Awards Program

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Salt Lake City, Utah
An Innovative Evidence-Based, Fellow-Driven Bundle to Improve Professional Satisfaction and Wellness

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University of Virginia

INTRODUCTION
Rates of burnout and professional dissatisfaction are high amongst physicians, affecting more than 1 in 3, with critical care physicians approaching 50%. Research indicates professional dissatisfaction and burnout negatively affect both patient care and physician personal wellness on a number of fronts, including mental health. Reasons for physician displeasure are numerous and diverse, with unique underlying causes. Based on concerning indicators of physician well-being, our program sought to implement data-proven strategies specific to our fellowship to improve the trainee experience, as described by the ACGME Common Program Requirements focus on well-being.

ABSTRACT PRESENTATION
Methods: We analyzed the yearly anonymous ACGME Fellow Survey results and identified areas for improvement in the domains of Duty Hours, Educational Content, Resources, and Patient Safety. Within each of these domains we identified specific opportunities for quality improvement. Using A3 methodology, we then developed an ideal state and an action plan for interventions. The fellowship program developed interventions through a PubMed query for evidence-based interventions to improve burnout and professional satisfaction, and modified interventions specifically to fit the fellowship program. In the absence of an evidence-based strategy, we implemented interventions developed by the fellows based on the target state defined in the A3. This resulted in a bundle of interventions over the subsequent six months (Figure 1). To assess the efficacy of our multi-faceted intervention, fellows completed a 15-question Likert scale survey pre- and post-(3 months) bundle implementation, with plans to repeat the survey at 6 and 12 months. Fellow also completed Epworth Sleepiness Scales (ESS) pre- and post-implementation of the bundle. The chi-square test was used to analyze categorical data for all questions.

Results: All fellows completed both assessments. An improvement was observed in 13 of the 15 domains queried between pre- and post-implementation surveys, which included improvements in all domains measuring quality of life and sleep. Despite the small dataset (n=9), several domains demonstrated statistically significant improvement, including 1) satisfaction with weekend schedules (p=0.004), 2) increased ability to do non-clinical activities, such as research (p=0.004), and 3) overall quality of life (p=0.018) (Figure 2a). We also observed a statistically significant improvement in abnormal ESS scores (p=0.018), with a reduction in the mean ESS from 12 to 7 (Figure 2b).

DISCUSSION
Implementation of an innovative wellness bundle directed to improve fellow well-being was successful in improving trainee perceived quality of life, sleep, and time afforded to do projects which complement patient care. These interventions were primarily designed by, or in conjunction with, the primary stakeholders. When applicable, we utilized proven problem solving approaches such as Lean methodology to implement changes. Consistent with the physician burnout literature, we found organizational interventions (such as work reduction and increasing employee influence) to be markedly effective.

REFERENCES

TABLE 1. ACGME Areas for Focusing on Trainee Well-Being

<table>
<thead>
<tr>
<th>Domain</th>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
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<tr>
<td>Duty Hours</td>
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<td>Educational Content</td>
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<td>Resources</td>
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<td>Patient Safety</td>
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FIGURE 1. Pre- and Post-Bundle Results

An Innovative Evidence-Based, Fellow-Driven Bundle to Improve Professional Satisfaction and Wellness

The APCCMPD honors the contributions of all 2018 applicants:

Darlene Buczak Abstract Award for Educational Excellence

Congratulations to the 2018 awardee:

Sean J. Callahan, M.D.
University of Virginia
INTRODUCTION
Fellows bear substantial financial stress. They carry an average of nearly $200,000 of medical school debt, face impending career decisions with large financial implications, and are often starting families or purchasing their first home. However, they typically receive little instruction in personal finance through their residency or fellowship training programs, and what they receive is often delivered by financial planners who are marketing services or products. This can delay or impair important financial decisions, with long-term harm.

ABSTRACT PRESENTATION
Methods: To meet this need, we collaborated with a faculty member in our business school with expertise in personal finance education (YDB). Over four weeks, he delivered an 8-hour course to fellows in PCCM, that had previously been piloted with another training program and revised with participant and the co-authors’ input. To share the cost of the course, which was paid by the participating programs, Cardiovascular Disease and Infectious Disease fellows were also invited. The curriculum topics are shown in Table 1. As a needs assessment, fellows who expressed interest in attending were asked to provide their demographics, household income, assets and debt. Following the course, attendees completed course evaluations and a survey asking what financial decisions they had made based upon it.

