HARVARD MEDICAL SCHOOL

11th

MEDICAL EDUCATION DAY

BOOK OF ABSTRACTS

TUESDAY OCTOBER 23, 2012
12:00 PM TO 5:30 PM

TOSTESON MEDICAL EDUCATION CENTER

HMS ACADEMY

ELEVENTH ANNUAL

Medical Education Day

HMS PROGRAM IN MEDICAL EDUCATION

October 23, 2012 **Tosteson Medical Education Center** **Harvard Medical School**

INTRODUCTORY KEYNOTE • 12 TO 1:30 PM • TMEC AMPHITHEATER

Welcome & Framing Introductory Remarks – *Richard Schwartzstein, MD*

Keynote: Tips and Trips from a major Curriculum Reform: The Genes to Society Curriculum at John Hopkins – *Patricia Thomas, MD, Professor of Medicine and Associate Dean for Curriculum, The John Hopkins University School of Medicine*

INTERACTIVE TEACHING WORKSHOP SESSION 1 • 1:40 PM TO 2:30 PM

Taking Simulation to the Next Level: Using Medical Simulation to Facilitate Basic and Clinical Science Integration – TMEC 130

Emily Hayden, MD, Charles Pozner, MD, & James Gordon, MD, MPA

Teaching Physical Diagnosis: Linking Mechanisms of Disease to Physical Exam – TMEC 104

Richard Schwartzstein, MD & Joel Katz, MD

Assessing Integration of Basic and Clinical Science – TMEC 448

Graham MaMahon, MD & Keith Baker, MD, PhD

Integrating Population Health Concepts into Clinical Education – TMEC 446

Jonathan Finkelstein, MD & Emma Morton-Eggleston, MD

INTERACTIVE TEACHING WORKSHOP SESSION 2 • 2:40 PM TO 3:30 PM

Taking Simulation to the Next Level: Using Medical Simulation to Facilitate Basic and Clinical Science Integration – TMEC 130

Emily Hayden, MD, Charles Pozner, MD, & James Gordon, MD, MPA

Teaching Physical Diagnosis: Linking Mechanisms of Disease to Physical Exam – TMEC 104

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Assessing Integration of Basic and Clinical Science – TMEC 448

Graham MaMahon, MD & Keith Baker, MD, PhD

Integrating Population Health Concepts into Clinical Education – TMEC 446

Jonathan Finkelstein, MD & Emma Morton-Eggleston, MD

CLOSING PLENARY AND ABSTRACT AWARD CEREMONY • 3:45 TO 4:30 PM • TMEC AMPHITHEATER

Presentation of HMS Medical Education Day Abstract Award 2012
Plenary: Reflection, Next Step and Discussion – *Melanie Hoenig, MD & Fidencio Saldana, MD MPH*

POSTER & TECHNOLOGY SESSION / RECEPTION • 4:30 TO 5:30 PM • TMEC ATRIUM

HMS Faculty and affiliates' poster and technology demonstrations of research projects related to medical education

October 23, 2012

Dear Colleagues:

Welcome to Harvard Medical School's eleventh annual Medical Education Day, sponsored by the Academy and the Program in Medical Education. Medical Education Day, which began in 2002, strives to provide a forum for showcasing the important work of our faculty in the realm of medical education. The day is designed toenable faculty and staff to share ideas across disciplines, departments and institutions; to catalogue the initiatives and educational innovations in which Harvard faculty have been engaged; to recognize the many faculty members who are conducting important educational work; to help foster connections with colleagues; and to broaden the educational skills of faculty through participation in workshops and lectures.

As Medical Education Day has evolved, we have endeavored to ensure that the program also promotes an opportunity to reflect together as a faculty on a topic of significant importance to the education of Harvard medical students and trainees and to bring a variety of perspectives into focus. This year's program will center on the theme of "Integrated Teaching." We hope to stimulate you to consider the cognitive principles underlying the rationale for closely linking basic mechanisms of human biology with the clinical work we all do and teach. Some of what we will discuss and explore will relate to last year's sessions on critical thinking; building upon prior knowledge is one of the keys to enduring learning. Most importantly, we wish to provide you with an introduction to strategies you may wish to employ in your own teaching to enhance and assess learning in our students, residents, and fellows and to foster their ability to apply knowledge to solve problems in patients. We are very excited to welcome Dr. Patricia Thomas, a nationally recognized medical educator who played a major role in redesigning the curriculum at the Johns Hopkins School of Medicine, as the introductory keynote speaker. Dr. Thomas, who is a professor of medicine and Associate Dean for Curriculum at Johns Hopkins, has been involved in the design and implementation of the *Genes to Society Curriculum*, an exciting approach to educating doctors in the 21st century. Dr. Thomas will provide us with key insights into a new paradigm for organizing medical education.

Following her talk, we will offer a series of concurrent workshops, which will focus on aspects of teaching or strategies to transform your present teaching into a more integrative experience for students, residents and fellows; such experiences can be pivotal for the achievement of deep understanding and the refinement of problem solving capabilities. At the conclusion of the workshops, faculty will reconvene in a plenary session during which we will share highlights of our discussions and craft priorities for "next steps" that we can take to improve the learning environment.

The afternoon will conclude with a poster session and reception, during which we will acknowledge four outstanding abstracts with awards for excellence in medical education scholarship. One of our goals for Medical Education Day is to celebrate the hard work of our faculty who engage daily in a collective effort to make teaching at Harvard, and throughout the world, as good as it can be. You will note that the number of insightful projects and research studies grows each year.

For the Academy to provide programs like Medical Education Day, I rely on a wide range of talented and dedicated colleagues. I thank Drs. Melanie Hoenig and Fidencio Saldana, who served as co-chairs for today's program, for their hard work along with the faculty who are moderating the workshops. I also thank Lisa Frontado, the Academy's administrative director, and all the Academy staff for their insights and help in making today a success.

Medical Education Day is a celebration of the important and creative work in medical education that occurs every day in our institutions. We would like to thank all of the abstract authors for their contributions to this event; it is the sharing of this work that makes this day truly special.

Sincerely yours,

Richard Schwartzstein, MD
Director of the Academy at Harvard Medical School
Ellen and Melvin Gordon Professor of Medical Education

Faculty Chairs of Medical Education Day

Melanie Hoenig, MD

Fidencio Saldana, MD, MPH

Medical Education Day Planning and Review Committee

Lisa Frontado, MS, EdM

Edward Hundert, MD

Jane Neill

Toni Peters, PhD

David Roberts, MD

Richard Schwartzstein, MD

Amy Sullivan, EdD

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HMS Medical Education Day Abstract Award 2012

ORAL EXAMINIATIONS IN UNDERGRADUATE MEDICAL EDUCATION – WHAT IS THE 'VALUE ADDED' TO ASSESSMENT?

Luise I.M. Pernar, M.D.[1,2]; Amy M. Sullivan, EdD[3]; Katherine Corso, M.P.H.[2]; Elizabeth Breen, M.D.[1,2]

[1]Department of Surgery, Brigham and Women's Hospital; [2]Center for Surgery and Public Health, Brigham and Women's Hospital; [3]The Academy at Harvard Medical School, Harvard Medical School – UNDERGRADUATE MEDICAL EDUCATION POSTER

"SKYPE ROUNDS:" A NIGHT CURRICULUM FOR PEDIATRIC RESIDENTS

Ariel Frey-Vogel, M.D., MAT, Garrett Zella, M.D., Shannon Scott-Vernaglia, M.D.
Department of Pediatrics, MassGeneral Hospital for Children
– GRADUATE MEDICAL EDUCATION POSTER

INITIATING A STUDENT-FACULTY COLLABORATIVE PRIMARY CARE PRACTICE FOR CHRONIC DISEASE MANAGEMENT

Mitalee Patil, A.B.[1], John Hegde, B.S.[1], Tomi Jun, B.A.[1], Sun Yoo, B.S.[1], Jane Zhu, B.S.[1], Jennifer Katz-Eriksen, M.D., M.Sc.[1,2], Rebecca Berman, M.D.[1,3], Pamela Vohra-Khullar, M.D.[1,4], Kristin Remus, D.O.[1,4], Amy Weinstein, M.D., M.P.H.[1,4]

[1]Harvard Medical School; [2]Department of Obstetrics and Gynecology, Brigham and Women's Hospital; [3]Department of Medicine, Massachusetts General Hospital; [4]Department of Medicine, Beth Israel Deaconess Medical Center – UNDERGRADUATE MEDICAL EDUCATION POSTER

COMMUNICATION SKILLS TRAINING: THE DEVELOPMENT AND ASSESSMENT OF A NEW COURSE FOR COMMUNICATING WITH FAMILY MEMBERS OF CRITICALLY ILL PATIENTS

Laura K Rock M.D.[1], Nina Gadmer ACNP-BC, M.H.A., Grace Malvar, B.A., Richard M. Schwartzstein, M.D., Amy Sullivan Ed.D.[2]

[1]Department of Medicine, Beth Israel Deaconess Medical Center, Division of Pulmonary and Critical Care Medicine; [2]Director of Education Research, Carl J. Shapiro Institute for Education and Research, Beth Israel Deaconess Medical Center
– GRADUATE MEDICAL EDUCATION POSTER

SPECIAL RECOGNITION

MINORITY PHYSICIANS AND RESEARCH CAREERS: APPLYING THE THEORY OF PLANNED BEHAVIOR

Edward Krupat, Ph.D.,[1] Buck Strewler, M.D.,[2] Carlos Camargo, Ph.D.,[3] Janice A. Espinola, M.P.H.,[3] Thomas Fleenor, M.Ed.,[1] Jules Dienstag, M.D.[4]

[1]Center for Evaluation, Harvard Medical School; [2]Cannon Society, Harvard Medical School; [3]Department of Epidemiology, Massachusetts General Hospital; [4]Dean for Medical Education, Harvard Medical School – UNDERGRADUATE MEDICAL EDUCATION POSTER

AWARD RECIPIENT ABSTRACTS FOLLOW

ORAL EXAMINATIONS IN UNDERGRADUATE MEDICAL EDUCATION – WHAT IS THE 'VALUE ADDED' TO ASSESSMENT?

Luise I.M. Pernar, MD[1,2]; Amy M. Sullivan, EdD[3]; Katherine Corso, MPH[2]; Elizabeth Breen, MD[1,2]

1. Department of Surgery; Brigham and Women's Hospital; Boston, MA
2. Center for Surgery and Public Health; Brigham and Women's Hospital; Boston, MA
3. The Academy at Harvard Medical School; Harvard Medical School; Boston, MA

Corresponding Author
Elizabeth Breen
Brigham and Women's Hospital
75 Francis Street
Boston, MA 02115
Tel: 617-525-6450
Fax: 617-734-0336
Email: ebreen@partners.org

Background and Purpose: Oral examinations have a long standing tradition as an assessment tool used in the evaluation of learners at all levels of surgical training, from student to resident to Board Eligible Surgeons. The value of these oral examinations, however, has been questioned, particularly in regard to whether and how oral examinations assess competence in ways not evaluated in other assessment tools. The aim of this study was to identify and describe the implicit criteria faculty examiners use in their grading of medical students' oral exams during their Core Surgery Clerkship, and to provide a preliminary determination of whether the oral exam may assess qualities and competencies beyond less resource-intensive assessments such as shelf exams.

Methods: This study is a retrospective, qualitative analysis of comments provided by faculty examiners (n=43) on the oral examination score sheets evaluating performance of all medical students completing their core surgery clerkship at the Brigham and Women's Hospital during the years 2005-2011. After immersion in the data to develop a set of themes and concepts, we developed a final set of codes, assessed reliability of coding, and coded all exam data using Atlas.ti® qualitative data analysis software. All comments were reviewed and analyzed to determine what qualities examiners detect or naturally comment on when administering the oral examinations. Codes were also labeled as either "positive," "negative," or "neutral" to describe the valence given to the quality observed by the examiner. Codes were described qualitatively and counted to assess frequency of use overall and by examiner.

Results: A total of 629 oral exams for 315 students were examined. Oral exam comments addressed three major areas: (1) **cognitive processes and behaviors in surgical decision making** (described as critical thinking; focus; organization; thoroughness; decisiveness; and pace); (2) **clinical knowledge** (expressed as fund of knowledge; demonstration of appropriate steps in a patient work up [obtaining history and physical exam]; differential diagnosis; and patient management [pre-operative, operative, and post-operative]); and (3) **professional/interpersonal skills** (including demeanor and communication). Three coders coded a random sample of 10% of comments and achieved a moderately high reliability of .83 (Fleiss' Kappa). In addition to the expected focus on how students described conducting the patient work up (observed in 437 of all comments, 21%) there were frequent references to thoroughness (n=218, 8.6%), whether prompting was needed (n=179, 8.6%), organization (n=118, 5.7%), and pace (n=55, 2.6%). Both positive (n=1146, 55.2%) and negative (n=879, 42.3%) comments were identified in the data.

Conclusions: Oral examinations provide rich opportunities for testing many competencies that are important in surgical practice. A number of the qualities evaluated by experienced examiners—namely, cognitive processes and behaviors such as critical thinking, decisiveness, and pace—are not well addressed or not tested at all in other assessment tools. Our identification of these testable competencies can aid in the development of a standardized scoring rubric, and provide faculty guidelines that assess trainees on factors highly valued in the development of a surgeon.

"SKYPE ROUNDS:" A NIGHT CURRICULUM FOR PEDIATRIC RESIDENTS

Ariel Frey-Vogel, MD, MAT, Garrett Zella, MD, & Shannon Scott-Vernaglia, MD, Dept. of Pediatrics, MassGeneral Hospital *for* Children, Contact info: Ariel Frey-Vogel, afrey@partners.org, 617-726-2687

Background: The 2011 ACGME work hour requirements necessitate shift-work among interns which has led many residency programs to utilize a system of day and night teams. The ACGME also requires that night teams be a complement to day teams with a curriculum in place, distinguishing night teams from "night floats," which serve merely to cover patients overnight. Many hospitals, however, do not have in-house faculty for teaching at night. At MGH*f*C, the Pediatric Residency Program created an innovative nighttime curriculum through the use of "Skype Rounds."

Methods: During 2011-2012, the MGH*f*C night team consisted of one junior resident and two interns who worked together over two sets of five consecutive nights in a two-week rotation. Using Skype, the residency program director and both associate program directors each called in to the night team one evening a week to conduct "Skype Rounds." Two nights a week, the night team presented a clinical case of interest for discussion with the faculty member. On the third night, the night team discussed conducting a quality improvement (QI) project. During this process, they reviewed the elements of a QI cycle and, over the course of the rotation, the night team chose a systems issue that would benefit from a QI intervention, conducted a background data collection, and created a proposal for carrying out the cycle. At the end of their rotation, they presented their work to the residency program. In the spring of 2012, resident satisfaction with Skype Rounds as an educational tool was assessed via a survey.

Results: Skype Rounds allowed the residents to present clinical cases to program directors, giving the team dedicated faculty teaching at night. Teams chose to discuss different types of cases, including medical mysteries and "zebras," medically or socially challenging cases, and cases to which they were unsure how to apply the medical literature. Skype Rounds also allowed the residents to think through how to apply the QI cycle to systems issues they had encountered in their work at night. Examples of the QI issues that the residents targeted include acetaminophen standardized dosing problems, missed home medications in the emergency department, and patients arriving from the emergency department without the proper infectious precautions. Residents were asked how valuable Skype Rounds were for their education on a Likert scale of 1-7 with 7 being the highest; 22 residents (48%) from the intern and junior classes responded. More than 60% of residents rated Skype Rounds from 5-7 (at the top of the scale) for the following measures: granting access to an (associate) program director at night (95%), creating an educational opportunity at night (91%), increasing their understanding of QI projects (73%), helping them think through a clinical case (68%), increasing camaraderie (68%), and increasing their ability to complete QI projects (64%). Seventy-three percent of residents rated Skype Rounds from 5-7 for overall value. The program leadership felt that Skype Rounds provided an invaluable opportunity to work with the residents on their critical thinking skills.

Conclusions: Skype Rounds were successful in creating a time for faculty mentored educational activities at night and helped residents to think through clinical cases as well as develop a proposal for a QI project. They also allowed program leadership dedicated teaching time with the residents and a way to evaluate resident thought processes. Skype Rounds are a novel and successful way to provide pertinent nighttime faculty teaching remotely.

INITIATING A STUDENT-FACULTY COLLABORATIVE PRIMARY CARE PRACTICE FOR CHRONIC DISEASE MANAGEMENT

Mitalee Patil, A.B.[1], John Hegde, B.S.[1], Tomi Jun, B.A.[1], Sun Yoo, B.S.[1], Jane Zhu, B.S.[1], Jennifer Katz-Eriksen, M.D., M.Sc.[1,2], Rebecca Berman, M.D.[1,3], Pamela Vohra-Khullar, M.D.[1,4], Kristin Remus, D.O.[1,4], Amy Weinstein, M.D., M.P.H.[1,4]
[1]Harvard Medical School
[2]Department of Obstetrics and Gynecology, Brigham and Women's Hospital
[3]Department of Medicine, Massachusetts General Hospital
[4]Department of Medicine, Beth Israel Deaconess Medical Center
Corresponding Author: John Hegde, 317-508-3130, john_hegde@hms.harvard.edu

Problem: A needs assessment of the primary care practice at Beth Israel Deaconess Medical Center (BIDMC) revealed room for improvement in chronic disease management, in particular by improving patient education. Since patient education is not a major focus in our medical school curriculum, we saw this as an opportunity to train medical students to become more effective patient educators and to improve chronic care management for patients.

Objectives: To develop a new chronic disease management "student-faculty collaborative practice" at the BIDMC Healthcare Associates primary care practice.

Methods: Based on results from the needs assessment, we have developed care management models for patients with hypertension, diabetes, obesity, and COPD in collaboration with the patients' primary care physicians and specialists. Patients are recruited from within existing BIDMC patient panels, with a focus on those who may benefit from additional attention to lifestyle modifications, medication titration and adherence, and behavioral counseling. Patients are seen in a weekly evening clinic by a team which includes a first- or second-year medical student, a third- or fourth-year medical student, and an attending physician. This unique team structure allows the senior student to assume a teaching role and offers the junior student an opportunity to witness disease management prior to clinical rotations. Each hour-long appointment prioritizes patient education. Student committees work to evaluate and improve our practice.

Results: Over its fifth and sixth months of operation, our practice ran at 67% capacity, with a no-show rate of 26% and a same-day cancellation rate of 7%. Student committees have implemented a number of programs to improve and evaluate patient care while educating students. The student education committee has instituted a pre-clinic chronic disease lecture series. The chronic care management committee has developed disease-specific checklists to optimize and standardize care. Our patient education committee has trained student clinicians about methods of motivational interviewing. The research committee has identified patient outcomes for evaluation and has submitted research protocols currently under institutional review. A preliminary internal satisfaction survey of 18 patients showed a mean overall experience rating of 4.89 (5=highest rating).

Conclusions: Our collaborative practice has adopted a time-intensive, counseling-intensive approach focused on patient education needs. Next steps in evaluation include analysis of patient outcome and student impact data, as well as larger follow-up studies regarding patient satisfaction. However, our practice is not yet running at full capacity. Improving patient recruitment and appointment attendance remains a major challenge. Longitudinally, this clinic demonstrates a model for student-faculty co-management of patients who have difficult-to-manage chronic diseases and offers students educational opportunities that complement the traditional medical school curriculum.

COMMUNICATION SKILLS TRAINING: THE DEVELOPMENT AND ASSESSMENT OF A NEW COURSE FOR COMMUNICATING WITH FAMILY MEMBERS OF CRITICALLY ILL PATIENTS

Authors: Laura K Rock MD, Nina Gadmer ACNP-BC, MHA, Grace Malvar, BA, Richard M. Schwartzstein, MD, Amy Sullivan EdD
Presenters: Laura K Rock, MD, Department of Medicine, Beth Israel Deaconess Medical Center, Division of Pulmonary and Critical Care Medicine
Amy Sullivan, EdD, Director of Education Research, Carl J. Shapiro Institute for Education and Research, Beth Israel Deaconess Medical Center
Contact: Laura K Rock, lrock@bidmc.harvard.edu, 617.667.5864 or 617.680.7913

Background. A number of thoughtfully designed training programs have been developed to improve residents' communication skills and practices.[1-6] However, these programs typically require an extended amount of faculty and resident time, which is not feasible in a time-pressured setting and with tightened duty hours. The aim of this program is to deliver efficient and effective training that is seamlessly integrated into daily practice in the clinical setting.

Methods. This is a single-site, prospective intervention study. Outcomes include: longitudinal resident self-report of attitudes, behaviors, and perceived preparation to communicate with families during initial meetings and in discussing transitions in care; and family member reports of their experience of resident-led family meetings. Repeated measures MANOVA is used to test differences in resident attitudes and reported preparation over time, and descriptive analyses will summarize ICU family member experiences with resident communication.

Intervention. The curriculum design is informed by the Theory of Planned Behavior (TPB),[7] which predicts that attitudes, perceived norms, and perceived self-efficacy will shape intentions to perform a behavior, and these in turn precede behavior change. To apply this framework to the clinical context, we use the model of Knowledge Translation (KT)[8] to inform specific strategies used (e.g., on-site training, learner-centered approaches, use of Communication Guide as an ongoing behavioral prompt). KT is recognized by the Institute of Medicine (2001) as an important approach for rapid and sustainable practice improvement.[9]

For this intervention, the faculty-led family communication training is a required component of morning weekly ICU resident rounds for a total of 4 hours of formal training over the 3-week rotation. Teaching methods include use of a Communication Guide, small group discussion, role-play and simulation sessions with feedback provided by trained volunteers and faculty-led debriefing. Volunteers are former patients or family members of former patients who act as family members in the role-play sessions.

Results.* Response rate for residents is 85% (23/27) and family member response rate to date is 83% (15/18). Fifty-six percent of residents were white, 26% Asian, and 8% African American. Seventy percent of the family member sample was female, and more than 90% were white.

Prior to training, 95.8% of residents felt that communication with family members was "very important"; however, few had exprienced communication training during residency and many felt underprepared for carrying out important communication tasks. After the course, residents reported statistically significant improvements ($p<.0001$) in preparation to carry out all 17 surveyed skills, with moderate to high effect sizes (e.g., preparation to lead family meetings, 1-5 scale, pre 2.5- post 3.5; understanding of appropriate language to use in family communication, 2.5-3.4, $p<.0001$). Resident attitudes changed as well: residents were more likely to agree that they wished they could lead more family meetings (pre versus post) (15.4% vs 69.3%); more comfortable talking to family about the possibility of death (30.1% vs 84.6%), and less likely to agree that they dreaded having to deal with the emotional distress of family members of a patient at the end of life (53.8% versus 23.1%).

Conclusion. Integrating a brief GME communications course into ongoing clinical training is feasible, and preliminary evidence suggests this training can positively impact residents' attitudes and self-perceived skills in communication with families. Preliminary data suggest that family members concur that residents demonstrate empathy and clear communication in meetings with them.

***Note:** Data collection is ongoing, and updates will be added to results prior to the October session. Family member ratings of resident communication are very high; however, the numbers of resident-led meetings is still small and further data collection over the next month will provide a better description of family member experience of meetings in the ICU.

MINORITY PHYSICIANS AND RESEARCH CAREERS: APPLYING THE THEORY OF PLANNED BEHAVIOR

Ed Krupat, PhD
Center for Evaluation, Harvard Medical School
Buck Strewler, MD
Cannnon Society, Harvard Medical School
Carlos Camargo, MD, PhD
Department of Epidemiology, Massachusetts General Hospital
Janice A. Espinola, MPH
Department of Epidemiology, Massachusetts General Hospital
Thomas Fleenor, MEd
Center for Evaluation, Harvard Medical School
Jules Dienstag, MD
Dean for Medical Education, Harvard Medical School

Contact information: e-mail: thomas_fleenorjr@hms.harvard.edu; Phone: 617-432-2055

Description:
Purpose: The importance of developing a diverse workforce of biomedical researchers has long been recognized by the National Institutes of Health, yet relatively little is known about the reasons that attract medical students and physicians to research careers, be they traditionally underepresented in medicine or not. Our study has the primary aim of addressing this knowledge gap, with the broader goal of informing interventions to address this national need.

Methods: As part of a larger four-year NIH-funded study, surveys were sent electronically to 326 HMS MD candidates (graduating cohorts of 2013 and 2014) at the end of their preclerkship curriculum. These contained questions about their intentions to pursue a research career and potential career determinants such as: factors they value in a career; the role that peers, teachers, mentors play in their choices; extent of integration/isolation at HMS; and perceived research-based competence.

Results: The response rate was 89%, and 16.4% of the respondents who supplied information on ethnicity were identified as Under-Represented-in-Medicine (URiM). Compared to non-minority students, URiM students placed a significantly higher value on having a career that would help the poor and underprivileged (P<.008); and indicated significantly less interest in a research-based career (P<.019). They felt less competent in their ability to produce clearly written grants and proposals (P<.006), placed less value on the opinions of classmates (P<.001) and teachers (P<.018), felt more isolated (P<.001), and believed that their performance was being judged more closely than others (P<.001).

Conclusions: Findings from the first two first cohorts of HMS students demonstrate notable differences between URiM and non-URiM students in career intentions, beliefs, and perceptions. If research on subsequent HMS cohorts indicates that the career aspirations of minority students are based more heavily on altruistic vs investigative values and that URiM students feel more isolated in their environment, fostering research careers in URiM students will require profound changes in institutional culture.

ELEVENTH ANNUAL

HMS Medical Education Day

Poster and Technology Demonstration

Abstracts (grouped by category)

DYNAMIC IPAD APPLICATIONS IN RADIOLOGY EDUCATION

Seth J. Berkowitz, MD(1,2), Gillian Lieberman, MD(1,2), Graham Frankel(2), Ammar Sarwar, MD(1,2), Larry A. Nathanson, MD(2,3), Steven Horng, MD(2,3), Justin W. Kung, MD(1,2), Ronald L. Eisenberg, MD, JD(1,2), Kevin Donohoe, MD(1,2), Leo L. Tsai, MD, PhD, MSc(1,2), Priscilla J. Slanetz, MD, MPH(1,2)

1. Department of Radiology, Beth Israel Deaconess Medical Center
2. Harvard Medical School
3. Department of Emergency Medicine, Beth Israel Deaconess Medical Center

Presenter:
Seth J. Berkowitz, M.D.
Department of Radiology
Beth Israel Deaconess Medical Center
330 Brookline Ave. Boston, MA 02215
Email: sberkowi@bidmc.harvard.edu
Phone: 617-667-3532
FAX: 617-667-353

Abstract:

Awareness of the unique needs of “millennial learners” is growing across educational disciplines. Many current radiology residents belong to this generation of learners, molded by a culture of the Internet, personal computers and cell phones. They frequently engage and retain more when presented with teaching methods emphasizing multimedia and technology.

