, but similarly performed poorest on the questions about pressure control ventilation and airway pressure release ventilation (Figure 1). Trainees were satisfied with the curriculum overall, citing the skills sessions with faculty, simulations, and weekly waveforms as most helpful after direct patient care.

CONCLUSION

Our multimodal, interdisciplinary, longitudinal MV curriculum improved pulmonary and critical care fellow confidence and proficiency in MV management skills and knowledge of MV principles. RT involvement in fellow MV training strengthens fellow comfort with specific MV skills. This study replicates the known benefits of training fellows in recognizing waveform abnormalities.(2,3) Taking that education one step further, we provide the tools to integrate waveform analysis in real-life and simulated patient scenarios, and with interdisciplinary discussions, for example, with respiratory therapy in the intensive care unit. Future directions include the development of a widely acceptable, feasible, and sustainable curriculum on mechanical ventilation for diverse critical care training programs (eg, surgical critical care, neurocritical care, anesthesia critical care, etc.), while rigorously assessing trainee competency against a national standard. Ideally, the curriculum would be suitable for continuing medical education for attending intensivists as well. Furthermore, deliberate and sustained integration of RT educators in critical care trainee education should be further studied.

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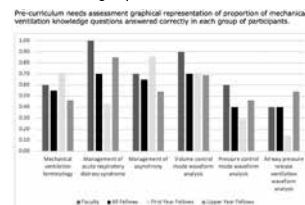**FIGURE 1.** Pre-curriculum knowledge questions needs assessment

TABLE 1. Skills checklist pre- and post-curriculum responses

Live Simulation vs Virtual Reality: Defining the Best Educational Approach to Teach and Retain Mechanical Ventilator Knowledge

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INTRODUCTION

Live simulation training is often employed to deliver mechanical ventilation (MV) education but is resource- and time-intensive thereby limiting its use. The COVID-19 pandemic has taught us the importance of flexible, innovative delivery of expert knowledge to any learner wherever they are.(1) Virtual reality (VR) simulation provides educators the opportunity to teach learners using spaced repetition without many of the obstacles encountered with live simulation.

ABSTRACT PRESENTATION

Our aim was to evaluate whether VR-based education can serve as an effective alternate teaching strategy for MV education using varied clinical scenarios. Using Unity, custom C# code, and user experience (UX) design software we developed a VR simulation training curriculum to teach MV based on expert knowledge and customer focus testing. Utilizing a mixed-methods study design, we tested our VR module (Figure 2) on two focus groups consisting of Pulmonary-Critical Care Medicine (PCCM) fellows to establish proof of concept. Each fellow was required to complete at least one 4-hour live simulation prior to testing the 30-minute VR module. Group 1 involved eight fellows (ranging from PGY-5 to PGY-7) who had completed at least two live simulation sessions 6 months prior and had >1 year of fellowship experience. Group 2 involved eight PGY-4 fellows who had completed a single live simulation session prior to the VR simulation and had no fellowship experience. Each group completed a pre- and post-test knowledge assessment. Learners were also surveyed before and after completing the VR module. Post-test score performance had a strong positive correlation with the number of correct answers on the VR module (Figure 1a, r = 0.8). There was a negative correlation between perceived learner confidence with MV and VR module performance (Figure 1b, r = -0.6). Group 1 reported a high level (mean = 85%) of confidence with MV prior to testing yet their post-test scores were 40% higher after VR simulation. Group 2 reported lower level (mean = 35%) of confidence with MV and improved their post-test scores by 30% after VR simulation. Lastly, 75% of Group 1 learners and 60% of Group 2 learners preferred VR as compared to live simulation.