RESULTS
The course was offered to 58 fellows in the three fellowships. Twenty-five expressed an interest to attend the course. Eighteen of the completed the pre-course survey. Two-thirds were female and two-thirds married, with a mean age of 32 years. All married fellows had working spouses. Eight respondents had 1-3 children. All but one owned or leased a car and half owned a home. Household debt ranged from $40,000 to $200,000. Twelve fellows completed the post-course survey after attending an average of 70% of the sessions. All respondents strongly agreed or agreed that they learned from the course, that the material should be taught in GME programs, and that they would recommend the course to others. Eleven of the 12 respondents reported making a total of 21 concrete financial decisions as a result of the course, related to retirement planning and investment, insurance coverage, employment contracts and debt management.

DISCUSSION
Previous studies, although few, have found that medical residents have high debt/income ratios, minuscule retirement savings, and lack household budgets (1-2). However, financial literacy training during residency or fellowship is scant (3). When provided, it is often by advisors with products or services to sell, which may bias their presentations. Our curriculum was unique in its depth and its leadership by a business school faculty member without potential biases or conflicts of interest. Despite busy schedules, more than a third of the invited fellows attended this eight-hour class. They perceived it as valuable, and it prompted tangible financial decisions. This model may be generalized among programs at institutions with business schools or other local, unbiased experts. We believe that greater attention to fellows’ financial literacy will contribute to a heightened sense of control over their future and greater short and long-term well-being. As these learning needs are shared by all trainees, we are currently expanding this course to all GME trainees at our institution.

CONCLUSION
Fellows value and utilize instruction in personal finance. This training, by an unbiased and therefore trustworthy instructor, may enhance long-term financial security and well-being.

REFERENCES
CONCLUSION
We found that despite comprehensive onboarding didactics and an intensive 1 day boot camp style didactic session, the fellows did not achieve an improved performance upon evaluation of basic ultrasound physics and principles, knobology, and image interpretation. These results contradicted our own pilot data [3] and other center’s findings in the “temp camp style educational intervention” which have shown competence in the cognitive domain without a longitudinal experience [2]. A data collection is ongoing to test proficiency in the cognitive domain and impact on the longitudinal phase of the fellowship. Competency in the performance of image acquisition was achieved after 6 months of longitudinal learning.

REFERENCES
chst.09-2305.
INTRODUCTION

Humane care in healthcare is characterized by a compassionate relationship between physician and patient. It reflects attitudes and behaviors that are sensitive to the values and background of others. Trainee burnout, poor cross-cultural interactions and limited understanding of how patients experience illness are a few factors that impair trainees’ provision of humanistic care. Inattention to well-being may lead to job dissatisfaction, emotional exhaustion and psychological impairment. We developed a fellow devised and fellow directed curriculum to strengthen practice of patient-centered care and to promote physician well-being.

ABSTRACT PRESENTATION

A needs assessment was compiled from previously validated questionnaires on mindfulness, stress and burnout. Nine fellows completed the questionnaire. Each month, a fellow leader – under faculty supervision – becomes a ‘mini-expert’ in a curriculum topic by exploring relevant materials and creating an interactive discussion forum. Session topics range from moral distress and narrative medicine. In addition, the program addresses several ACGME-mandated areas of focus: recognition of impairment in self and peers, fatigue and narrative medicine. This is a unique program where fellows are both leaders and participants. The curriculum can be easily adopted and adapted (with zero financial investment) for medical trainees at any level.

REFERENCES

CONCLUSION

Trainee devised programs in humanism and well being may be more impactful than those devised at the program- or system-level. This is a unique program where fellows are both leaders and participants. The curriculum can be easily adopted and adapted (with zero financial investment) for medical trainees at any level.

INTRODUCTION

The ACGME’s Next Accreditation System requires training programs to document milestone performance at 6-month intervals during a trainee’s education. Our program identified certain barriers that made the Clinical Competency Committee (CCC) meetings and milestone selection process difficult: rotational evaluations provided limited insight into a trainee’s performance, mentors did not have access to trainees’ data until immediately before the CCC meeting, and the trainees did not have a central repository of all their performance data. We aimed to redesign our evaluation system and create an electronic portfolio for our fellows that would be readily available and mobile friendly for use in a variety of settings.