The discipline of radiology has undergone a seismic shift. In the past, radiographic examinations contained a handful of images per study. A modern cross-sectional study may generate hundreds to thousands of individual images. In the era of digital image archives, troves of prior studies are now available for comparison with a current exam. We feel that conventional textbooks, while adequate in certain aspects, are a static medium that is no longer optimal to teach the learner the complex practice of modern radiology. Currently, eye training, and search-pattern development occur through experience at the workstation.

We have developed several applications for the iPad that utilize the capabilities of the device to provide highly interactive, immersive training for diagnostic radiology residents and medical students. Our tools emphasize the dynamic nature of modern imaging. For example, a learner can scroll through a cross sectional imaging study in multiple planes or interpret an imaging study in conjunction with prior examinations. Radiologic data are presented in clinical context integrated with patient presentation, relevant laboratory results, and details of appropriate disease processes.

The iPad form factor provides an ideal platform to integrate these engaging radiology applications into a comprehensive medical curriculum.

WWW.IDIMAGES.ORG AND THE EMICROBES DIGITAL LIBRARY: A DIGITAL TOOL FOR LEARNING INFECTIOUS DISEASES

Presenters: Alice M. Cort, MD and Rajesh Gandhi, MD, Division of Infectious Diseases, Department of Medicine, Massachusetts General Hospital, Partners HealthCare System, Inc. Email address: acort@partners.org. Telephone: Dr. Cort (617) 726-7996
Category: Technology Demonstration.

The Partners Infectious Disease Images (www.idimages.org) web site, with the support of a recent grant from the National Library of Medicine, has created the eMicrobes digital library, a new site of easily searchable cases and images to educate healthcare students and providers on important infectious diseases. The new site was developed by investigators at the Massachusetts General Hospital and the Countway Library of Harvard Medical School, Harvard Pilgrim Health Plan, and the School of Information at the University of Texas, Austin, and reflects collaborative efforts among the Infectious Diseases (ID) Divisions at the Massachusetts General Hospital and the Brigham and Women's Hospital, the Ragon Institute and the Infectious Diseases Society of America (IDSA). The site includes images and cases provided by the hospitals' faculty and staff, members of IDSA, ID fellows in training, and by other contributing authors including physicians in resource-scarce settings.

Availability: The www.idimages.org website is free-of-charge to health care professionals, and is particularly useful to medical students, residents and fellows training in infectious diseases, to medical educators and to practicing physicians. In collaboration with the faculty of the Harvard Medical School "Immunology, Microbiology and Pathology" (IMP) course, cases with interactive features have been developed for students in the first two years of medical school to illustrate the major topics covered by the course; many of the cases include additional annotations to explain commonly used medical terms. This resource will be easily available to Harvard Medical School students outside of scheduled class time, either via the web site URL www.idimages.org or through a direct eCommons link.

Teaching and Self-assessment tool: The www.idimages.org web site enhances the teaching of infectious diseases by providing a searchable collection of cases and images that illustrate important pathogens and clinical syndromes. By including high quality images and digital videos of physical findings, radiology, pathology and microbiology in the context of case histories, the site allows trainees and physicians to expand their knowledge of infectious diseases. The medical case material on the www.idimages.org web site can be searched as unknowns, using a self-test feature. The facts of the case are followed by a differential diagnosis, after which appear the diagnostic procedure, discussion and final diagnosis. References include links to PubMed abstracts and papers. Searches can also be performed by organism (e.g. streptococcus), diagnosis (e.g. pneumonia), type of image (e.g. microbiology, radiology, physical finding) and by special collections (e.g. Transplant-ID or Pediatrics). Both specific key-word and drop-down menu search options are available for greater ease-of-use. Use of the images and case material in teaching exercises is encouraged.

LAPAROSCOPIC SURGERY TRAINING SYSTEM (LASTS)

Presenter: Woo S. Do[1], BS
Faculty Sponsor: Steven D. Schwaitzberg[1], MD, FACS
Project Team: Peter Weyhrauch[2], PhD, James Niehaus[2], PhD, Bishop Myers[2], Max Metzger[2], Cristol Grosdemouge[3], PhD, Caroline G. L. Cao[4], PhD, Ray S. Perez[5], PhD
Contact Information: Woo_Do@hms.harvard.edu
1. Harvard Medical School, 2. Charles River Analytics, 3. Tufts University, 4. Wright State University, 5. Office of Naval Research

A more complete and validated set of standards is needed for training and assessing skills for minimally invasive surgery and laparoscopic surgery (MIS/LS). The necessary set of surgical skills must be determined, and these skills must be measured objectively. Additionally, such measures must be validated in terms of cost and learning transfer to the operating room. Furthermore, little is known about the durability of surgical skills, including how skills decay and how to best train and retrain skills to reduce such decay. Therefore, what is needed are a conceptual model and objective measures that reliably assess: (1) surgical skill acquisition during training, (2) skill decay when skills are unused, and (3) skill reacquisition during retraining or refresher courses.

To achieve these objectives, we are developing an automated Laparoscopic Surgery Training System (LASTS) for learning and refreshing MIS/LS skills in simulation. LASTS uses models of skill acquisition, decay, and assessment, as well as individual training models, to maximize training effectiveness and minimize skill attrition.

In developing these models, we performed video-based task analysis to view multiple operations of a single procedure and decompose the procedure into component steps, sub-steps, tasks, and actions. We then performed cognitive task analysis to categorize the varying goals, techniques, dangers, and information requirements that accompany each step of a procedure. The resultant breakdown of each procedure has provided a foundation of objective measures for experiments focused on assessing perceptual and technical surgical skills.

We expect the Laparoscopic Surgery Training System (LASTS) to have benefits for military and civilian medical facilities, for education of students, and for refreshing the skills of staff surgeons. The full-scope LASTS system will allow students and doctors to both learn and refresh their skills in laparoscopic surgery, based on training strategies that prevent decay of highly perishable skills. LASTS models can be used to develop objective metrics and measurement techniques to validate simulated training systems, and ultimately develop better training strategies. Finally, once these metrics are validated, they can be used not only to train, but to assess students and surgeons, as a further step beyond the current assessment systems. The ultimate beneficiaries of this program are doctors and patients. Doctors will have more reliable, efficient, targeted, and less costly training, leading to better overall surgical proficiency. From this, patients will have fewer complications, better results, and higher quality of care.

To ultimately achieve these benefits, we plan to build upon the video-based task analysis and the cognitive task analyses we have competed to date. We anticipate that further experimentation focused on cognitive skills and the finalization of procedure-specific skills trees for additional surgical procedures will aid us in eventually developing a curriculum generator to further advance medical education in the field of MIS/LS.

PROVIDERS, PATIENTS, AND PILLS: A PRESCRIPTION FOR PARTNERSHIP

Tia Kostas, MD[1,2,3]; Allison Paquin, PharmD[1]; Mark Simone-Skidmore, MD[2,3]; James Rudolph, MD[1,2,3]

[1] VA Boston Healthcare System, Jamaica Plain, MA
[2] Brigham and Women's Hospital, Division of Aging, Boston, MA
[3] Harvard Medical School, Boston, MA

Contact: Tia Kostas, MD; 857-364-4153; tkostas@partners.org

This research is partially supported by Dr Kostas' John A. Hartford Center of Excellence Award, and by Dr Simone-Skidmore's HRSA Geriatric Academic Career Award Grant No. K01HP23811. This video was funded by T21 institutional alternatives to long term care grant. Drs. Kostas, Paquin, and Rudolph are VA employees.

STATEMENT OF PROBLEM: Internal medicine (IM) residents at Brigham and Women's Hospital (BWH) lack confidence in medication management in elderly patients. Both internal medicine residents and attending physicians at BWH identify medication management as a learning priority. Appropriate communication between patients and providers is a critical component of medication reconciliation.

OBJECTIVES: We aim to improve communication between patients and providers regarding medication reconciliation through an educational video to improve providers' confidence, attitudes, and behavior around medication reconciliation.

DESCRIPTION OF PROGRAM: We created a professionally-produced video utilizing patient scenarios and expert commentary to highlight three main points regarding communicating with patients about their medications. The video emphasizes that providers must: 1) APPRECIATE the difficulties patients have in taking their medications; 2) APPROACH patients in a nonthreatening, collaborative manner that fosters a team approach to managing medications; and 3) ASK key questions to perform efficient and accurate medication reconciliation. This 12-minute video will be a standard component of the geriatrics rotation and shown to trainees at both BWH and the Veterans Health Administration (VHA). We anticipate training 50 PGY2 IM residents and 8 geriatric fellows each year. We will administer pre- and post-video surveys of trainees' attitudes related to medication reconciliation, reactions to the video, and plans for practice change with regards to medication reconciliation.

FUTURE DIRECTIONS: We plan to expand the reach of this video to include not only trainees but also practicing providers. This video will be distributed to VHA healthcare providers at rural Community Based Outpatient Clinics (CBOCs) around the United States as part of the VHA Geriatric Scholars Program, which educates primary care providers, clinical pharmacists, and social workers to manage medically complex geriatric patients. We plan to eventually make this video widely available as a teaching tool for all those involved in patient care.

PSYCHOPHARMACOLOGY ALGORITHM WEB "APPS"

Robert D. Patterson MD (1, 2); David N. Osser MD (2, 3),
(1) McLean Hospital; (2) Harvard Medical School; (3) VA Boston Healthcare System, Brockton Division; Correspondence: mhc@mhc.com; 617-510-1318

Background Incorporating research findings into clinical practice often takes many years. Even clinicians strongly committed to evidence-based practice often find it difficult to achieve that aim. The Psychopharmacology Algorithm Project at the Harvard South Shore Program has developed techniques and software that facilitate efficient creation of Web applications ("apps") to make psychopharmacology algorithms easily accessible in the clinical workflow where pharmacologic decisions are made.

Methods: Creation of an algorithm software application occurs only after acceptance of a paper version of the algorithm by a peer-reviewed psychiatric journal. Making the software version involves two major steps: 1.) creating the flowchart as an interactive graphic and 2.) writing briefer texts to associate with the nodes of the algorithm. The flowchart graphic is created using Gvedit which was created at AT&T Labs Research. The papers' authors use an off-the-shelf document management system (Joomla!) to write texts for the nodes. References with clickable links to their PubMed abstracts are automatically incorporated into the application from EndNote. These elements are placed into a simple container program which presents the algorithm and allows convenient navigation.

Results: We have successfully completed five algorithms and others are in process. They can be accessed at **www.psychopharm.mobi** and used on smart phones, tablets or larger devices. The earliest algorithms required some refinements of the software and improvements in the documentation to guide authors as they work with the software tools. Eight authors (residents and faculty) have used the system and found it easy to work with. Our goal is to make flowchart creation sufficiently intuitive that non-programmer-authors can create them. However at this time creating the flowcharts require a person with some software programming skills.

The small screens of smart phones are a challenge when an algorithm is complex and the text is extensive. The flowcharts required so far have been manageable on the small screens and authors have not had too much difficulty shortening texts for the software versions.

Conclusion: The authors will demonstrate the algorithms which have been produced by this system which assures a high level of scholarship validated by peer review, ease of software production, and easy insertion into the workflow of clinicians.

A VIRTUAL PRIVATE COMMUNITY FOR LEAD CLINICIANS WORKING IN RESOURCE-LIMITED SETTINGS

Rebecca Weintraub, MD, Division of Global Health Equity, Brigham and Women's Hospital; 617 521 3364, rlweintraub@partners.org; Sophie Beauvais, MS, Division of Global Health Equity, Brigham and Women's Hospital, 617-521-3366, sgbeauvais@partners.org (contact person)

The implementation of evidence-based guidelines has a positive impact on patient outcomes but many in resource-limited settings (RLS) lack access to these resources and must rely on often outdated textbooks and topic-limited guidelines. (McNairy et al.2012). Furthermore, granting access to these resources does not ensure uptake and continued usage, or allow for clinicians to connect and provide feedback on usability and content.

Global Health Delivery Online (GHDonline) is a platform of expert-led virtual communities where health care implementers collaborate to improve the delivery of health care. Membership is free of charge thanks to the support of Brigham and Women's Hospital and Harvard Medical School, as well as private donors. As of August 27, 2012, 7,616 health professionals affiliated with 2,350 institutions in 165 countries had joined 10 public and 71 private communities.

In November 2009, UpToDate®, an evidence-based clinical decision support system authored by physicians, partnered with GHDonline to offer an international grant subscription program and to provide a virtual private community where recipients connect, share their expertise, and access crucial resources to improve clinical service. As of August 27, 2012, an estimated 8,452 clinicians and medical educators in organizations serving poor or underserved populations in 44 countries were able to improve clinical knowledge and patient care by using UpToDate. In this session, we will demonstrate how lead clinicians of donated subscriptions at each organization (200+ members) use the private community on GHDonline to organize initial training sessions with their teams, provide feedback on access limitations, make content suggestions, share patient cases demonstrating impact of UpToDate, and to connect with colleagues worldwide.

THE IPAD AS A RADIOLOGY EDUCATION TOOL: POST IMPLEMENTATION EXPERIENCE

Seth J. Berkowitz, MD[1,2], Justin W. Kung, MD[1,2], Ronald L. Eisenberg, MD, JD[1,2], Kevin Donohoe, MD[1,2], Leo L. Tsai, MD, PhD, MSc[1,2], Priscilla J. Slanetz, MD, MPH[1,2]

1. Department of Radiology, Beth Israel Deaconess Medical Center
2. Harvard Medical School, Boston, MA 02215

Seth J. Berkowitz, M.D.
Department of Radiology
Beth Israel Deaconess Medical Center
330 Brookline Ave. Boston, MA 02215
Email: sberkowi@bidmc.harvard.edu
Phone: 617-667-3532
FAX: 617-667-353

Abstract:

The purpose of this study was to assess the usage patterns and resident opinions of the iPad as a radiology education tool at an academic medical center. Six months after providing an iPad 2 tablet to the 38 radiology residents in our radiology program, an anonymous voluntary electronic survey was distributed. The iPads were used daily by 86% of the residents. A majority of residents used their iPad during didactic conferences (74%) to look up relevant information about cases being discussed. The most popular radiology-specific applications were E-anatomy and the apps for Journals such as Radiology and Radiographics. Other popular applications included the web browser, email, and any type of PDF reader. Most residents preferred to read journal articles on the iPad (70%) rather than on paper or traditional computer. However, residents were divided between reading textbooks on the iPad (48%) versus traditional bound form. The iPad has generated excitement within the radiology community, particularly among resident educators who are increasingly recognizing the unique needs of "millennial learners." To date, there has been no quantitative study of resident experiences with this device after deployment in a residency program. Our data show that the majority of our residents view the iPad as a valuable learning aide, particularly well suited towards such tasks as reading and annotating journal articles and accessing anatomy atlases. The results of the survey will also help us direct our efforts to create custom iPad applications to address currently unmet academic and clinical needs.

FACE AND CONSTRUCT VALIDATION OF A VIRTUAL PEG TRANSFER SIMULATOR

Venkata S Arikatla[1], Ganesh Sankaranarayanan[1], Woojin Ahn[1], Amine Chellali[2], Suvranu De[1], Caroline GL[5], John Hwabejire[3], Marc DeMoya[3], Steven Schwaitzberg[2], Daniel B. Jones[4]

[1]Center for Modeling, Simulation and Imaging in Medicine, Rensselaer Polytechnic Institute
[2]Department of Surgery, Cambridge Health Alliance and Harvard Medical School
[3]Division of Trauma, Emergency Surgery and Surgical Critical Care, Department of Surgery, Massachusetts General Hospital and Harvard Medical School
[4]Department of Surgery, Beth Israel Deaconess Medical Center and Harvard Medical School
[5]Department of Biomedical, Industrial and Human Factors Engineering Wright State University

Presenter: [3]John Hwabejire, MD, MPH
Contact: [3]Marc DeMoya, MD; mdemoya@partners.org; 617-724-4121

Background: The Fundamentals of Laparascopic Surgery (FLS) trainer box is now established as a standard for evaluating minimally invasive surgical skills. A particularly simple task in this trainer box is the peg transfer task which is aimed at testing the surgeon's bimanual dexterity, hand-eye coordination, speed and precision. The Virtual Basic Laparoscopic Skill Trainer (VBLaST©) is a virtual version of the FLS tasks which allows automatic scoring and real time, subjective quantification of performance without the need of a human proctor. In this paper we report validation studies of the VBLaST© peg transfer (VBLaST-PT©) simulator.

Methods: Thirty-five subjects with medical background were divided into two groups: experts (PGY 4-5 surgery residents, fellows and practicing surgeons) and novices (PGY 1-3 surgery residents). The subjects were asked to perform the peg transfer task on both the FLS trainer box and the VBLaST-PT© simulator and their performances were evaluated based on established metrics of error and time. A new length of trajectory (LOT) metric has also been introduced for offline analysis. A questionnaire was used to rate the realism of the virtual system on a 5-point Likert scale.

Results: Preliminary face validation of the VBLaST-PT© with 34 subjects rated on a 5-point Likert scale questionnaire revealed high scores for all aspects of simulation, with 3.53 being the lowest mean score across all questions. A two-tailed Mann-Whitney performed on the total scores showed significant ($p=0.001$) difference between the groups. A similar test performed on the task time ($p=0.002$) and the length of trajectory ($p=0.004$) separately showed statistically significant differences between the experts and novice groups ($p<0.05$). The experts appear to be traversing shorter overall trajectories in less time than the novices.

Conclusion: VBLaST-PT© showed both face and construct validity and has promise as a substitute for the FLS in training peg transfer skills.

Key words: Virtual reality, Surgical training, Face validity, Construct validity, Laparoscopy, Length of trajectory

DEVELOPING THE ELECTRONIC SHIFT CARD- A COMPUTERIZED EVALUATION TOOL INTEGRATED INTO THE ELECTRONIC HEALTH RECORD FOR MEDICAL STUDENT ASSESSMENT

Authors:
David T.Chiu MD, Jennifer V Pope MD, Edward A. Ullman MD, Carlo L Rosen MD, Carrie D Tibbles, Charles L Johnson, Larry A Nathanson MD, Jonathan Fisher MD MPH
Department of Emergency Medicine, Beth Israel Deaconess Medical Center

Contact Info: Jonathan Fisher, MD
Email: jfisher2@bidmc.harvard.edu
Phone: 617-754-2323

Background: Evaluation of medical students is an important component of undergraduate medical education as the feedback that is provided can identify and address specific areas of improvement around competencies. Medical students rotating in an emergency department (ED) usually work with a large number of different attending physicians making it difficult to provide comprehensive and timely feedback. One traditional solution has been the use of "shift cards" for evaluations. Limitations of shift cards include low numbers of cards, timely completion, and poor quality assessments.

Objective: To determine the benefits of implementing an electronic "shift card" evaluation system for medical students integrated into the EHR.

Methods: An anonymous electronic evaluation with both summative and formative components was embedded into the ED tracking system. This allowed automated recording of the number of patients a medical student saw with a particular attending. The electronic evaluation system would then trigger an alert to that attending to evaluate the student based on a predetermined number of cases seen. Areas of evaluation include Data Acquisition, Data Interpretation, Knowledge Base, Professionalism, Patient Care and Communication, Initiative and Dependability, Procedural Skills and a general comments section.

Observations: The electronic "shift card" is in the pilot phase. Faculty have found the card easier to use and more convenient. Evaluations have tended to show greater narrative content, a wider distribution of scores, and have been received in a timely manner.

Conclusions: Use of a computerized evaluation tool integrated into the ED tracking system is well received and may provide better quality and more timely feedback and assessment.

INTRAOPERATIVE CT: A TEACHING TOOL FOR THE SURGICAL MANAGEMENT OF COMPLEX FACIAL FRACTURES

Presenters: Ahmed M. S. Ibrahim, MD; Amr N. Rabie, MD; Bernard T. Lee, MD; Samuel J. Lin, MD

Affiliation: Department of Surgery, Division of Plastic Surgery, Beth Israel Deaconess Medical Center, Harvard Medical School

Contact information: Phone: 617-632-9828 Email: aibrahim@bidmc.harvard.edu

Background:

Repair of complex facial fractures following trauma can be challenging for the surgeon- in-training**.** Intraoperative computed tomography (CT) is an innovative modality in the management of various types of bony reconstructive surgeries to provide post-reduction or intra-operative scans that provide the surgeon information regarding the need for extra maneuvers for the best intraoperative fracture reduction. We designed an educational algorithm for teaching and evaluating the management of surgical residents in performing complex facial fracture reconstruction by using intraoperative CT.

Methods:

Seven adult facial fracture patients were enrolled with various types of fractures. Patients were seen in the Emergency Department and then referred to the operating room for facial fracture repair. The surgical resident under the supervision and guidance of the attending surgeon proceeded to expose, align, and reduce the facial fracture. An intraoperative CT scan was done and a review of the images was independently performed by both the surgical resident and the attending surgeon. Management options were discussed and a decision is made as to whether to move forward with closure, or, in case of inadequate reduction, a revision was immediately performed.

Results:

Facial fracture management with intraoperative CT monitoring was improved in 3 of the 7 cases. Immediate fracture reduction revision was required in 3 patients. Initial reconstruction was satisfactory in 4 patients. The end result was a more precise, better-quality surgical outcome.

Conclusions:

Intraoperative CT scanning may affect the outcome of surgical procedures in complex facial fracture reductions. This technique provides the surgical residents with an opportunity to improve on their technique without compromising the outcome of the procedure. The benefits of this technology also extend to the patient where a revision procedure is avoided.

ASSESSMENT OF THE ROLE OF A WEB-BASED CERVICAL CANCER SCREENING PROGRAM (CCSP) IN PROVIDER'S COMPLIANCE WITH AGE-APPROPRIATE SCREENING RECOMMENDATIONS (AASR) AND UPDATED CLINICAL MANAGEMENT GUIDELINES (CMG)

Sheida Sharifi MD., PhD.; Department of Pathology; Mount Auburn Hospital
E-mail: ssharifi@mah.harvard.edu; Phone: (617)499-5064

Background: Previous institutional data revealed a wide range of differences in screening practices and lack of adherence to CMG among providers. The deviation from recommended guidelines ultimately leads to unnecessary tests, excessive examinations, higher rate of subsequent referrals to colposcopy and other procedures.

Objectives: The web-based CCSP was developed as an institutional reference guide to provide easy access to recent updates and information in issues related to cervical cancer with direct links to clinical and laboratory resources.

Target participants: Thirty six providers, including residents, nurse practitioners, nurse midwives, primary care- and Ob/Gyn- physicians with active records in performing Pap test agreed to participate in the evaluation of the program.

Educational strategies: The CCSP was designed and launched in the clinical resource page of the MAH portal web-site. It offered information about important aspects of cervical cancer epidemiology, test ordering, sample collection, reporting, AASR and CMG. Direct links to various educational resources and patient educational material were provided.

Evaluation design: The participants submitted an initial survey and were evaluated for their baseline knowledge and performance with regard to AASR. The CCSP was activated on the MAH portal website. The participants were then instructed to utilize the program as a reference guide to complete their second survey and to comment on the web-site performance.

Results: The results of the initial survey indicated a wide variety in screening practices among providers with low rate of compliance with the current recommended clinical guidelines. 25 Of the 36 providers (69%) responded to both surveys. The analysis of the results show improved compliance rate for majority of age specific indications. Approximately 83% of participants rated the website performance as good, very good and excellent. 88% identified the clinical guidelines as the most useful section and considered visiting the web-site as a reference guide either regularly (32%) or occasionally (56%).

Conclusion: The implementation of the web-based CCSP has shown to be a valuable source of information in issues related to cervical cancer. The overall high rating and usability of this program with direct access to various professional clinical and laboratory links will over time play an important role in promoting appropriate test ordering patterns and ultimately lead to closing the gap between current clinical practice and the recommendations set forth in the recent updated guidelines.

SIMULATION TRAINING IN INTRAUTERINE CONTRACEPTION INSERTION AND REMOVAL: AN INTERVENTION TO IMPROVE MEDICAL STUDENTS' COMFORT, SKILL, AND INTEREST

Presenters: Amy Paris, MD[1]; Rie Maurer, MA[2]; Roxane Gardner, MD, MPH, DSc[1]; Natasha Johnson, MD[1]; Deborah Bartz, MD, MPH[1]

[1]Department of Obstetrics and Gynecology, Brigham and Women's Hospital
[2]Center for Clinical Investigations, Brigham and Women's Hospital

Contact Person: Deborah Bartz, dbartz@partners.org, phone 617-52-7744

ABSTRACT
OBJECTIVES: Opportunities for medical students to place intrauterine contraception (IUC) in patients are rare. This study was designed to determine if participation in a simulation exercise will increase medical students' knowledge, comfort level, and willingness to recommend IUC.

METHODS: A prospective cohort study was undertaken, which included all Harvard Medical School students completing the obstetrics and gynecology clerkship at one institution throughout one academic year. The intervention consisted of a lecture and a 30 minute, hands-on practicum in IUC placement and removal using medical instruments and realistic pelvic models. Both levonorgestrel and Cu380A IUC devices were taught. Participants completed a pre- and post- simulation survey, designed to examine students' IUC-specific knowledge, attitudes, and comfort. Pre- and post-simulation responses were compared by Signed Rank test.

RESULTS: Twenty-nine paired pre- and post-simulation surveys were analyzed (74% completion rate). Compared to before the simulation, median knowledge scores doubled following the intervention ($p<.001$). Students' willingness to recommend IUC to patients also doubled ($p<.001$), and 52% percent were more likely to recommend IUC to a family member after the simulation. Eighty-three percent reported improved confidence in their ability to place an IUC following the simulation. Seventy-two percent of students reported increased interest in women's health and 79% reported an increased interest in contraceptive management after this intervention.

CONCLUSIONS: A hands-on simulation during the obstetrics and gynecology clerkship increased medical students' knowledge about IUC and resulted in more favorable attitudes toward the method. The addition of IUC simulation in medical curricula may help expand utilization of this effective contraceptive method.

SIMULATION BASED TEACHING CURRICULUM FOR PERIOPERATIVE TRANSESOPHAGEAL ECHOCARDIOGRAPHY FOR ANESTHESIA RESIDENTS: PLOTTING A LEARNING CURVE

Author(s): Bose R., Matyal R., Mitchell J., Hess P., Mahmood,F.
Institute: Beth Israel Deaconess Medical Center, Department of Anesthesiology, Critical Care and Pain Medicine, Harvard Medical School, Boston

Background:
Simulation training has been utilized to reduce the initial learning curve in procedures requiring hand eye coordination such as laparoscopic surgery. Transesophageal echocardiography (TEE) requires development of similar skills. A simulation based TEE curriculum was developed for the anesthesia residents. The aim of the study was to demonstrate improvement in image acquisition skills.