FIGURE 1. (a) Scatter plot indicating the positive correlation (correlation value = 0.8915147) between PCCM Fellow post-test knowledge assessment score and the number of correct answers in the VR module. **(b)** Scatter plot indicating the negative correlation (correlation value = -0.7822286) between PCCM Fellow percentage of confidence in MV skills and the number of correct answers in the VR module.
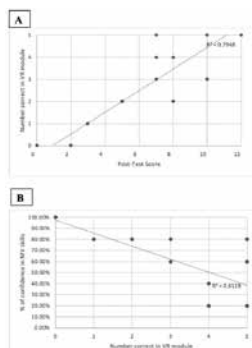
DISCUSSION

VR is emerging as a transformative technology,(2,3) and its impact on medical education is no exception. While VR has been demonstrated to consistently improve the rate of skill acquisition, speed of learning, and rate of information retention in the surgical field, its role in non-procedural based education has not yet been evaluated.(1) Our pilot study demonstrates how VR use can improve trainee test performance regardless of knowledge concept and PGY-level. Additionally, this highlights how VR may help educators both identify and improve knowledge gaps outside of the clinical space, especially in cases of learner overconfidence. The need for trainees to be physically adjacent to the educator with access to physical equipment and infrastructure has been a major limitation prohibiting both the internal and external scaling of education delivery. While we have identified ways that VR can augment trainee knowledge, its role in introducing concepts compared to live simulation needs to be further explored.

CONCLUSION

VR simulation has the potential to address the issues in education delivery brought forth amid the COVID-19 pandemic by building knowledge, democratizing knowledge and infrastructure, motivation, and retention. With its immersive and interactive nature, VR offers unprecedented opportunities for healthcare professionals. Our curriculum demonstrates future opportunities to enhance the learning experience, refine clinical skills, and improve patient care through VR. It is our hope that with further research and following best practices, educational VR modules can evolve into a sophisticated and integral part of ACGME medical education programs.

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FIGURE 2. Screenshot of the learners' view of the virtual reality MV module user interface.

Enhancing Diversity Visibility in Fellowship Applicant Assessment: A Single Program Experience

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INTRODUCTION

Attracting and retaining talented and diverse applicants has been a growing interest for medical training programs across the United States. However, the latest census data from 2021 showed that African Americans compose 12.1% of the US population, but only make up 7% of matriculating residents in the 2022 NRMP Match.(1) These data are in the context of mounting evidence showing the benefit of a diverse physician work force and racially concordant physician-patient outcomes. Integrating diversity, inclusion, and equity (DEI) qualification into the traditional candidate selection has, however, remained elusive in many programs. The Pulmonary Critical Care Fellowship at the University of Arizona College of Medicine Phoenix (UA-COMP), embarked on a project to improve the assessment of diversity qualities in fellowship applicants. The aim of this project was to help quantify diversity metrics for interviewers and better integrate conversations about diversity into rank order discussions. In line with this goal, the institution introduced a standardized diversity question and assessment tool to its traditional interview strategy.

ABSTRACT PRESENTATION

Over a single interview season, the fellowship implemented the standardized diversity question: "How will you uniquely bring diversity to our fellowship and how have you specifically demonstrated a commitment in advancing diversity, equity, and inclusion in medicine?" Answers were rated utilizing a 4-point system assessing for concreteness, personal quality, passion, and uniqueness. The composite data was made available during the general faculty NRMP rank submission meeting for reference. Post-match, we compared scoring data for the total applicant pool to subsets that included: ranked, unranked, top-5, top-10, and matched candidates. We found that our top-5, top-10, and matched composite scores were highest and near identical (3.6, 3.7, and 3.6 respectively). These were significantly higher than the applicant pool average (2.75). We found that our lowest scoring category was unranked candidates (2.18).

DISCUSSION

According to the AAMC, holistic review is defined as "mission-aligned admissions or selection processes that take into consideration applicants' experiences, attributes, and academic metrics as well as the value an applicant would contribute to learning, practice, and teaching". We felt that our question added a "diversity lens" to all applicant assessment as described in Gallegos et al description of best evidence-based practice in interview process for UrIM recruitment. Overall, scoring was higher in ranked candidates than unranked. Interestingly, matched candidates scoring was nearly identical to those of the top tier rank although including 66% of the ranked candidates (Figure 1). Some of the conclusions of our analysis were limited as the primary aim was improvement of our candidate selection. As such, questions like whether scoring had a cause versus effect relationship to rank position are left unanswered. Qualitatively, we found the scoring to be a relatively weak tool for separating high tiered applicants who in general all had similarly scored the maximum score of 4. It was however it made integrating applicant diversity assessment a more seamless process in the rank list discussion. This approach introduced objectivity and quantifiability to the previously subjective evaluation of diversity and inclusion contributions.