ABSTRACT PRESENTATION

Our trainees rotate with numerous faculty members over the course of a month. Frequently, end of rotation feedback included comments like “good fellow” or “should read more.” In order to elicit more specific, task-directed feedback, we developed an evaluation tool sent to faculty on a daily basis. Mobile digital evaluation forms have been shown to be effective in residency programs. We modified our previous monthly evaluations, mapped to ACGME milestones, and created a daily evaluation tool in Qualtrics. Faculty were sent a text message every day during the work week (Monday through Friday) as a reminder to complete the evaluation. We allowed our ICU faculty to choose one topic to evaluate each day (Image 1). Our goal was for faculty to complete at least two evaluations completed per week for each fellow in the ICU (U per month) for a total of 16 evaluations per month (2 fellows rotating per month). We assessed the faculty performance of these evaluations from May 2016 through October 2017, with a goal of 248 total evaluations performed. We did not include fellows from other programs that rotate through our ICU in this analysis. During the study period, 173 evaluations were performed on 11 fellows, for a 49.8% completion of target number of evaluations. Fellows had a mean of 5.1 evaluations per month, and a range among fellows of 0 to 34 total evaluations completed per month. As fellows with low numbers of daily evaluations, we elicited additional feedback from faculty. Among the evaluations completed, we identified 109 comments with meaningful specific feedback directed at individual tasks (43.6% of evaluations). To combat the latter issues, our fellowship coordinator created individualized electronic portfolios in an intranet website called MyPort. MyPort is password protected to allow access to the mentor, trainee, and program directors. The portfolio is organized to provide an at-a-glance view of a trainee’s competency throughout training. This is achieved by offering graphic representation for peer peer comparison data including in training exams, procedure log completion, and milestone placements (Image 2). The trainee is able to view their personal scores relative to the class average. Since MyPort is mobile friendly, it can be viewed on the go for instant review of valuable feedback. All daily evaluations are made available on MyPort at the completion of a rotation for fellows to view.

DISCUSSION

MyPort has allowed for more effective mentor-mentee relationships since both parties have access to up-to-date information and can formalize action plans in a partnership. We recognize we still have areas of improvement as we have not achieved our target goal of evaluations completed each month. We aim to use the data collected to provide further feedback to our faculty to improve evaluation completion with inclusion of meaningful feedback.

REFERENCES

CONCLUSION

With these innovations, we believe we are transitioning our fellowship from the paper age to the digital age. In the process, we are providing our fellows with meaningful feedback and a user-friendly system to review their performance over time.
The APCCMD Abstract Award for Medical Education Research recognizes Pulmonary and Critical Care Medicine training Program Directors, Associate Program Directors, key 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 and/or Critical Care.

Congratulations to the 2018 awardees:

**FIRST PLACE:**
Morgan I. Soffler, M.D.
Beth Israel Deaconess Medical Center

RUNNER-UP:
Abdulrazak Alchakaki, M.D.
Wayne State University/Detroit Medical Center

**APCCMD Abstract Award for Medical Education Research**

**Putting the Pieces Together: A Novel Simulation Assessment Exercise for the Evaluation of Medical Student Competency**

Morgan I. Soffler, M.D.
Anica Law, M.D.
Sara Boubertan, M.D.
Daniel Ricotta, M.D.
Jakob I. McSparron, M.D.
Asha M. Anandiah, M.D.

Amy Cohen, Ed.M.
Amy Sullivan, Ed.D.
Richard M. Schwartzstein, M.D.
Margaret M. Hayes, M.D.
Beth Israel Deaconess Medical Center

**BACKGROUND**
Evaluation of medical students during the clerkship years is challenging due to resource constraints and a lack of standardized assessment tools. Current methods have been shown to be too subjective (1) and lead to grade inflation (2). Assessment methods that are feasible, objective, standardized, and can identify variation in student performance would be a valuable addition to current practices. Despite widespread use of simulation-based medical education, there is a paucity of data on the use of simulation as an assessment tool. Simulated patients with acute illness provide a unique opportunity for learners to display many key competencies in short patient interactions. The goal of our study is to determine the efficacy of a summative simulation exercise, highlighting care of acutely ill patients, as a means of competency-based assessment of internal medicine clerkship students.

**METHODS**
Medical education and critical care experts iteratively created three simulation cases (1) hypertensive crisis, 2) acute renal failure) and checklists to assess key aspects of evaluation and management of patients with acute illness. Medical students near the end of their internal medicine clerkship at Beth Israel Deaconess Medical Center are eligible to participate. Students participate in three 15-minute simulation scenarios and complete post-session surveys focused on critical thinking and self-assessment, including a rating of certainty in diagnosis and management. A third party evaluator with expertise in medical student training compared and ranked students based on simulation performance checklist assessments and clerkship evaluations across key competency domains highlighted by the AAMC: (3) - history taking, physical exam, clinical management, communication/professionalism, and critical thinking. We are obtaining qualitative data on students’ attitudes about the use of simulation for assessment via focus groups.