Material and Methods:
The study included anesthesiology residents(n=18) with minimal prior experience in echocardiography. The basic echo curriculum comprised of eight sessions for every group of six residents each. Components of the curriculum included :

- Didactic lectures on basic principles of ultrasound, image acquisition and structure identification.
- Hands on training on the simulator (Vimedix CAE Healthcare) featuring a fully functional TEE probe and
- mannequin..
- Evaluation: At baseline and after each teaching session with TEE Metrics software which can measure probe manipulations in x, y and z coordinates.

Results and discussion:
There was a progressive decrease in the number of probe manipulations required to obtain a target image. All the residents were able to achieve the predefined acceptable level of expertise at the end of the curriculum.

Conclusion:
Simulation based TEE curriculum was demonstrated to significantly improve image acquisition skills which are a key element of perioperative echocardiography. This study charted the learning curve for image acquisition and helped define the time line required to reach an acceptable level of proficiency which is useful in designing a formal curriculum for residency.

THE USE OF SIMULATION IN THE EDUCATION OF INTERNAL MEDICAL RESIDENTS: 3 YEARS OF THE MGH EXPERIENCE

Ada Stefanescu, MD, Eli Miloslavsky, MD, Lee Park, MD, Ian Barbash, MD, Katie Famous, MD PhD, Susan K. Mathai, MD, Fernando Contreras, MD, Emily Hayden, MD, James Gordon, MD, MPA, Paul Currier, MD, MPH
Massachusetts General Hospital, Department of Medicine
Contact: Paul Currier, pcurrier@partners.org (617) 726-1411

Introduction: High-fidelity medical simulation is playing a recognized role in medical school education and in many procedure-based specialties. However, experience with simulation in internal medicine is limited. We present an initiative in the Department of Medicine (DOM) at the Massachusetts General Hospital (MGH) in which a simulation curriculum has been developed for interns. The scenarios and debriefing sessions are led by PGY-2 and PGY-3 residents. The curriculum was developed to ensure that all interns are exposed to and have an opportunity to engage in deliberate practice of a set of core clinical scenarios encountered on the wards and in the intensive care units (ICU).

Description: Each intern participates in 8 simulation cases over 4 sessions during their ambulatory rotation in the first four months of the year. PGY-2 and PGY-3 residents volunteer to facilitate sessions. A group of three PGY-3 simulation resident leaders coordinate the entire curriculum with faculty support. Surveys are filled out by the participants at the end of each session, and a comprehensive survey is sent to interns and facilitators at the end of each 4 week block. The cases include: hypertensive emergency, chronic obstructive pulmonary disease exacerbation, gastrointestinal hemorrhage, myocardial infarction, congestive heart failure exacerbation, tamponade, altered mental status/alcohol withdrawal, and atrial fibrillation with rapid ventricular response. The curriculum was created and piloted on a voluntary basis in 2010-2011, became mandatory for categorical interns in 2011-2012 and is mandatory for all interns (categorical and preliminary) in the 2012-2013 academic year. In addition, an ICU curriculum composed of two cases was piloted on a voluntary basis in the spring 2011-
2012. This portion of the program will be administered on a mandatory basis during the spring of the 2012-2013 academic year.

Results: Over the past two years, survey data has shown that 76% of participants thought the sessions were “excellent”. Data from the 2011-2012 survey showed that all participants felt that the sessions significantly (53%) or moderately (47%) improved their ability to respond to acute clinical scenarios. Debriefing with resident facilitators was frequently cited as one of the strengths of the program.

Future Directions: Current initiatives within the simulation program include expanding the ICU curriculum, developing a simulation curriculum for PGY-2 residents, and building a teaching curriculum aimed at resident facilitators. We are also considering creating opportunities for formative individualized feedback and incorporating an evaluation component to assess core competencies.

Conclusion: A case-based simulation curriculum, facilitated principally by residents, was created, piloted and implemented over three academic years in the MGH DOM. Based on survey data, participants and facilitators found it useful, instructive, and enjoyable.

A NOVEL ADJUNCT TO SURGICAL TRAINING: USING TECHNOLOGY TO IMPROVE RESIDENT SKILLS IN A SIMULATED OPERATING ROOM

Nicole A. Kissane MD, Steven Yule PhD, Charles N. Pozner MD, Douglas S. Smink MD, MPH

Neil and Elise Wallace STRATUS Center for Medical Simulation, Department of Surgery, Department of Emergency Medicine, Brigham and Women's Hospital.

Contact information: 617 732 8577. nkissane@partners.org

Background: Surgical simulation has been shown to enhance surgical training. The American College of Surgeons / Association of Program Directors in Surgery (ACS/APDS) has developed a formalized surgical skills curriculum that educates residents in basic/core skills and individual tasks, advanced procedures, and team-based skills. We have expanded this curriculum within the Brigham and Women's general surgery residency program to include immersive simulation in our mock operating room. This unique curriculum aims to provide intern and mid-level residents with experience, autonomy, and opportunities to practice technical and non-technical skills in a safe learning environment with feedback from expert faculty.

Methods: Two intra-operative scenarios were developed from cases in the ACS/APDS Surgical Skills Curriculum focusing on technical and non-technical aspects of performance for implementation in a simulated operating room. These scenarios involved both laparoscopic and open surgical skills, and employed a surgical team consisting of a circulating nurse, surgical scrub tech, and anesthesiologist, with the surgical resident taking over a case from the attending surgeon. The session was incorporated into the existing academic curriculum. Interns and mid-level residents participated in this educational session individually.

Results: This is a work in progress: the poster presentation will detail the method used to translate surgical cases from a national curriculum into live teaching tools for surgical residents. These two scenarios were piloted with three mid-level residents. An additional 23 residents (14 male, 9 female), with an average of 1.5 years of surgical training were recruited and participated in both scenarios. Initial analysis of post-scenario attitudes indicated that the residents found this to be a novel learning opportunity and useful adjunct to their surgical education. Current analysis involves assessing skills from video using a structured objective method which will be reported at the Academy symposium.

Conclusions: We translated two cases from the ACS/APDS Surgical Skills Curriculum into simulated scenarios and developed a one-hour immersive educational experience for surgical residents to improve skills in a simulated operating room. Initial feedback was positive. Current research is focused on assessing the impact of this curriculum on surgical performance.

COMBINING HIGH-FIDELITY SIMULATION AND SKILLS TRAINING IN-SITU TO PREPARE RESIDENTS FOR A PEDIATRIC ANESTHESIA ROTATION: A PILOT PROGRAM

PRESENTER: Christine L. Mai, MD
AFFILIATION: Department of Anesthesia, Critical Care and Pain Medicine
Massachusetts General Hospital, Boston, MA
CONTACT INFORMATION: 617-901-8575; E-MAIL: cmai1@partners.org

INTRODUCTION: Simulation-based training has become a popular method of teaching in health care. Traditionally, lecture-based curriculum is the primary mode of orienting anesthesiology residents to specialty-specific rotations. We describe the development and implementation of an immersive simulation-based two-hour orientation curriculum incorporating procedural skills (via task trainers) and high-fidelity mannequin simulation to teach initial treatment of common intraoperative events.

METHODS: Anesthesiology residents participate in a recurring monthly orientation curriculum utilizing simulation on the first day of their pediatric anesthesia rotation at Massachusetts General Hospital, in lieu of the standard didactic lecture orientation. These sessions are taught in-situ in the operating rooms by pediatric anesthesia faculty. By integrating high-fidelity simulation with skills training, the curriculum focuses on common pediatric anesthesia problems and procedures specific to this subspecialty. Residents are divided into two groups, each group participates in one hour of high-fidelity simulation and one hour of skills training, both followed by feedback/debriefing sessions. The two case scenarios include: 1) a parent interview for anesthesia consent and a parent-present standard inhalation induction (Laerdal SimBaby), and 2) a pediatric airway emergency scenario during routine surgery. The skills training involve intubating an infant mannequin (Laerdal Sim NewB), peripheral IV placement (NITA Newborn Modal #800 Infant Access Simulator, VATA), and caudal anesthesia techniques (M43C Pediatric LP Simulator, Kyoto Kagaku).

RESULTS: The pilot orientation was initiated September 1, 2011, with 2-4 residents participating each month. 21 residents have completed the orientation to date and have all rated the course to be very positive and helpful on anonymous survey. The course is reproducible and sustainable each month.

DISCUSSION: Each subspecialty rotation presents unique and potentially challenging situations, which makes orientation a critical time for novice learners. Our group created a multi-modal curriculum to help familiarize and prepare residents for challenges, with neither the production-pressure nor risking patient care. This model may be a useful approach to teaching skills and how to handle emergencies within the context of a subspecialty rotation.

REQUIRED LEVEL-SPECIFIC SIMULATION TRAINING FOR PEDIATRIC TRAINEES: IS IT FEASIBLE?

Shannon E. Scott-Vernaglia, MD*, Lindsay P. Carter, MD, Garrett C. Zella, MD & Ariel S. Frey-Vogel, MD, MAT, Department of Pediatrics, MassGeneral Hospital *for* Children; *Contact: 617-726-2687, sscottvernaglia@partners.org

Background: In 2002, the ACGME tasked residencies to move beyond the simple exposure of trainees to educational opportunities to structured teaching and assessment of residents' competency in six areas essential to the independent practice of medicine. In order to assess the trajectory toward competency, residents should be directly observed and taught by faculty as they work to develop the knowledge, skills, and attitudes expected of independently practicing physicians in their field. While residents are directly observed in a variety of clinical settings, the actual cases observed are, by their very nature, variable. High fidelity simulation is an ideal means for priming resident learners to absorb immediate, relevant, critical teaching in a way that can be standardized. Typical team-based simulations (e.g. "mock codes") allow trainees to learn through simulation, but because these are team-based, trainees who are quieter or more junior may frequently opt to be less involved. We describe a pilot feasibility project aimed to standardize the teaching and assessment of pediatric residents' competency through required, level-specific, longitudinal simulations in the PGY-1 year.

Methods: For the 2011-2012 academic year, a group of core faculty members without significant prior experience in simulation developed six simulation case scenarios around the assessment and management of critically important pediatric illness presentations. Topics were chosen by consensus to be not only relevant to the day-to-day learning of PGY-1 pediatric residents, but also essential to ultimately being considered competent for independent practice in the field. Cases were reviewed and edited iteratively by the faculty group, and then tested in the simulation laboratory with residents having just completed the PGY-1 year. All fifteen categorical PGY-1 residents were then scheduled for directly observed performance in the six standardized clinical simulations longitudinally over the year. A format of paired interns working through two cases, each leading one, allowed faculty to focus on the individual residents' skills, rather than on their functioning as part of a larger team. The simulations were run by the core faculty group, with a faculty:resident ratio of at least 2:2. Immediate post-simulation teaching built on residents' experience in the case, with relevant readings provided at the end.

Results: We successfully ran 93% of the scheduled simulations, with only three interns missing one pair of cases. As part of an annual anonymous residency survey, 87% of PGY-1 residents responded to a question about the value of the longitudinal simulation program. Compared with eighteen other teaching/learning opportunities assessed, the longitudinal simulation sessions ranked second, with 82% of respondents rating it "very good" to "excellent" (4 or 5 on a 5-point Likert scale), for an average score of 4.23. Core faculty reported feeling more able to assess resident strengths and areas for improvement, and all enthusiastically agreed to continue participating after the pilot.

Conclusions: We have shown that it is feasible to develop a simulation program in a medium-sized residency that provides all trainees of a given level with standardized teaching through faculty-led simulation. Given the success, we are initiating longitudinal simulation cases for PGY-2 and -3 residents, with the goal of training all residents in 18 standardized, core pediatric simulations prior to program completion. Longitudinal, standardized simulation is a critical tool for programs to consider as they move toward teaching, and ultimately assessing, residents' core competencies.

IMPROVING PHYSICIAN COMPETENCY IN ULTRASOUND-GUIDED CENTRAL VENOUS ACCESS

Heidi C. Werner, MD, Rebecca L. Vieira, MD, Rachel Gallagher, MD,
Jason A. Levy, MD, Division of Emergency Medicine, Boston Children's Hospital

Contact Info: Heidi.werner@childrens.harvard.edu; 617-355-6624

Background: Ultrasound guidance for central vessel catheter (CVC) placement results in improved success and safety of this procedure, but is a new skill for Pediatric Emergency Medicine (PEM) physicians. No study to date has used simulation-based learning to evaluate the ability of PEM providers to perform ultrasound-guided CVC placement.

Objective: To assess the competency of PEM physicians in ultrasound-guided CVC placement before and after an educational intervention using a simulator model.

Methods: We performed a prospective cohort study evaluating PEM physician competency in ultrasound-guided CVC placement before and after an educational intervention. Technical skill was scored using a validated direct-observation checklist that was developed and validated using the modified Delphi method. Checklist "critical steps" were determined using the modified Angoff method. Competency was defined as successfully completing the procedure by performing all critical steps on the checklist.

Subjects participated in two testing sessions, an "intervention" session and a "just-in-time" session. During the "intervention" session participants were observed performing US-guided CVC placement on a simulation model before and after a standardized educational intervention. Physician performance was scored using a validated checklist. The educational intervention consisted of a standardized lecture, demonstration on the model, and a Q&A period. Physician performance was scored again at an unannounced time two months later during a "just-in-time" session.

The primary outcome was change in competency between pre-test and two-month follow-up. We also evaluated change in median score on the checklist before and after the intervention. We performed secondary analyses investigating the correlation between initial test scores and factors thought to contribute to pre-intervention competency.

Results: Twenty-eight PEM physicians participated in both testing sessions. The number of subjects displaying competency increased at the two-month follow-up when compared to the pre-intervention session (93% vs. 33%, respectively; $p<0.001$). The median checklist score was higher at two-month follow-up (94%, IQR 88-100%) compared to the pre-intervention session (71%, IQR 29-82%; $p<0.001$). Number of central lines placed and number of US-guided central lines placed were each positively correlated with pre-test checklist score (all $p<0.05$).

Conclusion: Use of a simulation-based educational intervention results in improved PEM physician competency in ultrasound-guided CVC placement, the effect of which is maintained over time.

DEVELOPMENT OF A SIMULATION BASED ASSESSMENT TOOL TO MEASURE EMERGENCY MEDICINE RESIDENT COMPETENCY

Kathleen Wittels, MD
Department of Emergency Medicine
Brigham and Women's Hospital
Email: kwittels@partners.org
Phone: 617-732-7084

Human patient simulation (HPS) has become an important part of medical and graduate medical education, and there has been significant growth in its incorporation into Emergency Medicine (EM) residency training. While HPS is well developed as an educational method, there is less known about its efficacy as an assessment tool in EM. The goal of this project was to develop simulation cases in core topics of resuscitation critical to EM training, and to have residents complete the cases with faculty observers present to assess their performance. The performances are also reviewed on video by a third faculty member. Second year residents of the Harvard Affiliated Emergency Medicine Residency at BWH/MGH completed cases covering the topics of sepsis and cardiogenic shock. Ninety-two percent of residents demonstrated competency in the sepsis case, and 75% of residents demonstrated competency in the cardiogenic shock case as rated by the observing faculty. Inter-observer agreement was demonstrated with many of the checklist items. Residents who were rated as passing the sepsis case missed an average of 3 checklist items, while those who did not pass missed an average of 5 items; for the cardiogenic shock case the values were 2.5 and 3.6, respectively. Residents rated the experience as both fair and helpful. Resident evaluation of the session included frequent mention of the value of one on one feedback with the attending after each case. Future direction includes expanding the number of residents who participate in the observed simulation cases as well as adapting cases for use in medical student education.

RELIABILITY, FIDELITY AND USEFULNESS OF A SIMULATION-BASED ASSESSMENT OF ANESTHESIA RESIDENT PERFORMANCE

Authors: RH Blum[*β]; JB Cooper[#β]; S Muret-Wagstaff[+β]; and the HARP Study Group [@β]

Affiliation: Center for Medical Simulation and *Department of Anesthesia, Perioperative and Pain Medicine, BCH; [#]Department of Anesthesia, Critical Care and Pain Medicine, MGH; [+]Department of Anesthesia, Critical Care and Pain Medicine, BIDMC; [@]Harvard Assessment of Anesthesia Resident Performance Study Group; and [β]HMS

Introduction: Resident performance assessment conducted in time for remediation is critical to both patient safety and a comprehensive learning system in anesthesia. We developed a simulation-based assessment instrument and describe the initial reliability and perceptions of its usefulness as judged by trainees, facilitators and raters.

Methods: Following IRB approval, 74 anesthesia trainees (50 CA-1, 16 CA-3, 8 fellows) participated in 7 Harvard Assessment of Anesthesia Resident Performance (HARP) scenarios during a 3 hour simulation session with a 15 minute feedback period. Critical performance behaviors were identified by expert consensus using a modified Delphi technique; scenarios and scoring rubric were designed iteratively using key informant interviews, literature review and pilot testing. Six senior faculty facilitated sessions. A subset of 30 initial video sessions were independently double-scored by trained faculty raters based on a 7-point behaviorally anchored rating scale with 5 domains: (1) formulate a clear anesthetic plan; (2) implement plan under changing conditions; (3) communicate effectively; (4) identify ways to improve performance; (5) recognize own limits. Reliability was assessed using generalizability theory. No facilitator or rater was from the associated trainee's home institution. Trainees and facilitators completed surveys following each session.

Results: Scoring of the initial 30 HARP assessments had a generalizability coefficient of 0.81 indicating favorable reliability; use of a single rater would have a small impact on reliability under the same conditions. 73 of 74 trainees (99%), 6 of 6 facilitators (100%), and 10 of 10 raters (100%) completed surveys. ***Trainees*** reported that simulation scenarios represented skills that trainees at their level have attained (98.7% strongly agree/agree); simulation experiences were sufficiently realistic to allow them to act as if they were in actual patient care situations (96%); the experience was useful for resident training and a valuable use of educational time (96%); they received sufficient and useful feedback about their performance (96%); 45.3% of the residents found the feedback more useful than that associated with traditional training, and 49.3% found feedback comparable to what they receive during hospital clinical training. Level of stress was experienced as somewhat more than in a challenging day in the operating room (mean 3.31, range 1-5). ***Facilitators*** carried out scenarios as intended in 78.7% of sessions. They reported that scenarios were realistic and accurately represented resident responses seen in actual clinical cases (81.3%). Facilitators found the HARP program useful for assessing the resident's performance in most sessions (90.7%). ***Raters*** all agreed/strongly agreed that scenarios represented situations and skills that are realistic to expect of a CA-1 resident. All agreed/strongly agreed that domains and descriptors represent behaviors critical to patient safety, career advancement, and safe independent practice. All found the HARP program to be a unique and useful addition to currently available tools.

Discussion: Reliability on an initial subset of 30 assessments was favorable; future studies can be less complex and costly using a single rater for each scenario. Respondents found sessions and the scoring rubric to be representative of important constructs and actual clinical performance, useful for learning, teaching, and a unique addition to currently available tools.

IMPLEMENTATION OF PERFORMANCE QUALITY REPORT CARDS IN A STUDENT-FACULTY COLLABORATIVE PRACTICE

Simin Gharib Lee[1,3], Olive Tang[4], Cristina Alcorta[4], Pedro Vera[4], Selena Li[4], Omar Mesina[4], Sarah Rose Cass[4], Marya Cohen, MD, MPH[1,2]
[1] Crimson Care Collaborative, [2] Massachusetts General Hospital Stoeckle Center for Primary Care Innovation, [3] Harvard Medical School, [4] Harvard College
Contact: Simin Gharib Lee, simin_lee@hms.harvard.edu, 617.777.7237

Reduction of variation and error rates are key tactics for improving quality and efficiency. Some organizations are measuring performance and applying incentives for improvement to individual providers and hospitals.[1,2,3] In student-faculty collaborative clinics, however, altruism – not income – is the main motivator for participation. In this setting, how can "provider" behavior be changed in ways that improve care?

The Crimson Care Collaborative (CCC) at MGH Chelsea, a student-faculty collaborative practice founded in October 2011 by Harvard Medical School (HMS) and Massachusetts General Hospital (MGH), created a new tool to address this issue: performance report cards for junior medical students participating in the clinic. "CCC Chelsea" uses an innovative model of "integrated" social medicine to deliver primary care to underserved populations. In this model, a faculty member sees patients with teams of Senior Clinicians (third- or fourth-year medical student, "SCs") and Integrated Clinicians (first- or second-year medical students, "ICs"). ICs additionally address socioeconomic barriers to their patients' health.

CCC Chelsea has developed a quality improvement program to address variation and errors in ICs' work. This program consists of measuring IC performance on two key responsibilities – taking vital signs and writing "social services" notes about patients' social history and needs outside the clinical encounter (e.g. food insecurity, unstable housing, or unemployment) in the electronic medical record (EMR).

A team of undergraduate researchers collects data on these measures from the clinic's EMR and then generates individual report cards. Report cards show individual and group performance averages as well as individual progress. Report cards are distributed in monthly "Round-Up" meetings of ICs (regular meetings for clinic flow problem-solving and training around social services available in the community) and are accompanied by de-identified performance data for all members of the group.

The goals for this program during the first year of clinic operation were three-fold: 100% of ICs take vitals and write social services notes for all patients, performance improvement for ICs with imperfect baseline scores, and overall group performance improvement.

Most evaluated ICs (54.2%) have improved individual performance in taking vitals and/or writing social services notes. At any given clinic session, a maximum of 81% of ICs took all vitals and a maximum of 88% of ICs wrote social services notes for all patients.

In this pilot phase, we were able to provide feedback that seemed to encourage the majority of our ICs to fulfill two of their core responsibilities in a standardized and thorough fashion. We also introduced these student volunteers to performance feedback.
Ongoing challenges include developing measures that more directly reflect IC individual performance (ICs cannot edit our clinic's EMR and therefore depend on SCs' documentation of vital signs), strengthening the impact of peer-pressure by unblinding data, and expanding this program to include SCs.

THE PROSTE: A NOVEL ASSESSMENT TOOL FOR PROCEDURAL TEACHING SKILLS

Jakob McSparron MD[1,2], David Roberts MD[1,2], Richard Schwartzstein MD[1,2], Frank Volpicelli MD[2], Daniel Ricotta MD[2], Grace Huang MD[1,2]
[1]Carl J. Shapiro Institute for Education & Research, Beth Israel Deaconess Medical Center, [2]Department of Medicine, Beth Israel Deaconess Medical Center
Contact: Jakob McSparron 617-667-5473 or jmcsparr@bidmc.harvard.edu

Background:
Assessment of the clinical teaching skills of faculty has largely overlooked the domain of procedural teaching. Methods such as the Objective Structured Teaching Encounter (OSTE), in which faculty are observed providing teaching to a standardized student, can be modified to measure procedural teaching skills (PrOSTE).

Aims:
To develop and validate a PrOSTE as an assessment tool for teaching central venous catheter (CVC) placement.

Methods:
Ten Pulmonary/Critical Care faculty and fellows will teach a standardized student to place a CVC in a simulator. The interaction will be videotaped, and teachers will be evaluated using a checklist to generate a PrOSTE score. Following this encounter, the instructor will then teach a small group of three novices (pre-clinical medical student volunteers) to place CVCs in simulators. Students will then be observed placing CVCs in the simulators and their skills will be evaluated by a trained observer using a central line checklist. We hypothesize that PrOSTE scores will correlate with students' CVC placement checklist scores as evidence of construct validity (i.e., effective procedural teaching should lead to improved performance in learners). We will also evaluate faculty satisfaction with the OSTE.

Conclusion:
We hope to demonstrate evidence of validity for the PrOSTE as an effective assessment tool for procedural teaching skills.

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REFINING AND VALIDATING A SURVEY TO ASSESS ANESTHESIA RESIDENT PROFESSIONALISM AND COMMUNICATION SKILLS

John D. Mitchell MD*, Lauren Fisher DO*, Cindy Ku MD*, Sharon Muret-Wagstaff PhD*, Qi Cui*, Sajid Shahul MD*, Ruma Bose MD*, Vanessa Wong BS*, Stephen Cohen MD*, Carrie Tibbles MD[+], and Stephanie Jones MD*
*Department of Anesthesia, Critical Care and Pain Medicine, Beth Israel Deaconess Medical Center, [+]Department of Emergency Medicine, Beth Israel Deaconess Medical Center
Contact: John Mitchell, phone: 617-754-2713, email: jdmitche@bidmc.harvard.edu

Background: Patients' experience of care is a top national priority. However, tools and empirical evidence linking resident education and patient experience are lacking. We are examining the use of a mailed ambulatory surgery patient survey to assess the core competencies of Professionalism, and Interpersonal and Communication Skills in Anesthesia residents. We adapted and tested the previously validated Four Habits model[1] as a metric.

Methods: The Four Habits survey was modified and reduced to 20 questions after cognitive interviewing of patients and expert assessment of the survey tool using a modified Delphi technique. A trial version (Survey 1) was fielded and further changes made based on statistical analysis. The new version of the questionnaire (Survey 2) was reformatted and reduced to the 10 most relevant questions. The phrasing of one question was changed as well. (Survey 1: "Did the anesthesia resident encourage you to express any emotions that you felt?"; Survey 2: "Did the anesthesia resident provide ample opportunity for you to express your emotions, and was he/she receptive to them if you did?")

Results: The response rate for Survey 1 was 17.8% (206/1158), while the response rate for Survey 2 was improved to 30.7% (59/192). The responses to the 10 questions on Survey 2 were compared to the corresponding questions on Survey 1 using a Student's t-test (unpaired, 2-tailed). There were no significant differences in the average ratings except for the changed question, which had a significantly higher average rating on the second survey (3.5+/- 0.711 versus 3.8 +/-0.464, $p = 0.0005$).

Discussion: The enhanced response rate on Survey 2 is likely due to a reduction in the number of questions and improved formatting. Survey 1 was an important phase to establish which questions had appropriate variability to warrant further study. Now that the tool has proven reliable in this setting, we plan to test interventions focused on eliciting patient input on the professionalism and communication skills of Anesthesia residents. We will collect baseline data in a new cohort of residents for four months, followed by a series of simulations and a web-based teaching module on professionalism and communication in the ambulatory setting. We then plan to collect four months of follow-up data to assess changes in behaviors attributable to the intervention.

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INTEGRATION OF MENTAL HEALTH AND PRIMARY CARE SERVICES IN A STUDENT-FACULTY COLLABORATIVE PRIMARY CARE CLINIC: AN APPROACH FOR PSYCHIATRY EDUCATION

Chuan-Mei Lee, MA[1], Aleksandra Olszewski, BA[1], John Heintz, MA[1], Janine Knudsen, BA[1], Oriana Vesga Lopez, MD[1, 2], Lazaro Zayas, MD1, [2], Mary Lyons Hunter, PsyD1, [3], Derri Shtasel, MD, MPH[1, 2], Marya J Cohen, MD, MPH1, [3]
[1]Crimson Care Collaborative, Harvard Medical School, [2]Department of Psychiatry, Massachusetts General Hospital, [3]Massachusettes General Hospital Chelsea Health Center
Aleksandra Olszewski
Aleksandra_Olszewski@hms.harvard.edu
608-295-5910

The Crimson Care Collaborative (CCC) at Chelsea is a Harvard Medical School student-resident-faculty collaborative clinic located at the Massachusetts General Hospital (MGH) Chelsea community health center in Chelsea, MA. The clinic opened Oct. 2011. The clinic specifically targets two main patient groups: recently incarcerated individuals and patients who have been unable to establish routine primary care and are high utilizers of urgent care services.