CONCLUSION

The University of Arizona College of Medicine Phoenix's innovative use of a standardized diversity question has enriched the overall evaluation of fellowship applicants and emphasized the qualities of diversity rich applicants. This approach offers a valuable, structured method to assess applicants' self-perceived alignment with the institution's diversity mission.

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FIGURE 1. Table of domain and summative data for each subgroup. Domain categories were as follows: D1-Concreteness, D2-Personal Quality, D3-Passion and D4-Uniqueness

Data Set	Subject number	D1	D2	D3	D4	Average
Interviewed	58	0.77	0.70	0.70	0.56	2.75
Ranked	30	0.83	0.83	0.93	0.70	3.3
Unranked	28	0.71	0.57	0.46	0.43	2.18
Ranked (Top 5)	5	1.00	0.80	1.00	0.80	3.6
Ranked (Top 10)	10	1.00	0.90	1.00	0.80	3.7
Matched	5	0.80	0.80	1.00	1.00	3.6

Development of a Simulation-based Mastery Learning Curriculum for Late Goals of Care Discussions

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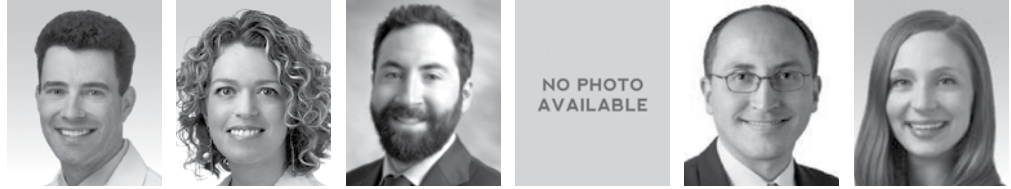
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INTRODUCTION

Fellows in critical care medicine (CCM) routinely help patients and families navigate complex decisions near the end of life. These "late goals of care discussions" (LGOC) are high stakes procedures as they require rigorous skills training to perform well and impact patient care. Innovation is needed to ensure that fellow training in leading these discussions is centered on reproducible competency-based standards.(1) Simulation-based mastery learning (SBML) provides a compelling framework for competency-based education.(2) In SBML, feedback and deliberate practice are used to ensure learners meet a series of predetermined performance benchmarks defined by a minimum passing standard (MPS). There is no current SBML model for teaching LGOC conversations. We describe the development of a LGOC SBML curriculum for CCM fellows, set a defensible MPS for the curriculum, and apply it to fellow assessment scores.

ABSTRACT PRESENTATION

The curriculum was structured around Reframe, Expect emotion, Map out patient goals, Align with goals, and Propose a plan (REMAP), a mnemonic outlining foundational components of effective communication around serious illness.(3) The curriculum included a pretest, a 1-day advanced communication skills course, and a posttest. The 1-day course included didactics on components of REMAP, live demonstrations by expert faculty, and 5 hours of deliberate practice. During these small-group sessions, learners practiced REMAP in 3 clinical cases and received real-time feedback from a trained faculty facilitator. Post-testing was performed with the original clinical case but a new standardized patient. We developed a clinical case and assessment tool to assess communication skills during pre- and post-testing. The tool was developed with a 12-member multidisciplinary expert panel that provided iterative modifications on checklist elements until concordance was reached. The final tool included an 18-item checklist and 6 scaled items. The scaled items were scored using a global rating scale of 1 through 5 with behaviorally based anchors and focused on communication quality. A pilot cohort completed the curriculum which included 10 learners: 4 pulmonary critical care fellows, 1 neurocritical care fellow, 2 surgical critical care fellows, and 3 anesthesia critical care fellows. All pilot pre- and post-testing sessions were recorded. Four faculty raters evaluated a sample of videos and iteratively revised a grading rubric until there was agreement on scoring. The four raters then independently scored 8 videos using the same assessment tool to assess inter-rater reliability. All graders were able to achieve a $k \geq 0.7$ and intraclass correlation coefficient of ≥ 0.7 when compared to the gold standard grader. A separate 10-member multidisciplinary standard setting panel was convened. Using the Mastery Angoff method, the panel set the MPS at 87% with scaled items requiring a score of 4 or 5 to be considered complete. In our pilot group, performance on the checklist significantly improved from a median score of 52% (IQR 44% - 72%) on the pretest to 96% (IQR 82% - 97%) on the posttest (p=0.005) (Table 1). The number of learners who met the MPS similarly improved from 10% during pre-testing to 70% during post-testing (P=0.02) (Figure 1).