**RESULTS**
Forty students are eligible during the August 2017-April 2018 enrollment period. Thus far, 20 students have participated in the study and 4 declined. Total summative scores (Figure 1-red) ranged from 37-71% with a lower quantile (25th percentile) of 48% and an upper quantile (75th percentile) of 58%. Students scored highest in physical examination (median 80%, range 40-100%), history taking (median 71%, range 54-80%), and clinical management (median 71%, range 43-86%). Students scored lowest in physical examination (median 56%, range 25-88%), critical thinking (median 46%, range 7-81%), and diagnostic investigation (median 44%, range 25-56%) (Figure 1). The critical thinking domain had the largest distribution of scores (lower quantile of 34%, upper quantile of 58%) (Figure 1). Ten students (50%) felt their performance during the simulation exercise reflected their overall clinical performance well, while four students (20%) felt their performance during the simulation exercise was not reflective. There was no correlation between student self-rated certainty in diagnosis and management or number of hypotheses (differential diagnoses) generated. Preliminary data show no significant correlation between student self-rated certainty and performance score (Spearman’s correlation 0.4, p=0.12) (Figure 2).
A Novel Simulation-Based Mastery Curriculum for Mechanical Ventilation (MV) in Pulmonary & Critical Care Training Programs

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Wayne State University/OMC

Authors: Norman Theaker, Th.D., R.R.T.
John Dingell VA hospital
Abdulghani Sankari, M.D., Ph.D.
Wayne State University/OMC

BACKGROUND
Competency in proficient and safe mechanical ventilation (MV) is very important in pulmonary and critical care medicine training. Most academic medical centers utilize a didactic-based method for MV teaching. However, there is a clear gap in proficiency between MV didactics and applying the knowledge in real-life clinical applications with critically ill individuals with changing lung mechanics. This gap may affect clinical outcomes including mortality and morbidity. To improve MV education in our program, we created a mastery curriculum for learning MV that aims to improve knowledge and acquire essential competencies for safe and evidence-based clinical practice.

METHODS
This course curriculum blends didactics, high fidelity simulation (SimMan 3G) with bedside MV rounds to optimize MV competency and retention. The training team is comprised of the program director, medical education fellow, respiratory therapist (RT) and simulation coordinator. We used an iron lung to simulate waveform throughout different scenarios. Each trainee underwent the following chronological steps: 1) A baseline knowledge test. 2) A sixty-minute didactic lecture. 3) A baseline one session using a high fidelity simulation manikin and standardized clinical scenarios that test different MV competencies using a standardized checklist (Table 1). 4) A follow-up session with RT to learn knobs, waves, and scalars over approximately 60 minutes. 5) Two sub-groups joined the education fellow and RT for bedside MV rounds in MICU for 60 minutes. 6) A second one-on-one simulation session with debriefing performed approximately 2 weeks later. 7) Completed a post-course knowledge test. Each trainee completed a post-course survey using Likert scale (1-5) to evaluate learners’ satisfaction with different domains of the course.

A total 34 item checklist was used for the mastery simulation sessions in order to assess various MV competencies including indication for ventilation, initiation, troubleshooting, and liberation of MV.

RESULTS
Seven PGY4 trainees have completed this course as part of the orientation boot camp. Each trainee spent less than 5 hours to complete all the 7 steps. All of them demonstrated significant improvement in the knowledge test with mean score (53.3% and 79.0%, p<0.005) at baseline and post-course tests, respectively (Figure 1). The average of completed MV competency items during simulation has improved from 15.4/34 items (45.4%) at baseline to 24.9/34 (73.1%) on the second session (p<0.005) (Figure 2). The course was highly rated by trainees with mean score (4.5/5 on the Likert scale) and perceived as an effective interactive education for new MV learners.

CONCLUSIONS
This novel simulation-based mastery curriculum was an effective method to teach new learners mastery of the basic competencies in MV. It supplements didactics with interactive hands-on MV sessions. In addition, it allows direct observation/assessment of trainees’ in a controlled environment. We are planning a further follow-up to assess long-term retention and implementation of the curriculum to different levels of trainees. Improving MV training using simulation and structured mastery learning techniques may affect clinical outcomes, however, future studies are needed to assess its impact.