Studies have shown that former prison inmates are at high risk for death upon release from incarceration, especially in the first two weeks following release.[1] CCC at Chelsea features co-located, integrative mental health and primary care services to address the health care needs of a predominantly underserved patient population. Collaborative care models such as that employed at CCC-Chelsea have been shown to improve quality of care and patient outcomes in depression and anxiety disorders.[2,3]

Thus far, 11 patients have been seen by psychiatry. There were a total of 55 patient visits with mood and anxiety disorders as the most common diagnoses seen among patients evaluated. Over half of the patients are unemployed, and over a third lack stable housing. All but 1 patient had at least 1 return visit. Importantly, all psychiatry patients were referred from the CCC Chelsea primary care service.

In the CCC Chelsea collaborative model, a primary care patient who is identified with a mental health concern will be referred to psychiatry and vice versa. Students help initiate and facilitate discussions between psychiatric and primary care teams. Furthermore, students also provide a case-management system that helps patients navigate social service resources available in the community.

Harvard medical students are involved with all aspects of the clinic. Students directly participate in: 1) patient care in psychiatry, 2) patient care in primary care, 3) social service support and referrals, 4) patient education, 5) research. CCC Chelsea is one of the first student-run clinics to feature co-located psychiatry and primary care services. The clinic provides medical students a unique learning opportunity for exposure to psychiatry and primary care within a collaborative care model.

THE PME STUDENT ASSESSMENT DATABASE: A POWERFUL NEW TOOL FOR EDUCATIONAL RESEARCH

Stephen Pelletier PhD, HMS Center for Evaluation
Edward Krupat, PhD, HMS Center for Evaluation

The PME Student Assessment Database unites in one highly usable research tool de-identified student data which previously resided solely in discrete, independent datasets across the Harvard Medical School campus. The Database, maintained by researchers at the HMS Center for Evaluation and updated regularly, makes it possible for the PME to quickly and easily analyze aggregate student performance measures, such as standardized test scores or OSCE performance, and link it over time with other information. In this way, the Database, which is completely anonymous, makes it possible for the first time to examine relationships between and among disparate bits of aggregate student data which until now were found only in separate offices (e.g., Admissions & Registrar) across campus. The PME Student Assessment Database is a powerful new tool for research that will allow the PME to study HMS student performance with a level of detail and specificity unavailable until now.

This poster aims to introduce the HMS community to this powerful new educational research tool by:

1. Describing the types of data found in the PME Student Assessment Database. Data fall into one of four broad categories: Pre-Matriculation (e.g. country of birth, undergraduate school, undergraduate major, etc.), Pre-Clinical (PDII OSCE scores, STEP I, etc.), Clinical (core clerkship grades, comprehensive OSCE scores, etc.), and Other (residency match, residency site, etc.). The poster will contain a chart listing all data found in the Database organized by broad category.

2. Illustrating how the Center for Evaluation can use the Database to analyze and report on aggregate student performance over time. The poster will include a graphic representation of HMS first-years' aggregate STEP I performance from 1989 to 2010.

3. Illustrate the Center's ability to examine relationships between and among variables in the Database with a brief overview report on the relationship between aggregate pre-clinical performance and third year principle clinical experience performance for HMS classes of 2012 and 2013.

Contact person:
Stephen Pelletier
Stephen_pelletier@hms.harvard.edu
617 432 5798

THE CASE OF INTERNATIONAL MEDICAL GRADUATES FROM LOW AND MIDDLE INCOME COUNTRIES TRAINING AT HARVARD: STRESS, STRUGGLES AND SUCCESSES.

ZEINA CHEMALI, MD, MPH (1, 3) and DILER ACAR, MD (2, 3)
*1. Massachusetts General Hospital. Departments of Psychiatry and Neurology
*2. Brigham and Women's Hospital, Department of Neurology
*3. Harvard Medical School

Contact person: Zeina Chemali, MD, MPH ph: 617-643-6094, zelchemali@partners.org

International Medical Graduates (IMG) train and receive their medical education outside of United States. They occupy a significant portion in the medical field providing care to US citizens. Their reasons for migration could be educational, political or financial. Though in the last 2-5 years, political and economic driven migration became more frequent in the setting of current global climate. Given these dynamics, inevitable issues arise in the functioning and work performance from the point of view of IMG, the educational training program they move to as well as the place they leave behind. Mentoring IMG includes being aware of these dynamics, getting educated on the unique needs of this special population, the way to nurture and support them in fulfilling their best potential in a local and global healthcare.
The authors-themselves IMG in the 90's-will share the lessons learned in training and mentoring IMG from low and middle-income countries as they navigate the Harvard system in general and in particular clinics in Neurology and Psychiatry. Emphasis on the educational and cultural background training in this unique population will also be tackled.

THE CURRENT STATE OF AND FUTURE OPPORTUNITIES FOR HUMANITIES-BASED EDUCATION INITIATIVES AT HMS: A CROSS-SECTIONAL SURVEY

From Arts and Humanities@Harvard Medical School[1]

[1]Members: Susan E. Pories, MD (MAH), Gregory A. Abel, MD (DFCI), Ronald A. Arky, MD (HMS), Jeffrey Campbell, MS2 (HMS), Rafael Campo, MD (BIDMC), Elizabeth Gaufberg, MD (CHA), David S. Jones, MD, PhD (HMS), Edward M. Hundert, MD (HMS), Shahram Khoshbin, MD (BWH), Suzanne J. Koven, MD (MGH), Samyukta Mullangi, MS3 (HMS), Andrea W. Schwartz, MD, MPH (BWH), Amy Ship, MD (BIDMC), Julia S. Whelan (HMS), Lisa Wong, MD (MGH), and Joel T. Katz, MD (BWH)

All staff, students or faculty at Harvard Medical School, Boston, Massachusetts

Contact: Joel Katz 617-732-5540 jkatz@partners.org

Background: Many challenging aspects of medicine (e.g., empathy, professionalism, communication, teamwork) can be taught with the aid of methodologies borrowed from the humanities (defined here as literature, poetry, narrative, drama, visual art, film-making and music). There is no systematically collected information on the prevalence of such teaching in Harvard Medical School (HMS) courses, the interest level of students or expertise of the HMS faculty members.

Study Design: We are conducting an IRB-approved, cross-sectional survey of HMS students, graduate trainees (residents and fellows) and faculty. The survey will explore: (1) self-assessed perceptions about interest in and perceived value of using humanities pedagogy in medicine education programs; (2) current state of humanities used in existing preclinical, clinical and post-graduate courses at HMS; and (3) local expertise and interest that would allow for coordinated expansion of humanities education, if desired. The survey will be electronically distributed in September 2012, and the results will be available for initial presentation by October 2012.

Outcomes: We will present the survey results.

Conclusion: Humanities-based medical education may have a role in improving the quality of medical training, and thereby the quality of medical care. In addition to presenting the survey findings, our results will be framed in the context of what is known about the effectiveness of these methods and what is being done at other medical schools and teaching hospitals.

EXPOSURE TO ROLE MODELING AND TRAINEES' DISCLOSURE OF MEDICAL ERRORS

William Martinez MD MS[1], Gerald B. Hickson MD[2], Bonnie M. Miller MD[2], David J. Doukas MD[3], John D. Buckley MD MPH[4], John Song MD MPH MAT[5]; Jennifer Deitz PhD[6]; Niraj Sehgal MD MPH[7], Lisa S. Lehmann MD PhD MSc[1]

[1]Department of Medicine, Brigham & Women's Hospital; [2]Departments of Pediatrics and Surgery, Vanderbilt University; [3]Department of Family Medicine and Medical Humanism, University of Louisville; [4]Department of Medicine, Indiana University; [5]Department of Medicine, University of Minnesota; [6]Office of Medical Education, Stanford University; [7]Department of Medicine, University of California San Francisco

Correspondence to: William Martinez, MD, MS, Brigham & Women's Hospital, 1620 Tremont St. Boston MA 02120, 617-732-5500, ext 31881, wmartinez1@partners.org

Background: We measured trainees' exposure to negative and positive role models for responding to medical errors and examined the association between exposure to these role models and trainees' own attitudes and behaviors regarding error disclosure.

Methods: We administered an anonymous, electronic survey of attitudes and experiences regarding errors and exposure to role modeling to 436 residents across surgical and non-surgical residency programs at two, large academic medical centers and 1179 medical students from seven medical schools across the country. The questionnaire asked respondents about: (1) Personal experience with medical errors; (2) Disclosure training; (3) Unprofessional behaviors related to disclosure; (4) Frequency of exposure to role modeling related to error disclosure which included a *negative role modeling scale* (Cronbach α=.64) and a *positive role modeling scale* (Cronbach α=.91); (5) Attitudes regarding disclosure which included a *disclosure attitudes scale* (Cronbach α=.74) and (6) Demographics. Multivariate regression analysis was used to assess independent predictors of attitudes regarding disclosure and unprofessional behavior related to disclosure. Our primary predictors were exposure to negative and positive role modeling.

Results: The overall response rate was 55% (891/1615). More than 80% of trainees reported exposure to positive role modeling in response to errors; while more than 50% of trainees reported exposure to negative role modeling. Independent predictors of attitudes regarding disclosure included, disclosure training, which had the largest independent, positive effect on attitudes and, negative role modeling, which had the largest independent, negative effect on attitudes (standardized effect estimate, 0.31, $P<.001$ v. -0.25, $P<.001$). Positive role modeling had a similar effect on attitudes but in a positive direction (standardized effect estimate, 0.25, $P<.001$). Greater exposure to negative role modeling was associated with an increased likelihood of unprofessional behavior (OR 1.38, 95% CI 1.15–1.64; $P<.001$); while more positive attitudes toward disclosure was associated with a decreased likelihood of unprofessional behavior (OR 0.90, 95% CI 0.82–0.98; $P=.01$). While disclosure training and positive role modeling were associated with attitudes, they were not associated with behavior.

Conclusions: Reducing exposure to negative role models may increase trainees' likelihood of meeting their ethical obligation to disclose harmful errors to patients. Negative role modeling may have a more salient impact on trainees' behavior related to disclosure than positive role modeling. Training medical students and residents on how to respond to medical errors is important, but may be insufficient to ensure professional conduct in response to errors.

INTERNS' EXPERIENCES OF DISRUPTIVE BEHAVIOR

Charles P Mullan, M.B., M.M.Sc.[1], Jo Shapiro, M.D.[2], Sara Nadelman, M.P.H.[3], Graham T. McMahon, M.D., M.M.Sc.[4]

[1] Department of Interventional Radiology, Altnagelvin Hospital, Northern Ireland; [2] Department of Surgery, Brigham and Women's Hospital; [3] Center for Professionalism and Peer Support, Brigham and Women's Hospital [4] Department of Medicine, Brigham and Women's Hospital

Contact information:
Sara Nadelman, MPH
snadelman@partners.org
617.525.9797

Purpose. To determine the frequency and nature of disruptive behavior experienced by interns in a teaching hospital environment, and to compare with the experiences of staff physicians.

Method. 394 interns and 40 physician staff completed an anonymous questionnaire, administered during 2010 and 2011.

Results. Attending physicians and interns each reported that their team members generally behaved professionally (87.5% vs. 80.4% respectively). A significantly greater proportion of attending staff than interns felt respected at work (90.0% vs. 71.5% respectively, P=0.013). Interns reported several types of disrespectful behavior significantly more frequently than staff physicians including condescending behavior (OR 5.46 for interns compared to staff, P<0.001), exclusion from decision making (OR 6.97, P<0.001), and berating (OR 4.84, P= 0.018). Inappropriate jokes, abusive language, and gender bias were also reported and were not significantly more frequent among interns than attendings. Interns most frequently identified nurses as the source of disruption, and were more likely than staff to identify nurses as the source of disruptive behavior (OR 10.40, P<0.001). Physician staff reported other physicians as the most frequent source of conflict.

Conclusions. Although interns generally feel respected at work, they frequently experience disruptive behavior. Interns describe significantly higher frequency of disruptive behaviors than staff physicians, and are more likely to experience disrespect from nurses compared to other staff.

TO THE MOVIES: TOOLS TO TEACH PROFESSIONAL COMMUNICATION AND ETHICAL ISSUES

Sunil Sabharwal, MD
Assistant Professor of PM&R; VA Boston HCS; Sunil.sabharwal@va.gov

Background: Professional communication and resolution of unique ethical dilemmas are integral components of spinal cord injury (SCI) practice. Yet SCI providers often lack explicit training in these key competencies.

Design: We conducted focus groups of key stakeholders to identify aspects of professional communication and key ethical issues that are especially pertinent to SCI practice. We used that input to develop teaching vignettes and supplementary educational material.

Methods: Focus group participants included individuals with SCI, trainees (medical students, residents, and fellows), SCI faculty, and multidisciplinary staff (nursing, social workers, psychologists, therapists). They identified clinical situations in spinal cord injury practice where ethical dilemmas arise and communication is perceived to be challenging. Case-based video vignettes were developed around scenarios based on this input. During the process of development of these tools, focus groups also provided input about characteristics of the vignettes that would promote meaningful reflection and formative feedback. Key informant (educational leaders, medical ethicists) interviews guided development of materials to maximize teaching potential.

Results: With input from focus groups, we identified relevant scenarios throughout the continuum of SCI care. Examples included: truth telling while preserving hope when discussing prognosis with individuals who have a new spinal cord injury; communication that encourages self-efficacy, autonomy, and shared decision making to prevent SCI-related complications like pressure ulcers (versus simply labeling individuals as “non-compliant”); competence in moving or positioning individuals with SCI for physical examination in a manner that ensures dignity and comfort without compromising assessment; working effectively with others in a multidisciplinary SCI team; and appropriately resolving ethical dilemmas in situations involving refusal of treatment. While there were several common themes, there were also differences between groups. Medical students particularly stressed the importance of highlighting truth-telling in communication with patients and families, inpatient staff stressed effective communication in the setting of behavioral dysfunction or non-compliance, and individuals with SCI who were active in the community particularly stressed the importance of focusing on the whole person versus just the injury. To maximize teaching effectiveness, focus groups stressed that educational vignettes needed to be interesting enough to hold interest but, at the same time, authentic. They also stressed ways to maximize discussion and internalization of important concepts, for example, by highlighting ethical dilemmas without one clear resolution in vignettes, watching examples of poor communication before seeing examples of it being done well, and asking trainees to enact how they would react in that particular clinical situation.

Conclusion: Focus group feedback was invaluable in developing specific tools to teach and evaluate professionalism and interpersonal communication in an SCI-specific context.

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INTEGRATING CULTURALLY COMPETENT CARE INTO THE TUTORIAL: MAINTAINING A SUCCESSFUL OUTCOME OVER FIVE YEARS

Helen Shields, M.D., Daniel Leffler, M.D., M.S., Antoinette Peters, Ph. D., Roxana Llerena-Quinn, Ph. D., Vinod Nambudiri, M.D.,M.B.A., Augustus White III, M.D., Ph.D., Jane Hayward, M.A., Stephen Pelletier, Ph.D.
Affiliations: Department of Medicine, Beth Israel Deaconess Medical Center, Children's Hospital, and Harvard Medical School
Contact: Helen Shields, M.D.; hshields@bidmc.harvard.edu; (617) 667-2109 (office)

Background: Disparity-reducing initiatives are growing in response to the national mandate to improve health care for all in the United States. Our approach in the pre-clinical years has been to target the only required pre-clinical educational activity, the tutorial, for the discussion simultaneously of cross-cultural care (CCC) and pathophysiologic concepts. We defined CCC as an understanding of cultural and social issues, their relevance to health and the impact of bias on health care. To advance this understanding, we designed an hour-long faculty development program in 2007 aimed at increasing the frequency of tutors' discussion of CCC. This program significantly improved CCC teaching in the tutorial (Clin Gastroenterol Hepatol.2009; 7: 279-284).
Aim: Our aim was to determine whether the faculty development program maintained its efficacy over a 5-year period. **Methods:** A one-hour longitudinal program for tutors was designed in 2007 with the same faculty (HS, DL AP, RL-Q) teaching it for the past five years: It consists of: 1) Five-minute introduction on the importance of culture and ethnic issues in clinical medicine. 2) Ten-minute PowerPoint summary of recent racial disparities data and GI diseases. 3) Cases have the CCC trigger elements highlighted. Tutors are broken out into small groups that develop questions for each of the tutorial cases in 15 minutes. Questions are sent to each tutor. 4) Ten-minute discussion with PowerPoint slides interweaving pathophysiology and CCC elements including the importance of obesity to gastroesophageal reflux and adenocarcinoma, the use of medication counselors to obtain medications, the mechanism of action of senna in a Chinese herbal pill, the need to seek help for alcoholics with available resources. 5) A five-minute video showing DL conducting a mock tutorial that triggers a fifteen minute tutor discussion on how to integrate CCC elements.6) Reinforcement of concepts during weekly tutor meetings with expert faculty (RL-Q and AP) and tutor-to-tutor sharing of experiences. **Results**: Students evaluate the course for the following statement "Issues of culture and ethnicity were addressed." Since 2007, the course has addressed these issues significantly more than in the pre-intervention year of 2004. The comparison of 2004 and 2007 yields a p-value of <.001. In 2012, the course addressed these issues with a frequency of 64% which is significantly better than 2007's 51% (p=0.018). Students also evaluate the statement "This tutor actively teaches culturally competent care." Compared to 2004, in 2007 significantly more tutors were frequently actively teaching CCC (p=0.019). In 2012 the tutor percentage for frequently teaching CCC was 76.4%. When 2012 is compared to 2004, the p-value is <0.001. Of interest, a tutor's age, gender, experience in tutoring, academic rank and specialty did not significantly affect his/her frequency of discussing CCC over the five year period.
Conclusions: Since 2007, a one-hour long faculty development program for CCC has significantly and consistently each year increased the discussion of CCC in both the tutorial and the course over the baseline year of 2004. Sustaining this improvement over the past five years has likely resulted from several factors including an organized one-hour faculty development program, enthusiastic leadership from the Course Director, expert faculty, experienced tutors willing to share their tips for success and an eager student body.

A PRACTICAL, STRUCTURED APPROACH TO PUBLICATION

Authors: Brodsky D[1], Borus J[2], Bard T[3], Bell S[4], Burns Ewald M[5], Catic A[4], Fazio S[4], Fisher J[4], Frontado L[6], Garfield J[7], Huang G[4], Peters A[6], Pian-Smith M[8], Quan S[9], Schwaitzberg S[10], and Pories S[11]

Departments, Institutions:
[1]Neonatology, Beth Israel Deaconess Medical Center(BIDMC)
[2]Psychiatry, Brigham and Women's Hospital (BWH)
[3]Psychiatry, BIDMC
[4]Medicine, BIDMC
[5]Pediatrics, Children's Hospital Boston
[6]Academy, Harvard Medical School
[7]Anesthesiology, BWH
[8]Anesthesiology, Massachusetts General Hospital
[9]Sleep Medicine, BWH
[10]Surgery, Cambridge Health Alliance
[11]Surgery, Beth Israel Deaconess Medical Center/Mount Auburn Hospital

Contact Information: Dara Brodsky, 617-667-1381 (Office), dbrodsky@bidmc.harvard.edu

Clinician-educators at academic medical centers are required to produce high-quality publications in peer-reviewed scientific journals, but are often left to acquire these skills with relatively little formal guidance.

To address these issues, the Writing for Scholarship Interest Group of the Academy at Harvard Medical School crafted the "A Writer's Toolkit"[1] to assist junior faculty members in the process of scientific writing and publication. This resource explains how to plan a scholarly project and conduct a literature search. The Toolkit also reviews the basics of publication in a peer-reviewed journal, including choosing the appropriate target journal, establishing a timetable, writing for scientific audiences, and submitting the manuscript. Throughout this monograph, the Toolkit provides advice specifically targeted to medical educators.

To complement this Toolkit, we developed a flowchart that provides a practical, structured algorithm to publication. We envision that this visual companion can serve as a quick reference to assist junior faculty members through all phases of their writing process. When users identify steps that require further explanation and/or clarification, they can then refer to specific content within the Toolkit. We hope that this algorithm will facilitate use of the Toolkit and assist faculty in successful publication.

[1]Pories S, Bard T, Bell S, Brodsky D, Burns Ewald M, Catic A, Fazio S, Fisher J, Frontado L, Garfield J, Huang G, Peters A, Pian-Smith M, Quan S, Schwaitzberg S, Borus J. A writer's toolkit. Currently under review with MedEdPORTAL.

USING INTERPROFESSIONAL EDUCATION TO IMPROVE COLLABORATION AMONG INFECTIOUS DISEASES AND ORTHOPEDIC SURGERY PROVIDERS

Authors: Douglas Krakower MD[1], Darshan Kothari MD[2], Amy Sullivan EdD[3], Ayesha Abdeen MD[4], Wendy Stead MD[1].
Division of Infectious Diseases[1], Department of Medicine[2], Center for Education[3], and Department of Orthopedic Surgery[4], all at Beth Israel Deaconess Medical Center.
Contact: Dr. Douglas Krakower: dkrakowe@bidmc.harvard.edu; 617-632-0758

Purpose/Objectives:
Interprofessional education (IPE) programs hold promise for improving provider collaboration surrounding healthcare that warrants multidisciplinary management. We examined the impact of an IPE program on perceived communication and collaboration between infectious diseases (ID) and orthopedic surgery (OS) providers at an academic medical center.

Design/Methods:
An IPE program entitled Diagnosis of Prosthetic Joint Infections (PJI) was developed and administered by faculty from the ID and OS divisions at BIDMC in October 2011. Attendees included OS and ID providers/trainees at BIDMC. The 60-minute session included an evidence-based review of techniques for PJI diagnosis, followed by in-depth discussion among small mixed groups of ID/OS providers about approaches to PJI diagnosis.

Quantitative surveys assessed pre-and post-intervention perceptions of “my specialty” and “other specialty” behaviors related to communication and collaboration. A post-intervention focus group (4 ID, 8 OS providers) explored the perceived impact of the intervention on intergroup communication.

Results
Seventeen OS (29% women; 35% attending physician, 41% trainee, 24% mid-level provider) and 13 ID (62% women; 46% attending physician, 54% trainee) providers completed surveys. Over 60% of providers managed >11 cases of PJI in the prior year. Almost all providers (88% OS, 100% ID) co-managed >75% of PJI cases with the other specialty.

In post-program surveys, there was a significant increase in the number of ID providers who felt that OS providers were often “effective communicators” (31% to 70%; McNemar’s test; $p<0.05$). OS and ID providers perceived the other specialty to be “effective collaborators” before and after the session (>75%). During the focus group, providers perceived that the intervention improved communication between the specialties. The intervention also resulted in self-reported changes in communication behavior and organizational practice, ultimately resulting in a perceived benefit toward patient care.

Conclusion
IPE may improve communication between specialists who provide multidisciplinary care, and could enhance patient care.

A BIBLIOMETRIC STUDY OF MEDICAL EDUCATION PUBLICATIONS: TOPICS BY JOURNAL

Kyungjoon Lee BS[1], Julia S Whelan MS, AHIP[2], Nancy H Tannery MLS[3], Steven L Kanter MD[4], Antoinette S Peters PhD[5]

[1]Center for Biomedical Informatics, HMS; [2]Reference & Education, Countway Library of Medicine, HMS; [3]Health Sciences Library System, University of Pittsburgh; [4]Office of Medical Education, University of Pittsburgh School of Medicine; [5]Academy Center for Teaching & Learning; Department of Population Medicine, HMS

Contact: joon_lee@hms.harvard.edu; 617-432-3209

Abstract:

Background. Competition for space in high impact journals is high. Being able to place Being able to place one's manuscript appropriately can expedite publication. While it is reasonable to believe that specialty journals publish more articles about their specialty, we asked whether topics were otherwise evenly distributed across generic medical and medical education (ME) journals.

Methods. MEDLINE retrieval via medical subject headings (MeSH) was used to analyze patterns of ME publications from 1960-2011. Then, patterns of publication were analyzed by the most frequent subtopics and co-topics overall and within three high impact journals: Medical Education, Academic Medicine, JAMA. The differences between the proportion of ME subtopics and co-topics in these 3 journals were compared with the overall means and compared across the 3 journals.

Results. Since 1960, the number of articles indexed as ME as the major topic was 81,531; and 4,208 different journals published ME articles. Most frequent subtopics, overall since 1960: internship & residency (25% of all subtopics indexed); graduate medical education (GME) (16%); undergraduate medical education (UME) (15%); continuing medical education (CME) (14%). Most frequent co-topics:: educational measurement (11%); teaching (11%); curriculum (8%); family practice (7%); clinical competence (6%); internal medicine, general surgery, and medical students (5% each).

The 3 high impact journals devoted space to subtopics differently from one another and from the mean: e.g, 53% of articles in Medical Education were indexed with the subtopic UME whereas 25% of Academic Medicine's were; 27% of JAMA's ME articles were indexed as internship &residency. Each journal also differed from the mean and from one another by emphasizing 1-2 special co-topics: Medical Education published an above average number of ME articles about educational measurement (28%) and teaching (25%); Academic Medicine about curriculum (16%) and academic medical centers (12% versus an overall 6%); and JAMA about health care economics and organizations (16% versus 10%).

Conclusions. There are meaningful differences among journals' topics despite an overall focus on medical education.

ASSESSMENT OF THE IMPACT OF A HOSPITAL-BASED TEACHING ACADEMY: THE BOSTON CHILDREN'S HOSPITAL ACADEMY

Presenter: Alan M. Leichtner, MD
Institution: Division of Gastroenterology and Nutrition, Department of Medicine, and Office of Faculty Development, Boston Children's Hospital
Contact Information: alan.leichtner@childrens.harvard.edu; 617-355-4723

Introduction: Although most academies for medical educators have been based at medical schools, a few hospitals have created academies for their own faculty. The Boston Children's Hospital Academy, a group of approximately 80 faculty members interested in scholarship in medical education and careers focusing on health professions education, is entering its fourth year. Membership in this group requires active participation via a project in education or mentorship. An assessment of the academy was undertaken to determine its impact.

Methods: Accomplishments of individual members were compiled through the review of updated curricula vitae and mandatory annual reports. In addition, members (for at least one year) were surveyed using a mixed methods questionnaire, including rating of membership impact in ten categories (community, networking, scholarship, teaching, leadership, identity as an educator, recognition by peers, recognition by chief, promotion, and knowledge of outside activities) on a 5 point Likert scale and open-ended questions addressing the experience of membership. Discrete responses were analyzed in a blinded fashion using SPSS (version19). Open ended responses were analyzed using WeftQDA.