DISCUSSION

We demonstrate that an SBML curriculum for LGOC discussions is feasible and results in marked skill improvement. While previous studies utilize imperfect surrogates for true competence, this innovation has a rigorously defined competency-based standard for goals of care training that can ensure rigorous skill acquisition for all. The clinical impact of communication interventions for patients with serious illness likely hinges on the quality rather than the quantity of clinician communication. As such, it is imperative that communication skills training incorporate rigorous competency-based standards.

CONCLUSION

We describe, to our knowledge, the first study to develop an assessment tool and a training model for a competency-based LGOC curriculum. We believe this approach provides methodologically rigorous and learner-centered communication skills training.

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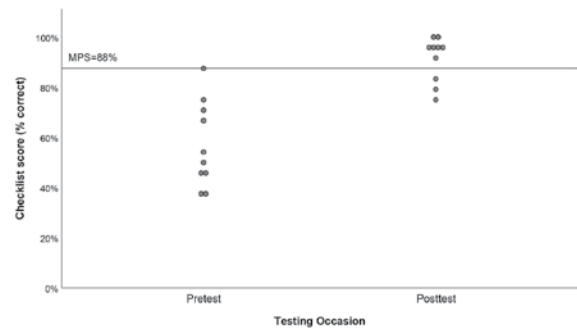
FIGURE 1.

TABLE 1. Number (%) of fellows performing each item correctly on the discussing late goals of care assessment checklist.

Emerging Educator Award

Congratulations to the 2024 awardees:

Viren Kaul, MD
Clinical Assistant Professor of Medicine
SUNY Upstate Medical University

Kristina Montemayor, MD, MHS
Assistant Professor of Medicine
Johns Hopkins University

Viren Kaul, MD is an intensivist at Crouse Health in Syracuse, NY. He is an Assistant Professor of Medicine and Respiratory Therapy Education at Upstate Medical University in Syracuse, NY where he also serves as the Associate Program Director for the Internal Medicine Residency and the PCCM Fellowship. His clinical interests include airway management, mechanical ventilation, pleural diseases, and diffuse lung diseases. He actively researches the application of technology and social media for enhancement of patient-centered care as well as medical education. Along with his team, he has evaluated digital "sociomes" of various disease processes such as asthma and lung cancer. This work has allowed insights into the vast number of conversations various healthcare stakeholders engage in online, leading to better understanding of priorities for patients, clinicians and healthcare organizations. As an educator, his area of interest lies in supporting academic careers of all trainees (especially International Medical Graduates), trainer adaptability to evolving learning paradigms, interprofessional education, and application of game theory to enhance education and knowledge retention. Dr. Kaul has collaborated extensively with trainees and educators nationally and internationally to further the field of medical education on these fronts. His long term vision is to build a facile network of educator collaborators to ensure the durable growth of interprofessional research in medical education.

Kristina Montemayor, MD, MHS is an Assistant Professor of Medicine in the Division of Pulmonary and Critical Care Medicine at Johns Hopkins. She worked as a bedside nurse for five years prior to receiving her medical degree with honors from the University of Texas Medical Branch, and then completed her Internal Medicine residency and Pulmonary and Critical Care fellowship training at Johns Hopkins.

Kristina is actively involved with undergraduate and graduate medical education. She is the rising Course Director for the pulmonary section of the pre-clerkship courses, leads the chest imaging section for third-year medical students, and co-leads a simulation session in the capstone course for graduating medical students. She is also a Colleges Advisor for medical students where she teaches and mentors a cohort of twenty medical students. At the residency level, she is a Clinical Coach for the Osler Residency Program, as well as the Firm Faculty Leader of the Longcope Firm which includes extensive teaching, assessment, and coaching of one quarter of house staff throughout their residency. She is also an Associate Program Director for the Johns Hopkins Pulmonary and Critical Care Fellowship and has been integral with enhancing didactics, career development and coaching initiatives.