REFERENCES

TABLE 1. Mechanical ventilation competency checklist

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<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Indication for ventilation</td>
</tr>
<tr>
<td>B</td>
<td>Initiation of ventilation</td>
</tr>
<tr>
<td>C</td>
<td>Troubleshooting</td>
</tr>
<tr>
<td>D</td>
<td>Liberation of ventilation</td>
</tr>
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FIGURE 1. Average MV knowledge test score per trainee

FIGURE 2. Average of MV competencies completed per trainee

APCCMPD Outstanding Educator Award

APCCMPD members work diligently to foster excellence in education through the training and mentoring of the next generation of educators in Pulmonary and/or Critical Care. The annual Outstanding Educator Award recognizes clinicians who are exemplary clinician educators. The recipient is chosen by his/her peers for demonstrating excellence in the development of future physicians.

Congratulations to the 2018 awardee:

Dr. Kotloff is a graduate of Yale University School of Medicine and completed residency training at Temple University Hospital, and fellowship training at the Hospital of the University of Pennsylvania. He is currently Chairman of the Department of Pulmonary Medicine at the Cleveland Clinic. He is an active clinician who has worked in the field of advanced lung disease and lung transplantation for the past 27 years. In addition to his clinical activities, Dr. Kotloff has made medical education and scholarship a focus of his career. He has authored over 100 peer-reviewed articles, reviews, and book chapters and has edited or co-edited six books. He previously directed the Pulmonary and Critical Care Fellowship Training Program at the University of Pennsylvania for 24 years. He has served as Chair of the Pulmonary Disease Test Writing Committee of the American Board of Internal Medicine, Chair of the Transplant Network of the American College of Chest Physicians, and as President of the Association of Pulmonary and Critical Care Medicine Program Directors. Previous editorial board positions include Associate Editor of the American Journal of Respiratory and Critical Care Medicine, Section Editor for CHEST, and Associate Editor of the Annals of the American Thoracic Society (AnnalsATS). He is currently the Senior Deputy Editor for AnnalsATS.

Robert Kotloff, M.D.
Professor of Medicine
Cleveland Clinic
The APCCMPD Emerging Educator Award honors an up-and-coming clinician educator. The recipient is selected for his/her work in delivering and promoting medical education in Pulmonary and/or Critical Care Medicine through various means at the local and regional level.

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Houston, TX

Paru S. Patrawalla, M.D.
Assistant Professor of Medicine
Icahn School of Medicine at Mount Sinai
New York, NY

Jennifer L. Stahl, M.D.
Clinical Assistant Professor
East Carolina University
Greenville, NC

Amit Taneja, M.D.
Assistant Professor of Medicine
Medical College of Wisconsin
Milwaukee, WI

Congratulations to the 2018 awardee:

Margaret “Molly” Hayes, M.D.
Assistant Professor of Medicine
Harvard Medical School

Dr. Hayes is an Associate Program Director for the Internal Medicine Residency, the director of Medical Critical Care Education at BIDMC, the clerkship director for the Intensive Care Medicine Clerkship at BIDMC/HMS and an assistant MICU Director. She is an active member of the fellowship program evaluation committee and mentors education fellows through the division of PCCM and the Shapiro Institute for Education and Research. Her clinical time is spent in the medical intensive care unit and she has active roles on the Massive and Submassive Clot on Call Team (MASCOT) and ECMO team. Her educational and research interests are creating novel ways to educate trainees on critical care concepts, studying effective methods to teach communication in the ICU, evaluating critical thinking teaching and learning, and assessing the use of videotaping as an educational coaching tool for PCCM fellows.

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, for research projects that further adult pulmonary and critical care graduate medical education.

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The Medical College of Wisconsin
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Stony Brook University Hospital
Efficacy of a Blended Learning Model for PCCM Fellowship Ultrasound Education

Margaret (Molly) Hayes, M.D.
Harvard Medical School/Beth Israel Deaconess Medical Center
Video Review of Teaching as a Means of Evaluation Assessment and Coaching (VTEACH): A Bundled Intervention to Improve PCCM Fellows’ Small Group Teaching

Diana Kelm, M.D.
Mayo Clinic
Identifying Characteristics of Effective Teachers of Invasive Bedside Procedures: A Multi-Institutional Qualitative Study

Lekshmi Santhosh, M.D.
University of California San Francisco
IPASS-ICU: A Multi-Institutional Approach to Improving ICU-Wards Handoffs and ICU Education

Michelle Sharp, M.D.
Johns Hopkins University
Investigating Trainee Burnout and Wellness programs in Pulmonary and Critical Care Medicine

Joshua Still, M.D.
Eastern Virginia Medical School
Academic Pulmonary and Critical Care Medicine: A Specialized Training Curriculum
Honoring Excellence in Pulmonary and/or Critical Care Medicine Education