Results: 65 of 67 eligible individuals responded. For 60/65, demographic data were available. Data on measures of benefit, including health professions education presentations, publications, leadership positions, grants funded, awards, and promotions will be presented. Although a majority of respondents agreed that academy membership had benefitted them on all measures, the strongest agreement was seen for a sense of community as medical educators (86%), opportunity to network (86%), scholarship (74%), recognition by their chief (74%), and personal identity as an educator (78%). There was no significant association between responses and years post fellowship. Qualitative analysis on responses about the meaning of Academy membership confirmed these findings and identified the opportunity to collaborate with individuals in other departments as a particular strength of the Academy.

Conclusion: A hospital-based teaching academy can be successful in supporting faculty members interested in scholarship in education and career advancement as educators.

SCHIZOPHRENIA PSYCHOPHARMACOLOGY ALGORITHM APPLICATION

David Osser MD (1,5), Robert Patterson MD (4,5); Theo Manschreck MD (1-3,5)

(1)VA Boston Healthcare System, Brockton Division; (2)Corrigan Mental Health Center, Fall River MA; (3)Beth Israel Deaconess Medical Center; (4)McLean Hospital; (5)Harvard Medical School. Contact: dno@theworld.com; 774-826-1650

Background Today's practitioners need and demand access to clinical tools in real-time. The latest update of the schizophrenia algorithm of the Psychopharmacology Algorithm Project at the Harvard South Shore Psychiatry Program includes a smart-phone application for the algorithm, located at the URL **www.psychopharm.mobi**. The intent is to make the algorithm rapidly accessible in condensed format suitable for mobile phone and pad devices.

Methods: A literature review was conducted to December 2011 focusing on new data and analyses since the last published versions (1999-2001). To create the mobile phone/ internet version to be displayed on this poster, the "Joomla!" platform for content management was employed.

Results: For new-onset schizophrenia, the first-line antipsychotics, recommended with very slight preference, are amisulpride, aripiprazole, risperidone, or ziprasidone. If the trial of the first antipsychotic cannot be completed due to intolerance, try another until one of the four is tolerated and given an adequate trial of 2-6 weeks. There should be evidence of bioavailability as suggested by side effects or plasma level. If there is an unsatisfactory response to this adequate trial, try a second monotherapy with any antipsychotic. If there is another unsatisfactory response, and at least one of the first two trials was with risperidone, olanzapine, or a first-generation antipsychotic (FGA), then clozapine is recommended for the third trial. If neither trial was with one of these three possibly slightly more effective antipsychotics, a third trial prior to clozapine should occur, using one of these options. If response is unsatisfactory to monotherapy with clozapine (with dose adjusted using plasma levels), consider adding risperidone, lamotrigine, or electroconvulsive therapy. If this augmentation is unsuccessful, possible options are to try another, try adding memantine or omega3-fatty acid to clozapine, switch from clozapine to another antipsychotic not yet tried (especially aripiprazole), combine an FGA with mirtazapine, or combine an SGA with celecoxib. Finally, combinations of antipsychotics not including clozapine many be tried.

Conclusion: Consulting evidence-supported algorithms may improve the outcomes and efficiency of care. Clinical consultation for the treatment of very complex patients based on such algorithms can be communicated rapidly at the point of care on smart phones and pad devices. The content is easily kept updated.

PATIENT-PRACTITIONER RELATIONSHIPS AND MEDICAL OUTCOMES: A SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED TRIALS

Names of Presenters: John Kelley, PhD[1,2]; Helen Riess, MD[1]; Gordon Kraft-Todd, AB[1,3]; Lidia Schapira, MD[4]; Emily Dunn, BA[1]; Maren Leuschner, BA[1]; Lionel Perez, BA[1]
[1]Harvard Medical School, Department of Psychiatry [2]Endicott College, Department of Psychology [3]Harvard Law School, Edmund J. Safra Center for Ethics [4]Harvard Medical School, Department of Medicine

Contact: Helen Riess, hriess@partners.org, 617-724-5600

Background: Many correlational studies suggest that empathy and relational skills in healthcare providers increase quality of care, improve patient safety and satisfaction, and reduce malpractice claims. However, correlational studies are insufficient to prove causation. Instead, randomized controlled trials (RCTs) are necessary to conclusively determine whether clinician empathy has beneficial effects on medical outcomes. The present study is a systematic review of RCTs that examined whether caring, compassionate relationship skills improve healthcare outcomes.

Methods: We searched the EMBASE and MEDLINE electronic databases (covering the years 1947-2012) for studies that met the following criteria: (1) RCT published in English; (2) Tested an intervention that altered the patient-practitioner relationship; (3) Included any patients *except* psychiatric and substance abuse; (4) Measured a quantitative healthcare outcome that was either objective (e.g., blood pressure) or a validated subjective measure (e.g., health-related quality of life). The electronic search yielded 5,646 articles. Examination of all 5,646 titles and abstracts yielded 47 possibly relevant articles. Four readers agreed that 10 of these articles met all inclusion criteria.

Results and Conclusions: Despite the widespread belief that improvements in physician empathy and relational skills result in better patient outcomes, the scientific evidence supporting this hypothesis is limited. We found 10 studies that met our inclusion criteria, and 5 yielded statistically significant results that support the research hypothesis. Many of the studies that met our inclusion criteria had small sample sizes or were not designed specifically to test the research hypothesis. Given the paucity of gold-standard studies investigating the hypothesis that an increase in practitioner empathy and relational skill can improve healthcare outcomes, large, well-designed, prospective, randomized controlled trials that specifically address this question are urgently needed.

COGNITIVE PROCESSING THERAPY (CPT) CURRICULUM FOR RESIDENT TRAINING

Laura Bajor, DO (1, 2), David Topor, PhD (1,2), Ann Rasmusson, MD (1,3)
(1)VA Boston Healthcare System; (2) Harvard Medical School, (3) Boston Medical School; Contact: laura.bajor@va.gov; 443.255.0339

Background: Cognitive Processing Therapy (CPT) is an evidence-based psychotherapy which was adapted by Patricia Resick, Ph.D. from cognitive behavioral therapy (CBT). This modality consists of twelve one-hour sessions and is aimed at helping patients identify, explore and resolve beliefs, assumptions, and emotions from their traumatic experience and ultimately recover from PTSD. Seminal studies have established the efficacy of this treatment for civilians and veterans with PTSD (Resick et al., 2002 and 2008; Monson et al., 2006).

Curriculum: A curriculum for training PGYIII residents in the theory and delivery of CPT has been developed at the Harvard South Shore Residency Training Program as part of a larger initiative to train psychiatry residents in evidence-based manual-guided psychotherapies directed by David Topor, Ph.D. The training is delivered by Ann Rasmusson, MD and Laura Bajor, DO and affords residents the opportunity to learn about and gain experience in delivery of CPT.

Training begins with attendance a two-day CPT introduction delivered by Dr. Resick. This is followed by 8 weekly didactic sessions further examining how CPT is used to address common patterns of thinking about traumatic experiences that can interfere with reality testing, generalize to other aspects of a patient's experience, and interfere with healthy adaptation over time. During this phase of training residents also learn about the many types of maneuvers used by individuals to avoid the emotional distress associated with trauma.

Following these didactic sessions, residents use CPT to treat patients from their resident caseloads under supervision of Dr. Rasmusson and Dr. Bajor. Group discussion is used to provide review and advice regarding case management.

Logistics and Impact: The curriculum uses approved supporting materials from **www.cpt.musc/index &** **www.ptsd.va.gov/public/pages/cognitive_processing_therapy.asp**. Though not all trainees later specialize in treatment of PTSD, in recent years, several have chosen to gain further experience in PGYIV electives and continued on to incorporate use of CPT into their practices as fellows and early-career attending psychiatrists.

A BOSTON COLLABORATIVE:
CENTER OF EXCELLENCE IN PAIN EDUCATION
(aBC-CoEPE)

Antje M. Barreveld, M.D.,* Erin Bettendorf,** Michele Matthews, PharmD,[ϒ] Nicole Holland, D.D.S., M.S.,[#] Paul Arnstein, Ph.D., RN,[##] Jeffry Shaefer, D.D.S, M.S., M.P.H[#]

* Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital; ** Harvard Medical School; [ϒ] Massachusetts College of Pharmacy and Health Sciences; Pain Management Center, Brigham and Women's Hospital; [#] Harvard School of Dental Medicine; [##] Massachusetts General Hospital

Contact: abarreveld@partners.org, 617-732-9060

Background: Pain is a leading reason why patients seek medical services. Undertreated pain puts patients at risk for complications, higher healthcare costs, disability and despair – yet many health professionals are underprepared to meet this challenge (IOM report, 2011). Innovative training programs across disciplines are needed to develop competent, informed, and compassionate teams of health professionals. A National Institutes of Health Consortium approved the development of a *Center of Excellence in Pain Education* (CoEPE) in Boston to pioneer innovative and inter-professional approaches for training healthcare providers in pain management.

Objective: To promote shared decision making and inter-professional collaboration in shaping students' knowledge, skill and confidence needed to improve the way pain is managed.

Methods:
1. An inter-professional pain education program will be established that promotes the knowledge required to assess pain and common co-morbid disorders for dental, medical, nursing, and pharmacy students during their clinical rotations in Boston.
2. Advancing technologies will be integrated into medical curricula by creating interactive electronic interfaces of case-based modules on patients with acute and chronic pain.
3. Small group sessions will be led by pain education experts in order to help reveal common misconceptions and attitudes that serve as barriers to effective pain control**.**
4. Using interactive workshops, inter-professional teams will be developed to effectively communicate and collaborate over time about patients with complex pain disorders.

Evaluation and Dissemination: Pre- and post-pain curriculum knowledge and attitude questionnaires, curriculum evaluations, as well as electronic tracing of students' decision making during their use of electronic case-based modules will provide data on the effectiveness of this program. This program can then serve as a model for training other professionals in health care such as residents and post-graduate health care providers as well provide an established and validated program for other interested institutions.

This project is funded by the NIH Pain Consortium

TEACHING AND TEACHING INSTRUCTION IN U.S. DERMATOLOGY RESIDENCY PROGRAMS: RESULTS OF A NATIONAL SURVEY

Susan Burgin, M.D., Assistant Professor, Harvard Medical School, Department of Dermatology, BIDMC (Tel: 617-667-4995) Email: sburgin@bidmc.harvard.edu. Amy M. Sullivan, Ed.D., Director for Education Research, Beth Israel Deaconess Medical Center Department of Medicine, and Associate Director for Research, HMS Academy.

Background: Although teaching skills are a vital prerequisite for a successful academic career, no formal dermatology Resident-as-Teacher programs have been described in the literature. Instruction methods in Resident-as-Teacher Programs in specialties other than dermatology have included lectures, small-group discussions, role plays and simulations, teaching debriefing, and participant review of teaching videos. [1]

Objectives:1. To describe the range and extent of teaching opportunities available to dermatology residents in training. 2. To assess the need for additional training for residents as teachers in dermatology.

Study design and analysis: An anonymous questionnaire was designed and administered electronically to the 113 program directors or their designees countrywide. Descriptive statistics were used to describe questionnaire item responses.

Results: The response rate was 56% (63/113). The average number of residents per program was 10.9 (range 3-29). The average number of full-time faculty was 10.1 (range 1-50). Most program directors (90.5%) reported that their trainees had the opportunity to teach during their residency; however, only about half (52.4%) reported offering trainees some instruction on how to teach. Among the programs offering residents opportunities to teach, the range of teaching opportunities included medical student teaching; teaching to resident colleagues in resident didactics; and presentations at interdepartmental and local meetings. The majority of teaching instruction reported focused on providing teaching techniques prior to teaching and giving feedback on teaching techniques after teaching. Only 11.2% (7/63) programs offered short-term, formal sessions on teaching and 6.3% (4/63) offered ongoing, longitudinal training on teaching. A minority of programs have methods in place to determine resident reaction (21.0% (12/57)), learning (5.2% (3/57)), or observed behavior change (35.1% (20/57)) as a result of the teaching instruction. Most program directors (74%) felt their residents would benefit from more teaching instruction.

Conclusions: While most dermatology residents teach in a broad range of settings within their programs, across departments and at local and national meetings, only half receive any formal teaching instruction and a minority are assessed on their teaching skills. Three quarters of the program directors surveyed reported a need for more teaching instruction during residency. This nationally representative survey of program directors indicates that dermatology programs might benefit from more formal, ongoing teacher training and assessment programs for residents.

[1] Hill AG, Yu TC, Barrow M, Hattie J. A systematic review of resident-as-teacher programmes. Med Educ. 2009;43:1129-40.

MOCK PSYCHIATRIC CODE: USING SIMULATION TO TEACH JUNIOR PSYCHIATRY RESIDENTS HOW TO MANAGE THE AGITATED PATIENT

A. Caminis M.D., M.P.H.; C. Keary, M.D.; J. Huffman, M.D.; C. Cruz, R.N.
McLean Hospital (Dept. of Psychiatry); M.G.H. (Dept. of Psychiatry)
E: acaminis@partners.org; ckeary@partners.org; P: 617-855-3058

[Background] One of the most stressful and dangerous aspects of psychiatric training involves the management of agitated and violent patients. Junior residents are the least trained in evaluation, management and treatment of agitation, and yet work in environments such as the emergency room and inpatient units where the likelihood of encountering such patients is highest. This mismatch of experience and exposure can have grave safety consequences for both staff and patients. In a study of patient assaults on psychiatry residents and junior attendings, as many as 90% reported having been attacked.[1] Hospital accrediting organizations and patient advocacy groups have raised concerns on behalf of patients, stipulating a reduction in the use of certain measures to control agitation, such as seclusion, restraint and enforced medications, based on arguments that such interventions can be counter-therapeutic and potentially traumatizing.[2]

In other medical disciplines such as internal medicine and surgery, simulation has been an effective educational tool to bridge the gap between classroom and clinical environments, particularly for high-risk scenarios and those requiring teamwork and good communication.[3] With the concept of "mock code" in mind, we designed a simulation training for junior residents on an inpatient psychiatric unit to help trainees develop greater confidence and skill in safely managing agitated patients.

[Methods] Following two one-hour lectures on "Management of the Agitated Patient," a team from the inpatient psychiatry service comprised of an attending or chief resident psychiatrist, nurse, occupational therapist, and second-year supervising resident staged a one-hour simulation where interns were paired and guided through management of two mock cases. The objective was for interns to demonstrate how to identify appropriate sources of information (chart, nurse, patient) to determine etiology, communicate effectively with the patient and each team member, call and work with security, and select appropriate behavioral and medication interventions. Upon completion of the simulation, we debriefed as a group using simulated cases and past experiences as bases for discussion.

[Conclusions] Fidelity limitations aside, the potential benefits of this simulated approach to learning include opportunities for interdisciplinary and in situ learning, ability to vary the scenarios and level of difficulty, and freedom of learners to make and correct patient care errors without negative consequences. Further study is needed to determine the effects, if any, of this educational module on the management of agitated patients.

[1] Molyneux, G et al. "Psychiatric training – a dangerous pursuit." Psychiatric Bulletin, 33. 2009.
[2] Wale, J. et al. "Reducing the use of seclusion and restraint in psychiatric emergency and adult inpatient services – improving patient-centered care." The Permanente Journal. 15(2). Spring 2011.
[3] Issenberg, S & Scalese, R. "Simulation in Health Care Education. Perspectives in Biology & Medicine, 51(1) Winter 2008; Okuda, Y et al. "The Utility of Simulation in Medical Education: What is the Evidence?" Mt Sinai J Med. 76(4). August 2009.

ADDRESSING ROOTS OF DISPARITIES IN MEDICAL EDUCATION

Race in the Curriculum Working Group*, Harvard Medical School
*c/o Frank_Conyers@hms.harvard.edu

Background: Today's medical school graduates will practice with a patient population that is more diverse than ever. Despite advances in medical science and technology, wide gaps persist in health outcomes among different social, economic, and racial/ethnic groups. A defining challenge for the next generation will be addressing such health disparities, including understanding its roots in societal forms of oppressions like racism. With this understanding, physicians will be equipped with the ability to think critically and promote quality improvement and innovation. Thus, it is crucial to ensuring high quality and equitable health care delivery that medical students master the content and learn the necessary skills to combat these disparities. Cultural competency training has been lauded as a strategy for reducing racial disparities in health care. Yet, there remains a lack of standardization of content, assessment, and integration of training materials. Harvard Medical School has a history of introducing its students to the concept of health care disparities by teaching a social sciences curriculum alongside the basic medical sciences curriculum. However, the extent to which ideas of cultural sensitivity resonate with students is still unclear. In our experience, many students did not feel comfortable/competent in discussions about the influence of race in health and health care delivery. Through discussion, we discovered that instances of persistent confusion and racist ideation by our colleagues stemmed not from malice, but rather from a lack of fundamental understanding regarding the roots of these beliefs. Therefore, a group of students decided to expand on certain aspects of the preclinical curriculum beyond a simple presentation of the existence of health disparities and to instead facilitate a deeper understanding of why these disparities exist through the formation of the Race in the Curriculum Working Group.

Methods: To achieve this broad vision of examining race and racism in medical education, students teamed up with faculty and administrators to develop ways in which we can explore these issues throughout the four-year curriculum. Our approach has been three-tiered: 1) To introduce a conceptual framework that explores racial determinants of health in large group lectures, 2) To design small group sessions that address how race influences the delivery of care, and 3) To have students engage with these issues on a personal level, critically examining how privilege and oppression affects their own lives and the lives of their patients. In the last year, students and faculty have made modifications and additions to six of the first year classes. In total, four lectures were modified, two new lectures created, seven tutorial sessions were adapted while one was created, and eight readings were added and one brief created in these classes. To ensure that students are critically engaging with these issues, accompanying goals and objectives were developed, including modifications for tutorial leaders in the tutorial leader guides. These included case specific guiding questions, accompanying problem sets, and an emphasis on testable material through examinations.

Future Direction: Currently, evaluations of our implementations are ongoing and we hope to continually improve the rigor and efficiency of these curricular changes. Additionally, we are looking forward to brainstorming innovations to include elements of disparities education during clinical rotations and eventually residency.

PRELIMINARY RESULTS: A PROSPECTIVE STUDY OF INTERNATIONAL EDUCATION VIA INTERNET VIDEOCONFERENCE

Duan ME, MD (1); Kiwanuka JK, MBChB (2); Joseph SE, MD (1);
Eromo E, MD; Haastrup A, MD (1);
Baker KH, MD PhD (1); Ttendo S, MD(2); Firth PG, MBChB BA.(1)(*)

1. Department of Anesthesia, Critical Care and Pain Medicine, Massachusetts General Hospital and Harvard Medical School – Boston, USA
2. Department of Anaesthesia and Critical Care, Mbarara Regional Referral Hospital and Mbarara University of Science and Technology - Mbarara, Uganda
(*) Contact: Tel: 617 7242130, Email: pfirth@partners.org

Poster presentation: Graduate Medical Education

Background: The profound shortage of medical doctors in low income countries is associated with profound global disparities in health care delivery and population health outcomes. The educational mission and clinical impact of academic medical centers in high income countries could be enhanced and expanded by training doctors in low income countries via international internet video-conferencing.

Objective: Our objective was to evaluate the effectiveness of anesthesia education via Skype video-conferencing between the Massachusetts General Hospital (MGH), Boston, and Mbarara Regional Referral Hospital (MRRRH), Uganda.

Methods: Anesthesiologists delivered lectures at the MGH using PowerPoint slides, directly to MGH residents and remotely via audiovisual internet streaming to MRRH residents. Residents completed three randomized multiple choice questions before and after the lecture. Aggregated pre- and post-lecture scores were compared. Residents completed an anonymous post-lecture electronic survey of lecture quality and impact.

Results: 11 lectures were delivered to 70 attendees (32 MGH, 38 MRRH attendees). Pre- and post-test scores were: MGH residents 55/96 (57%) and 74/96 (77%) (p=0.008); MRRH residents 58/114 (51%) and 92/114 (81%) (p=0.004); combined scores 113/210 (54%) 166/210 (79%) (p=0.001). There were 37 survey responses (53% response rate). Respondents thought stated lecture educational objectives were met 96% of the time. Competency areas though to be improved included medical knowledge (97%), patient care (81%), and practice-based learning (59%).

Conclusion: Transfer of knowledge relevant to clinical practice occurs via small group lectures delivered both in person and remotely via internet videoconferencing. This type of educational activity may be useful in promoting international links between academic institutions, a particular priority in the growing field of Global Health.

CERTIFICATE OF EXCELLENCE IN EDUCATION FOR GRADUTING ANESTHESIA RESIDENTS

Lauren J. Fisher, DO, John D. Mitchell, MD, Stephanie B. Jones, MD, Sharon Muret-Wagstaff, PhD
Dept of Anesthesia, Critical Care, and Pain Medicine
Beth Israel Deaconess Medical Center, Boston, MA, United States, 02215

Contact information:
Lauren J. Fisher, DO
ljfisher@bidmc.harvard.edu
(617) 667-3112

The Certificate of Excellence in Education established at BIDMC is designed to provide the motivated senior anesthesia resident with a focus on principles of learning and teaching as well as guidance towards a career path that includes a lifetime commitment to teaching as part of an academic practice. The goals of this program are to promote the professional development of the resident on a local, regional, and national level. Graduates are projected to become career educators and leaders in the field of medical education.

At the end of residency training, those residents who applied to the program and meet criteria in the professional development of knowledge, skills and attitudes in medical education will be awarded a Certificate of Excellence in Education. These self-

- selected resid

a local, regional, and national/international level as well as demonstrate scholarship and honors in teaching. They are also expected to maintain a teaching portfolio to record their educational activities and create a teaching philosophy.

Examples of local teaching include teaching of peers or medical students, while regional teaching would include mentoring of premedical students. National/international teaching could be demonstrated by work with the national Society for Education in Anesthesia or international traveling fellowship. Honors include Associate Membership in the BIDMC Academy of Medical Educators or a grant from the Foundation for Education in Anesthesia Research.

By providing support, mentorship, and a structured educational curriculum we hope to create the next generation of medical educators.

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MENTORING RESIDENT LEADERSHIP OF MORNING REPORT: A RESIDENT AS EDUCATOR CURRICULUM FOR PEDIATRIC SENIOR RESIDENTS

Ariel Frey-Vogel, MD, MAT and Shannon Scott-Vernaglia, MD, Department of Pediatrics, MassGeneral Hospital *for* Children, Contact info: Ariel Frey-Vogel, afrey@partners.org, 617-726-2687, Category: Poster presentation—Graduate Medical Education

Background: Senior residents are expected to lead "morning report," a case conference, in many residency programs, yet they are not consistently or systematically taught how to do so, leading to conferences of variable quality and creating a missed opportunity to improve resident teaching skills. In order to determine the effect on resident case conference leadership of an intensive one-on-one mentored approach, the MGH*f*C Pediatric Residency Program created and implemented a Resident as Educator curriculum for residents leading morning case conferences by pairing residents with experienced attendings for a mentored teaching experience. No prior studies have looked at the effect of a one-on-one mentored approach to teaching pediatric residents to lead case conferences.

Methods: At our program, all pediatric and medicine-pediatric senior residents have at least one required rotation in which they lead a 45-minute morning case conference four times over a two-week block. In the 2010-2011 academic year, the Resident as Educator curriculum was launched in which each senior resident was paired with an attending mentor who had been trained in the curriculum. The mentor observed the resident teaching, provided feedback, and the pair discussed relevant readings about adult education theory and facilitating group learning. The residents were asked to complete surveys prior to and after this teaching block in which they self-rated their comfort and expertise with respect to leading a case conference. All pediatric residents were asked to complete surveys on the quality of case conferences in the fall of 2010 and the spring of 2011.

Results: Ten of 21 (48%) senior residents completed pre-rotation surveys and 8 (38%) completed post-rotation surveys. Residents had a significantly increased self-perception of confidence in leading case conferences after the rotation (4.0 vs. 5.5 on a 7 point Likert scale with 7 being the highest, p=0.002) and rated themselves significantly higher in their understanding of adult learning theory (4.1 vs. 5.5, p=0.02) and in their ability to do the following with respect to case conferences: choose a case (4.2 vs. 5.6, p=0.005), write objectives (4.5 vs. 5.9, p=0.02), create an outline (3.6 vs. 5.4, p=0.003), use faculty "experts" meaningfully (5.1 vs. 6.3, p=0.01), set a safe learning environment (5.1 vs. 6.4, p=0.008), gauge audience knowledge and set an appropriate level for discussion (4.3 vs. 5.3, p=0.01), and cover the stated objectives (4.7 vs. 6.1, p=0.0003). They were not, however, more likely after the rotation to seek out teaching opportunities during (6.2 vs. 6.5 p=0.6) or after (6.6 vs. 6.8, p=0.7) residency. Resident conference attendees rated the conferences with the new curriculum in place as clearer and easier to understand than previously (5.3 vs. 5.9, p=0.02) and more likely to be at the appropriate level (5.4 vs. 6.2, p=0.01).

Conclusions: The MGH*f*C Resident as Educator curriculum, which provides a two-week intensive one-on-one mentored experience to senior pediatric residents leading case conferences, improves senior resident perception of their ability to lead case conferences and resident attendee perception of the clarity and level of the case discussions.

A LONGITUDINAL, MULTI-SITE GERIATRICS ROTATION TO TRAIN INTERNAL MEDICINE INTERNS IN THE CARE OF OLDER ADULTS

Presenters: **Angela Hsu, MD, MS**
Phone: 617-599-4777, Email: anhsu@challiance.org
Rachel Stark, MD, MPH
Anne Fabiny, MD
Department of Medicine, Cambridge Health Alliance

Background**:** Internists play a primary role in management of older adults, but graduating internal medicine residents have historically felt ill prepared to care for this population[4]. We have created an innovative, outpatient longitudinal geriatric rotation for internal medicine residents at Cambridge Health Alliance (CHA) with the goals of improving clinical competence, self efficacy, and attitudes toward caring for elderly patients.

Goals and Objectives**:** To determine the efficacy of a longitudinal geriatrics rotation in training internal medicine interns in the medical care of older adult patients.

Study design: Prospective non-randomized pre and post intervention comparison without control group. All 8 of CHA's categorical internal medicine interns will participate in the longitudinal geriatric rotation and complete pre and post tests evaluating geriatric knowledge, self efficacy and attitudes. Participating interns' scores on the geriatric portions of the in-training exams will be compared with those of house-staff from previous years who have not participated in the intervention curriculum.