Nationally, she is an ATS Resident Bootcamp instructor and is the newly appointed Pulmonary Chair of the ATS Fellows Track Symposium. She is an active member of the Training and Transition Committee through CHEST, and is the co-founder of PulmPEEPs, a digital educational platform that provides PCCM content to learners of all levels.

The APCCMPD honors the contributions of all 2024 nominees:

Andrea Jonas, MD
Clinical Assistant Professor of Pulmonary,
*   Allergy, and Critical Care Medicine*
Stanford University

The APCCMPD honors one or two up-and-coming medical educators through its **Emerging Educator Award**. Awardees excel in delivering and promoting medical education through various means at the local and regional levels. Awardees are a pulmonary, critical care, or Pulmonary Critical Care clinicians at the level of Instructor or Assistant Professor (or equivalent), within 1-4 years of fellowship, who spends a majority of their time serving as a clinician-educator.

Mid-Career Educator Award

Congratulations to the 2024 awardees:

Jakob I. McSparron, MD
Associate Professor of Medicine
University of Michigan

Jakob I. McSparron, MD is currently an Associate Professor of Medicine at the University of Michigan. He has served as Program Director for the University of Michigan Pulmonary and Critical Care Fellowship since 2020, having served as the Associate Program Director for three years before that. He previously served as Associate Program Director for the Harvard Pulmonary and Critical Care Medicine Fellowship as well as the Internal Medicine Residency Program at Beth Israel Deaconess Medical Center. Dr. McSparron has made a major impact in pulmonary and critical care training across the spectrum of learners at the UME, GME, and CME levels. His work has had a positive impact on the local fellowship training practices and cultures both at the University of Michigan and Beth Israel Deaconess Medical Center. He has improved the procedural training and assessment techniques of supervising faculty and, under his leadership, the University of Michigan has seen a significant improvement in the diversity of trainees in pulmonary and critical care. Dr. McSparron has led a restructuring of ambulatory training and worked to develop a multidisciplinary critical care training experience across non-medical intensive care units. He received the Program Director Excellence Award for the entire institution after less than two years in his current position. As a member and Vice-Chair of the Education Committee of the American Thoracic Society he had a major role in the planning and execution of educational material for trainees and faculty members at a national level. He continues to have a national impact as Course Director of the Fellows Track Symposium of the American Thoracic Society. He speaks regularly at national conferences on both clinical and education focused topics.

Amee S. Patrawalla, MD, MPH
Associate Professor of Medicine
Rutgers New Jersey Medical School

Amee S. Patrawalla, MD, MPH is an Associate Professor of Medicine in the Division of Pulmonary and Critical Care Medicine at Rutgers New Jersey Medical School (RNJMS). She completed her medical education at Mount Sinai School of Medicine, internal medicine residency at Boston Medical Center, and fellowship training at NYU School of Medicine. She also completed her Master's in Global Public Health at NYU.

Dr. Patrawalla has been the Program Director of the RNJMS Pulmonary Critical Care Fellowship since 2013. She is also the Medical Director of the Global Tuberculosis Institute at RNJMS and serves as Chair of the Chest Infections Section at CHEST. She enjoys mentoring fellows, residents and students in their careers and helping them find and build their professional passions. Her clinical interests include TB and non-tuberculous mycobacterial infections.

The APCCMPD honors the contributions of all 2024 nominees:

Javier Diaz-Mendoza, MD
Associate Professor of Medicine
Wayne State University School of Medicine

Tristan J. Huie, MD
Associate Professor of Medicine
University of Colorado
        Anschutz School of Medicine

Stephanie I. Maximous, MD, MS
Assistant Professor of Medicine
University of Pittsburgh School of Medicine

The **Mid-Career Educator Award** (MCEA) honors mid-career individuals who are actively engaged in enhancing the practice and profession of pulmonary, critical care, and pulmonary critical care medicine through education. The medical educator selected for this award is actively making significant and innovative contributions to education. These contributions should include excellence in education beyond the local level, with recognition of the recipient's excellence, which may include teaching, directing, mentoring, writing and speaking abilities, ideally to multiple levels of audiences including medical students, residents and fellowships at the local, regional and national levels. Candidates should be within 5-15 years of fellowship.