Intervention: The rotation will be based at CHA's Program for All-inclusive Care for the Elderly (PACE), the Elder Service Plan (ESP) which provides team-based care of frail older adults in the community and nursing homes. CHA's internal medicine residency program has recently adopted a "2+4" immersion schedule, with trainees spending two weeks on ambulatory rotations alternating with four weeks of other program responsibilities for the duration of their residency. Interns will participate in the longitudinal geriatrics curriculum during their ambulatory rotations and will spend 8-9 full days at ESP throughout the academic year from July 13, 2012 through June 14, 2013. Most of the interns' time on the rotation will be spent in direct patient care under physician supervision or preceptorship with a member of the interdisciplinary team. They will see patients in different care settings, including clinic, home, inpatient psychiatric unit, short term rehab, and long term care to help them understand the continuum of care and the capabilities and limitations of each setting. These clinical experiences will be complemented by assigned readings and formal lectures on geriatric topics as well as formal training on working in an interdisciplinary team.

Outcomes: Data collection is currently underway and will be ongoing throughout the 2012-2013 academic year and will be reviewed at the end of the academic year. Measurements will investigate the effectiveness of the rotation in improving geriatric knowledge and clinical behavior, as well as skills and attitudes of trainees.

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INTEGRATING RESEARCH INTO STUDENT-FACULTY PRACTICES ACROSS MULTIPLE CLINIC SITES

Laura Huppert, AB[1,2], Janine Knudsen, BA[1,2] Rebecca Berman, MD[2,3*]

Harvard Medical School[1], Crimson Care Collaborative[2], Massachusetts General Hospital Stoeckle Center for Primary Care Innovation, Harvard Center for Primary Care[3]

*Contact: rberman@partners.org

Background:
Student-run clinics fill crucial health care gaps for our nations' underserved and provide valuable opportunities for medical education. Since the inception of our student-faculty collaborative practice in 2009, we have integrated research into our nightly operations to help us better understand our patient population and expose our medical student volunteers to the methods of clinical research in a primary care setting.

Methods:
The CCC research team is composed of undergraduate, medical, and nurse practitioner students, and it is overseen by a panel of faculty research advisors. We have developed training modules and protocols to teach the research team members about how to interview patients, conduct medical chart reviews, and input data into a RedCap database. Research team members use these skills to evaluate patient demographics and medical-social needs, assesses quality of care, and measure clinic outcomes. All students are involved in the process of formulating useful research questions, developing instruments to address these questions, and analyzing data.

Recently, our clinic expanded from one site to five sites that each serves a distinct patient population. Therefore, we created a student-led umbrella organization to help expand our research model to all five sites, demonstrating the versatility of our research model in diverse clinic settings.

Results:
To date, we have trained 40+ undergraduate, medical, and nurse practitioner students to serve on our CCC research teams. We have developed two novel survey tools – a patient intake survey and a patient satisfaction survey that are both based on validated instruments and are used across all five clinic sites. Our research team members have collected data about patient demographics and medical outcomes by analyzing patient intake surveys and conducting medical chart reviews for all 525 CCC patients seen to date. We have also shared our work with the broader community, presenting at several regional and national conferences last year and recently publishing our first manuscript.

Outcomes:
By consistently gathering data about the patients we serve, our clinics have been able to better understand and meet our patients' needs and expectations. The medical students involved on our research teams learn how to ask meaningful research questions and are exposed to clinical research in a primary care setting. Our research model has been successfully implemented at each of our clinic sites, suggesting that our training modules, data collection methods, and research instruments can be broadly utilized at student run clinics with diverse patient populations.

IMPROVING INTERNAL MEDICINE RESIDENTS' COMPETENCY IN MEDICATION MANAGEMENT THROUGH AN INTERDISCIPLINARY WORKSHOP

Tia Kostas, MD[1,2,3]; Mark Simone-Skidmore,MD[2,3]; Kristin Zimmerman, PharmD[4]; Marci Salow, PharmD[1]; Natalie Noto, PharmD[1]; James Rudolph, MD[1,2,3]; Graham T. McMahon, MD, MMSc[2,3]
[1]VA Boston Healthcare System, Jamaica Plain, MA,[2]Brigham and Women's Hospital, Boston, MA,[3]Harvard Medical School, Boston, MA,[4]Massachusetts College of Pharmacy and Health Sciences, Boston, MA
Contact: Tia Kostas, MD; 857-364-4153; tkostas@partners.org
This research is partially supported by Dr Kostas' John A. Hartford Center of Excellence Award, and Dr Simone-Skidmore's HRSA Geriatric Academic Career Award Grant No. K01HP23811.

STATEMENT OF PROBLEM: Internal medicine (IM) residents at Brigham and Women's Hospital (BWH) lack confidence in medication management in elderly patients, and both IM residents and their continuity clinic preceptors identify medication management as a learning priority.

OBJECTIVES: We sought to develop and evaluate an interdisciplinary workshop in medication management in older patients. The goal of the workshop was to help residents develop the skills to perform a comprehensive medication review and identify unnecessary regimen complexity, potentially inappropriate medications, and medications with a high risk of adverse events.

DESCRIPTION OF INTERVENTION: The 1-hour medication management workshop takes place once during the two-week geriatrics rotation for each of approximately 70 PGY2 IM residents, physician assistant (PA) students, and geriatric fellows. It is facilitated by a geriatrician and 1-3 geriatric pharmacists. Our focus on skill development led us to deprioritize didactics in favor of a participatory workshop, with participants using their own patients to identify areas of personal strength and weakness with regards to medication management. We have also incorporated a reflective component to the workshop to augment personalization and retention. In preparation for the workshop, participants are guided through a self-audit to identify areas of their own prescribing patterns that could be improved. They also practice performing medication reviews on 2 standard medication lists. When participants attend the interdisciplinary workshop, they build their skills in medication management through discussion of their own patients, shared reflection on their prescribing patterns, and self-evaluation of their ability to identify inappropriate medications. Residents then re-review the 2 practice medication lists after the workshop to demonstrate any improvement in their ability to recognize potentially inappropriate medications.
FINDINGS TO DATE: Thus far, 7 residents, 1 PA student and 1 geriatric fellow have participated in the workshop. All participants rated the program highly, and indicated that they plan to make changes in their patients' medications based on this workshop. We will continue to expand the interdisciplinary component of this intervention by the inclusion of pharmacy students and PAs as participants, and will perform a 3-month follow-up to assess persistence of behavior change.

REFLECTIVE PRACTICE AS A TOOL TO TEACH DIGITAL PROFESSIONALISM

Justin W Kung MD[(1)], Ron L. Eisenberg MD JD[(1)], Priscilla J. Slanetz MD MPH[(1)]

(1) From the Department of Radiology, Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA 02215

Justin W Kung MD

Email: jkung@bidmc.harvard.edu
Phone: (267) 979-8600

RATIONALE AND OBJECTIVES: Digital professionalism is increasingly being integrated into post-graduate medical education. We developed a small-group, reflective practice-based session incorporating radiology specific cases to heighten residents' awareness about digital professionalism.

MATERIALS AND METHODS: Case-based, radiology specific scenarios were created for a small-group, reflective practice-based session on digital professionalism. Anonymous pre- and post-session surveys evaluating residents' usage of social media and their thoughts about the session were administered to the radiology residents.

RESULTS: 25 of 38 (66%) residents responded to the pre-session survey with 40% (10/25) reporting daily social media use; 50% (12/24) witnessing an unprofessional posting on Facebook; and 8% (2/25) posting something unprofessional themselves. Of the 21 residents who attended the session, 13/21 (62%) responded to the post-session survey. Residents reported that the session added to their understanding of professionalism 3.92, 95% CI (3.57-4.27). As a result of the session, residents stated that they were more aware of protecting patient privacy and confidentiality on social media sites 3.92, 95% CI (3.47-4.37) and would take a more active role in ensuring professional use of social media as it relates to patient care 4.00, 95% CI (3.66-4.34).

CONCLUSION: Residents favorably viewed the reflective case-based session on digital professionalism as a means to be more aware of ways to avoid unprofessional interactions on the internet. Our results suggest that such reflective sessions are an effective method to educate residents on key concepts regarding digital professionalism.

REFLECTIVE WRITING AS A PEDAGOGICAL TOOL TO ENHANCE PHYSICIAN EMPATHIC COMMUNICATION

Grace L. Malvar, BA, Nina Gadmer, ACNP-BC2, Laura Rock, MD2, Amy M. Sullivan, EdD2
1Harvard Medical School, 2Shapiro Institute for Education and Research, Beth Israel Deaconess Medical Center
Corresponding author: Grace Malvar, (510)604-0119, grace_malvar@hms.harvard.edu

Background. Recent findings show that skilled empathic communication by ICU physicians correlate with improved patient outcomes, higher family satisfaction, shorter ICU length of stay, and reduced adverse family bereavement outcomes.1,2 Despite these known benefits, erosion of empathy has been noted to occur during training, notably during the third year of medical school and throughout residency.3-7 Challenges in clinical practice—high volume of patients, restricted time per patient/family encounter—could contribute to limited engagement for and decline in reflective practice6. Reflective writing has been used in medical schools as a learning tool to promote student professionalism and empathic communication skills7-10; however, little is known about whether such interventions could be sustained among practicing physicians8. The study aims to test whether adding a brief reflective writing component to an existing communication course will be associated with a greater self-reported11 and observed empathic communication.

Intervention. This project is part of a larger study of a required weekly communication course for residents during their rotation in the Intensive Care Unit at a tertiary care hospital. Methods include faculty-led interactive discussions, role play with volunteers, and simulation with feedback. Each participant completes a 3-week (4 hours total) course. Each session includes a clinical case of a patient with critical illness, and residents role play several scenarios: leading an initial family meeting to inform family members of a patient's clinical status and eliciting their understanding of the situation, their concerns and information needs; and meeting with a family to discuss a patient's wishes and values related to a potential transition from curative to comfort care. For this study, each session includes a brief (2-3 minute) reflective writing exercise prior to the role play. Residents in the intervention groups are asked to imagine themselves in the family members' place and describe what they might be thinking and feeling in such a situation; those in the comparison groups will be asked to focus on medical aspects of the case only. The reflective writing topic (intervention versus comparison group) will alternate every 6 weeks.

Methods. (1) Residents are observed during role plays and assessed using a Communication Assessment Tool. A summed score will be used to represent each resident's communication skills in the simulated family meeting. We will fit multiple regression models to test whether the average scores for residents in the intervention group are greater than average scores for those in the comparison group. (2) Residents are also interviewed at the end of the course to explore their experience of the reflective writing practice and of the course overall. Audio-recorded interviews are transcribed and analyzed using qualitative methods of content analysis.

Results. Data collection is currently in progress. Updates will be presented in the poster. Preliminary results for the qualitative interviews are as follows. Nine residents who participated in the intervention group have completed interviews. All residents interviewed described the reflective exercise as helpful, because of the following themes: the exercise brought family's experience to the forefront; shifted attention from their own agenda (e.g., needing a decision) to considering the family's concerns; encouraged awareness of their use of language, especially avoidance of medical jargon; counteracted the impact of time pressures to consider the impact of events on the family; and helped resident to formulate a clear agenda before meeting with family. For example: "Most of the time when we are talking as the doctors--'Oh, this patient is intubated, on vasopressors'--we take those things for granted. I feel writing this down helps us pause for a second, and say,"OK, if I'm not in the medical field, how would I feel? What would the family member feel?" and you can make your speech and words you use compatible with the fact that they are not in the medical field." And "As a resident, we don't always have time to [be] thinking [about] the preparation a lot of things are quite rushed…there's always time pressure. You want to get information, you want to make a decision. These are the things we often ignore but are very important."

Conclusion. Conducting a brief reflective writing session is feasible and may enhance residents' ability to understand the perspective and needs of family members. Our next steps will be to assess whether reflection on the family experience results in greater observed empathic communication compared with reflection on medical aspects of care alone.

THORACIC ULTRASOUND TRAINING FOR MEDICAL INTENSIVISTS

Jakob McSparron MD[1], Anthony Massaro MD[2], Nancy Lange MD MPH[2]
Carl J. Shapiro Institute for Education & Research, Beth Israel Deaconess Medical Center and Division of Pulmonary and Critical Care Medicine, Brigham and Women's Hospital
Contact: JakobMcSparron 617-667-5473 or jmcsparr@bidmc.harvard.edu

Background:
Critical care ultrasound (CCUS) is now viewed as a necessary skill for the practicing intensivist. Given its high sensitivity and specificity for identifying the etiology of respiratory failure, thoracic ultrasonography is particularly relevant in the medical intensive care unit. In addition, ultrasound guided thoracentesis decreases iatrogenic complications and can be performed safely in mechanically ventilated patients. Formal training has not been widely incorporated into pulmonary/critical care training programs, and many attendings and graduating fellows are not competent with this technology. Research exploring training in thoracic ultrasound is limited, and there is marked variability among training programs. A combination of web-based didactics and hands-on training offers a standardized approach for divisions and fellowship programs seeking to implement ultrasound training.

Aims:
Develop and implement a CCUS curriculum focused on lung/pleural ultrasound. Investigate impact of the curriculum with pre/post tests and assessment on a simulator. Investigate retention of skills with follow up testing at periodic intervals following training.

Methods:
We will carry out a prospective interventional pre-post study of 10 attending intensivists and 20 critical care fellows. The curriculum will be a combination of interactive web-based didactics, clinical case discussions, and hands-on training. Subjects will complete a pre-test and perform an observed thoracentesis on a simulator to evaluate baseline knowledge and skills. A post-test and simulated thoracentesis will be performed upon completion of course, at 6 months, and at 12 months to assess impact of curriculum and retention of skills. We will compare pre- and post-test scores by individual subjects and in aggregate.

Conclusions: Ultrasound training is essential for pulmonary and critical care fellowships. Our study will assess the effectiveness of a curriculum using web-based didactics in combination with hands-on training sessions. If effective, this curriculum could be easily exported and adopted by other training programs.

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TEACHING INTERACTIONS BETWEEN INTERNAL MEDICINE SUBSPECIALTY FELLOWS AND INTERNAL MEDICINE RESIDENTS: DEFINING THE BARRIERS AND MAXIMIZING LEARNING

Eli M. Miloslavsky MD[1], David H. Roberts MD[2,3], Amy Sullivan PhD[4], Jeremy B. Richards MD[2,4], Grace C. Huang MD[3,4] and Alberto Puig MD[1]
[1]*Massachusetts General Hospital Department of Medicine;* [2]*Beth Israel Deaconess Medical Center (BIDMC) Division of Pulmonary, Critical Care, and Sleep Medicine;* [3]*BIDMC Department of Medicine;* [4]*Carl J. Shapiro Institute for Education & Research*
Contact: Dr. Eli Miloslavsky (phone: (617)726-7938, email: emiloslavsky@partners.org)

Background
Medical subspecialty clinical fellows can serve as a tremendous educational resource to internal medicine residents. However, the teaching interaction between residents and fellows on consulting services also faces substantial barriers. These barriers can be divided into three categories: logistics, perspectives of the participants, and the teaching interaction itself. No study has previously examined the teaching relationship between fellows and residents on the general medicine service or attempted to describe the barriers to the resident-fellow teaching interaction. We seek to elucidate the barriers to the teaching interaction between residents and fellows and propose specific strategies that may help to overcome those barriers.

Preliminary Results
A survey performed amongst the Massachusetts General Hospital (MGH) Department of Medicine (DOM) housestaff demonstrated that DOM subspecialty fellows are a valuable but underutilized resource in the education of medical residents. 69% of the responders stated that they received "Less teaching than I would like" from fellows. Respondents stated that they learned more from senior residents and attendings than fellows. 87% felt that they initiated the teaching interaction with the fellow either "some of the time" or "most of the time."

Proposed Study Design
The study will be conducted in three phases:
- Phase 1 – Conduct focus groups of Internal Medicine (IM) residents and IM subspecialty clinical fellows from the MGH and the BWH in order to describe the barriers to the resident-fellow teaching interaction.
- Phase 2 - Develop a survey based on the results of the focus groups and administer to all residents and clinical fellows in the MGH and BWH DOMs. The resident and fellow surveys will be analyzed to assess whether there is agreement between residents and fellows on the barriers that prevent an effective resident-fellow teaching interaction as well as to determine which barriers are most important.
- Phase 3 – Conduct focus group of fellows at the MGH and the BWH who were given teaching awards during their fellowship in order to elucidate "best practices" for teaching residents on the wards.

Questions for Discussion
1. What role does training of fellows as teachers have in improving the effectiveness of the resident-fellow teaching interaction?
2. What other interventions can be used to improve the resident-fellow teaching interaction?

PROFESSIONAL DEVELOPMENT COACHING PROGRAM FOR RESIDENTS

Name of Presenter: Kerri L. Palamara, MD
Department: Department of Medicine
Institution: Massachusetts General Hospital (MGH)
Contact Information: kpalamara@partners.org

While successful mentoring, career development, and remediation programs exist in U.S. residency programs, MGH's Professional Development Coaching Program is the first to focus on the individual resident's professional development by linking them with a faculty coach trained in positive psychology and executive coaching techniques applied to medicine. The Next Accreditation System (NAS) will be launching in 2013, using developmental milestones in an effort to provide residents with the roadmap for their development. Without guidance on how to identify their strengths and use them to set learning goals and overcome barriers, milestones may be challenging for programs to assess and for residents to attain.

The MGH Professional Development Coaching Program applies a coaching paradigm to help our residents advance in their professional development as physicians, improve their self-directed learning skills, and enhance their focus on lifelong learning. The goal of Professional Development Coaching Program is to optimize the growth of all residents to reach their full potential during their residency and provide meaningful guidance for residents on their road to competence. Each intern in the 2012-13 class was assigned a Professional Development Coach, who is an invited volunteer DOM faculty member (APDs, preceptors, core faculty, clinician educations, former chief residents) trained in positive psychology and executive coaching techniques. Professional Development Coaches are assigned on average 2.5 interns. They meet quarterly to review evaluations, encourage reflection through positive psychology exercises, and motivate the residents to set learning goals for their upcoming rotations.

Coaches and the control group interns and residents were surveyed at beginning of program and will be surveyed every 6 months during the study. Objective methods include self and coach assessment of trainee performance in residency, as measured by the six core competencies, educational and professional development, and psychological coping. Residents enrolled in the coaching program will be asked to self-assess their progress in residency, as measured by increasing over time perceptions of skills in self-directed learning, importance of lifelong learning, self-confidence, self-efficacy, work-life balance, effective relationship building, preparedness to practice high quality, patient centered care; and overall progress (barriers and facilitators). Additionally, qualitative semi-structured individual interviews will be conducted annually with coaches and interns to identify and code key themes that emerge regarding the coaching program.

We expect that our Professional Development Coaching Program will provide meaningful guidance to improve resident awareness of their growth and development and encourage residents to become lifelong learners. We believe that this program is affordable and generalizable to both community and university settings, and across specialties.

IF YOU BUILD IT: REDESIGNING PRIMARY CARE TRAINING AROUND ACTIVELY TRANSFORMING CONTINUITY CLINICS

Richard Pels, MD; Rachel Stark, MD, MPH; Priyank Jain, MD, Barbara Ogur, MD, David Bor, MD

Department of Medicine, Cambridge Health Alliance
Contact: Richard Pels, MD, (617) 665-1016, rpels@cha.harvard.edu

The primary care Internal Medicine (IM) residency program at the Cambridge Health Alliance has completed an extensive, year-long planning process to restructure its training based upon principles of longitudinal engagement in both patient care and the environment of care. Building upon the principles of the Harvard-Cambridge Integrated Clerkship, this project emphasizes continuity of relationships with patients, a practice, a community, ambulatory mentors and a developmentally progressive curriculum. Major thematic elements include humanistic practice, teamwork, and leadership in improving systems of care, community health and health policy.

This new educational model, implemented in the 2012-2013 academic year, utilizes a "2+4" immersion schedule, in which residents spend 2 weeks immersed in ambulatory training followed by 4 weeks in other residency activities (inpatient medicine, emergency medicine, elective) throughout the 3 years of residency. Compared with the prior model, residents will spend 25% greater time on ambulatory rotations, and will have 30% more clinic sessions over their 3 years of training.

Residents have their continuity experiences exclusively at practice sites that are actively transforming into Patient Centered Medical Homes with the assistance and support of the HMS Center for Primary Care Academic Innovations Collaborative. The residents are assigned to care teams at their clinic site with 2 other residents, a preceptor, nurse, and medical assistant, such that one resident team member is always on ambulatory rotation. The residents continue with this team throughout residency. During ambulatory rotations, the resident has 4 clinic sessions and 1 administrative session each week. They participate in population management, complex case management, and systems improvement.

This opportunity for residents to be fully grounded in the ambulatory care team with a predictable clinic schedule, and without the distraction of concurrent acute inpatient care responsibilities, provides a facilitating framework for innovative, longitudinal care experiences with patients and for educational immersion in outpatient medicine. In this model, residents are enabled to develop meaningful relationships as members of care teams and practice improvement teams, and participate significantly in practice transformation. The predictable schedule with continuous cohorts of residents has also enabled us to build novel year-long longitudinal experiences, integrated into the ambulatory immersion blocks, in geriatrics, mental health, and addictions medicine (PGY1), and in research-based health advocacy (PGY1, 2, or 3).

A robust plan for quantitative and qualitative program evaluation is underway.

"RESIDENT AS MASTER DIAGNOSTICIAN": A PHYSICAL DIAGNOSIS TEACHING CURRICULUM FOR RESIDENTS

Subha Ramani, MBBS, MMEd, MPH, Graham T. McMahon, MD, MMSc, Joel T. Katz, MD, Maria A. Yialamas, MD
Department of Medicine, Brigham and Women's Hospital and Harvard Medical School
Contact information: Subha Ramani. Email: sramani@partners.org. Phone: (617) 278-1700

Background: Several research reports and informal observations by clinical educators indicate that physical diagnosis skills have declined among medical students, residents and clinical faculty. In an effort to improve these skills among Internal Medicine (IM) residents at Brigham and Women's Hospital (BWH), the residency program is planning a new, integrated physical diagnosis curriculum for residents. One aspect of this initiative is a 2-week "Resident as Master Diagnostician" curriculum.

Program goals: The goals of this elective are to: (1) Increase knowledge and skills in physical diagnosis, especially evidence-based physical diagnosis; (2) Interpret and apply clinical findings to patient diagnosis and management; and (3) Improve teaching skills for physical diagnosis.

Program description: Junior or senior residents on the teaching resident rotation will have the opportunity to participate in a 2-week physical diagnosis teaching elective with structured teaching and learning activities. The elective will be offered year-round and accommodate 1 resident per rotation. They will be guided and mentored by a Master Clinician Attending (MCA). Using the co-teaching model, the rotation will feature 3 phases: (1) demonstration of teaching by MCA, (2) shared teaching by resident and MCA, and (3) teaching by resident and observation by MCA. Each phase will include establishment of teaching goals and structured and detailed one-on-one debriefing. In addition, residents will participate in didactic sessions on advanced physical diagnosis, evidence-based physical diagnosis and best practices for physical diagnosis teaching with supporting literature. During the elective, residents will identify patients with physical findings on the BWH wards, obtain their verbal consent and organize bedside rounds for members of the Integrated Teaching Unit (ITU) teams twice a week. They will read available literature and prepare handouts for their participants. As part of this initiative, the elective directors will create an online syllabus with handouts and articles.

Program evaluation: A variety of assessment methods will be used to test the impact of this curriculum. (1) Residents will complete a pre and post- test of their knowledge of physical diagnosis using MCQ type questions. (2) MCAs will complete structured observations of residents during their teaching sessions at the beginning and end of the elective. We plan to focus on 3 specific skills during this initial implementation phase: JVP, systolic murmurs and splenomegaly. The structured observation checklists will be developed and finalized by the elective directors. (3) Residents will complete a short questionnaire on the strengths of the curriculum, and areas for improvement as well as a reflective statement on their learning objectives, knowledge and skills gained and attitude towards clinical skills overall.

Conclusions: This elective is one part of a multi-pronged approach to improve physical diagnosis skills of IM residents at BWH. We anticipate that direct observation and debriefing by attendings, supplemented by resident self-reflections on teaching activities, will improve the effectiveness of feedback for skill development.

PEDIATRIC DERMATOLOGY CLINICAL ELECTIVE CURRICULUM

Author(s) Names: Jillian F. Rork, BA[1,2]; Jennifer T. Huang, MD[1,2]; Marilyn G. Liang, MD[1,2]

Academic Affiliations: (1) Department of Dermatology, Boston Children's Hospital; (2) Harvard Medical School

Phone: 617-355-6117 **E-Mail Address**: Jillian_Rork@hms.harvard.edu

Introduction: Dermatological problems manifesting as primary and secondary cutaneous complaints constitute at least 30% of all outpatient visits to the pediatrician (1); therefore, a strong foundation in pediatric dermatology is paramount for pediatricians and dermatologists alike. To educate future clinicians, Boston Children's Hospital (BCH) offers a four-week clinical elective in pediatric dermatology to fourth year medical students. During the elective, students have limited didactic sessions on pediatric dermatology topics. While the BCH faculty provides informal teaching during clinics and inpatient consultations, medical students may benefit from a more structured curriculum.

Objectives: The primary objective is to develop a curriculum consisting of textbook readings, journal articles, and an online Q-stream question bank for medical students enrolled in the BCH pediatric dermatology elective. The secondary objective is to evaluate the effectiveness of this curriculum by measuring students' pre- and post-test scores and a curriculum survey.

Methods: Medical students enrolled in the four-week BCH pediatric dermatology elective will participate in the study. Before the rotation begins, students will complete a 25 question pre-test to evaluate their existing knowledge base. Each week, students will be assigned readings from Hurwitz Clinical Pediatric Dermatology and relevant journal articles. Students will simultaneous enroll in an online Q-stream course consisting of 80 total questions, completing 4 questions per day. Within one week of finishing the rotation, students will complete a 25 question post-test to assess their knowledge base. They will also complete a survey asking them to rate the utility of particular aspects of the curriculum towards improving their knowledge of and attitude towards pediatric dermatology. Pre- and post-test scores will be compared. Survey values will be measured.

Results: No data has been collected to date.

Conclusions: No formal conclusions can be made at this time. We hope to conclude that students found the curriculum improved their knowledge base and test scores improved. We intend to use these preliminary results as the foundation for a nation-wide study involving multiple pediatric dermatology departments to evaluate the effectiveness of this curriculum. Our ultimate goal will be to develop a standardized curriculum available to all medical students enrolled in a pediatric dermatology elective.

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LEAVING THE NEST: AN EXPLORATIVE ASSESSMENT OF PEDIATRIC RESIDENCY GRADUATES' EXPERIENCES TRANSITIONING INTO PRACTICE

Pooja C. Rutberg M.D.
Department of Pediatrics, Cambridge Health Alliance
prutberg@challiance.org

Background
Preparing competent physicians through residency training has been recognized to require education in the non-clinical aspects of patient care. Large surveys have shown that pediatric graduates feel ill-prepared to handle certain practical aspects of providing care to patients.

Study Objective
To conduct a needs assessment for a curriculum focused on the non-clinical aspects of career preparedness through an explorative assessment of pediatric residency graduates' experiences transitioning out of training.

Methods
This study was a qualitative analysis of a focus group and semi-structured interviews with 12 graduates of a pediatric residency program.

Results
Though qualitative analysis we identified nine themes. "Emotional Reactions to Residency," "Self Efficacy in a New Role," and "Responsibility and Accountability" were grouped together as *Intrapersonal Themes*. "Need for a Community Post Residency" and "Balance" were grouped under *Relationships*. "Practicalities of Being in a New Role" and "Clinical Learning Over Time" were grouped under *Practicalities*. "Reflections on Residency" and "Things I Wish I Knew" were the remaining two themes. *Intrapersonal Themes* and *Relationships* were collectively coded 1.8 times more frequently than *Practicalities*.

Discussion
Although multiple practical knowledge gaps were identified by graduates, the significant weight of the *Intrapersonal* and *Relationship* challenges in our data was remarkable. This is particularly noteworthy since the existing non-clinical career preparedness curricula that are described in the literature focus exclusively on practicalities. Although unable to identify specific teaching suggestions to address this area, graduates expressed a strong desire to be made aware of these challenges during residency.

Conclusions
While residencies will never be able to fully diffuse the intrapersonal and relationship challenges faced after training, they can develop techniques to address this need, inform residents of upcoming challenges and give them resources to draw upon when appropriate. Employers of new graduates should also consider how best to assist their new employees with these challenges.

AN EDUCATIONAL PROGRAM IN SHARED DECISION MAKING IN PRIMARY CARE PRACTICE FOR INTERNAL MEDICINE RESIDENTS

Leigh H. Simmons, MD
Karen R. Sepucha, PhD
Lauren J. Leavitt, MA

Division of General Internal Medicine
Department of Medicine
Massachusetts General Hospital

Contact Information
Leigh H. Simmons, MD
617-726-2368
LHSIMMONS@PARTNERS.ORG

The Shared Decision Making Initiative in Primary Care at Massachusetts General Hospital (MGH) seeks to integrate shared decision making (SDM) into routine patient care. The goal of the project is to ensure that all MGH patients facing significant medical decisions are well-informed about their options, involved in decision making, and receive treatments that meet their goals and needs. To reach this goal, a significant component of our work is developing and delivering training in shared decision making skills to clinicians so that they can best apply these concepts during the visit and facilitate high quality decisions. Our team has developed a program focused on internal medicine resident education in SDM skills and application of SDM in routine primary care. This was a novel initiative in SDM education for our residency training program.

Objectives of the Program:
Our program aims to improve resident knowledge and confidence in the skills of SDM, and offer residents tools to facilitate the application of SDM in routine practice.

Description of Program:
We based our project in our ambulatory medicine curriculum of the MGH Internal Medicine Residency Program. We delivered our curriculum in the form of 2 one-hour sessions to approximately 70 residents at all levels of training. In the first session, residents learned rationale for use of SDM in clinical care, a framework for application of SDM called the "Six Steps of Shared Decision Making", and had a discussion about techniques for risk communication. Between sessions, residents reviewed a patient video decision aid on a condition of their choosing. At the second session, residents participated in a role-play exercise focused on decision making about mammography for women ages 40-49. Residents were also instructed in the MGH program in video decision aid prescription.

Findings to Date:
After the program residents were surveyed on their confidence in SDM skills:

- 79% of residents surveyed felt more confident in explaining the definition and rationale for SDM
- 75% felt more confident framing decisions in a way that achieves SDM
- 48% felt more confident discussing the benefits and risks of treatment and screening
- Residents suggested that they would find readily available data on common treatment and testing decisions useful for discussions in the office, for example in the form of a handout or quickly available online resource

Next Steps:
Based on the findings from our initial program in resident education, we are developing a curriculum for the coming academic year that is focused on real-time provision of data on benefits and risks of various treatment options for conditions frequently encountered in internal medicine practice (diabetes, hypertension, hyperlipidemia, and depression). Residents will be instructed in the use of choice reports, which are paper grids designed to clearly display options for treatment and testing of specific conditions. This next phase of our shared decision making education is designed to close the current gap in resident confidence and knowledge about risks and benefits of treatment and testing options.

A COMPARISON OF ATTENDING AND RESIDENT PERCEPTIONS AND PRIORITIES FOR GERIATRIC TRAINING

Mark J. Simone-Skidmore, MD[1,2]; Tia Kostas, MD[1,2,3]; Anne Fabiny, MD[2,4]; Graham T. McMahon, MD, MMSc[2,5]

[1]Brigham and Women's Hospital, Division of Aging, Boston, MA,
[2]Harvard Medical School, Boston, MA,
[3]VA Boston Healthcare System, GRECC, Jamaica Plain, MA,
[4]Division of Geriatrics, Cambridge Health Alliance, Cambridge, MA,
[5]Brigham and Women's Hospital, Division of Endocrinology, Boston, MA
Contact: Mark Simone-Skidmore, MD; 617-525-7004; mjsimone@partners.org
Poster presentation category: Graduate Medical Education
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STATEMENT OF PROBLEM: Internal medicine (IM) residents at Brigham and Women's Hospital (BWH) have little time committed to geriatric training during residency, yet they are expected to learn how to provide high-quality care for older patients. We aim to create a curriculum during the PGY2 geriatrics rotation that prioritizes the needs of residents and faculty, and that addresses the geriatric competencies expected of graduating IM residents.

OBJECTIVES: We designed a survey for faculty and residents to 1.) characterize the perceptions of residents' ability to care for older adults, and 2.) identify the specific topics prioritized as most important to learn about during a geriatrics rotation.

DESCRIPTION OF PROJECT: We administered an online needs assessment survey to all BWH IM residents in Spring 2012. We also administered the survey to residents' continuity clinic preceptors, BWH geriatricians, and Boston-area physicians who make home visits. This study was approved by the Partners IRB.

RESULTS: The response rate for residents and faculty was 47% (95/202) and 46% (40/87), respectively. On a scale of 1-5, with 1 = not at all prepared and 5 = very prepared, residents felt more prepared to care for older patients than their preceptors thought they were (3.1 +/- 0.7 vs. 2.7 +/- 0.7, p=.0036). Residents were also willing to spend fewer weeks in geriatrics training during residency than faculty deemed appropriate (3.0 +/- 2.0 vs. 5.6 +/- 3.8, p<.0001). Residents and faculty shared similar content priorities to learn about during a geriatrics rotation, with medication management/polypharmacy as the most frequently prioritized; other topics frequently chosen by both residents and attendings included functional status evaluation, dementia, advanced care planning, and mobility and gait assessment. Most residents are at least moderately interested in a home visit experience. Residents' top 3 preferred learning methods included didactics, a home visit experience, and shadowing/observation.

CONCLUSIONS: Faculty and residents share priority content areas for geriatric training, but residents perceive they are better prepared and need less training in geriatrics than perceived by experienced primary care faculty. These results have guided the development of a new curriculum for the PGY2 geriatrics rotation at BWH.

DOES THE ACUTE CARE SURGERY MODEL OFFER MORE HANDS ON EDUCATIONAL BENEFITS FOR GENERAL SURGERY RESIDENTS

Name of presenters: Peter Soden MD*, Stephen R.Odom MD*
Dept and Institution: *Dept of Surgery at Beth Israel Deaconess Medical Center
Contact Info: psoden@bidmc.harvard.edu, sodom@bidmc.harvard.edu

Abstract

Introduction: The Acute Care Surgery (ACS) model is being adopted by many academic medical centers across the country and combines critical care, trauma, and general surgery. ACS has been shown to decrease length of time in the emergency department (ED), overall hospital length of stay (LOS), and time to the operating room (OR) for common general surgery problems including acute cholecystitis (AC). In addition to its efficiency, this model also offers a valuable educational opportunity due to the increased responsibility in the post-graduate year (PGY)-4 level and more operative time for the PGY-2 level.

Methods: This is a single institution retrospectively collected database using diagnosis codes (ICD-9) to identify patients who were admitted through the ED from 7/12/08 to 1/21/12 with the diagnosis of AC. Excluded were cases of chronic cholecystitis, pancreatitis, cholelithiasis without acute cholecystitis, and choledocholithiasis. The ACS model at our institution was initiated on 7/1/10 and cases were considered pre-ACS if admitted before this date and post-ACS if admitted after this date. Operative reports were analyzed to determine the number and PGY level of residents scrubbed during each case. In addition, operative time, complications, and hospital LOS were determined.

Results: A total of 47 patients presented with ICD-9 575.0, after the institution of ACS. Of these, 15 had operative intervention with a mean of 1.43 residents scrubbed during each operation. Prior to ACS there were 49 patients presenting with primary diagnosis of AC. Nine had operative intervention and the mean number of residents scrubbed was 1.0 (p-value 0.02). The average OR time in minutes under the ACS model was 140.6 minutes (n=8) for 1 resident cases and 169.5minutes (n=6) for 2 resident cases whereas under the pre ACS model all cases had 1 resident and average OR time was 148.4minutes (n=9). Two of 13 cases were converted to open in the ACS group, and an additional two were started as open, compared to three conversions to open out of 9 in the pre-ACS group. LOS was similar in each group at 4.9 days under the ACS model and 4.8 days pre-ACS. Thirty day return to ED was seen in only 1 patient out of 15 operative patients in the ACS group and 2 in the pre-ACS group. Both groups had zero 30 day in-hospital mortality.

Conclusions: There are a statistically higher number of residents double scrubbing acute cholecystitis operative cases under the new ACS model. This model offers a valuable educational opportunity where the PGY-4 resident is given the opportunity to become the teacher and the PGY-2 resident can learn the skills and important anatomy for this operation in an era of reduced work hours.

MEETING OF THE MINDS: A NOVEL MENTAL HEALTH AND INTERNAL MEDICINE COLLABORATION

Rachel Stark, MD, MPH[1]; Robert Joseph, MD[2]; Richard Pels, MD[1]

Departments of Medicine[1] and Psychiatry[2], Cambridge Health Alliance
Contact: Rachel Stark, MD, MPH (617) 665-1016, rstark@cha.harvard.edu

We recently restructured our primary care internal medicine residency program at Cambridge Health Alliance, and adopted a "2+4" immersion schedule (2 weeks of ambulatory training alternating with 4 weeks of other residency activities, such as inpatient wards) in order to enhance training experiences in the ambulatory setting. Inspired in large part by our faculty's experience in the highly successful Cambridge-Harvard Integrated Clerkship, the re-designed program emphasizes longitudinal relationships with patients, teamwork, community health, and meaningful participation in our transformation to a Patient Centered Medical Home. In particular, one of our key curricular changes emphasizes collaboration amongst primary care internists and co-located mental health providers. We describe a longitudinal ambulatory mental health rotation for interns that we are piloting in the 2012-2013 academic year.

Residents in our program participate in a primary care continuity clinic at one of three busy, urban community health centers affiliated with our institution. All three sites are participating in the HMS Center for Primary Care Academic Innovations Collaborative to transform care at resident continuity clinic sites. Psychiatric co-morbidity is common in our patient population, and primary care physicians are often the first providers to encounter patients with undiagnosed or undertreated psychiatric illness. In our integrated model of care, staff psychiatrists, psychologists and counselors work with primary care medical providers at each site to care for patients with co-morbid psychiatric illness and addictions.

Beginning in July 2012, all eight of our primary care interns will participate in a novel mental health rotation based on this integrated model of care. During every two week ambulatory rotation, each intern works with a staff psychiatrist once weekly at his/her own continuity clinic site throughout the year. During this clinical session, the intern participates in the care of primary care patients referred to the consult-liaison psychiatrist, and co-manages the patient with the consultant. The structure enables trainees to refer their own continuity clinic patients to these sessions with the psychiatrist, participate in the mental health evaluation, and to contribute the medical perspective to the patient's care as diagnostic and treatment strategies for a particular patient are evolving. Additionally, since this rotation is a year-long experience, trainees will have the opportunity to follow patients over time and participate in their care in conjunction with the psychiatrist for at least a year.

We believe this innovative rotation will better prepare primary care residents to care for patients with co-morbid psychiatric illness, create greater teamwork amongst internists and mental health providers and, ultimately, improve care of this challenging patient population. Plans are underway to document effectiveness and to demonstrate feasibility for adoption by other residency programs.

THE EFFECT OF A SPIRALLED, MODULAR CURRICULUM ON RESIDENT PERFORMANCE ON THE IN-SERVICE TRAINING EXAMINATION

DAVID K. URION, M.D., DEPARTMENT OF NEUROLOGY, BOSTON CHILDREN'S HOSPITAL AND HARVARD MEDICAL SCHOOL, BOSTON, MA

DAVID.URION@CHILDRENS.HARVARD.EDU
617-3557819

The Milestones initiative of the ACGME will require residency training programs to monitor the individual performance of their trainees over time, as well as by cohort. This report compares the effect of a spiraled, modular curriculum on certain aspects of resident performance on a national standardized evaluation with elements of the curriculum that are neither spiraled nor modular.

This report considers a didactic curriculum in child neurology, which provides elements of basic medical knowledge. The curriculum, which is both spiraled and modular in nature has been in place for five years. The Residency In-Service Training Examination is a national standardized assessment of resident knowledge of basic medical knowledge in neurology, and s required of all neurology and child neurology trainees annually. This study compares the results across five years experience of that examination of elements that were taught using a spiraled, modular curriculum versus elements that were taught using traditional residency approaches – i.e., weekly rounds, rotations, and bedside teaching.

The elements which were taught using a spiraled, modular curriculum showed statistically significant improvement over the period studied for both individual performance as well as cohort results, whereas the portions of the curriculum taught by traditional means did not show such improvement.

In an era in which accountability of demonstrable improvement is a measure of residency training efficacy, curricular development needs to take this into account.

AN INNOVATIVE EDUCATIONAL PROGRAM FOR PRIMARY CARE SOCIAL SERVICE PHYSICIANS IN RURAL CHIAPAS, MEXICO

Presenter: Andrew Van Wieren, MD (PGY-2 Internal Medicine Resident, Brigham and Women's Hospital)
Contact information: Phone: (919)721-9181; email: avanwieren@partners.org

Graduating Mexican medical students are required to complete a year of primary care social service (*pasantia*) before obtaining their full medical license and applying for medical residency programs. Theoretically, distributing social service physicians (*pasantes*) throughout Mexico would provide a safety net for the underserved, in effect forming Mexico's version of the National Health Service Corps. In practice, however, *pasantes* are typically poorly trained and unsupervised, distracted by pending residency entrance exams, and often never arrive to the rural areas where they are needed most due to privileged exemptions to work in more comfortable urban environments. Concurrently, Companeros en Salud (CES: the Mexican branch of Partners in Health) has been working in rural Chiapas – one of the poorest areas in Mexico – for over 20 years, but has found the provision of high quality primary care limited by physician shortages. Identifying the need to not only bring *pasantes* to rural Chiapas but also to address known shortcomings of the *pasantia* experience, several medical residents from Brigham and Women's Hospital (BWH) and the staff of CES have created an innovative educational program that aims to: 1) train *pasantes* to more effectively delivery primary care; 2) expose *pasantes* to central concepts of global health and social medicine; and 3) foster continuing medical education and career development of *pasantes*.

From February to August 2012, we implemented a pilot project that placed 2 graduating Mexican medical students to work as full-time primary care physicians in 2 different rural communities in Chiapas, Mexico. The *pasantes* saw an average of 15 patients daily in government-run rural health centers that had previously lacked a physician and been staffed only by a triage nurse. During this time, we trained the *pasantes* to more effectively deliver primary care through regular clinic precepting by both BWH medical residents and CES staff, and through developing and institutionalizing evidence-based algorithms for realistic treatment of common primary care complaints in a resource-poor setting. We exposed *pasantes* to central concepts of global health and social medicine during monthly 2-3 day retreats in an effort to frame their work as social service physicians within the larger historical and political context of Chiapas. Finally, we fostered continuing medical education and career development by providing *pasantes* with test preparation materials for ENARM (Mexican version of the USMLE), and offering them opportunities to rotate at BWH and other PIH sites and future job opportunities with CES. Using lessons learned during this pilot phase, we are expanding the program from 2 to 5 sites in August 2012 and then to approximately 10 sites in February 2013, partially through retaining program graduates as clinical supervisors for new *pasantes*. In the future, we hope to transition from using qualitative process evaluation for quality improvement to rigorous quantitative evaluation of the program's desired outcomes.

TRANSITIONS IN CARE CURRICULUM FOR MEDICAL RESIDENTS

Presenter: Anita Vanka, MD
Institution: Beth Israel Deaconess Medical Center, Department of Medicine
Contact info: avanka@bidmc.harvard.edu; cell 309-369-7411

Transitional care is defined as a set of actions designed to ensure the coordination and continuity of health care as patients transfer between different sites or levels of care. The discharge process from the hospital presents a particularly important care transition for patients. The Joint Commission, AGS, ACGME, and LCME have all identified Care Transitions as a core element of patient care and a significant component of health care professional education. At teaching hospitals, medical residents are primarily responsible for coordinating the discharge process for the majority of the patients. Currently, most residents and students learn about transitional care through an apprenticeship model of working directly with patients and through their supervising peers and attending. Although practical experience is beneficial, there is a lack of standardization that can lead to variable degrees of learning amongst the residents. Given the rate of adverse events and errors associated with care transitions, there is a clear need for a standard and formal Transitions in Care Curriculum for medical residents.

The goal of this curriculum was to improve the knowledge, attitudes, and skills of internal medicine residents necessary in ensuring an effective and safe discharge of hospitalized patients through a standardized and formal curriculum. Primary objectives of this curriculum included being able to define transitional care; listing reasons for adverse events following discharge; describing the process of discharge and information transfer; and being able to distinguish between various levels of post-acute care facilities.

This curriculum was designed as a 2-week pilot elective experience for 6 senior residents. This elective employed various teaching methods, including didactics; small-group discussions; practical experiences at post-acute care sites; independent analyses; and a larger group project. Topics covered included medication reconciliation, discharge summaries, transitions & ACOs, and differences between levels of post-acute care. Post-acute care experiences included working in a post-discharge clinic; visiting a SNF, acute rehab, and LTAC; and home visits with VNA. Each resident performed a chart review of several of their own readmissions and participated in a subsequent large-group discussion to determine contributing factors to the readmissions. At the end of the two weeks, each resident submitted a narrative reflection on his/her experience through this elective.

The curriculum was evaluated by a pre-elective test and post-test, comprised of multiple-choice knowledge-based questions and open-ended questions assessing attitudes towards transitional care. Results of this are pending. Two independent reviewers analyzed the narrative reflections for thematic content. Common themes identified included importance of medication reconciliation; importance of educating patient & caregiver; importance of understanding differences between levels of post-acute care; importance of communication with all parties involved in patient's care; and an improved understanding of reasons for readmissions.

HOSPITAL PRACTICE PROFILES: IMPROVING TRAINING BY LINKING PATIENT OUTCOMES TO RESIDENT PRACTICE

Julius Yang, MD, PhD
Department of Medicine
Beth Israel Deaconess Medical Center
Tel 617-632-0347, Email jyang@bidmc.harvard.edu

Abstract:

Study Aim: To design, implement, and assess the potential utility of trainee-specific "hospital practice profiles" in a structured self-assessment and improvement program to promote resident competency in the domains of patient care, problem-based learning improvement, and systems-based care

Methods: Hospital practice profiles were created for each PGY-1 intern in the Department of Medicine, based on each intern's authored discharge summaries. Each profile contains data including patient names, principal diagnosis, attending MD, discharge floor and division, PCP MD and practice, insurance, principal diagnosis at discharge, discharge date, discharge hour, length of stay, number of medications at discharge, 30-day readmission outcomes, and patient satisfaction survey results. A faculty member met with interns in small groups (approximately 6-8 interns) to introduce the data available in the profiles, then assigned three structured reviews for each intern to perform based on his/her own data: a 30-day readmission review, a chronic disease management review, and a patient experience review. The small group re-convened with the faculty member one week later to share discussion and findings based on their reviews. A post-intervention survey was administered at the end of the second meeting to assess educational impact.

Results: 54/58 (93%) interns completed the survey. For each of the following statements, the proportion of respondents who either agreed or strongly agreed were as follows: "I learned something about my practice that I didn't previously know/understand": (50/54, 93%); "I generated questions about my practice that I didn't previously have": (48/54, 89%); "I learned something about the health care system that I didn't previously know/understand": (45/54, 83%); "I generated questions about the health care system that I didn't previously have": (50/54, 93%); "I anticipate that my future practice will change as a result of this experience": (44/54, 81%); "I found this experience valuable, would recommend to future interns": (53/54, 98%); "I found this experience valuable, would recommend I should repeat this in subsequent years of training"(50/54, 93%).

Conclusions:
A structured self-reflection program based on reported patient outcomes, including patient experience survey data, can promote self-assessed learning in the domains of patient care, problem-based learning improvement, and systems-based practice.

A SURVEY OF STUDY HABITS OF GENERAL SURGERY RESIDENTS

Daniel Dante Yeh, MD; John O. Hwabejire, MD, MPH; Ayesha Imam, MD; John T. Mullen, MD; Douglas Smink, MD MPH; George Velmahos, MD, PhD; Marc DeMoya, MD
Division of Trauma, Emergency Surgery, and Surgical Critical Care, Massachusetts General Hospital
dyeh2@partners.org, 617-643-2433

Objective: to understand the study habits of general surgery residents as well as their motivating factors for study.

Design: a survey was mailed to general surgical residents. Performance on the ABSITE was correlated with reported study habits using the Pearson's correlation coefficient.

Setting: Massachusetts General Hospital and Brigham and Women's Hospital, Boston, Massachusetts, two urban tertiary referral academic training institutions.

Participants: 58 general surgical residents of all training levels (including research).

Results: On average, surgical residents studied for 3 ± 1 days per week, the average duration of each study session being 1.3 ± 0.6 hours. The average total number of study hours per week was 3.4 ± 2.3. There were strong positive correlations between increased study frequency and high overall ABSITE score (Pearson's $r = 0.339$; $p = 0.02$) and between the total number of study hours per week and high overall ABSITE score (Pearson's $r = 0.423$; $p < 0.005$). Only 10% and 3% reported complete satisfaction with currently utilized study materials and current study routine, respectively. Most residents (96%) reported a willingness to try a new type of study method and 75% were willing to enroll in a trial comparing study methods.

Conclusion: Increased study frequency and overall increased study duration are positively correlated with ABSITE performance. Dissatisfaction with current study materials and study routine is high, as is willingness to adopt new methods and enroll in investigational trials comparing study methods.

THE CRIMSON CARE COLLABORATIVE AT MGH CHELSEA: INTEGRATING MEDICAL, MENTAL, AND SOCIAL HEALTHCARE FOR POST-INCARCERATION AND URGENT CARE PATIENTS IN A STUDENT-RESIDENT-FACULTY COLLABORATIVE CLINIC

Brennan Bollman[1], BA; Divya Mallampati[1], BA; Janine Knudsen[1], BA; Jon Cunningham[1], BA; Chuan-Mei Lee[1], BA, MA; Luis Ticona[1], BA, MBA; Rachel Bender-Ignacio[2,3], MD; Rebecca Berman[1,2], MD; Marya Cohen[1,2,3], MD, MPH

1.Harvard Medical School, Boston, MA 02115. 2.John D. Stoeckle Center for Primary Care Innovation, Massachusetts General Hospital, Boston, MA 02115. 3. Chelsea Community Health Center, Massachusetts General Hospital, Chelsea, MA 02150.

Contact: Brennan Bollman, brennan_bollman@hms.harvard.edu, 269-930-2104

Social determinants of health influence outcomes both in exam rooms and in the community, yet medical students receive little exposure to social medicine in practice. Students are also seeking opportunities to directly experience innovative models of primary care. In October 2011, HMS expanded its student-faculty clinic model, the Crimson Care Collaborative (CCC), to a new site at an MGH-Chelsea. This new clinic provides students with a valuable opportunity to care for two underserved populations: people returning to Chelsea post-incarceration and frequent urgent care users without a usual provider. Students also explore social medicine in practice, and understand how medical teams implement new strategies to enhance patient-centered care. Our integrative model trains students to address the socioeconomic barriers to their patients' health and the unique health care needs of two underserved populations.

We have developed a unique clinic structure to address the strong need for coordinated primary care, mental health care, and social services in our populations. Junior ($1^{st}/2^{nd}$-year) medical students serve in the unique role of "Integrated Clinician": charged with screening, making referrals, and following-up on social service needs, which, we learn, significantly impact our patients overall health. Integrated clinicians and senior clinicians ($3^{rd}/4^{th}$-year students) work with faculty to provide longitudinal primary care. Patients with mental health needs are immediately connected with our co-located mental health team, consisting of students and psychiatry residents or attendings.

In the first six-months of operation, we provided care in more than 175 distinct visits. At least half of our patients have returned for follow-up one or more times, and approximately one-quarter have received mental healthcare. Demographic information confirms our hypothesis that this patient population predominately uses Mass Health or safety net insurance, faces barriers in multiple social service areas, and otherwise relied on urgent care or ERs in lieu of primary care.

Students who have participated in this clinic (50+) are brining an enhanced social awareness into patient encounters, and are actively engaged in improving delivery in this innovative primary care context. Our patients are receiving needed healthcare they otherwise would lack. After significant progress in its first year of operation, the clinic is seeking to grow and strengthen its commitment to providing comprehensive, high-quality care.

MEDICAL STUDENT MORNING REPORT: A CLINICAL REASONING EXERCISE FOR PRE-CLINICAL MEDICAL STUDENTS

Stacy Charat, MD and Fidencio Saldaña, MD
Department of Medicine, Brigham and Women's Hospital
scharat@partners.org 617-869-6983

At Harvard Medical School, Patient Doctor II serves to provide students with the fundamentals of the physical exam as they transition from the pre-clerkship to the clerkship years. As medical school curriculum reform creates earlier opportunities for clinical exposure, students and faculty are requesting earlier and more explicit instruction in clinical reasoning skills.

We define the concept of clinical reasoning as the thought processes of a clinician throughout a patient encounter. This includes thoughtful data acquisition, organization of information, hypothesis generation and testing (i.e. differential diagnosis building), and clinical decision-making. Students are understandably not adept at this cognitive multi-tasking while still acquiring the basic skills necessary to perform a history and physical and the pathophysiology knowledge needed to interpret clinical scenarios. Despite these limitations, we hoped that early exposure to this process would give them a framework for approaching clinical problems in the future.