Outstanding Educator Award

APCCMPD members work diligently to foster excellence through training and mentoring of the next generation of pulmonary, critical care, and Pulmonary Critical Care physicians. One way to honor peers who demonstrate excellence in the development of future physicians is through the annual **Outstanding Educator Award** (OEA). This aspirational award recognizes an individual who has devoted a major portion of their professional life to enhancing the practice and profession of pulmonary, critical care, and pulmonary critical care medicine through education. The awardee has cultivated achievements for which peer medical educators can aspire. The educator selected for this award has made significant, innovative, and cumulatively outstanding contributions to education. These contributions should include excellence in education beyond the local level, with widespread recognition of the recipient's excellence, which may include teaching, directing, mentoring, writing and speaking abilities, ideally to multiple levels of audiences including medical students, residents and fellowships.

Congratulations to the 2024 awardee:

Jennifer McCallister, MD
Professor of Clinical Internal Medicine
The Ohio State University
College of Medicine

Jennifer McCallister, MD is a Professor of Clinical Internal Medicine in the Division of Pulmonary, Critical Care, and Sleep Medicine at the Ohio State University College of Medicine where she currently serves as the Associate Dean of Medical Education for the College of Medicine and the Assistant Director of Faculty Affairs for the Division of Pulmonary, Critical Care, and Sleep Medicine. She served as the Vice Chair of Education for the Department of Internal Medicine from 2015-2019, and the Pulmonary and Critical Care Medicine Fellowship Program Director from 2014-2022. Her current areas of interest include mentorship in graduate medical education (GME) and minimizing bias in medical education. Since joining the faculty at The Ohio State University in 2007, she has received numerous teaching awards including the Distinguished Educator Award from the College of Medicine and the Outstanding Educator Award from the American Thoracic Society in 2021. She is a past president of the Association of Pulmonary & Critical Care Medicine Program Directors and a past chair of the Section on Medical Education for the American Thoracic Society.

The APCCMPD honors the contributions of all 2024 nominees:

Sahar Ahmad, MD
Associate Professor of Medicine
Stony Brook University Renaissance School of Medicine

Saadia Faiz, MD
Professor
University of Texas MD Anderson Cancer Center

CHEST and APCCMPD Medical Educator Diversity Scholar Fellowship Award

The **CHEST and APCCMPD Medical Educator Diversity Scholar Fellowship Award** provides support and funding for fellows who intend to pursue a career in medical education and significantly contribute to the diversity of the medical education community. This scholarship provides monetary support for expenses related to training a fellow for an academic career as a medical educator. Allowable expenses include, but are not limited to, courses related to teaching skills or medical education research; funding to support a 1-year medical education research project; and providing protected time to an external mid-career or an advanced career medical educator at a different institution than the fellow's institution, to mentor the fellow-in-training.

Congratulations to the 2024 Mentor:

Başak Çoruh, MD
University of Washington

Başak Çoruh, MD is an Associate Professor of Pulmonary, Critical Care and Sleep Medicine and the Program Director of the Pulmonary and Critical Care fellowship program at the University of Washington. She received her medical degree from the Medical College of Virginia and completed residency, chief residency, and fellowship at the University of Washington. Dr. Çoruh serves on the Education Committees of the American Thoracic Society and the Association of Pulmonary and Critical Care Medicine Program Directors and is active in undergraduate, graduate, and continuing medical education both locally and nationally. Dr. Çoruh remains active in undergraduate, graduate, and continuing medical education and has earned local and national awards as an educator. Her interests in medical education include curriculum development, coaching, and leadership.

Congratulations to the 2024 Mentee:

Esha Kapania, MD
University of Louisville

Originally from Blacksburg, Virginia. She completed her undergraduate education in Engineering Science at the University of Virginia in Charlottesville, VA. During this time, she developed a passion for research and academia. Her belief that research is the most powerful way to enhance patient care led her to work as a research associate for a biotech company in Charlottesville, VA, before starting Medical School at Loyola University in Chicago. Esha completed her residency in combined Internal Medicine and Pediatrics at Rush University. She is a first-year fellow at the University of Louisville in Pulmonary and Critical Care. She has a particular interest in pulmonary pathology, starting during childhood and progressing into adulthood. She hopes to focus on curriculum development for adult providers on pediatric pulmonary pathology and how these patients are transitioned from pediatric to adult providers.