Morning report has long been an interactive way of practicing clinical reasoning in the post-graduate medical education setting. We created a series of four morning report cases at the level of second-year medical students in order to illustrate and practice clinical reasoning skills. Our cases each began with a general chief complaint with the potential for a very broad differential diagnosis. The goal of our reports was not to present an obscure diagnosis but rather to demonstrate a classic presentation of a common medical or surgical condition. Our cases included the following chief complaints and diagnoses: fatigue and diabetes mellitus, RLQ abdominal pain and ectopic pregnancy, dyspnea and congestive heart failure, and fever and influenza.

We used a structured approach to facilitating morning report as presented by Sacher and Detsky in their 2009 article in *The Journal of General Internal Medicine*: Taking the Stress out of Morning Report: An Analytic Approach to the Differential Diagnosis. As a group, students asked questions to elucidate the history of present illness and other aspects of the history. They were prompted to explain the reasoning behind their questions. As they considered a diagnosis, it was entered into a table with organ systems on the y-axis and mechanisms of disease on the x-axis. Once the full history and physical were reported, students chose the most relevant pieces of information to narrow the broad initial differential. Students were subsequently asked to decide the most likely diagnosis before it was revealed, and encouraged to recommend possible treatment options. Each case was completed within one hour.

Although no formal evaluation of this activity has been performed to date, students were highly engaged and reported enjoying the exercise. We were surprised by the breadth of their differential diagnoses and their ability to use the differential to inform history-taking. Teaching clinical reasoning to second-year medical students by using simplified and highly structured morning report-style cases is a feasible and potentially useful exercise.

HAVE IT YOUR WAY:
DEVELOPMENT OF A STUDENT-INITIATED FEEDBACK CURRICULUM

Cynthia M. Cooper MD
Assistant Professor of Medicine, Harvard Medical School
Inpatient Clinician Educator Service
Department of Medicine, Massachusetts General Hospital
617-643-0595 ccooper1@partners.org

Special thanks to: Ed Hundert MD; Toni Peters PhD; Amy Sullivan EdD; and the 2011-2012 Academy Fellows!

Background:
Feedback is often described as the Achilles' heel of medical education. In reading the volume of literature on the topic, it's clear that students and educators alike are failing at substantive and timely feedback. The majority of interventions to address this problem have focused on the teacher, though this approach contributes to the view that the student is passive and powerless to influence the quality of feedback he/she receives. Few interventions to improve feedback have been focused on the student role in soliciting feedback.

Methods:
A needs assessment was performed through a survey of students participating in the Principal Clinical Experience (PCE) at Massachusetts General Hospital during the 2011-2012 academic year. Students were asked to define "quality feedback" and perceived barriers to receiving such feedback in the PCE. In addition, they were asked to estimate the frequency of feedback in each clerkship, how often they solicited feedback, their comfort soliciting feedback and the perceived effect their solicitation had on the quality of feedback they received. Survey results were analyzed using both quantitative and qualitative analyses.

Results:
Forty-seven percent (21) of the MGH PCE students responded to the needs assessment survey and commented on 78 separate clerkship experiences. The most common themes in the definitions of "quality feedback" were Specific, Actionable and Timely. Teacher-factors were cited most often as barriers to quality feedback with "teacher discomfort" and "teacher too busy" the most common themes. Student solicitation of feedback was more common in the surgical clerkship with half the students reporting they had solicited all or almost all the feedback in this clerkship. More than half (52%) of students reported that their solicitation had "no effect" on the quality of feedback received. From this needs assessment, a curricular intervention was designed to teach students techniques for feedback solicitation aiming to increase its specificity, actionability and timeliness. This curriculum was piloted to the AY2012-2013 MGH PCE class. Preliminary student response to this curriculum has been favorable. Small sample size and single institutional site of the pilot limit interpretation of the data.

Conclusions:
Students identified basic tenets of quality feedback but viewed themselves in a primarily passive role in the feedback conversation. Teacher-factors were identified more frequently than student-factors as the biggest barriers to quality feedback in the third year. Further study is required to determine if a curriculum designed to teach students skills for soliciting feedback will improve the perceived quality of feedback and students' sense of control over the feedback process.

A PEER OBSERVATION OF TEACHING PROGRAM:
RESULTS OF A PILOT IN THE PRIMARY CARE CLERKSHIP (PCC)

Susan E. Frankl, MD [1, 2]; Antoinette Peters, PhD [2]; Amy Sullivan, EdD [2]
[1] Department of Medicine, Beth Israel Deaconess Medical Center [2]The Academy, Harvard Medical School
Contact: sfrankl@bidmc.harvard.edu

BACKGROUND: Teaching in a busy outpatient setting is a complex task, yet attending HMS-based faculty development meetings is difficult for busy community-based preceptors. Peer observation of teaching is a method to help faculty improve their instructional skills while continuing to work and teach in their clinical practice. A pilot peer observation of teaching program was implemented for a group of volunteer PCC preceptors in 2012. This pilot program aimed to study the feasibility and acceptability of the program and preliminary evidence of its efficacy in improving teaching skills.

METHODS: All PCC preceptors were invited to host a trained faculty observer who would visit their clinical office when a PCC student was present. Each volunteer preceptor was paired with a faculty observer who conducted two 90-minute observations during the 8-month clerkship. Observers were either a member of the PCC Steering Committee or had been previously observed while teaching in the PCC. All observers attended a required training workshop prior to visiting their host, used a standardized worksheet to record their observations and provided verbal and written feedback to their host. All participants completed online surveys at the start and conclusion of the program to assess attitudes, expectations and experiences. Focus groups and structured confidential telephone interviews were also conducted.

RESULTS: In this pilot program, 11 observers performed 29 observations of 15 host preceptors. All hosts who were observed twice (N=14) completed the post-observation survey with responses to selected questions summarized below:

Peer Observation…	*Agree/Strongly Agree*	*Neutral*	*Disagree/Strongly disagree*
Increased my confidence	12 (85.7%)	2 (14.2%)	0
Enhanced my teaching	13 (92.9%)	1 (7.1%)	0
Helped me reflect more	14 (100%)	0	0
Improves education	14 (100%)	0	0
Encouraged new methods	13 (92.91%)	1 (7.1%)	0
Made me anxious	4 (28.6%)	1 (7.1%)	9 (64.3%)
Took too much time	3 (21.4%)	0	11 (78.6%)
Made patients uncomfortable	0	2 (15.2)	11 (84.7%)

100% of observed hosts reported they would recommend the observation of teaching experience to a colleague.

CONCLUSIONS: PCC faculty participants in this pilot peer observation of teaching program reported it to be a positive and worthwhile experience to improve their teaching skills and that it would improve medical student education. Most preceptors found that it did not make them anxious, take up too much time or make their patients uncomfortable. They uniformly recommended the experience to their colleagues. These data support the expansion of peer observation of teaching programs to improve teaching in ambulatory clinical settings.

PURSUING INQUIRY IN MEDICINE: SUCCESSES AND CHALLENGES IN A FIRST-YEAR COURSE SUPPORTING THE NEW HMS THESIS REQUIREMENT

Lisa R Hirschhorn[1], MD MPH, Zolt Arany MD PhD[2], Kari Hannibal[3], Evan Sanders EdM[4], Jeffrey A. Linder[5] MD MPH. 1. Dept Global Health and Social Medicine, HMS, 2. Dept of Medicine, BIDMC, 3. Scholars in Medicine Office, HMS, 4. Office of Curriculum Services, HMS 5. Division of General Medicine and Primary Care, BWH

Background: In 2011, to address the concern that medical students had widely variable experiences in scholarly pursuit and faculty mentoring, HMS decided that newly enrolled students will complete a mentored, scholarly project during their final year. To support students in achieving this goal, a previously optional first-year elective was redesigned and implemented as *Pursuing Inquiry in Medicine (PIM)*. We report on the redesigned approach, results, and challenges from the first year of the PIM course.
Approach: The new course directors reviewed advisory group guidance and existing literature on teaching scholarly inquiry in medicine. The revised course was designed to be integrated into the overall, four-year Scholars in Medicine framework. We conceived of the course as a hands-on approach to learning the skills to develop a mentored project proposal eligible for summer funding through the Scholars in Medicine Office (SMO). Key course topics included introduction to the range of scholarly areas; understanding the role of a mentor and responsibilities of a mentee; finding a mentor at HMS;; proposal development; scientific writing; and scientific communication. To improve the quality and consistency of proposals, we developed a standardized proposal format with scoring criteria for review. In its first year, *PIM* had 4 lectures, 5 small group tutorials, and 4 one-on-one tutor meetings. In addition to standard student written evaluations, we sought feedback from tutors and students throughout the course and in post-course focus groups.
Results: All students submitted a project proposal; with 92% receiving funding through Scholars in Medicine Office or externally for work during the summer 2012 (most of the remaining 8% were not submitted for funding). Funded proposals were distributed across scholarly areas (25% global health; 25% clinical or translational research; 21% basic science; 23% health services, health policy, or primary care; 6% medical humanities).
Successes: Students gave the highest ratings to the tutorials. Faculty reviewers of student proposals reported higher quality than in any previous year, and most students were successfully linked with mentors and pursued work based on their proposals.
Challenges: Areas that students felt needed improvement included large didactic sessions (pedantic for many students); finding a mentor (too many choices, short time line and challenges to make a final choice, variable support from Society Fellows); and harmonization of messages with course requirements around timeline and mentor roles.
Planned changes: For 2012, the course has 1 didactic lecture and increased tutorial sessions. We will increase focus on skills-building and deemphasize the centrality of the mentored project proposal. Better recognizing the heterogeneity of student competencies and experience, workshops on areas such as scientific writing, IRB applications and qualitative research will be included. Students will be encouraged to choose mentors who have expressed interest though posting student project opportunities on the SMO website.
Conclusions: Despite multiple challenges, the development of this course resulted in many successes, largely the successful linkage of students with mentors and the development of strong proposals. The majority are doing projects related to their PIM proposal. Identified weaknesses of the course are being addressed through course changes, with more one-on-one and small group learning, and workshops tailored to meet the range of student experience and needs. We expect *PIM* to continue to evolve as we work to build student capacity to develop mentored project proposals and to conduct medical scholarship.

STUDENT PERCEPTIONS OF EDUCATIONAL BENEFIT GAINED FROM PARTICIPATING IN A COMMUNITY SERVICE PROJECT TARGETING ORAL HEALTH OF HOMELESS INDIVIDUALS

Romesh P Nalliah[1] BDS, **Veerasathpurush Allareddy**[2] BDS, PhD
1. Senior Tutor, Department of Restorative Dentistry and Biomaterials Sciences, Harvard School of Dental Medicine
2. Instructor, Department of Developmental Biology, Harvard School of Dental Medicine

Contact information:
Dr Romesh P Nalliah
Cell: 617-817-2301; Romesh_nalliah@hsdm.harvard.edu

ABSTRACT

Background: Homeless individuals do not, traditionally, present to the Harvard School of Dental Medicine (HSDM) teaching practice. It is necessary to go out into the community to facilitate student clinical experiences with this population.

Project objectives: 1. Provide free dental care for homeless individuals; 2. Provide clinical experiences for HSDM students in managing cases that are rarely encountered in teaching practice; 3. Measure student perception of the value of participating in this project

Method: Word of mouth advertising for the pilot free clinic, several screening events at local shelters and networking with leaders in homeless services were the main means of recruiting patients. Running a dynamic, student lead, walk-in clinic with no set appointments was necessary. Students who participated in this pilot project were surveyed to measure perceived educational benefit from participation.

Results: Some of the specific characteristics being measured in this study are listed below.
1.Would students like more opportunities to participate in community service projects?
2.After participation, do students feel more comfortable managing homeless individuals as patients?
3.Do students see these community service experiences as a valuable learning experience?
4.What did students enjoy most about participating in these projects?

Conclusions: This study will describe student perception of the value of community service with homeless populations as an educational experience. The current study will also determine if students desire more such experiences, and if students feel more comfortable managing this population after participating in these community service experiences.

LENGTH OF ATTENDING-STUDENT & RESIDENT-STUDENT INTERACTIONS IN THE INPATIENT MEDICINE CLERKSHIP

Authors: Nora Y. Osman, MD, Jessica L. Walling, BA, Vivian G. Mitchell, MD, and Erik K. Alexander, MD

From: the Department of Medicine, Brigham & Women's Hospital and Harvard Medical School, Boston, MA

Nora Osman, MD; nosman@partners.org; 857-307-4100

Context: The apprenticeship model of clerkship education has long been an immutable curricular component. Since its standardization over a century ago, however, clinical learning environments have changed dramatically. Recent feedback suggests many current physician-student interactions are cursory, and subsequent student assessment suffers.

Objectives: To perform a detailed analysis of the length of faculty-student and resident-student interactions during the inpatient medicine clerkship and its effect on evaluation of students by supervisors.

Design, Setting and Participants: Scheduling data were obtained for 6 general medicine teams at the Brigham & Women's Hospital over a 2-year period to determine duration and quantity of attending-student and resident-student interactions. Attending and resident assessment forms were analyzed for self-reported knowledge of student and correlation to length of interaction.

Main Outcome Measure: Length and quantity of interactions between supervisors and students.

Results: We analyzed the discrete interactions of 199 students with 558 resident and 680 attending physicians. During a 4-week block, students averaged 3.7 attending physicians (range 2-7), with 49.7% supervised by four or more. Attending-student interactions averaged nine days (range 2-23), though 40% were seven days or less. During the same period students averaged 3.4 residents (range 1-6), each supervising for mean 12 days (range 3-26). 824 student assessment forms were analyzed for the 2-year period. Attending and resident physicians who described knowledge of their student as "good" or "average" supervised students for 11 and 15 days, respectively, compared to 6 ($p<0.01$) and 11 ($p=0.02$) days, respectively, for those describing knowledge of their student as "poor".

Conclusions: In the hospital environment, medical students experience numerous supervisor interactions of short duration with frequent turnover. This fragmented, inconsistent and unpredictable supervision affects medical student learning and assessment. These data depict an apprenticeship model of clerkship education far more fragmented than initially envisioned.

HARVARD MEDICAL SCHOOL PROMOTION AND REVIEW BOARD

Elisabeth Peet MA, Miles Shore MD, Jules Dienstag MD

The HMS Promotion and Review Board (PRB, the Board) is a Standing Committee of the HMS Faculty, which is charged with reviewing student performance to ensure that each HMS student meets the rules governing promotion, the standards of professional conduct and responsibility, and the requirements for graduation.

The PRB considers all difficulties that arise with student performance and/or conduct within the broader context of the Medical School's responsibility to society. Specifically, the Medical School is obligated to provide society with intellectually, emotionally, socially, and morally mature physicians who are prepared to serve society by caring for others. This obligation requires the PRB to view all difficulties that arise with student performance and/or conduct as developmental steps on the way to professional maturity. Mechanisms that are employed to remediate difficulties and foster development include, but are not limited to, mentoring, counseling and/or tutoring; allowing time for reflection; requesting written documents; and providing opportunities for demonstration of improvement in performance and/or conduct. A variety of mechanisms, including requiring a leave of absence and various other sanctions, may be employed by the Board to facilitate the process of professional development. For cases in which academic remediation has been unsuccessful or the Board determines that no further action on the part of the School or the student can reasonably assure the student's eventual successful completion of the degree program, the Board may require a student to withdraw or recommend expulsion. Board procedures and information about remediation and sanction are made available to students in the HMS Student Handbook.

From AY0708 – AY1112 (September 1, 2007 – June 30, 2012 the Board reviewed the cases of 69 HMS students.

- 27 students received major sanction (Academic Probation, Repeat a Year, Voluntary or Involuntary Leave of Absence, Requirement to Withdraw, Expulsion)
- 30 students received minor sanction (Formal Notice, Monitored Academic Status)
- 12 students received no action

This poster will present:

1. An overview of the composition and mechanisms of the Board;
2. A summary and general descrition (de-identified) of the cases reviewed by the PRB during the past five years as well as related outcomes;
3. Examples of the various structured academic categories for remediation and/or sanction and the causal events that trigger Board review of a student case.

Contact information: Elisabeth Peet, Assessment and Evaluation Manager, Center for Evaluation, 617-432-2320, lizpeet@hms.harvard.edu

HARVARD MEDICAL SCHOOL CENTER FOR EVALUATION
SUMMARY OF STUDENT REPORTS OF MISTREATMENT

Elisabeth Peet MA, Edward Krupat PhD, Jules Dienstag, MD

In AY1011, as part of routine anonymous post-course/clerkship evaluations, Harvard Medical School (HMS) began collecting students' reports about their experiences of mistreatment during their HMS education. The questions used to collect these data are based on questions taken directly from the AAMC Graduation Questionnaire. Reports of mistreatment are categorized by hospital site, clerkship (or curricular unit), source (e.g, faculty, residents, other students) type (general, sexual, racial/ethnic, and sexual orientation), and specific content. Students are also asked whether they reported these incidents and to whom. Reports of mistreatment are collected from the following HMS Affiliates: Beth Israel Deaconess Medical Center, Brigham and Women's Hospital, Cambridge Health Alliance, Boston Children's Hospital, Massachusetts Eye and Ear Infirmary, and the Massachusetts General Hospital.

This poster will present:

4. A summary of data collected during the last academic year including some de-identified examples of student narratives;
5. A historical comparison of data collected during the previous academic year (the first year of data collection);
6. A comparison of HMS data student mistreatment data collected locally as compared to national trends shown in the AAMC Graduation Questionnaire;
7. A copy of the mistreatment questions, as they are included in each course/clerkship evaluation survey, and examples of the behaviors coded in each category.

TABLE 1: Reports	**AY1011**	**AY1112**
Total Reports	***67***	***34***
Surgery	19	10
Preclinical course	~	7
OB/GYN	10	5
Medicine	9	4
PCE	15	3
Pediatrics	3	2
Radiology	0	2
Anesthesia	0	1
Neurology	6	0
Patient Doctor III	2	0
Psychiatry	1	0
Otolaryngology	1	0
Primary Care	1	0

TABLE 2: Sources of Mistreatment	**AY1011**	**AY1112**
Clinical Faculty in Hospital	6	12
Residents or Interns	28	10
Students	1	3
Nurses	31	3
Patients	4	1
Other	19	0
Administrators	3	0
Clinical Faculty in Classroom	1	0
Preclinical Faculty	0	0

TABLE 3: Reporting	**AY1011**	**AY1112**
Not Reported	31	18
Reported	36	8

TABLE 4: Types of Mistreatment Reported	**AY1011**	**AY1112**
Exposure to disrespectful/rude treatment	12	13
Being belittled or humiliated	1	13
Exposure to inappropriate comments about gender	0	7
Being treated in an unfriendly, unhelpful manner	5	6
Not being informed of duties/not included in professional activities	2	4
Being subject to unreasonable expectations	1	2
Being asked to perform personal services	0	2
Exposure to inappropriate sexual conduct/contact/advances	0	2
Exposure to inappropriate comments about race/religion	5	1
Exposure to verbal abuse	3	1
Being denied opportunities based on gender	0	1
Exposure to a toxic team member	2	0
Exposure to inappropriate comments about patients	1	0

Contact information: Elisabeth Peet, Assessment and Evaluation Manager, Center for Evaluation, 617-432-2320, lizpeet@hms.harvard.edu

"VOLUNTOURISM" IS NOT GLOBAL HEALTH: A STUDENT WORKSHOP ON ETHICAL VOLUNTEERING

Brittany Seymour, DDS, MPH
Department of Oral Health Policy and Epidemiology
Harvard School of Dental Medicine (HSDM)
P: 617-432-1848
brittany_seymour@hsdm.harvard.edu

Background

Harvard School of Dental Medicine estimates that nearly one quarter of pre-doctoral dental students have expressed interest in global health, including traveling abroad to conduct research or carry out a project on a voluntary basis. Many student-identified activities do not align with important global health principles, such as community partnership and sustainability. The increasing student demand for global health related activities creates a responsibility for dental educators to teach students why global "voluntourism" (the combination of volunteering and travel) is not global health and how students can volunteer in a more ethical manner.

Methods

In the spring of 2012, in conjunction with a leadership course in dental ethics and as part of the emerging global health curriculum, Harvard School of Dental Medicine developed and piloted a Workshop for Ethical Volunteering in Global Health. The workshop was a discussion-based, interactive program that included lectures, small group activities, and personal reflection. The aim of the workshop was to provide students with a systematic approach to ethical volunteering, in order to center student motivation and attitudes on volunteering via newer principles of global health vs. conventional volunteering models. Students were provided a survey at the start and the conclusion of the workshop for comparative purposes. According to survey results, 97% of students reported that they are very likely or extremely likely to volunteer in the future, whether locally or abroad. Students also rated the importance of various components of volunteering on a scale of 1-5: 1= not important, 2=somewhat important, 3=important, 4=very important, 5=extremely important. Volunteer components were based on either the new standard for ethical volunteering in global health or based on a more conventional model akin to "voluntrousim." Ordinal data scores were compiled and weighted according to the frequency distribution and magnitude.

Results

After taking the workshop, the mean scores of student rated importance for all conventional concepts decreased on average from 4.0 to 3.5, and the mean scores of importance for all new components increased on average from 3.9 to 4.5. 100% of students reported that the workshop shaped the way they view volunteering in dentistry.

Conclusion

Frenk et al. affirm that medical curricula should include exposure to working with disadvantaged populations internationally. The Workshop for Ethical Volunteering in Global Health is one way for students to thoughtfully and systematically apply important global health principles to any community with which they plan to engage. This mechanism can provide students with the tools necessary to leave a positive, sustainable, and relevant impact on any community visited during their educational experience.

INTERPROFESSIONAL EDUCATION IN STUDENT-FACULTY COLLABORATIVE PRACTICE: THE CRIMSON CARE COLLABORATIVE EXPERIENCE

Christina Sun, B.A.[1,2]; Ifedayo Kuye, A.B..[1,2]; Laura Huppert, A.B.[1,2]; Morgan Freret, B.S.[1,2]; Simin Lee, A.B.[1,2]; Rebecca Berman, M.D.[1,2,3]

Harvard Medical School[1], Crimson Care Collaborative[2], Massachusetts General Hospital Stoeckle Center for Primary Care Innovation[3]
Contact Information: Christina Sun, christina_sun@hms.harvard.edu, 630-245-0270

In 2010, Harvard Medical School opened its first student-faculty collaborative medical practice called the Crimson Care Collaborative (CCC). Recently, the CCC has expanded to four additional clinic sites in the greater Boston community. To meet the demand for volunteers and to adopt interprofessional team models of care, we recently began to recruit undergraduates from Harvard College and nurse practitioner (NP) students from Massachusetts General Hospital Institute of Health Professions (MGH IHP). Through this new interprofessional CCC primary care model, we seek to engage undergraduate pre-medical students, NP students, and medical students in interactive and collaborative learning and patient care.

Our methods of recruitment and analyzing their experience varied for undergraduate and NP students. We began recruiting Harvard undergraduate students for non-clinical roles at the CCC in 2011, and since then we have had 52 undergraduate volunteers. In the spring of 2012, we invited our undergraduate students to participate in a focus group in order to assess their experiences at CCC. We piloted the integration of NP students during the summer 2012 session with ten NP students volunteering in clinical and non-clinical roles at two of our sites. Halfway through the summer, we surveyed the NP students about their experience during the pilot integration.

Seven undergraduate students participated in the focus group (33% response rate) and nine NP students responded to the survey (90% response rate). Overall, both groups were very satisfied with their experience at CCC. They valued the resident teaching sessions and the opportunity to learn alongside medical students. Both groups offered suggestions for improvement; NP students recommended that we create a more robust performance feedback system and a forum in which students can formally share their profession-specific training and roles in primary care. Undergraduate students requested additional training sessions before clinical exposure and more formal mentoring connections.

The integration of undergraduate and NP students into our SFCP model has allowed our clinics to expand and interprofessional teams to provide quality care to our patients. Our surveys and focus group results demonstrate that volunteering through CCC is a positive educational experience for NP and undergraduate students. In the future, we will investigate ways to expand the roles of NP and undergraduate students in CCC. Already, we have NP student representatives on our executive board and we are working with undergraduate students to establish a formal CCC club at the undergraduate campus. As the practice of medicine becomes more interdisciplinary and team-based, providing an opportunity for pre-professional students to work together in the setting of a student-run clinic serves as a useful and exciting training opportunity for all parties involved.

AN AMBULATORY PATIENT SAFETY CURRICULUM FOR 3RD YEAR MEDICAL STUDENTS

Karen Wood, MD
Harvard Vanguard Medical Associates; Brigham and Women's Hospital
617-859-5117; karenwoodMD@gmail.com

Mentors: Tejal Gandhi, MD; Anjala Tess, MD

Special thanks to: Ed Hundert, MD; Amy Sullivan, EDD; Nora Osman, MD; Grace Huang, MD; Erik Alexander, MD; John Danziger, MD; Sara Fazio, MD and the 2011-2012 Academy Fellows!

Background:
Although most efforts to promote medical student and physician awareness of Patient Safety (PS) occur in the hospital, the majority of patient encounters occur in an outpatient setting. This ambulatory patient safety curriculum was designed to augment the PS instruction at HMS with a focus on ambulatory care, emphasizing the important role that medical students can play in PS.

Methods:
A three part "mini-curriculum" was designed for 3rd year medical students. Part 1 includes a discussion of key principles of PS, including a "Culture of Safety", the "Patient Safety Event Reporting Systems", a review of documentation and a brief overview of malpractice issues. The students also analyze an ambulatory case that illustrates a delayed diagnosis as well as several communication and diagnostic errors. Part 2 is an independent assignment; students read 2 assigned articles on Ambulatory Patient Safety and complete a "Patient Safety Event Worksheet" designed for this project (involving a situation they observe during their rotation). Part 3 covers a discussion of the "Patient Safety Event Worksheet(s)" and a review of the roles each member of the ambulatory health care team plays in PS. The seminars have been conducted during the IM rotations at BWH and BIDMC in a small group format.

Preliminary Results
A "pre and post-curriculum survey" including both quantitative and qualitative analysis is ongoing. 51 students have participated with responses from 51/51 pre-curriculum and 46/51 post-curriculum. Preliminary results show that students perceive enhanced knowledge of the major ambulatory patient safety (PS) risks and the role of the student in PS (both 4.2 on a Likert scale where 1= SD to 5= SA) and the important functions of each member of the ambulatory team in promoting safer patient care based on qualitative analysis. Additionally, there was a significant increase in the number of students familiar with the term "Culture of Safety" (8/50 or 16% Pre versus 46/46 or 100%Post) and how to report a "Patient Safety Event" (2/46 or 4% Pre versus 40/46 or 87% Post). Small sample size, ideal timing of the administration of the questionnaires and varying clinical experience of the participants limit the interpretation of the data.

Discussion:
Medical students showed interest and were engaged in the topic of ambulatory Patient Safety. Early in clinical training, they are poised to learn about the major risks in patient care and how they can participate in providing safer care and promoting a culture of safety. Further analysis of qualitative responses will inform future iterations of this curriculum.

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