APCCMPD Scholarship in Medical Education Research Award

The **APCCMPD Scholarship in Medical Education Research Award** is a monetary grant awarded to Fellows-in-training, junior faculty within 5-years of program completion, Associate Program Directors and/or Program Directors, to fund research projects that further the field of pulmonary, critical care, or Pulmonary Critical Care graduate medical education research.

The APCCMPD honors the contributions of all 2024 nominees:

Richard Lenhardt, MD, MPH
**Chicago Medical School/
Rosalind Franklin University**
Enhancement of a Community-Based Pulmonary Fellowship Program

Congratulations to the 2024 awardee:

Brian Reuland, MD
**New York University
     Grossman School of Medicine**
The "ECMO-Track": Development of a Longitudinal Curriculum for Critical Care Fellows with Special Interest in Extracorporeal Life Support

Brian Reuland, MD completed his medical school and internal medicine residency at Columbia University College of Physicians and Surgeons. Currently a second-year Pulmonary/Critical Care Fellow at New York University Grossman School of Medicine, he is an emerging clinician-educator with an interest in teaching, medical education, and a commitment to humanistic and compassionate patient care. He is an active member of the ATS Trainees Interested In Medical Education committee, and this year is hosting the fellows' reading list podcast. In his upcoming third-year of fellowship, Brian will serve as the Simulation fellow at the Manhattan VA Hospital, while conducting educational research on crafting a longitudinal ECMO curriculum, a project that earned him the 2024 APCCMPD Scholarship in Medical Education Research Award. This opportunity will allow Brian to combine his passions for medical education, simulation, and extracorporeal life support.

PROJECT SUMMARY
The utilization of Extracorporeal Life Support (ECLS) has experienced rapid growth, and a majority of Critical Care Medicine (CCM) Program Directors (PDs) acknowledge the importance of their trainees acquiring competence in this skill. However, there are several existing educational gaps in CCM training for ECLS, such as the absence of high-quality, longitudinal curricula specifically tailored for CCM fellows, and a lack of demonstrated effectiveness. Our objective is to create a comprehensive, longitudinal "ECMO track" that incorporates robust educational theory and measurable outcomes. This initiative aims to establish a standardized training program for CCM fellows in ECLS, with the potential for broader applicability to other CCM fellowship programs.

ATS-APCCMPD Award Research Grant for Medical Education of the Physician-Scientist

The **ATS-APCCMPD Award Research Grant for Medical Education of the Physician-Scientist** is a monetary grant awarded jointly by the ATS and the APCCMPD. Together, the ATS and the APCCMPD are collaborating to provide faculty the opportunity to investigate graduate medical education topics that will aid in the development of future physician-scientists in adult pulmonary, critical care, or Pulmonary Critical Care medicine.

Congratulations to the 2024 awardee:

Tessa Steel, MD, MPH
University of Washington
Climbing a Mountain: A Rapid Assessment Process to Improve T32 Research Training

Tessa Steel, MD, MPH is an Assistant Professor in the Division of Pulmonary, Critical Care and Sleep Medicine at University of Washington. She received her MD and MPH from Oregon Health & Science University, completed Internal Medicine residency at Massachusetts General Hospital, and trained in Pulmonary Critical Care Medicine and Health Services Research at University of Washington and VA Puget Sound. Her K23 research uses mixed methods to evaluate and improve the safety of hospital treatments for alcohol withdrawal syndrome, an under-researched problem situated in the broader social context of stigma and stereotypes associated with addiction. Her interest in health equity led to research aimed at promoting and retaining diversity in the physician-scientist workforce. Dr. Steel lives in Seattle with her husband and two children and enjoys being active in the outdoors.

PROJECT SUMMARY

This project investigates the challenges and rewards of research-focused careers through interviews with current and recent fellows from multiple pulmonary/critical care medicine T32 training programs. The project is designed to highlight the experiences and perspectives of trainees facing known structural barriers to remaining in research: 1) women, especially those with young children and 2) minoritized racial and ethnic groups, including Black, indigenous, and other people of color.